Wisconsin Statewide Waste Characterization Study

Final Report

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Acknowledgements

The consultant team would like to recognize all participating landfills and associated staff who contributed to the successful completion of this study. The following 14 landfills provided space and equipment for waste sorting activities, and detailed information for the planning and analysis phases of this study.

1. WMWI – Timberline Trail
2. BFI Waste Systems of North America, Inc.
3. Outagamie County SW Division
4. WMWI – Valley Trail RDF
5. WMWI – Ridgeview RDF
6. Superior Hickory Meadows LLC
7. Superior Glacier Ridge
8. Dane County #2 Rodefeld
9. WMWI – Deer Track Park, Inc.
10. WMWI – Metro Recycling & Disposal Facility
11. Superior Emerald Park LLC
12. WMWI – Orchard Ridge Recycling & Disposal
13. Superior Cranberry Creek
14. Superior Seven Mile Creek Inc., SEC2

In addition, the Wisconsin Department of Natural Resources (WDNR) provided information such as annual disposal tonnages that were used for analytical purposes, as well as technical support throughout the course of the study.

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1. EXECUTIVE SUMMARY

1.1. INTRODUCTION AND PURPOSE OF STUDY

Effective solid waste planning and service delivery begins with an understanding of the types and quantities of materials being discarded, the source of these wastes, and the amount that is potentially recoverable. These data inform sound solid waste management policy and program implementation, from designing new waste reduction programs and planning new facilities, to evaluating the effectiveness of current recovery efforts.

To satisfy these information needs, the WDNR commissioned a Statewide Waste Characterization Study in 2002. The objectives of the study were to:

- Estimate composition and quantities of in-state waste disposed in Wisconsin's municipal solid waste (MSW) landfills;
- Provide composition and quantity estimates for in-state waste generated in five WDNR-defined geographic regions;
- Estimate the composition and quantities of waste disposed by residents, industrial, commercial and institutional (ICI) generators, and construction and demolition (C&D) activities within the state; and,
- Establish a baseline for measuring the impact of future waste reduction and recycling programs, including the new *Recycling Pilot Program*.

This executive summary presents an overview of the study methodology in Section 1.2, and highlights the principal findings in Section 1.3 below.

1.2. OVERVIEW OF METHODOLOGY

The study methodology consisted of five main steps, which are summarized below.

1. **Select Landfills and Schedule Sampling** – A total of 14 of Wisconsin's largest landfills, comprising approximately 78% of all MSW disposed in the state, were selected for participation in this study. One-half of the landfills were scheduled during the summer, and the other half during the winter. Two days were planned at each facility to gather a sufficient number of randomly selected waste loads for sampling.
2. **Apportion Samples** – Samples were apportioned among waste loads from residents, ICI generators, and C&D activities. The samples were further divided between commercially collected (including both private and municipal haulers) and self-hauled waste loads.
3. **Sort Waste Samples** – A total of 400 waste samples, weighing 200-300 pounds each, were taken from the selected loads, and sorted into 64 distinct material categories.
4. **Collect Waste Tonnages** – Following sampling activities, waste tonnages were collected from individual landfills, with the assurance that no landfill-specific information would be made available. Instead, all tonnage and composition results were reported in aggregate form for this study.
5. **Perform Characterization Analysis** – Composition estimates were calculated at a 90% confidence level, at the Statewide and regional levels, for residential, ICI, and C&D generators, and for self-hauled and commercially collected wastes.

1.3. SUMMARY OF RESULTS

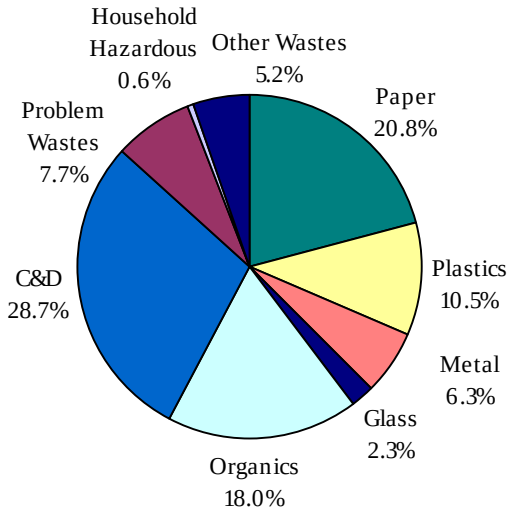
Composition and quantity estimates were developed for in-state MSW, both at the statewide level, and separately for residential, ICI, and C&D generators. Results were also calculated for self-hauled and commercially collected wastes. These estimates are touched on below.

1.3.1. STATEWIDE COMPOSITION

As shown in Figure 1-1, *C&D, paper,* and *organic* materials accounted for the largest portions of Wisconsin's disposed waste. When combined, they equaled nearly 70% of the total in-state waste disposed in Wisconsin's MSW landfills. This is equivalent to about 3.2 million tons per year.

Figure 1-1 – Overview of Composition, Statewide

(Calendar Year 2001)



Untreated wood and *food* were the two largest single materials disposed in Wisconsin's MSW landfills, both accounting for over 10% by weight. Approximately 13%, or over 600,000 tons per year was *untreated wood*, while roughly 10%, or nearly 490,000 tons, was *food*. It should be noted that with the exception of *recyclable cardboard*, all materials banned from disposal in Wisconsin's landfills were not top ten components at the statewide level.

Table 1-1 – Top Ten Components, Statewide[1]

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.8%	12.8%	607,650	607,650
Food	10.2%	23.0%	486,619	1,094,269
Roofing Shingles	6.0%	29.0%	284,752	1,379,021
Compostable Paper	4.8%	33.8%	228,310	1,607,331
Mixed Recyclable Paper	4.2%	38.1%	201,715	1,809,046
Plastic Film	4.0%	42.0%	188,990	1,998,036
Cardboard - recyclable	4.0%	46.0%	188,176	2,186,212
R/C Plastic	3.7%	49.7%	174,597	2,360,809
Ferrous Metals	3.6%	53.3%	171,086	2,531,895
Rock/Concrete/Brick	3.5%	56.8%	165,727	2,697,622
Total	**56.8%**			**2,697,622**

1.3.2. DISPOSED QUANTITIES

Residents disposed approximately 32% of Wisconsin's in-state MSW (roughly 1.5 million tons per year), while ICI generators produced about 44% of the state's total (approximately 2.1 million tons per year). C&D activities contributed the remaining 1.1 million tons per year, or 24% by weight. Wisconsin's in-state MSW was predominantly hauled by commercial collectors (including both private and municipal haulers); a total of 4.2 million tons per year or nearly 90% of all disposed wastes were commercially collected. The remaining 11% of all in-state MSW was self-hauled.

Table 1-2 – Annual Tonnage, by Substream and Hauler Type

(Calendar Year 2001)

Substream	Self-haul		Commercially Collected		Total	
	(Tons/year)	*(Pct)*	*(Tons/year)*	*(Pct)*	*(Tons/year)*	*(Pct)*
Residential	189,755	37%	1,345,924	32%	**1,535,680**	**32%**
Industrial/Commercial/Institutional	124,398	24%	1,975,800	47%	**2,100,198**	**44%**
Construction & Demolition	205,077	39%	911,263	22%	**1,116,341**	**23%**
Total	**519,230**	**11%**	**4,232,988**	**89%**	**4,752,219**	**100%**

[1] *Compostable paper* includes items such as paper towels and tissues; *mixed recyclable paper* includes items such as envelopes, phone books, and junk mail; and *R/C Plastic* means *remainder/composite plastic*, and includes items such as molded toys, clothes hangers, and disposable razors.

RESIDENTIAL

Organic (26%, or 400,000 tons per year) and *paper* (also 26%, or 400,000 tons per year) materials accounted for over half of the residential disposed waste, by weight. More specifically, *food, untreated wood, mixed recyclable paper,* and *compostable paper* were the largest individual components (making up just over 30%, or 520,000 tons per year).

INDUSTRIAL, COMMERCIAL, AND INSTITUTIONAL (ICI)

MSW generated by ICI sources was primarily comprised of *paper* (26%, or 540,000 tons per year) and *organic* (20%, or 440,000 tons per year) materials. *Food* and *untreated wood* were the two single largest components of this waste by weight. *Food* accounted for about 13%, or 280,000 tons per year, while *untreated wood* made up roughly 10%, or 490,000 tons per year.

CONSTRUCTION AND DEMOLITION (C&D)

When combined, *untreated wood, roofing shingles, rock/concrete/brick, and other C&D materials* (such as linoleum and some plumbing fixtures) accounted for nearly 70%, or 780,000 tons per year, of wastes generated by C&D activities.

COMPARISONS

The compositions of residential and ICI waste were strikingly similar. The primary difference was that the amount of organics in residential waste was slightly higher than found in the ICI waste. However, the composition of C&D waste was markedly different from both the residential and ICI wastes. Not surprisingly, over 75% of this waste was made up of construction materials such as *roofing shingles*, *drywall*, and *rock/concrete/brick*.

2. OVERVIEW

2.1. INTRODUCTION

To better understand the types and quantities of waste materials disposed in Wisconsin, the Wisconsin Department of Natural Resources (WDNR) commissioned a waste characterization study in 2002. The objectives of the study were:

- to estimate the composition of that is waste generated by Wisconsin residents and businesses, and that is also disposed in municipal solid waste (MSW) landfills located within the state[2]
- to provide composition estimates specific to each of five regions within the state
- to provide composition estimates specific to the *source* of the waste and to the *method* by which it is transported to disposal facilities
- to establish a baseline for measuring the effects of future waste reduction and recycling programs, including the new *Recycling Pilot Program*.

To accomplish these objectives, Cascadia Consulting Group, Inc., with the assistance of R.W. Beck, conducted a study to provide statistically valid data reflecting the composition and quantity of Wisconsin's statewide disposal, while also developing waste composition profiles for five geographic areas (view map to right), three waste sources, and two types of haulers. The results are based on waste samples taken from August to December 2002. GRG Analysis performed the waste sorting services for this study.

This report presents the results of the study, and is organized into three major sections.

1. **Study Overview** – consists of a general introduction, definitions of sampling groups, and a brief summary of the study's methodology.
2. **Summary of Sampling Results** – presents the study findings, including composition and quantity estimates for Wisconsin's overall waste stream, wastes from three sources (*residential*, *industrial/commercial/institutional*, and *construction/demolition*), and wastes hauled by commercial garbage companies and by self-haulers (including both residential and commercial self-haulers).

[2] All composition estimates for this study were calculated at a 90% confidence level (please see Appendix D for more detail).

3. **Appendices** – provide study details, such as a list of sort material categories, a complete study methodology, copies of field forms used, and additional composition results by geographic region.

2.2. DEFINING THE WASTE STREAM

The solid waste that is the focus of this study includes all MSW that is generated by residents and businesses within the State of Wisconsin and that is also disposed in MSW landfills located within the state. Special industrial wastes, such as foundry sand and paper mill sludge, as well as out-of-state wastes were not included in the study.

To facilitate a more accurate analysis, Wisconsin's waste stream was divided into *substreams* according to the source of the waste. There were three distinct **substreams** identified for this study.

1. **Residential** – MSW disposed by single-family and two- to four-unit residences.[3] This waste is primarily collected in packer trucks (e.g., commercially- or municipally-operated collection vehicles that compact the residential waste as it is collected), but some residential waste is "self-hauled" to disposal facilities by residents.
2. **Industrial/commercial/institutional (ICI)** – MSW disposed by industrial facilities, and by businesses, institutions, and multi-family dwellings consisting of five or more units. This waste is collected in a variety of vehicles including loose drop boxes, compactor drop boxes and packer trucks. Some of this waste is self-hauled by the businesses that generated it.[4]
3. **Construction/demolition (C&D)** – MSW disposed during construction or demolition activities. This waste typically is collected in vehicles such as dump trucks, loose roll-off boxes, and end-dump vehicles. It may be transported either by a municipality, commercial hauler, or by the business or resident that generated the waste.

Within each substream, there are two different **hauler types**: *commercial* and *self-haul*.

- **Commercially collected waste** is collected and transported to the disposal facility by municipalities or companies whose primary business is to haul waste.
- **Self-hauled waste** is collected and transported to the disposal facility by the individual, business, or government agency that generated the waste.

[3] This definition of "residential" is consistent with regulatory language identifying waste generated from the residential sector.

[4] Special industrial wastes such as foundry sand and paper mill sludge were not included in this study. Wisconsin MSW landfills track and report these wastes separate from MSW.

Figure 2-1 depicts the sampling groups defined for this study. There are six total groupings, based on three substreams and two hauler types. Data was collected to represent the quantity and composition of waste associated with each sampling group. Those data were combined to develop composition and quantity estimates for all disposed waste within a region and for all disposed waste throughout the state.

Figure 2-1 – Sampling Groups, by Substream and Hauler Type

	Substream		
	(Residential)	*(ICI)*	*(C&D)*
Hauler Type *(Self)*	Residential Self-hauled	ICI Self-hauled	C&D Self-hauled
(Comm)	Residential Comm-hauled	ICI Comm-hauled	C&D Comm-hauled

2.3. SUMMARY OF METHODOLOGY

This section presents a summary of the data collection methods and calculation procedures used in this study. The complete sampling methodology can be found in Appendix C.

2.3.1. SAMPLE ALLOCATION

A total of 400 waste samples were collected and sorted from the three identified waste substreams – 115 samples of residential waste, 170 samples of ICI waste, and 115 samples of C&D waste. To ensure that samples were representative of Wisconsin's total waste stream, waste was sampled at 14 of the State's largest landfills, which lie in each of five distinct geographic regions identified by WDNR. The landfills and regions are listed in Table 2-1, below.

Table 2-1 – Sampling Sites and Regions

Facility Name	Region
W M W I - TIMBERLINE TRAIL RDF	North
BFI WASTE SYSTEMS OF NORTH AMERICA INC	North
OUTAGAMIE COUNTY SW DIV LF	Northeast
W M W I - VALLEY TRAIL RDF	Northeast
W M W I - RIDGEVIEW RDF	Northeast
SUPERIOR HICKORY MEADOWS LANDFILL LLC	Northeast
SUPERIOR GLACIER RIDGE LANDFILL	South central
DANE COUNTY LF # 2 RODEFELD	South central
W M W I - DEER TRACK PARK INC	South central
W M W I - METRO RECYCLING & DISPOSAL FACILITY	Southeast
SUPERIOR EMERALD PARK LF LLC	Southeast
W M W I - ORCHARD RIDGE RECYCLING & DISPOSAL	Southeast
SUPERIOR CRANBERRY CREEK	West central
SUPERIOR SEVEN MILE CREEK LANDFILL INC-SEC 2	West central

Samples also were allocated evenly between two seasons – summer and winter. Each landfill was visited once, and samples were collected and sorted over a period of two consecutive days at each landfill.

2.3.2. SAMPLING PLAN

Cascadia contacted each of the 14 selected landfills to determine the mixture of vehicles that arrive from each waste substream and each hauler type on each day of the week. From this information, Cascadia constructed a sampling plan for the random selection of vehicles from a predetermined number of sampling groups at each landfill. Please note that only in-state municipal solid waste (MSW) was included in this study. Waste generated outside of Wisconsin, and special wastes such as foundry sand and paper mill sludge were not included as part of this study.

2.3.3. DATA COLLECTION PROCEDURES

Scalehouse personnel employed a random selection procedure to select targeted vehicle types entering the landfill on each sampling day. Selected vehicles were sent to the sorting crew, and the Field Supervisor verified information about the load and verified that the load was needed to meet each day's sampling quotas. The waste loads were then tipped, and samples of waste were selected from within each load using a process that ensured random selection of a portion of the tipped pile. Samples consisting of 200 to 300 pounds of waste were sorted into 64 material categories, and each category was weighed. The material weights and other information associated with each sample were recorded on paper field forms.

Data also was collected from each facility to estimate the tonnage associated with each combination of substream and hauler type. Two landfills were unable to provide this information, and vehicle surveys were conducted at those landfills to construct estimates based on the vehicle traffic observed over the course of two survey days at each landfill.

2.3.4. CALCULATION PROCEDURES

The general approach to developing the waste composition estimates included in this report was to calculate the *percent composition* of each material in the MSW waste stream for each combination of substream and hauler type within each region. Results from those regional estimates were then aggregated using a weighted averaging technique to develop estimates for *all* waste associated with each substream, each hauler type, and each region, and to develop an estimate for the composition of *all waste* disposed throughout the state. All composition estimates for this study were calculated at a 90% confidence level (please see Appendix D for more detail).

Tonnage data from participating landfills and from the vehicle surveys mentioned above were used to "weight" composition data among the different substreams and hauler types.[5] Annual tonnage data maintained by WDNR were used to "weight" composition data among regions of the state. These tonnage data included in-state MSW disposed at all Wisconsin MSW landfills during 2001, and excluded out-of-state and special industrial wastes, such as foundry sand and paper mill sludge. Appendix D contains a detailed description of these calculations.

3. SUMMARY OF SAMPLING RESULTS

A total of 400 waste samples were captured and sorted between August and December 2002 for this study. Table 3-1 summarizes the sample information for each of the study's six sampling groups. The average sample weight for the 400 samples was about 250 pounds, while the total amount of waste sorted was approximately 50 tons, or 100,700 pounds.

Table 3-1 – Description of Samples, by Sampling Group

(August – December 2002)

Sampling Groups	Sample Count	Total Sample Wt. *(pounds)*	Mean Sample Wt. *(pounds)*
Residential	**116**	**27,347.5**	**235.8**
Commercially hauled	86	20,120.2	234.0
Self-haul	30	7,227.3	240.9
Industrial/ Commercial/ Institutional	**166**	**41,620.3**	**250.7**
Commercially hauled	151	37,798.3	250.3
Self-haul	15	3,822.0	254.8
Construction & Demolition	**118**	**31,728.5**	**268.9**
Commercially hauled	59	16,253.6	275.5
Self-haul	59	15,474.9	262.3
Total	**400**	**100,696.3**	**251.7**

In the following sections, composition and quantity profiles are presented for Wisconsin's statewide disposal, as well as the three waste substreams and two hauler types (commercially hauled and self-haul). Each profile is presented in three ways:

- First, a pie chart depicts the composition by nine broad waste categories: paper, plastics, metal, glass, organics, construction and demolition (C&D), problem wastes, household hazardous, and other;
- Then, a table lists the ten largest components, by weight; and,
- Finally, a more comprehensive table details the full composition results for 62 of the 64 distinct sorting categories (*sharps* and *reusables* were excluded from these tables as they are reported separately in Section 3.5).[6]

[5] To protect each participating landfill's privacy, all facility-specific composition and waste quantity information was kept confidential by the consultant team. This information was not published or shared with the Wisconsin DNR. These data were instead aggregated at the statewide, substream, and regional levels.

[6] Due to rounding, composition estimates may not add to 100% in tables and graphs throughout this report.

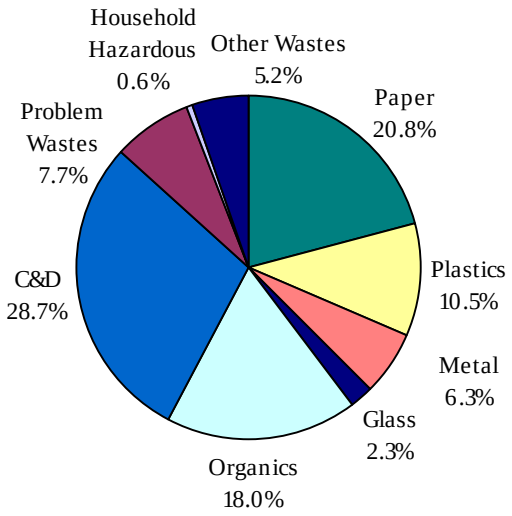
Though all sampling took place during 2002, composition percentages were applied to calendar year 2001 tonnages (as 2002 tonnages were unavailable). Therefore, tables and figures throughout this report are labeled as calendar year 2001 instead of 2002. Also, composition estimates presented in this report were calculated at a 90% confidence level, meaning that we are 90% confident each material is between the *low* and *high* percentages shown in the comprehensive tables for each profile. For example, we are 90% confident that *food* waste made up between 9.0% and 11.4% of the overall municipal solid waste stream, by weight.

3.1. OVERALL COMPOSITION

Figure 3-1 shows the percentage, by weight, of each of the nine broad material categories for Wisconsin's statewide disposal. As depicted, *construction and demolition (C&D), paper*, and *organic* materials made up the largest portion of the state's overall waste stream.[7] When combined, these three materials accounted for almost 70% of the total, by weight.

Figure 3-1 – Overview of Composition, Statewide

(Calendar Year 2001)



[7] *Organics* include items such as yard and food wastes, but does not include paper materials, which are categorized separately in the *paper* broad material category (see Appendix A for more details on material categories).

Table 3-2 lists the top ten waste components found in Wisconsin's overall waste stream. When totaled, they equal over 50% of the total, by weight. *Untreated wood* and *food* each made up over 10% (12.8% and 10.2%, respectively), and *roofing shingles*, about 6%, was the third largest component. *R/C plastic*, or r*emainder/composite plastic*, is among the top ten components, and consists of items, such as molded toys and plastic hoses, that do not fit into other plastic categories.

Table 3-2 – Top Ten Components, Statewide

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.8%	12.8%	607,650	607,650
Food	10.2%	23.0%	486,619	1,094,269
Roofing Shingles	6.0%	29.0%	284,752	1,379,021
Compostable Paper	4.8%	33.8%	228,310	1,607,331
Mixed Recyclable Paper	4.2%	38.1%	201,715	1,809,046
Plastic Film	4.0%	42.0%	188,990	1,998,036
Cardboard - recyclable	4.0%	46.0%	188,176	2,186,212
R/C Plastic	3.7%	49.7%	174,597	2,360,809
Ferrous Metals	3.6%	53.3%	171,086	2,531,895
Rock/Concrete/Brick	3.5%	56.8%	165,727	2,697,622
Total	**56.8%**			**2,697,622**

Please see Table 3-3 below for a detailed profile of Wisconsin's overall waste stream, including mean percents and annual tonnage estimates for the 62 of the 64 waste categories defined for this study (*sharps* and *reusables* were excluded from these tables as they are reported separately in Section 3.5). For each material listed in this table, there are three percentages shown: *mean*, *low*, and *high*. The *mean* (highlighted in grey) is the best estimate of the material's relative percent by weight, while the *low* and *high* reflect the confidence interval around the *mean* and were calculated at a 90% confidence level.

Table 3-3 – Detailed Composition Profile, Statewide

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**987,646**	**20.8%**			***C&D***	**1,364,053**	**28.7%**		
Newsprint	92,270	1.9%	1.7%	2.2%	Wood - treated	44,459	0.9%	0.4%	1.4%
High Grade Paper	65,585	1.4%	1.1%	1.7%	Wood - untreated	607,650	12.8%	10.7%	14.9%
Magazines/Catalogs	47,381	1.0%	0.8%	1.1%	Rock/Concrete/Brick	165,727	3.5%	2.2%	4.8%
Cardboard - recyclable	188,176	4.0%	3.0%	4.9%	Drywall	80,164	1.7%	1.1%	2.2%
Cardboard - coated	11,123	0.2%	0.1%	0.4%	Roofing Shingles	284,752	6.0%	4.0%	8.0%
Boxboard	34,835	0.7%	0.7%	0.8%	PVC	2,261	0.0%	0.0%	0.1%
Mixed Recyclable Paper	201,715	4.2%	3.9%	4.6%	Ceramics/Porcelain	15,640	0.3%	0.2%	0.5%
Compostable Paper	228,310	4.8%	4.3%	5.3%	Other C&D	163,399	3.4%	2.1%	4.7%
R/C Paper	118,250	2.5%	1.8%	3.2%	***Problem Wastes***	**367,230**	**7.7%**		
Plastics	**499,313**	**10.5%**			Televisions	23,915	0.5%	0.2%	0.8%
PET Bottles	19,610	0.4%	0.4%	0.5%	Computer Monitors	10,052	0.2%	0.0%	0.4%
HDPE Bottles - natural	8,382	0.2%	0.1%	0.2%	Computer Equipment	2,779	0.1%	0.0%	0.1%
HDPE Bottles - colored	10,373	0.2%	0.2%	0.3%	Electronic Equipment	64,472	1.4%	1.0%	1.7%
#3-#7 Other Plastic Bottles	809	0.0%	0.0%	0.0%	White Goods - refrigerated	13,816	0.3%	0.0%	0.5%
Polystyrene	22,435	0.5%	0.4%	0.5%	White Goods - non-refrigerated	12,132	0.3%	0.0%	0.5%
Other Rigid Plastic Containers	74,119	1.6%	1.1%	2.0%	Lead-Acid Batteries	6,985	0.1%	0.0%	0.3%
Plastic Film	188,990	4.0%	3.6%	4.4%	Other Household Batteries	2,832	0.1%	0.0%	0.1%
R/C Plastic	174,597	3.7%	2.9%	4.4%	Tires	27,701	0.6%	0.2%	1.0%
Metal	**299,245**	**6.3%**			Bulky Items	124,612	2.6%	1.8%	3.4%
Aluminum Cans	16,291	0.3%	0.3%	0.4%	Fluorescent Lights	242	0.0%	0.0%	0.0%
Other Aluminum	15,025	0.3%	0.2%	0.4%	Ballasts	767	0.0%	0.0%	0.0%
Tin Cans	25,715	0.5%	0.4%	0.6%	Pallets	76,926	1.6%	1.0%	2.3%
Ferrous Metals	171,086	3.6%	2.6%	4.6%	***Household Hazardous***	**26,155**	**0.6%**		
Non-Ferrous Metals	5,965	0.1%	0.1%	0.2%	Latex Paint	6,988	0.1%	0.0%	0.3%
R/C Metal	65,163	1.4%	0.9%	1.8%	Oil Paint	1,095	0.0%	0.0%	0.0%
Glass	**107,862**	**2.3%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	42,721	0.9%	0.8%	1.0%	Auto Used Oil Filters	1,874	0.0%	0.0%	0.1%
R/C Glass	65,141	1.4%	0.6%	2.2%	Mercury	6	0.0%	0.0%	0.0%
Organics	**853,914**	**18.0%**			Other Hazardous	16,191	0.3%	0.0%	0.7%
Yard Waste - <6"	56,562	1.2%	0.8%	1.6%	***Other Wastes***	**246,800**	**5.2%**		
Yard Waste - >6"	5,359	0.1%	0.0%	0.2%	Textiles	115,867	2.4%	1.9%	3.0%
Food	486,619	10.2%	9.0%	11.4%	Carpet	116,160	2.4%	1.4%	3.5%
Diapers	85,006	1.8%	1.5%	2.1%	Carpet Padding	14,773	0.3%	0.2%	0.5%
Animal Waste/Kitty Litter	45,260	1.0%	0.7%	1.2%					
Bottom Fines/Dirt	79,296	1.7%	1.4%	1.9%					
R/C Organic	95,812	2.0%	1.5%	2.5%					

Total Tons	**4,752,218**
Sample Count	**400**

3.2. COMPOSITION BY SUBSTREAM

Approximately 32% of Wisconsin's in-state MSW was disposed by residents (roughly 1.5 million tons per year), while ICI generators produced about 44% of the state's total (approximately 2.1 million tons per year). C&D activities contributed the remaining 1.1 million tons per year, or 24% by weight. Wisconsin's in-state MSW was predominantly hauled by commercial collectors, with a total of 4.2 million tons per year or nearly 90% of all disposal being commercially collected. The remaining 11% of all in-state MSW was self-hauled.

Table 3-4 – Annual Tonnage, by Substream and Hauler Type

(Calendar Year 2001)

Substream	Self-haul		Commercially Collected		Total	
	(Tons/year)	*(Pct)*	*(Tons/year)*	*(Pct)*	*(Tons/year)*	*(Pct)*
Residential	189,755	37%	1,345,924	32%	**1,535,680**	**32%**
Industrial/Commercial/Institutional	124,398	24%	1,975,800	47%	**2,100,198**	**44%**
Construction & Demolition	205,077	39%	911,263	22%	**1,116,341**	**23%**
Total	**519,230**	**11%**	**4,232,988**	**89%**	**4,752,219**	**100%**

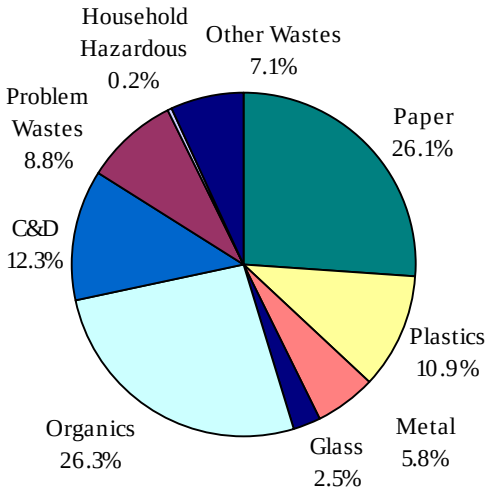
Please see sections 3.2.1, 3.2.2, and 3.2.3 below for composition and quantity profiles for the residential, industrial/commercial/institutional (ICI), and construction and demolition (C&D) substreams.

3.2.1. RESIDENTIAL

Of the 400 samples sorted during this study, 116 were from the residential substream. *Organic* and *paper* materials accounted for the largest portion of Wisconsin's residential waste, each about 26%, by weight. *C&D* and *plastic* materials also made up large portions of the total (12.3% and 10.9%, respectively).

Figure 3-2 – Overview of Composition, Residential

(Calendar Year 2001)



As shown in Table 3-5, a total of four individual waste components each accounted for 5% or more of the state's residential waste. These components are *food* (13.4%), *untreated wood* (7.5%), *mixed recyclable paper* (6.7%), and *compostable paper* (6.2%). *R/C plastic,* or *remainder/composite plastic,* is among the top ten components and consists of items such as molded toys and plastic hoses, which do not fit into other plastic categories.

Table 3-5 – Top Ten Components, Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	13.4%	13.4%	206,363	206,363
Wood - untreated	7.5%	21.0%	115,732	322,095
Mixed Recyclable Paper	6.7%	27.7%	103,462	425,557
Compostable Paper	6.2%	33.9%	95,567	521,124
Plastic Film	4.4%	38.4%	67,876	589,001
Bulky Items	3.9%	42.2%	59,157	648,158
Newsprint	3.8%	46.0%	58,027	706,185
Diapers	3.7%	49.6%	56,054	762,239
Textiles	3.6%	53.2%	54,826	817,066
R/C Plastic	3.3%	56.5%	50,388	867,454
Total	**56.5%**			**867,454**

For a complete breakdown of Wisconsin's residential substream, please see Table 3-6. In this table, composition and quantity information is listed for each individual waste component.

Table 3-6 – Detailed Composition Profile, Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**400,448**	**26.1%**			***C&D***	**189,201**	**12.3%**		
Newsprint	58,027	3.8%	3.2%	4.3%	Wood - treated	3,988	0.3%	0.0%	0.5%
High Grade Paper	25,327	1.6%	1.3%	2.0%	Wood - untreated	115,732	7.5%	5.4%	9.6%
Magazines/Catalogs	29,144	1.9%	1.6%	2.2%	Rock/Concrete/Brick	8,870	0.6%	0.2%	0.9%
Cardboard - recyclable	37,352	2.4%	1.5%	3.3%	Drywall	14,316	0.9%	0.0%	1.8%
Cardboard - coated	1,188	0.1%	0.0%	0.2%	Roofing Shingles	32,078	2.1%	0.0%	4.9%
Boxboard	21,136	1.4%	1.2%	1.5%	PVC	625	0.0%	0.0%	0.1%
Mixed Recyclable Paper	103,462	6.7%	6.0%	7.5%	Ceramics/Porcelain	4,940	0.3%	0.1%	0.6%
Compostable Paper	95,567	6.2%	5.6%	6.8%	Other C&D	8,653	0.6%	0.3%	0.8%
R/C Paper	29,244	1.9%	1.2%	2.6%	***Problem Wastes***	**134,825**	**8.8%**		
Plastics	**167,989**	**10.9%**			Televisions	11,179	0.7%	0.2%	1.2%
PET Bottles	8,818	0.6%	0.5%	0.7%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	3,896	0.3%	0.2%	0.3%	Computer Equipment	1,206	0.1%	0.0%	0.2%
HDPE Bottles - colored	5,808	0.4%	0.3%	0.5%	Electronic Equipment	41,183	2.7%	1.9%	3.5%
#3-#7 Other Plastic Bottles	461	0.0%	0.0%	0.0%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	7,479	0.5%	0.4%	0.6%	White Goods - non-refrigerated	9,656	0.6%	0.0%	1.4%
Other Rigid Plastic Containers	23,263	1.5%	1.3%	1.7%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	67,876	4.4%	3.9%	4.9%	Other Household Batteries	2,268	0.1%	0.1%	0.2%
R/C Plastic	50,388	3.3%	2.5%	4.0%	Tires	9,190	0.6%	0.0%	1.5%
Metal	**89,161**	**5.8%**			Bulky Items	59,157	3.9%	2.4%	5.4%
Aluminum Cans	7,949	0.5%	0.4%	0.7%	Fluorescent Lights	218	0.0%	0.0%	0.0%
Other Aluminum	8,360	0.5%	0.3%	0.8%	Ballasts	767	0.0%	0.0%	0.1%
Tin Cans	13,453	0.9%	0.7%	1.0%	Pallets	0	0.0%	0.0%	0.0%
Ferrous Metals	37,584	2.4%	1.7%	3.2%	***Household Hazardous***	**3,286**	**0.2%**		
Non-Ferrous Metals	1,589	0.1%	0.1%	0.1%	Latex Paint	293	0.0%	0.0%	0.0%
R/C Metal	20,227	1.3%	0.8%	1.8%	Oil Paint	49	0.0%	0.0%	0.0%
Glass	**39,148**	**2.5%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	22,951	1.5%	1.2%	1.8%	Auto Used Oil Filters	1,196	0.1%	0.0%	0.1%
R/C Glass	16,196	1.1%	0.4%	1.7%	Mercury	6	0.0%	0.0%	0.0%
Organics	**403,320**	**26.3%**			Other Hazardous	1,742	0.1%	0.1%	0.2%
Yard Waste - <6"	28,576	1.9%	1.3%	2.4%	***Other Wastes***	**108,301**	**7.1%**		
Yard Waste - >6"	1,249	0.1%	0.0%	0.2%	Textiles	54,826	3.6%	3.0%	4.1%
Food	206,363	13.4%	12.0%	14.9%	Carpet	45,942	3.0%	1.9%	4.1%
Diapers	56,054	3.7%	2.9%	4.4%	Carpet Padding	7,533	0.5%	0.2%	0.8%
Animal Waste/Kitty Litter	32,616	2.1%	1.6%	2.7%					
Bottom Fines/Dirt	43,024	2.8%	2.2%	3.4%					
R/C Organic	35,437	2.3%	1.8%	2.8%					

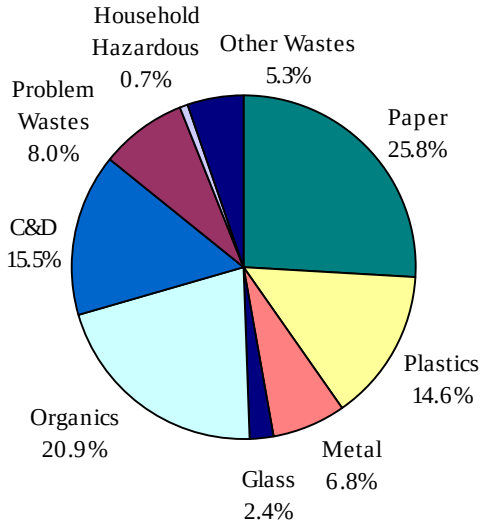
Total Tons	**1,535,679**
Sample Count	**116**

3.2.2. INDUSTRIAL/COMMERCIAL/INSTITUTIONAL

A total of 166 samples were captured and sorted from Wisconsin's ICI substream. ICI composition estimates for the nine broad material categories are pictured in Figure 3-3. According to the figure, *paper*, *organics*, and *C&D* represent the largest portions of this waste at 25.8%, 20.9%, and 15.5%, respectively. *Plastics* made up a sizable portion also (14.6%, by weight).

Figure 3-3 – Overview of Composition, ICI

(Calendar Year 2001)



The top ten waste components of the ICI substream accounted for over 60%, or nearly 1.3 million tons, of the total (see Table 3-7). *Food* and *untreated wood* were the two largest components of this substream (13.2% and 10.1%, respectively). *Compostable paper*, *recyclable cardboard*, *plastic film*, and *R/C plastic* were the next largest components, each accounting for over 5% of the total, by weight. *R/C plastic*, or *remainder/composite plastic*, consists of items such as molded toys and plastic hoses, which do not fit into other plastic categories.

Table 3-7 – Top Ten Components, ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	13.2%	13.2%	277,650	277,650
Wood - untreated	10.1%	23.4%	213,143	490,793
Compostable Paper	6.3%	29.6%	131,327	622,120
Cardboard - recyclable	5.7%	35.3%	119,358	741,478
Plastic Film	5.5%	40.8%	115,426	856,904
R/C Plastic	5.3%	46.1%	112,161	969,066
Mixed Recyclable Paper	4.4%	50.5%	92,036	1,061,102
Ferrous Metals	4.3%	54.8%	90,240	1,151,342
R/C Paper	4.1%	58.9%	86,024	1,237,365
Carpet	2.9%	61.8%	60,772	1,298,138
Total	**61.8%**			**1,298,138**

Please examine Table 3-8 for a complete profile of Wisconsin's ICI waste. Annual tons, mean percentages, and confidence intervals are listed for each of the 62 individual waste components.

Table 3-8 – Detailed Composition Profile, ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**541,213**	**25.8%**			***C&D***	**324,508**	**15.5%**		
Newsprint	33,144	1.6%	1.2%	2.0%	Wood - treated	26,154	1.2%	0.2%	2.3%
High Grade Paper	37,736	1.8%	1.2%	2.4%	Wood - untreated	213,143	10.1%	7.4%	12.9%
Magazines/Catalogs	18,173	0.9%	0.6%	1.1%	Rock/Concrete/Brick	21,657	1.0%	0.5%	1.6%
Cardboard - recyclable	119,358	5.7%	3.8%	7.6%	Drywall	20,361	1.0%	0.4%	1.6%
Cardboard - coated	9,908	0.5%	0.1%	0.8%	Roofing Shingles	6,098	0.3%	0.0%	0.6%
Boxboard	13,508	0.6%	0.5%	0.8%	PVC	42	0.0%	0.0%	0.0%
Mixed Recyclable Paper	92,036	4.4%	3.7%	5.0%	Ceramics/Porcelain	2,227	0.1%	0.0%	0.2%
Compostable Paper	131,327	6.3%	5.1%	7.4%	Other C&D	34,826	1.7%	0.7%	2.6%
R/C Paper	86,024	4.1%	2.6%	5.6%	***Problem Wastes***	**168,536**	**8.0%**		
Plastics	**306,635**	**14.6%**			Televisions	4,041	0.2%	0.0%	0.4%
PET Bottles	10,579	0.5%	0.4%	0.6%	Computer Monitors	6,681	0.3%	0.0%	0.6%
HDPE Bottles - natural	4,477	0.2%	0.1%	0.3%	Computer Equipment	1,573	0.1%	0.0%	0.1%
HDPE Bottles - colored	4,465	0.2%	0.1%	0.3%	Electronic Equipment	16,929	0.8%	0.5%	1.1%
#3-#7 Other Plastic Bottles	339	0.0%	0.0%	0.0%	White Goods - refrigerated	8,323	0.4%	0.0%	0.8%
Polystyrene	12,894	0.6%	0.5%	0.8%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	46,294	2.2%	1.2%	3.2%	Lead-Acid Batteries	3,814	0.2%	0.0%	0.5%
Plastic Film	115,426	5.5%	4.7%	6.3%	Other Household Batteries	559	0.0%	0.0%	0.0%
R/C Plastic	112,161	5.3%	3.7%	7.0%	Tires	18,446	0.9%	0.3%	1.4%
Metal	**142,502**	**6.8%**			Bulky Items	52,977	2.5%	1.3%	3.8%
Aluminum Cans	8,051	0.4%	0.3%	0.5%	Fluorescent Lights	8	0.0%	0.0%	0.0%
Other Aluminum	3,857	0.2%	0.1%	0.2%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	11,505	0.5%	0.3%	0.8%	Pallets	55,185	2.6%	1.4%	3.9%
Ferrous Metals	90,240	4.3%	2.5%	6.1%	***Household Hazardous***	**15,524**	**0.7%**		
Non-Ferrous Metals	3,420	0.2%	0.0%	0.3%	Latex Paint	1,028	0.0%	0.0%	0.1%
R/C Metal	25,430	1.2%	0.6%	1.8%	Oil Paint	411	0.0%	0.0%	0.0%
Glass	**49,949**	**2.4%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	18,533	0.9%	0.7%	1.1%	Auto Used Oil Filters	610	0.0%	0.0%	0.1%
R/C Glass	31,416	1.5%	0.0%	3.1%	Mercury	0	0.0%	0.0%	0.0%
Organics	**439,815**	**20.9%**			Other Hazardous	13,476	0.6%	0.0%	1.5%
Yard Waste - <6"	25,273	1.2%	0.4%	2.0%	***Other Wastes***	**111,515**	**5.3%**		
Yard Waste - >6"	2,419	0.1%	0.0%	0.3%	Textiles	47,549	2.3%	1.4%	3.1%
Food	277,650	13.2%	10.7%	15.7%	Carpet	60,772	2.9%	0.6%	5.2%
Diapers	28,923	1.4%	0.9%	1.9%	Carpet Padding	3,194	0.2%	0.0%	0.3%
Animal Waste/Kitty Litter	12,644	0.6%	0.2%	1.0%					
Bottom Fines/Dirt	36,232	1.7%	1.3%	2.1%					
R/C Organic	56,674	2.7%	1.6%	3.8%					

Total Tons	**2,100,198**
Sample Count	**166**

3.2.3. CONSTRUCTION & DEMOLITION

A total of 118 samples were sorted from construction and demolition (C&D) loads delivered to Wisconsin's landfills. As expected, *C&D* materials accounted for the majority (76.2%) of this waste (see Figure 3-4). The *C&D* broad material category includes items such as wood, drywall and roofing shingles, generally used for new construction, demolition, or remodeling activities.

Figure 3-4 – Overview of Composition, C&D

(Calendar Year 2001)

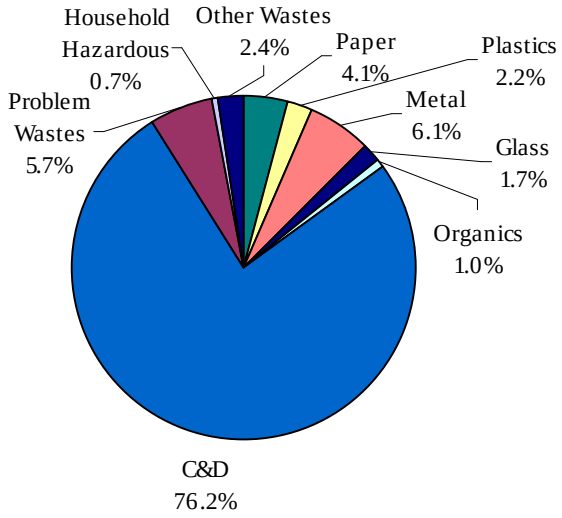


Table 3-9 lists the top ten components of Wisconsin's C&D substream. As shown, *untreated wood* and *roofing shingles* comprised the largest portion of the total at nearly 50%, when combined. Also, r*ock/concrete/brick* and *other C&D* made up more than 10% each. *Other C&D* consists of items such as linoleum and bathroom fixtures, which do not fit into other C&D categories. *R/C metal*, or *remainder/composite metal*, consists of items such as insulated wire, which do not fit into other metal categories. *R/C glass*, or *remainder/composite glass*, consists of items such as mirrors and Pyrex, which do not fit into other glass categories.

Table 3-9 – Top Ten Components, C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	25.0%	25.0%	278,776	278,776
Roofing Shingles	22.1%	47.1%	246,575	525,351
Rock/Concrete/Brick	12.1%	59.2%	135,200	660,551
Other C&D	10.7%	69.9%	119,920	780,471
Drywall	4.1%	74.0%	45,487	825,959
Ferrous Metals	3.9%	77.9%	43,262	869,221
Cardboard - recyclable	2.8%	80.7%	31,466	900,687
Pallets	1.9%	82.6%	21,741	922,428
R/C Metal	1.7%	84.4%	19,506	941,934
R/C Glass	1.6%	85.9%	17,528	959,461
Total	**85.9%**			**959,461**

Table 3-10 lists the full composition and quantity results for the C&D substream.

Table 3-10 – Detailed Composition Profile, C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**45,985**	**4.1%**			***C&D***	**850,344**	**76.2%**		
Newsprint	1,099	0.1%	0.0%	0.2%	Wood - treated	14,317	1.3%	0.5%	2.0%
High Grade Paper	2,523	0.2%	0.0%	0.5%	Wood - untreated	278,776	25.0%	18.4%	31.5%
Magazines/Catalogs	63	0.0%	0.0%	0.0%	Rock/Concrete/Brick	135,200	12.1%	6.6%	17.6%
Cardboard - recyclable	31,466	2.8%	1.7%	3.9%	Drywall	45,487	4.1%	2.4%	5.8%
Cardboard - coated	28	0.0%	0.0%	0.0%	Roofing Shingles	246,575	22.1%	14.5%	29.7%
Boxboard	192	0.0%	0.0%	0.0%	PVC	1,595	0.1%	0.0%	0.3%
Mixed Recyclable Paper	6,217	0.6%	0.2%	0.9%	Ceramics/Porcelain	8,473	0.8%	0.2%	1.3%
Compostable Paper	1,416	0.1%	0.0%	0.3%	Other C&D	119,920	10.7%	5.6%	15.9%
R/C Paper	2,982	0.3%	0.1%	0.4%	***Problem Wastes***	**63,869**	**5.7%**		
Plastics	**24,689**	**2.2%**			Televisions	8,695	0.8%	0.0%	1.7%
PET Bottles	213	0.0%	0.0%	0.0%	Computer Monitors	3,372	0.3%	0.0%	0.8%
HDPE Bottles - natural	9	0.0%	0.0%	0.0%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	100	0.0%	0.0%	0.0%	Electronic Equipment	6,360	0.6%	0.0%	1.2%
#3-#7 Other Plastic Bottles	9	0.0%	0.0%	0.0%	White Goods - refrigerated	5,493	0.5%	0.0%	1.2%
Polystyrene	2,062	0.2%	0.0%	0.3%	White Goods - non-refrigerated	2,476	0.2%	0.0%	0.6%
Other Rigid Plastic Containers	4,562	0.4%	0.1%	0.7%	Lead-Acid Batteries	3,171	0.3%	0.0%	0.8%
Plastic Film	5,687	0.5%	0.2%	0.8%	Other Household Batteries	5	0.0%	0.0%	0.0%
R/C Plastic	12,047	1.1%	0.5%	1.7%	Tires	65	0.0%	0.0%	0.0%
Metal	**67,581**	**6.1%**			Bulky Items	12,478	1.1%	0.1%	2.1%
Aluminum Cans	292	0.0%	0.0%	0.0%	Fluorescent Lights	15	0.0%	0.0%	0.0%
Other Aluminum	2,808	0.3%	0.0%	0.6%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	758	0.1%	0.0%	0.1%	Pallets	21,741	1.9%	0.7%	3.2%
Ferrous Metals	43,262	3.9%	1.7%	6.1%	***Household Hazardous***	**7,345**	**0.7%**		
Non-Ferrous Metals	956	0.1%	0.0%	0.2%	Latex Paint	5,667	0.5%	0.0%	1.1%
R/C Metal	19,506	1.7%	0.4%	3.1%	Oil Paint	635	0.1%	0.0%	0.2%
Glass	**18,765**	**1.7%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	1,237	0.1%	0.0%	0.2%	Auto Used Oil Filters	69	0.0%	0.0%	0.0%
Miscellaneous Glass	17,528	1.6%	0.4%	2.8%	Mercury	0	0.0%	0.0%	0.0%
Organics	**10,779**	**1.0%**			Other Hazardous	974	0.1%	0.0%	0.2%
Yard Waste - <6"	2,713	0.2%	0.0%	0.5%	***Other Wastes***	**26,983**	**2.4%**		
Yard Waste - >6"	1,691	0.2%	0.0%	0.4%	Textiles	13,491	1.2%	0.0%	2.6%
Food	2,606	0.2%	0.0%	0.4%	Carpet	9,446	0.8%	0.2%	1.5%
Diapers	29	0.0%	0.0%	0.0%	Carpet Padding	4,047	0.4%	0.0%	0.7%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%					
Bottom Fines/Dirt	40	0.0%	0.0%	0.0%					
R/C Organic	3,701	0.3%	0.1%	0.6%					

Total Tons	**1,116,341**
Sample Count	**118**

3.3. COMPOSITION BY HAULER TYPE

Sections 3.3.1 and 3.3.2 present composition and quantity profiles for Wisconsin's self-haul and commercially hauled wastes.

3.3.1. SELF-HAUL

During this study, a total of 104 samples were taken from self-haul loads. As depicted in Figure 3-5, about one-half of this waste was characterized under the *C&D* broad material category. An additional 15% was comprised of *problem wastes*. *Problem wastes* consists of items such as white goods, tires, and pallets.

Figure 3-5 – Overview of Composition, Self-haul

(Calendar Year 2001)

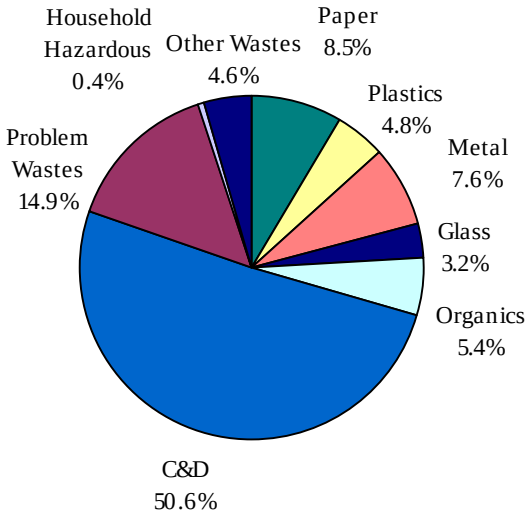


Table 3-11 shows the average percent and corresponding tons for each of the top ten components in Wisconsin's self-haul waste. Together, these 10 materials made up almost 70% of all self-haul wastes. *Untreated wood* stood out as the largest single component, accounting for about 18% of the total, by weight. *Roofing shingles, bulky items, drywall, other C&D,* and *ferrous metals* each made up over 5% of the total, by weight. *Other C&D* consists of items such as linoleum and bathroom fixtures, which do not fit into other C&D categories. Please view Table 3-12 for the a detailed profile of Wisconsin's self-haul wastes, including composition and quantity estimates for each of the 62 waste categories defined for the study.

Table 3-11 – Top Ten Components, Self-haul

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	18.1%	18.1%	93,928	93,928
Roofing Shingles	11.5%	29.6%	59,554	153,482
Bulky Items	8.1%	37.7%	42,073	195,555
Drywall	8.0%	45.6%	41,395	236,950
Other C&D	5.2%	50.8%	27,016	263,966
Ferrous Metals	5.0%	55.9%	26,068	290,034
Rock/Concrete/Brick	4.3%	60.2%	22,395	312,429
Cardboard - recyclable	3.1%	63.2%	15,891	328,320
Electronic Equipment	3.0%	66.2%	15,552	343,872
Carpet	2.6%	68.8%	13,421	357,293
Total	**68.8%**			**357,293**

Table 3-12 – Detailed Composition Profile, Self-haul

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**44,219**	**8.5%**			***C&D***	**262,596**	**50.6%**		
Newsprint	5,789	1.1%	0.5%	1.7%	Wood - treated	12,996	2.5%	0.8%	4.2%
High Grade Paper	2,391	0.5%	0.2%	0.8%	Wood - untreated	93,928	18.1%	13.6%	22.6%
Magazines/Catalogs	1,665	0.3%	0.1%	0.5%	Rock/Concrete/Brick	22,395	4.3%	2.1%	6.6%
Cardboard - recyclable	15,891	3.1%	1.7%	4.5%	Drywall	41,395	8.0%	4.2%	11.8%
Cardboard - coated	2,148	0.4%	0.0%	1.1%	Roofing Shingles	59,554	11.5%	7.5%	15.4%
Boxboard	1,145	0.2%	0.1%	0.3%	PVC	1,181	0.2%	0.0%	0.5%
Mixed Recyclable Paper	7,489	1.4%	0.9%	2.0%	Ceramics/Porcelain	4,130	0.8%	0.0%	1.6%
Compostable Paper	4,258	0.8%	0.2%	1.5%	Other C&D	27,016	5.2%	2.7%	7.7%
R/C Paper	3,443	0.7%	0.2%	1.2%	***Problem Wastes***	**77,437**	**14.9%**		
Plastics	**24,983**	**4.8%**			Televisions	6,944	1.3%	0.2%	2.5%
PET Bottles	798	0.2%	0.1%	0.2%	Computer Monitors	336	0.1%	0.0%	0.2%
HDPE Bottles - natural	376	0.1%	0.0%	0.1%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	534	0.1%	0.1%	0.1%	Electronic Equipment	15,552	3.0%	1.4%	4.5%
#3-#7 Other Plastic Bottles	41	0.0%	0.0%	0.0%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	777	0.1%	0.1%	0.2%	White Goods - non-refrigerated	9,656	1.9%	0.0%	4.2%
Other Rigid Plastic Containers	2,935	0.6%	0.3%	0.8%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	8,796	1.7%	0.9%	2.5%	Other Household Batteries	74	0.0%	0.0%	0.0%
R/C Plastic	10,727	2.1%	0.9%	3.2%	Tires	83	0.0%	0.0%	0.0%
Metal	**39,572**	**7.6%**			Bulky Items	42,073	8.1%	4.0%	12.2%
Aluminum Cans	2,410	0.5%	0.1%	0.9%	Fluorescent Lights	1	0.0%	0.0%	0.0%
Other Aluminum	1,521	0.3%	0.1%	0.5%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	1,071	0.2%	0.1%	0.3%	Pallets	2,718	0.5%	0.0%	1.1%
Ferrous Metals	26,068	5.0%	3.4%	6.6%	***Household Hazardous***	**1,934**	**0.4%**		
Non-Ferrous Metals	776	0.1%	0.0%	0.3%	Latex Paint	1,291	0.2%	0.0%	0.5%
R/C Metal	7,727	1.5%	0.9%	2.1%	Oil Paint	38	0.0%	0.0%	0.0%
Glass	**16,700**	**3.2%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	5,071	1.0%	0.4%	1.5%	Auto Used Oil Filters	264	0.1%	0.0%	0.1%
R/C Glass	11,629	2.2%	0.9%	3.6%	Mercury	6	0.0%	0.0%	0.0%
Organics	**28,066**	**5.4%**			Other Hazardous	334	0.1%	0.0%	0.1%
Yard Waste - <6"	1,983	0.4%	0.0%	0.8%	***Other Wastes***	**23,723**	**4.6%**		
Yard Waste - >6"	1,249	0.2%	0.0%	0.5%	Textiles	7,415	1.4%	0.7%	2.2%
Food	10,366	2.0%	1.1%	2.9%	Carpet	13,421	2.6%	1.5%	3.7%
Diapers	2,568	0.5%	0.1%	0.9%	Carpet Padding	2,887	0.6%	0.0%	1.2%
Animal Waste/Kitty Litter	3,066	0.6%	0.0%	1.2%					
Bottom Fines/Dirt	2,691	0.5%	0.1%	0.9%					
R/C Organic	6,144	1.2%	0.7%	1.7%					

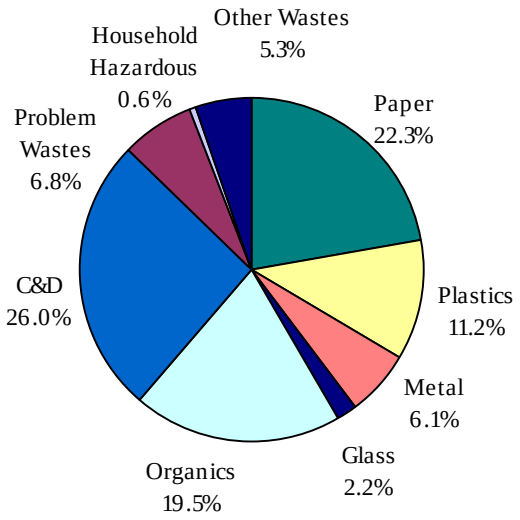
Total Tons	**519,230**
Sample Count	**104**

3.3.2. COMMERCIALLY HAULED

A total of 296 samples were taken from commercially hauled waste loads for this study. As shown in Figure 3-6, *paper* and *C&D* materials each accounted for about 25% of this waste. *Organics* made up another 20% of the total, by weight.

Figure 3-6 – Overview of Composition, Commercially Hauled

(Calendar Year 2001)



The top ten components of Wisconsin's commercially hauled waste are listed in Table 3-13. They made up nearly 60%, or about 2.4 million tons, of all commercially hauled waste. *Untreated wood* and *food* each accounted for over 10% of the total, by weight. *Roofing shingles* and *compostable paper* comprised an equal share of the total (5.3% each). *R/C plastic*, or *remainder/composite plastic*, is among the top ten components and consists of items such as molded toys and plastic hoses, which do not fit into other plastic categories.

Table 3-13 – Top Ten Components, Commercially Hauled

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.1%	12.1%	513,722	513,722
Food	11.3%	23.4%	476,253	989,975
Roofing Shingles	5.3%	28.7%	225,197	1,215,173
Compostable Paper	5.3%	34.0%	224,052	1,439,225
Mixed Recyclable Paper	4.6%	38.6%	194,226	1,633,451
Plastic Film	4.3%	42.8%	180,194	1,813,645
Cardboard - recyclable	4.1%	46.9%	172,285	1,985,930
R/C Plastic	3.9%	50.8%	163,870	2,149,800
Ferrous Metals	3.4%	54.2%	145,018	2,294,818
Rock/Concrete/Brick	3.4%	57.6%	143,332	2,438,151
Total	**57.6%**			**2,438,151**

For more detail on Wisconsin's commercially hauled waste, please see Table 3-14. Annual tons, mean percents, and confidence intervals are listed for each individual waste component.

Table 3-14 – Detailed Composition Profile, Commercially Hauled

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**943,427**	**22.3%**			***C&D***	**1,101,457**	**26.0%**		
Newsprint	86,480	2.0%	1.8%	2.3%	Wood - treated	31,463	0.7%	0.2%	1.3%
High Grade Paper	63,195	1.5%	1.2%	1.8%	Wood - untreated	513,722	12.1%	9.9%	14.4%
Magazines/Catalogs	45,716	1.1%	0.9%	1.2%	Rock/Concrete/Brick	143,332	3.4%	1.9%	4.8%
Cardboard - recyclable	172,285	4.1%	3.1%	5.1%	Drywall	38,769	0.9%	0.5%	1.3%
Cardboard - coated	8,976	0.2%	0.1%	0.4%	Roofing Shingles	225,197	5.3%	3.1%	7.5%
Boxboard	33,690	0.8%	0.7%	0.9%	PVC	1,080	0.0%	0.0%	0.0%
Mixed Recyclable Paper	194,226	4.6%	4.2%	5.0%	Ceramics/Porcelain	11,510	0.3%	0.1%	0.4%
Compostable Paper	224,052	5.3%	4.7%	5.9%	Other C&D	136,383	3.2%	1.8%	4.6%
R/C Paper	114,807	2.7%	1.9%	3.5%	***Problem Wastes***	**289,793**	**6.8%**		
Plastics	**474,330**	**11.2%**			Televisions	16,971	0.4%	0.1%	0.7%
PET Bottles	18,812	0.4%	0.4%	0.5%	Computer Monitors	9,717	0.2%	0.0%	0.4%
HDPE Bottles - natural	8,006	0.2%	0.2%	0.2%	Computer Equipment	2,779	0.1%	0.0%	0.1%
HDPE Bottles - colored	9,838	0.2%	0.2%	0.3%	Electronic Equipment	48,920	1.2%	0.8%	1.5%
#3-#7 Other Plastic Bottles	768	0.0%	0.0%	0.0%	White Goods - refrigerated	13,816	0.3%	0.1%	0.6%
Polystyrene	21,658	0.5%	0.4%	0.6%	White Goods - non-refrigerated	2,476	0.1%	0.0%	0.2%
Other Rigid Plastic Containers	71,184	1.7%	1.2%	2.2%	Lead-Acid Batteries	6,985	0.2%	0.0%	0.4%
Plastic Film	180,194	4.3%	3.8%	4.7%	Other Household Batteries	2,758	0.1%	0.0%	0.1%
R/C Plastic	163,870	3.9%	3.0%	4.7%	Tires	27,618	0.7%	0.2%	1.1%
Metal	**259,673**	**6.1%**			Bulky Items	82,539	1.9%	1.2%	2.7%
Aluminum Cans	13,881	0.3%	0.3%	0.4%	Fluorescent Lights	241	0.0%	0.0%	0.0%
Other Aluminum	13,504	0.3%	0.2%	0.4%	Ballasts	767	0.0%	0.0%	0.0%
Tin Cans	24,644	0.6%	0.5%	0.7%	Pallets	74,208	1.8%	1.0%	2.5%
Ferrous Metals	145,018	3.4%	2.4%	4.5%	***Household Hazardous***	**24,222**	**0.6%**		
Non-Ferrous Metals	5,189	0.1%	0.0%	0.2%	Latex Paint	5,697	0.1%	0.0%	0.3%
R/C Metal	57,436	1.4%	0.9%	1.8%	Oil Paint	1,057	0.0%	0.0%	0.1%
Glass	**91,161**	**2.2%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	37,650	0.9%	0.8%	1.0%	Auto Used Oil Filters	1,610	0.0%	0.0%	0.1%
R/C Glass	53,511	1.3%	0.4%	2.1%	Mercury	0	0.0%	0.0%	0.0%
Organics	**825,848**	**19.5%**			Other Hazardous	15,857	0.4%	0.0%	0.8%
Yard Waste - <6"	54,580	1.3%	0.8%	1.8%	***Other Wastes***	**223,077**	**5.3%**		
Yard Waste - >6"	4,110	0.1%	0.0%	0.2%	Textiles	108,451	2.6%	2.0%	3.1%
Food	476,253	11.3%	9.9%	12.6%	Carpet	102,740	2.4%	1.2%	3.6%
Diapers	82,438	1.9%	1.6%	2.3%	Carpet Padding	11,886	0.3%	0.1%	0.4%
Animal Waste/Kitty Litter	42,194	1.0%	0.7%	1.3%					
Bottom Fines/Dirt	76,605	1.8%	1.5%	2.1%					
R/C Organic	89,668	2.1%	1.5%	2.7%					

Total Tons	**4,232,988**
Sample Count	**296**

3.4. COMPARISONS AMONG SAMPLING GROUPS

Table 3-15 compares composition profiles across the three substreams: residential, ICI, and C&D. Composition estimates are also shown for the two hauler types: commercially collected and self-hauled wastes. Residential and ICI wastes were markedly similar in their composition, though residential wastes contained a slightly higher amount of organics and *plastics* accounted for slightly more of the ICI wastes. C&D wastes were unique as compared with residential and ICI wastes, with over 75% made up of construction materials such as *drywall* and *untreated wood.* When compared, self-hauled and commercially collected wastes were quite different. *C&D* wastes made up a larger percentage of the self-haul wastes, while *paper* and *organics* accounted for more of the commercially collected wastes.

Table 3-15 – Composition Comparisons, by Sampling Group

(Calendar Year 2001)

	Substream			Hauler Type	
Material	**Residential**	**ICI**	**C&D**	**Self-haul**	**Commercial hauled**
Paper	**26.1%**	**25.8%**	**4.1%**	**8.5%**	**22.3%**
Newsprint	3.8%	1.6%	0.1%	1.1%	2.0%
High Grade Paper	1.6%	1.8%	0.2%	0.5%	1.5%
Magazines/Catalogs	1.9%	0.9%	0.0%	0.3%	1.1%
Cardboard - recyclable	2.4%	5.7%	2.8%	3.1%	4.1%
Cardboard - coated	0.1%	0.5%	0.0%	0.4%	0.2%
Boxboard	1.4%	0.6%	0.0%	0.2%	0.8%
Mixed Recyclable Paper	6.7%	4.4%	0.6%	1.4%	4.6%
Compostable Paper	6.2%	6.3%	0.1%	0.8%	5.3%
R/C Paper	1.9%	4.1%	0.3%	0.7%	2.7%
Plastics	**10.9%**	**14.6%**	**2.2%**	**4.8%**	**11.2%**
PET Bottles	0.6%	0.5%	0.0%	0.2%	0.4%
HDPE Bottles - natural	0.3%	0.2%	0.0%	0.1%	0.2%
HDPE Bottles - colored	0.4%	0.2%	0.0%	0.1%	0.2%
#3-#7 Other Plastic Bottles	0.0%	0.0%	0.0%	0.0%	0.0%
Polystyrene	0.5%	0.6%	0.2%	0.1%	0.5%
Other Rigid Plastic Containers	1.5%	2.2%	0.4%	0.6%	1.7%
Plastic Film	4.4%	5.5%	0.5%	1.7%	4.3%
R/C Plastic	3.3%	5.3%	1.1%	2.1%	3.9%
Metal	**5.8%**	**6.8%**	**6.1%**	**7.6%**	**6.1%**
Aluminum Cans	0.5%	0.4%	0.0%	0.5%	0.3%
Other Aluminum	0.5%	0.2%	0.3%	0.3%	0.3%
Tin Cans	0.9%	0.5%	0.1%	0.2%	0.6%
Ferrous Metals	2.4%	4.3%	3.9%	5.0%	3.4%
Non-Ferrous Metals	0.1%	0.2%	0.1%	0.1%	0.1%
R/C Metal	1.3%	1.2%	1.7%	1.5%	1.4%
Glass	**2.5%**	**2.4%**	**1.7%**	**3.2%**	**2.2%**
Glass - recyclable	1.5%	0.9%	0.1%	1.0%	0.9%
R/C Glass	1.1%	1.5%	1.6%	2.2%	1.3%
Organics	**26.3%**	**20.9%**	**1.0%**	**5.4%**	**19.5%**
Yard Waste - <6"	1.9%	1.2%	0.2%	0.4%	1.3%
Yard Waste - >6"	0.1%	0.1%	0.2%	0.2%	0.1%
Food	13.4%	13.2%	0.2%	2.0%	11.3%
Diapers	3.7%	1.4%	0.0%	0.5%	1.9%
Animal Waste/Kitty Litter	2.1%	0.6%	0.0%	0.6%	1.0%
Bottom Fines/Dirt	2.8%	1.7%	0.0%	0.5%	1.8%
R/C Organic	2.3%	2.7%	0.3%	1.2%	2.1%

Table 3-14 – Composition Comparisons, by Sampling Group, Contd.

(Calendar Year 2001)

	Substream			Hauler Type	
Material	**Residential**	**ICI**	**C&D**	**Self-haul**	**Commercial hauled**
C&D	**12.3%**	**15.5%**	**76.2%**	**50.6%**	**26.0%**
Wood - treated	0.3%	1.2%	1.3%	2.5%	0.7%
Wood - untreated	7.5%	10.1%	25.0%	18.1%	12.1%
Rock/Concrete/Brick	0.6%	1.0%	12.1%	4.3%	3.4%
Drywall	0.9%	1.0%	4.1%	8.0%	0.9%
Roofing Shingles	2.1%	0.3%	22.1%	11.5%	5.3%
PVC	0.0%	0.0%	0.1%	0.2%	0.0%
Ceramics/Porcelain	0.3%	0.1%	0.8%	0.8%	0.3%
Other C&D	0.6%	1.7%	10.7%	5.2%	3.2%
Problem Wastes	**8.8%**	**8.0%**	**5.7%**	**14.9%**	**6.8%**
Televisions	0.7%	0.2%	0.8%	1.3%	0.4%
Computer Monitors	0.0%	0.3%	0.3%	0.1%	0.2%
Computer Equipment	0.1%	0.1%	0.0%	0.0%	0.1%
Electronic Equipment	2.7%	0.8%	0.6%	3.0%	1.2%
White Goods - refrigerated	0.0%	0.4%	0.5%	0.0%	0.3%
White Goods - non-refrigerated	0.6%	0.0%	0.2%	1.9%	0.1%
Lead-Acid Batteries	0.0%	0.2%	0.3%	0.0%	0.2%
Other Household Batteries	0.1%	0.0%	0.0%	0.0%	0.1%
Tires	0.6%	0.9%	0.0%	0.0%	0.7%
Bulky Items	3.9%	2.5%	1.1%	8.1%	1.9%
Fluorescent Lights	0.0%	0.0%	0.0%	0.0%	0.0%
Ballasts	0.0%	0.0%	0.0%	0.0%	0.0%
Pallets	0.0%	2.6%	1.9%	0.5%	1.8%
Household Hazardous	**0.2%**	**0.7%**	**0.7%**	**0.4%**	**0.6%**
Latex Paint	0.0%	0.0%	0.5%	0.2%	0.1%
Oil Paint	0.0%	0.0%	0.1%	0.0%	0.0%
Pesticides/Fertilizers	0.0%	0.0%	0.0%	0.0%	0.0%
Auto Used Oil Filters	0.1%	0.0%	0.0%	0.1%	0.0%
Mercury	0.0%	0.0%	0.0%	0.0%	0.0%
Other Hazardous	0.1%	0.6%	0.1%	0.1%	0.4%
Other Wastes	**7.1%**	**5.3%**	**2.4%**	**4.6%**	**5.3%**
Textiles	3.6%	2.3%	1.2%	1.4%	2.6%
Carpet	3.0%	2.9%	0.8%	2.6%	2.4%
Carpet Padding	0.5%	0.2%	0.4%	0.6%	0.3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**

3.5. PREVALENCE OF SHARPS, MERCURY-CONTAINING ITEMS, AND REUSABLES

In addition to capturing and sorting samples, the Field Supervisor noted loads that contained sharps, mercury-containing items (e.g., thermometers), and reusable materials. Sharps (hypodermic needles) were measured in terms of incidence, while the total number of mercury-containing items was recorded for each sample. Mercury-containing items included barometers, thermostat switches, laboratory and fever thermometers, car switches, some silent switches, blood pressure cuffs, and bulk mercury bottles.

Any incidence of reusable items was also noted; these items were included in the weight of the sample. Reusables were defined as C&D materials in reusable condition based on two factors: (1) in quantity, if small, or (2) individually, if large. For example, a door in good condition would count as reusable, however a couple of hinges in good condition would not, yet a box of hinges would count as reusable.

The next three sections present information on the prevalence of each of these three materials found in Wisconsin's disposed waste stream. Results are presented by each of the six sampling groups and for the five regions.

3.5.1. SHARPS

As shown in Table 3-16, there were a total of 36 incidences of sharps throughout the study period. Nearly all (29, or 80%) of those detected were from residential sources, and delivered by commercial hauling companies. The remaining seven incidences occurred in ICI loads brought by commercial hauling companies. No sharps were found in C&D samples. When comparing the incidence of sharps by region, Northern regions showed the greatest number, while the Southeast and West central regions showed the least number of sharps.

Table 3-16 – Incidence of Sharps, by Sampling Groups and Regions

	Residential		Industrial/ Commercial/ Institutional		Construction & Demolition		Total
Region	*Commercial*	*Self-haul*	*Commercial*	*Self-haul*	*Commercial*	*Self-haul*	
Northeast	10	0	0	0	0	0	**10**
North	15	0	0	0	0	0	**15**
Southcentral	2	0	6	0	0	0	**8**
Southeast	2	0	0	0	0	0	**2**
Westcentral	0	0	1	0	0	0	**1**
Total	**29**	**0**	**7**	**0**	**0**	**0**	**36**

3.5.2. MERCURY-CONTAINING ITEMS

There were no mercury-containing items found in samples captured and sorted during this study.

3.5.3. REUSABLES

Reusable items were found most often in self-haul loads (16 of 22, or 73%). Residential and C&D loads had a high incidence of reusable items compared with ICI loads. In fact, when combined, about 86% of the incidences were observed in residential and C&D self-haul loads.

Table 3-17 – Incidence of Reusable items, by Sampling Groups and Regions

	Residential		Industrial/ Commercial/ Institutional		Construction & Demolition		Total
Region	*Commercial*	*Self-haul*	*Commercial*	*Self-haul*	*Commercial*	*Self-haul*	
Northeast	0	3	0	0	3	3	**9**
North	0	2	1	0	0	2	**5**
Southcentral	0	1	1	1	0	0	**3**
Southeast	1	0	0	0	0	2	**3**
Westcentral	0	1	0	0	0	1	**2**
Total	**1**	**7**	**2**	**1**	**3**	**8**	**22**

The most common reusable items noted were windows and doors. Windows were found in samples from each region, and in residential, ICI, and C&D loads. Doors (including metal, glass, storm, and garage doors) were observed in residential and C&D samples from all regions, except in the Southeast and West central. Additional reusables found included furniture such as desks and coffee tables, as well as new construction materials such as bundles of roofing shingles and plywood.

Appendix A: WASTE COMPONENTS

PAPER

1. **Newsprint (ONP)** - printed groundwood newsprint, including glossy advertisements and inserts typically found in newspapers.

2. **High grade office paper** - high-grade continuous form computer paper, white paper including bond, photocopy and notebook paper, and colored ledger paper primarily found in offices.
   Key points:
   - Kraft envelopes go into Other Paper – recyclable.
   - If high-grade paper is wet, it should still go into this category because it is assumed to have become wet after being discarded.
   - If paper is brighter than pastel, it belongs in *Mixed paper – recyclable*.

   Examples:
   - Bond computer paper, index cards, computer cards, notebook paper, xerographic and typing paper, tablets (yellow and with clear glue binding), manila folders, white register receipts, non-glossy fax paper.

3. **Magazines/Catalogs** - magazines, catalogs, promotional materials printed on glossy paper; does not include telephone directories or books.
   Key points:
   - Glossy business brochures and folder inserts belong in *Mixed paper – recyclable.*

4. **Uncoated OCC - recyclable** - uncoated cardboard with a wavy core and not contaminated with other materials such as wax or plastic coating.
   Key points:
   - OCC with Styrofoam attached to it that cannot be removed belongs in *R/C paper* category.

5. **Coated OCC** - cardboard coated with wax or plastic.

6. **Boxboard** - chipboard boxes not coated with wax, plastic or metal.
   Examples:
   - Cereal boxes, other chipboard food containers, and shirt boxes.
   - Wet-strength papers used to package items such as ice cream and cases of soda pop and beer belong in *Mixed paper – recyclable.*

7. **Mixed paper - recyclable** - paper that would be included in residential "mixed mail" or commercial "office pack" recycling programs, not including the grades identified above.
   Examples:
   - Paper bags (including kraft), envelopes, egg cartons, tissue roll cores, telephone directories, books, brightly colored paper, calendars, "junk" mail, tablets with colored glue bindings, wet-strength papers used to package items such as ice cream and cases of soda pop and beer.

8. **Compostable paper—**tissues and paper including OCC that are soiled with food, such as paper plates, paper cups, pizza boxes, popcorn bags, and paper towels.

9. **R/C paper**- all paper that doesn't fit into the categories specified above and items that are primarily paper but include other materials such as plastic or metal.
   Key points:
   - If the sorter is 99% sure that the generator intended to reuse the paper in such a way that it became contaminated for recycling, put that paper into this category (e.g., paper used to dispose of chewing gum, paper sprayed with paint).
   - If it would take an effort to make the paper recyclable, put it into this category.

   Example:
   - Paper or boxboard coated with wax, plastic or metal, photographs, laminated paper.

PLASTIC

10. **PET bottles** - plastic bottles and necked jars composed of polyethylene terephthalate.
    Key points:
    - Look for the label "1" on the bottom.
    - PET and PVC can be differentiated because PET containers have a nub or 'belly button' while PVC containers have a seam or 'smile.'
    - Items not clearly identified as PET, narrowing down to a neck, go into *Other Rigid Plastic Packaging*.

    Examples:
    - Beverage bottles, some bottles for detergent, liquor, toiletries and honey, jars for peanut butter and mayonnaise.

11. **HDPE bottles - natural** - natural, or unpigmented, high-density polyethylene bottles with necks.
    Key points:
    - Look for the label "2" on the bottom.
    - Opaque or translucent matte finish.
    - Must narrow down to a neck, otherwise it goes in *Other Rigid Plastic Packaging*.

    Examples:
    - Clear or uncolored bottles for dairy products, detergent, windshield fluid, eye drops, rubbing alcohol, vinegar, motor oil, and some shampoo, fabric softener, antifreeze, bleach.

12. **HDPE bottles - colored** - colored high-density polyethylene bottles with necks.
    Key points:
    - Look for the label "2" on the bottom.
    - Must narrow down to a neck, otherwise it goes in *Other Rigid Plastic Packaging.*

    Examples:
    - Colored bottles for orange juice, detergent, windshield fluid, motor oil, and some shampoo, fabric softener, antifreeze, bleach.

13. **Other bottles –** all other plastic "3" – "7" bottles that narrow down to a neck.

14. **Foam Polystyrene** –packaging made primarily from foam polystyrene that satisfies one of the following criteria:
    (a) Is designed for serving food or beverages.
    (b) Consists of loose particles intended to fill space and cushion the packaged article in a shipping container.
    (c) Consists of rigid materials shaped to hold and cushion the packaged article in a shipping container.

15. **Other rigid plastic containers** — all other non-film packaging that does not fit into the above categories including tubs, jars, clamshells, caps, closures, and other miscellaneous items.

Key points:

- Items in this category should fulfill the following criteria:
  1. Stand up when placed on a flat surface; and,
  2. Contain liquid.

16. **Film** - all flexible plastic film, including material that is contaminated.
    Examples:
    - Garbage bags, bread bags, snack bags, plastic grocery bags, agricultural bags, food wrappings, shower curtains, and sheet film.

17. **R/C plastic** - all plastic that doesn't fit into the categories specified above and items that are primarily plastic but include other materials such as paper or metal.
    Examples:
    - Molded toys, plastic clothes hangers, disposable razors, plastic hoses, drinking straws, credit cards, and writing pens.

METALS

18. **Aluminum beverage containers** - Aluminum beverage containers.

19. **Other aluminum** - All aluminum except beverage containers.
    Key points:
    - If the material is not recognizable as aluminum and it as not attracted to a magnet, it belongs in *Other Non-Ferrous.*
    Examples:
    - Aluminum foil, aluminum pie plates, aluminum siding, and aluminum lawn chairs.

20. **Ferrous containers** - steel food and beverage containers, including steel soft drink, beer and other beverage containers, and steel pet food cans.

21. **Other ferrous** - Ferrous and alloyed ferrous scrap, to which a magnet is attracted (includes household, commercial and industrial materials).
    Examples:
    - Metal clothes hangers, sheet metal products, pipes, steel drums, aerosol cans, and metal scraps.

22. **Other non-ferrous** - all other non-magnetic metal, such as brass and copper, which are not recognized as aluminum.

23. **R/C metal -** all metal that doesn't fit into the categories specified above and items that are primarily metal but include other materials such as plastic or paper.
    Examples:
    - Auto motors, insulated wire, office stapler, lamps, and toys.

GLASS

24. Recyclable glass – bottles and jars only, excluding medicine or chemical bottles.
Key points:
- Includes cobalt blue bottles.

25. **R/C glass** - all glass that doesn't fit into the category specified above and items that are primarily glass but include other materials such as plastic or metal.
    Key points:
    - If the glass is broken and not 100% identifiable as food or beverage glass, it belongs in *R/C Glass*.

    Examples:
    - Plate glass, drinking glass, cooking utensils, ashtrays, mirrors, Pyrex, dinner plates, medicine and chemical bottles, and fragments.

ORGANIC MATERIALS

26. **Yard waste - banned** - leaves, grass clippings, yard and garden debris and brush, including clean woody vegetative material no greater than 6 inches in diameter**.**
    Key Points:
    - This material does not include stumps, roots or shrubs with intact root balls.

27. **Yard waste - other** - woody vegetative material greater than 6 inches in diameter, stumps, roots or shrubs with intact root balls.

28. **Food waste** - Material capable of being decomposed by microorganisms with sufficient rapidity as to cause nuisances from odors and gases; putrescibles.
    Examples:
    - Food preparation waste, food scraps, spoiled food, kitchen wastes, waste parts from butchered animals.

29. **Diapers** - infant and adult disposable diapers.

30. **Animal waste/cat litter –** animal wastes and kitty litter.
    Key points:
    - Animal carcasses belong in *R/C Organic*.

31. **Bottom fines and dirt** – small fragments that pass through the ¼" sort screen, and miscellaneous fines and dirt.

32. **R/C organics** - all organic material that doesn't fit into the category specified above and items that are primarily organic but include other materials such as plastic or metal.
    Examples:
    - Cotton balls, feminine hygiene products, hair, rubber products, and animal carcasses.

CONSTRUCTION AND DEMOLITION

33. **Treated wood** - lumber that is either green or brown treated.
    Examples:
    - Railroad ties, some wood fencing and siding, and playground equipment.

34. **Untreated wood** - lumber that is not treated.

35. **Rock, concrete, brick** – Rock gravel, Portland cement mixtures (set or unset), and fire-clay bricks.

36. **Gypsum wallboard** – new or used gypsum wallboard scrap.

37. **Roofing shingles** – asphalt shingles and tarpaper of built-up roofing.

38. **PVC** – construction and demolition materials made of polyvinyl chloride; primarily piping.

39. **Ceramics/Porcelain** – Finished ceramic or porcelain household fixtures such as toilets, tiling, and sinks.

40. **Other C&D** - all construction and demolition material that doesn't fit into the categories specified above.
    Examples:
    - Insulation, linoleum, nails, adhesives, tubs, showers, and cabinets.

PROBLEM MATERIALS

41. **Televisions** – televisions and video monitors.

42. **Computer monitors** – self-defined.

43. **Computer equipment/peripherals** - computer processing units, keyboards, modems, printers, mice.

44. **Electronic equipment** - small products or appliances with an electrical cord or battery power source.
    Examples:
    Small kitchen and bathroom appliances (toasters, hair dryers, etc.), radios, audio or video equipment, handheld video games, lamps, and vacuum cleaners.

45. **White goods - refrigerated** - major appliances that are primarily encased in metal, and are designed to contain refrigerants.
    Examples:
    - Refrigerators, freezers, and dehumidifiers.

46. **White goods – non-refrigerated** - major appliances that are primarily encased in metal, and are *not* designed to contain refrigerants.
    Examples:
    - Stoves, water heaters, washers, dryers, and microwaves.

47. **Lead-acid batteries** - automotive, tractor, motorcycle, and boat batteries.

48. **Other household batteries** - all household batteries.
    Examples:
    - Household (rechargeable and non-rechargeable) and button.

49. **Tires** - Automobile, truck, tractor, motorcycle, bicycle, and trailer tires.

50. **Household bulky items** – furniture and mattresses.

51. **Fluorescent lights** – fluorescent light tubes.

52. **Ballasts** - Electrical components at the end of fluorescent light fixtures under a metal overplate.

53. **Wood pallets –** Wood pallets and crating materials commonly used for industrial and commercial packaging and shipping.

HOUSEHOLD HAZARDOUS WASTE

54. **Latex paint** - latex paint that is not dried.

55. **Oil paint** - oil base paint, wet and dry.

56. **Pesticides/Fungicides/Herbicides/Fertilizers** - household and commercial products used to destroy or control organisms/pests or enhance plant growth.

57. **Automotive - used oil/filters** - automotive oil and oil filters

58. **Mercury** – (Item count) Mercury-containing items.
    Key Points:
    - Count even if containment is broken and mercury is no longer present.

    Examples:
    - Barometers, thermostat switches, laboratory and fever thermometers, and car switches, some silent switches, blood pressure cuffs, and bulk mercury bottles.

59. **Sharps and infectious waste** – (Incidence) hypodermic needles and any "red bag" material.
    Examples:
    - Laboratory waste, items covered in blood, research animal waste, regulated human body fluids, syringes with needles, scalpel blades, and pipettes.

60. **Other HHW/HW** – all household or commercial products characterized as "toxic", "corrosive", "flammable", "ignitable", "radioactive", "poisonous", and "reactive."
    Examples:
    - Cleaners, solvents, antifreeze, acids, and bases.

OTHER WASTE

61. **Textiles** - clothing, bedding, curtains, blankets, stuffed animals, other cloth material, and leather goods.

62. **Carpet** – general category of flooring applications consisting of various natural or synthetic fibers bonded to some type of backing material.

63. **Carpet padding** – polyurethane padding used as a carpet underlay.

64. **Top Fines** – material fragments that are 2" sq. or less, and do not pass through the sort screen. These materials will be visually categorized into their respective component categories.

Any incidence of *reusable items* was also noted. These items are defined as C&D materials in reusable condition, and either 1) in quantity, if small, or 2) individually, if large. For example, a door in good reusable condition would count. A couple of hinges in good condition would not, but a box of hinges would count.

Appendix B: REGIONAL COMPOSITION PROFILES

This appendix presents composition and quantity profiles for each of the five regions: Northeast, North, South central, Southeast, and West central. Within each region, profiles are also presented for residential, ICI, and C&D wastes. Each profile is presented in three ways: First, a pie chart depicts the composition by nine broad waste categories: *paper*, *plastics*, *metal*, *glass*, *organics*, *construction and demolition (C&D)*, *problem wastes*, *household hazardous*, and *other*. Then, a table lists the ten largest components, by weight, and finally, a more comprehensive table details the full composition results for the 62 distinct sorting categories.[8]

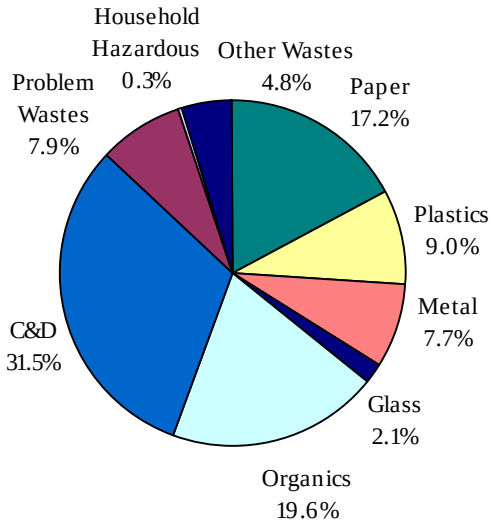
Though all sampling took place during 2002, composition percentages were applied to calendar year 2001 tonnages (as 2002 tonnages were unavailable). Therefore, tables and figures throughout this report are labeled as calendar year 2001 instead of 2002. Also, composition estimates presented in this report were calculated at a 90% confidence interval, meaning that we are 90% confident each material is between the *low* and *high* percentages shown in the comprehensive tables for each profile. For example, we are 90% confident that *newsprint* made up between 0.9 % and 1.4% of the MSW disposed in the Northeast region, by weight.

NORTHEAST REGION

Overall

Figure B - 1 – Overview of Composition, Northeast

(Calendar Year 2001)



[8] Due to rounding, composition estimates may not add to 100% in tables and graphs throughout this report.

Table B - 1 – Top Ten Components, Northeast

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	15.4%	15.4%	181,771	181,771
Food	11.3%	26.7%	134,304	316,075
Other C&D	6.9%	33.6%	81,312	397,387
Ferrous Metals	5.0%	38.5%	58,871	456,258
Compostable Paper	4.4%	43.0%	52,244	508,502
Plastic Film	3.8%	46.7%	44,751	553,253
Mixed Recyclable Paper	3.5%	50.3%	41,796	595,048
Roofing Shingles	3.5%	53.8%	41,578	636,626
Rock/Concrete/Brick	3.3%	57.1%	39,135	675,760
R/C Plastic	3.3%	60.4%	38,609	714,369
Total	**60.4%**			**714,369**

Table B - 2 – Detailed Composition Profile, Northeast

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**203,704**	**17.2%**			***C&D***	**372,751**	**31.5%**		
Newsprint	13,769	1.2%	0.9%	1.4%	Wood - treated	4,556	0.4%	0.0%	0.7%
High Grade Paper	11,595	1.0%	0.7%	1.3%	Wood - untreated	181,771	15.4%	11.6%	19.1%
Magazines/Catalogs	9,957	0.8%	0.6%	1.1%	Rock/Concrete/Brick	39,135	3.3%	1.1%	5.5%
Cardboard - recyclable	37,475	3.2%	1.7%	4.6%	Drywall	22,272	1.9%	1.0%	2.8%
Cardboard - coated	1,359	0.1%	0.0%	0.3%	Roofing Shingles	41,578	3.5%	1.1%	6.0%
Boxboard	7,989	0.7%	0.5%	0.8%	PVC	446	0.0%	0.0%	0.1%
Mixed Recyclable Paper	41,796	3.5%	2.9%	4.1%	Ceramics/Porcelain	1,681	0.1%	0.1%	0.2%
Compostable Paper	52,244	4.4%	3.3%	5.5%	Other C&D	81,312	6.9%	3.3%	10.5%
R/C Paper	27,520	2.3%	1.3%	3.4%	***Problem Wastes***	**92,939**	**7.9%**		
Plastics	**106,092**	**9.0%**			Televisions	6,317	0.5%	0.0%	1.0%
PET Bottles	3,470	0.3%	0.2%	0.4%	Computer Monitors	7,016	0.6%	0.0%	1.2%
HDPE Bottles - natural	1,588	0.1%	0.1%	0.2%	Computer Equipment	1,723	0.1%	0.0%	0.3%
HDPE Bottles - colored	2,301	0.2%	0.1%	0.3%	Electronic Equipment	11,209	0.9%	0.6%	1.3%
#3-#7 Other Plastic Bottles	98	0.0%	0.0%	0.0%	White Goods - refrigerated	3,171	0.3%	0.0%	0.7%
Polystyrene	3,993	0.3%	0.2%	0.5%	White Goods - non-refrigerated	2,522	0.2%	0.0%	0.4%
Other Rigid Plastic Containers	11,282	1.0%	0.8%	1.1%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	44,751	3.8%	3.0%	4.6%	Other Household Batteries	929	0.1%	0.1%	0.1%
R/C Plastic	38,609	3.3%	1.9%	4.7%	Tires	1,540	0.1%	0.0%	0.3%
Metal	**91,458**	**7.7%**			Bulky Items	37,409	3.2%	1.4%	4.9%
Aluminum Cans	2,673	0.2%	0.2%	0.3%	Fluorescent Lights	5	0.0%	0.0%	0.0%
Other Aluminum	4,455	0.4%	0.1%	0.7%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	6,718	0.6%	0.2%	0.9%	Pallets	21,099	1.8%	0.0%	3.5%
Ferrous Metals	58,871	5.0%	2.5%	7.4%	***Household Hazardous***	**3,414**	**0.3%**		
Non-Ferrous Metals	1,148	0.1%	0.0%	0.2%	Latex Paint	984	0.1%	0.0%	0.2%
R/C Metal	17,592	1.5%	0.5%	2.5%	Oil Paint	654	0.1%	0.0%	0.1%
Glass	**24,351**	**2.1%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	6,515	0.6%	0.4%	0.7%	Auto Used Oil Filters	991	0.1%	0.0%	0.1%
R/C Glass	17,836	1.5%	0.4%	2.6%	Mercury	0	0.0%	0.0%	0.0%
Organics	**232,350**	**19.6%**			Other Hazardous	785	0.1%	0.0%	0.1%
Yard Waste - <6"	14,830	1.3%	0.5%	2.0%	***Other Wastes***	**56,551**	**4.8%**		
Yard Waste - >6"	2,236	0.2%	0.0%	0.4%	Textiles	34,322	2.9%	1.8%	4.0%
Food	134,304	11.3%	9.0%	13.7%	Carpet	21,715	1.8%	0.8%	2.9%
Diapers	21,719	1.8%	1.4%	2.2%	Carpet Padding	515	0.0%	0.0%	0.1%
Animal Waste/Kitty Litter	11,085	0.9%	0.6%	1.3%					
Bottom Fines/Dirt	15,833	1.3%	1.0%	1.7%					
R/C Organic	32,343	2.7%	1.8%	3.7%					
Total Tons	**1,183,610**								
Sample Count	**115**								

Residential

Figure B - 2 – Overview of Composition, Northeast Residential

(Calendar Year 2001)

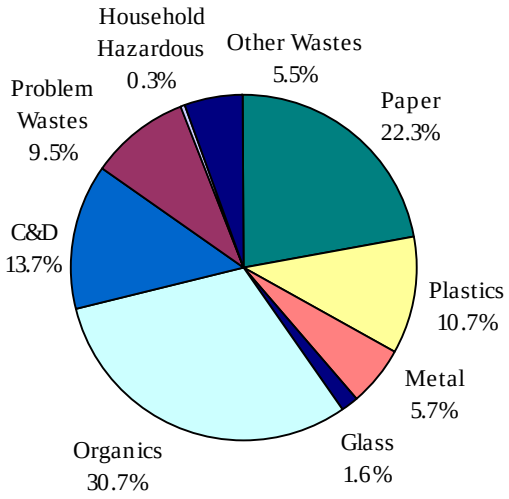


Table B - 3 – Top Ten Components, Northeast Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	16.1%	16.1%	56,441	56,441
Wood - untreated	10.1%	26.2%	35,528	91,969
Compostable Paper	6.6%	32.9%	23,301	115,270
Mixed Recyclable Paper	5.4%	38.2%	18,935	134,206
Diapers	4.5%	42.8%	15,869	150,074
Plastic Film	4.4%	47.2%	15,435	165,510
Bulky Items	4.3%	51.4%	14,921	180,430
Textiles	3.8%	55.2%	13,400	193,831
R/C Plastic	3.2%	58.4%	11,245	205,076
R/C Organic	3.2%	61.6%	11,178	216,254
Total	**61.6%**			**216,254**

Table B - 4 – Detailed Composition Profile, Northeast Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**78,419**	**22.3%**			***C&D***	**47,932**	**13.7%**		
Newsprint	8,490	2.4%	1.8%	3.0%	Wood - treated	253	0.1%	0.0%	0.2%
High Grade Paper	5,904	1.7%	1.0%	2.4%	Wood - untreated	35,528	10.1%	4.9%	15.4%
Magazines/Catalogs	6,088	1.7%	1.2%	2.2%	Rock/Concrete/Brick	4,591	1.3%	0.0%	2.6%
Cardboard - recyclable	4,713	1.3%	0.9%	1.8%	Drywall	3,526	1.0%	0.1%	1.9%
Cardboard - coated	1,072	0.3%	0.0%	0.8%	Roofing Shingles	0	0.0%	0.0%	0.0%
Boxboard	4,124	1.2%	1.0%	1.4%	PVC	155	0.0%	0.0%	0.1%
Mixed Recyclable Paper	18,935	5.4%	4.4%	6.4%	Ceramics/Porcelain	1,021	0.3%	0.0%	0.6%
Compostable Paper	23,301	6.6%	5.5%	7.8%	Other C&D	2,858	0.8%	0.1%	1.5%
R/C Paper	5,793	1.7%	1.3%	2.0%	***Problem Wastes***	**33,344**	**9.5%**		
Plastics	**37,561**	**10.7%**			Televisions	5,607	1.6%	0.0%	3.2%
PET Bottles	1,713	0.5%	0.4%	0.6%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	718	0.2%	0.1%	0.3%	Computer Equipment	1,206	0.3%	0.0%	0.7%
HDPE Bottles - colored	1,239	0.4%	0.3%	0.4%	Electronic Equipment	8,307	2.4%	1.3%	3.5%
#3-#7 Other Plastic Bottles	71	0.0%	0.0%	0.0%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	1,615	0.5%	0.4%	0.5%	White Goods - non-refrigerated	2,522	0.7%	0.0%	1.5%
Other Rigid Plastic Containers	5,524	1.6%	1.3%	1.9%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	15,435	4.4%	3.7%	5.1%	Other Household Batteries	777	0.2%	0.1%	0.3%
R/C Plastic	11,245	3.2%	2.1%	4.3%	Tires	0	0.0%	0.0%	0.0%
Metal	**19,864**	**5.7%**			Bulky Items	14,921	4.3%	1.1%	7.4%
Aluminum Cans	1,269	0.4%	0.3%	0.5%	Fluorescent Lights	5	0.0%	0.0%	0.0%
Other Aluminum	1,412	0.4%	0.2%	0.6%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	3,306	0.9%	0.7%	1.2%	Pallets	0	0.0%	0.0%	0.0%
Ferrous Metals	9,748	2.8%	1.4%	4.2%	***Household Hazardous***	**1,046**	**0.3%**		
Non-Ferrous Metals	438	0.1%	0.0%	0.2%	Latex Paint	76	0.0%	0.0%	0.1%
R/C Metal	3,692	1.1%	0.3%	1.8%	Oil Paint	19	0.0%	0.0%	0.0%
Glass	**5,597**	**1.6%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	3,443	1.0%	0.7%	1.3%	Auto Used Oil Filters	643	0.2%	0.0%	0.3%
R/C Glass	2,154	0.6%	0.3%	0.9%	Mercury	0	0.0%	0.0%	0.0%
Organics	**107,727**	**30.7%**			Other Hazardous	308	0.1%	0.0%	0.1%
Yard Waste - <6"	6,733	1.9%	0.3%	3.6%	***Other Wastes***	**19,380**	**5.5%**		
Yard Waste - >6"	1,249	0.4%	0.0%	0.8%	Textiles	13,400	3.8%	2.9%	4.8%
Food	56,441	16.1%	13.4%	18.7%	Carpet	5,465	1.6%	0.3%	2.8%
Diapers	15,869	4.5%	3.5%	5.6%	Carpet Padding	515	0.1%	0.0%	0.4%
Animal Waste/Kitty Litter	6,771	1.9%	1.3%	2.6%					
Bottom Fines/Dirt	9,486	2.7%	1.9%	3.5%					
R/C Organic	11,178	3.2%	1.9%	4.5%					

Total Tons	**350,871**
Sample Count	**35**

Industrial/Commercial/Institutional

Figure B - 3 – Overview of Composition, Northeast ICI

(Calendar Year 2001)

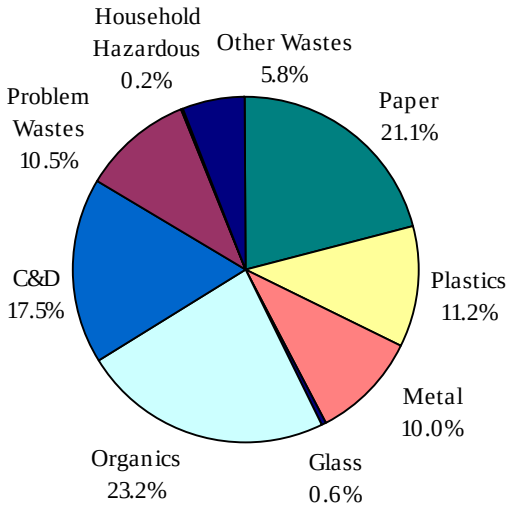


Table B - 5 – Top Ten Components, Northeast ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	14.7%	14.7%	76,900	76,900
Wood - untreated	11.3%	26.0%	58,768	135,669
Ferrous Metals	7.6%	33.6%	39,821	175,490
Compostable Paper	5.5%	39.1%	28,750	204,240
Plastic Film	5.1%	44.2%	26,467	230,706
Cardboard - recyclable	4.1%	48.3%	21,484	252,191
R/C Paper	4.1%	52.4%	21,457	273,648
R/C Plastic	4.1%	56.5%	21,454	295,101
Pallets	4.0%	60.6%	21,099	316,200
Mixed Recyclable Paper	3.8%	64.3%	19,740	335,940
Total	**64.3%**			**335,940**

Table B - 6 – Detailed Composition Profile, Northeast ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**109,960**	**21.1%**		
Newsprint	4,985	1.0%	0.5%	1.4%
High Grade Paper	5,593	1.1%	0.5%	1.7%
Magazines/Catalogs	3,862	0.7%	0.4%	1.1%
Cardboard - recyclable	21,484	4.1%	1.5%	6.8%
Cardboard - coated	287	0.1%	0.0%	0.1%
Boxboard	3,802	0.7%	0.4%	1.1%
Mixed Recyclable Paper	19,740	3.8%	2.7%	4.8%
Compostable Paper	28,750	5.5%	3.1%	7.9%
R/C Paper	21,457	4.1%	1.7%	6.5%
Plastics	**58,277**	**11.2%**		
PET Bottles	1,658	0.3%	0.2%	0.4%
HDPE Bottles - natural	870	0.2%	0.1%	0.2%
HDPE Bottles - colored	1,055	0.2%	0.1%	0.3%
#3-#7 Other Plastic Bottles	26	0.0%	0.0%	0.0%
Polystyrene	2,119	0.4%	0.2%	0.7%
Other Rigid Plastic Containers	4,629	0.9%	0.6%	1.2%
Plastic Film	26,467	5.1%	3.3%	6.8%
R/C Plastic	21,454	4.1%	1.2%	7.0%
Metal	**51,993**	**10.0%**		
Aluminum Cans	1,348	0.3%	0.1%	0.4%
Other Aluminum	705	0.1%	0.1%	0.2%
Tin Cans	3,363	0.6%	0.0%	1.4%
Ferrous Metals	39,821	7.6%	2.6%	12.7%
Non-Ferrous Metals	191	0.0%	0.0%	0.1%
R/C Metal	6,564	1.3%	0.0%	2.5%
Glass	**3,193**	**0.6%**		
Glass - recyclable	2,103	0.4%	0.2%	0.6%
R/C Glass	1,090	0.2%	0.0%	0.4%
Organics	**121,263**	**23.2%**		
Yard Waste - <6"	7,362	1.4%	0.1%	2.7%
Yard Waste - >6"	987	0.2%	0.0%	0.5%
Food	76,900	14.7%	9.7%	19.8%
Diapers	5,850	1.1%	0.5%	1.7%
Animal Waste/Kitty Litter	4,315	0.8%	0.1%	1.6%
Bottom Fines/Dirt	6,347	1.2%	0.7%	1.7%
R/C Organic	19,502	3.7%	1.9%	5.6%

	Tons	Mean	Conf. Interval Low	Conf. Interval High
C&D	**91,452**	**17.5%**		
Wood - treated	191	0.0%	0.0%	0.1%
Wood - untreated	58,768	11.3%	6.8%	15.7%
Rock/Concrete/Brick	5,167	1.0%	0.2%	1.8%
Drywall	9,459	1.8%	0.5%	3.2%
Roofing Shingles	2,492	0.5%	0.0%	1.0%
PVC	26	0.0%	0.0%	0.0%
Ceramics/Porcelain	644	0.1%	0.0%	0.2%
Other C&D	14,705	2.8%	0.0%	6.0%
Problem Wastes	**54,707**	**10.5%**		
Televisions	710	0.1%	0.0%	0.4%
Computer Monitors	6,681	1.3%	0.0%	2.6%
Computer Equipment	518	0.1%	0.0%	0.3%
Electronic Equipment	2,746	0.5%	0.1%	1.0%
White Goods - refrigerated	3,171	0.6%	0.0%	1.6%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	152	0.0%	0.0%	0.1%
Tires	1,540	0.3%	0.0%	0.8%
Bulky Items	18,091	3.5%	0.3%	6.6%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	21,099	4.0%	0.1%	8.0%
Household Hazardous	**818**	**0.2%**		
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	348	0.1%	0.0%	0.2%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	470	0.1%	0.0%	0.2%
Other Wastes	**30,516**	**5.8%**		
Textiles	19,642	3.8%	1.3%	6.3%
Carpet	10,874	2.1%	0.2%	4.0%
Carpet Padding	0	0.0%	0.0%	0.0%

Total Tons	**522,179**
Sample Count	**49**

Construction & Demolition

Figure B - 4 – Overview of Composition, Northeast C&D

(Calendar Year 2001)

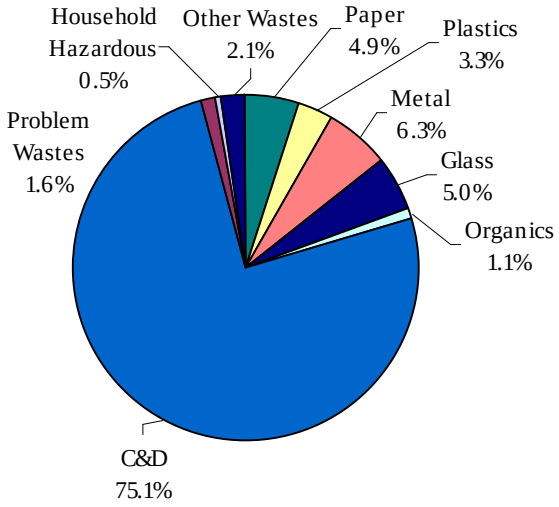


Table B - 7 – Top Ten Components, Northeast C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	28.2%	28.2%	87,475	87,475
Other C&D	20.5%	48.7%	63,749	151,223
Roofing Shingles	12.6%	61.3%	39,085	190,309
Rock/Concrete/Brick	9.5%	70.7%	29,376	219,685
R/C Glass	4.7%	75.4%	14,592	234,277
Cardboard - recyclable	3.6%	79.1%	11,278	245,555
Ferrous Metals	3.0%	82.1%	9,302	254,857
Drywall	3.0%	85.1%	9,288	264,145
R/C Metal	2.4%	87.4%	7,336	271,480
R/C Plastic	1.9%	89.3%	5,910	277,390
Total	**89.3%**			**277,390**

Table B - 8 – Detailed Composition Profile, Northeast C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**15,325**	**4.9%**		
Newsprint	294	0.1%	0.0%	0.2%
High Grade Paper	99	0.0%	0.0%	0.1%
Magazines/Catalogs	7	0.0%	0.0%	0.0%
Cardboard - recyclable	11,278	3.6%	0.5%	6.8%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	64	0.0%	0.0%	0.1%
Mixed Recyclable Paper	3,121	1.0%	0.0%	2.1%
Compostable Paper	193	0.1%	0.0%	0.1%
R/C Paper	270	0.1%	0.0%	0.2%
Plastics	**10,254**	**3.3%**		
PET Bottles	100	0.0%	0.0%	0.1%
HDPE Bottles - natural	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	7	0.0%	0.0%	0.0%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%
Polystyrene	259	0.1%	0.0%	0.2%
Other Rigid Plastic Containers	1,129	0.4%	0.1%	0.6%
Plastic Film	2,849	0.9%	0.1%	1.7%
R/C Plastic	5,910	1.9%	0.0%	3.8%
Metal	**19,601**	**6.3%**		
Aluminum Cans	56	0.0%	0.0%	0.0%
Other Aluminum	2,339	0.8%	0.0%	1.8%
Tin Cans	49	0.0%	0.0%	0.0%
Ferrous Metals	9,302	3.0%	0.0%	6.5%
Non-Ferrous Metals	519	0.2%	0.0%	0.4%
R/C Metal	7,336	2.4%	0.0%	5.6%
Glass	**15,561**	**5.0%**		
Glass - recyclable	969	0.3%	0.0%	0.8%
R/C Glass	14,592	4.7%	0.6%	8.8%
Organics	**3,360**	**1.1%**		
Yard Waste - <6"	735	0.2%	0.0%	0.5%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	962	0.3%	0.0%	0.8%
Diapers	0	0.0%	0.0%	0.0%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%
Bottom Fines/Dirt	0	0.0%	0.0%	0.0%
R/C Organic	1,663	0.5%	0.0%	1.1%
C&D	**233,367**	**75.1%**		
Wood - treated	4,112	1.3%	0.0%	2.7%
Wood - untreated	87,475	28.2%	17.5%	38.8%
Rock/Concrete/Brick	29,376	9.5%	1.3%	17.6%
Drywall	9,288	3.0%	0.8%	5.2%
Roofing Shingles	39,085	12.6%	3.3%	21.9%
PVC	266	0.1%	0.0%	0.2%
Ceramics/Porcelain	16	0.0%	0.0%	0.0%
Other C&D	63,749	20.5%	7.8%	33.2%
Problem Wastes	**4,888**	**1.6%**		
Televisions	0	0.0%	0.0%	0.0%
Computer Monitors	336	0.1%	0.0%	0.3%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	155	0.0%	0.0%	0.1%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	0	0.0%	0.0%	0.0%
Tires	0	0.0%	0.0%	0.0%
Bulky Items	4,397	1.4%	0.0%	3.7%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	0	0.0%	0.0%	0.0%
Household Hazardous	**1,550**	**0.5%**		
Latex Paint	908	0.3%	0.0%	0.7%
Oil Paint	635	0.2%	0.0%	0.5%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	7	0.0%	0.0%	0.0%
Other Wastes	**6,654**	**2.1%**		
Textiles	1,279	0.4%	0.1%	0.7%
Carpet	5,375	1.7%	0.0%	3.8%
Carpet Padding	0	0.0%	0.0%	0.0%
Total Tons	**310,560**			
Sample Count	**31**			

COMPARISONS AMONG SUBSTREAM TONNAGES IN NORTHEAST REGION

Table 3-18 – Composition Comparisons among Substreams, Northeast

(Calendar Year 2001)

	(Mean Percentage)				(Mean Percentage)		
Material	**Residential**	**ICI**	**C&D**	**Material**	**Residential**	**ICI**	**C&D**
Paper	**22.3%**	**21.1%**	**4.9%**	**C&D**	**13.7%**	**17.5%**	**75.1%**
Newsprint	2.4%	1.0%	0.1%	Wood - treated	0.1%	0.0%	1.3%
High Grade Paper	1.7%	1.1%	0.0%	Wood - untreated	10.1%	11.3%	28.2%
Magazines/Catalogs	1.7%	0.7%	0.0%	Rock/Concrete/Brick	1.3%	1.0%	9.5%
Cardboard - recyclable	1.3%	4.1%	3.6%	Drywall	1.0%	1.8%	3.0%
Cardboard - coated	0.3%	0.1%	0.0%	Roofing Shingles	0.0%	0.5%	12.6%
Boxboard	1.2%	0.7%	0.0%	PVC	0.0%	0.0%	0.1%
Mixed Recyclable Paper	5.4%	3.8%	1.0%	Ceramics/Porcelain	0.3%	0.1%	0.0%
Compostable Paper	6.6%	5.5%	0.1%	Other C&D	0.8%	2.8%	20.5%
R/C Paper	1.7%	4.1%	0.1%	**Problem Wastes**	**9.5%**	**10.5%**	**1.6%**
Plastics	**10.7%**	**11.2%**	**3.3%**	Televisions	1.6%	0.1%	0.0%
PET Bottles	0.5%	0.3%	0.0%	Computer Monitors	0.0%	1.3%	0.1%
HDPE Bottles - natural	0.2%	0.2%	0.0%	Computer Equipment	0.3%	0.1%	0.0%
HDPE Bottles - colored	0.4%	0.2%	0.0%	Electronic Equipment	2.4%	0.5%	0.0%
#3-#7 Other Plastic Bottles	0.0%	0.0%	0.0%	White Goods - refrigerated	0.0%	0.6%	0.0%
Polystyrene	0.5%	0.4%	0.1%	White Goods - non-refrigerated	0.7%	0.0%	0.0%
Other Rigid Plastic Containers	1.6%	0.9%	0.4%	Lead-Acid Batteries	0.0%	0.0%	0.0%
Plastic Film	4.4%	5.1%	0.9%	Other Household Batteries	0.2%	0.0%	0.0%
R/C Plastic	3.2%	4.1%	1.9%	Tires	0.0%	0.3%	0.0%
Metal	**5.7%**	**10.0%**	**6.3%**	Bulky Items	4.3%	3.5%	1.4%
Aluminum Cans	0.4%	0.3%	0.0%	Fluorescent Lights	0.0%	0.0%	0.0%
Other Aluminum	0.4%	0.1%	0.8%	Ballasts	0.0%	0.0%	0.0%
Tin Cans	0.9%	0.6%	0.0%	Pallets	0.0%	4.0%	0.0%
Ferrous Metals	2.8%	7.6%	3.0%	**Household Hazardous**	**0.3%**	**0.2%**	**0.5%**
Non-Ferrous Metals	0.1%	0.0%	0.2%	Latex Paint	0.0%	0.0%	0.3%
R/C Metal	1.1%	1.3%	2.4%	Oil Paint	0.0%	0.0%	0.2%
Glass	**1.6%**	**0.6%**	**5.0%**	Pesticides/Fertilizers	0.0%	0.0%	0.0%
Glass - recyclable	1.0%	0.4%	0.3%	Auto Used Oil Filters	0.2%	0.1%	0.0%
R/C Glass	0.6%	0.2%	4.7%	Mercury	0.0%	0.0%	0.0%
Organics	**30.7%**	**23.2%**	**1.1%**	Other Hazardous	0.1%	0.1%	0.0%
Yard Waste - <6"	1.9%	1.4%	0.2%	**Other Wastes**	**5.5%**	**5.8%**	**2.1%**
Yard Waste - >6"	0.4%	0.2%	0.0%	Textiles	3.8%	3.8%	0.4%
Food	16.1%	14.7%	0.3%	Carpet	1.6%	2.1%	1.7%
Diapers	4.5%	1.1%	0.0%	Carpet Padding	0.1%	0.0%	0.0%
Animal Waste/Kitty Litter	1.9%	0.8%	0.0%				
Bottom Fines/Dirt	2.7%	1.2%	0.0%				
R/C Organic	3.2%	3.7%	0.5%	**Total**	**100.0%**	**100.0%**	**100.0%**

NORTH REGION

Overall

Figure B - 5 – Overview of Composition, North

(Calendar Year 2001)

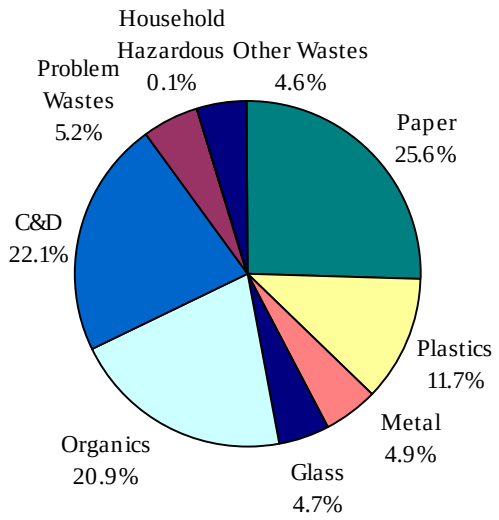


Table B - 9 – Top Ten Components, North

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	13.1%	13.1%	42,828	42,828
Wood - untreated	11.8%	24.9%	38,841	81,669
Mixed Recyclable Paper	5.0%	29.9%	16,357	98,026
Plastic Film	5.0%	34.9%	16,353	114,379
Newsprint	4.8%	39.7%	15,641	130,020
Other C&D	4.3%	44.0%	14,204	144,224
Compostable Paper	4.2%	48.2%	13,619	157,843
R/C Paper	3.7%	51.9%	12,254	170,097
R/C Plastic	3.6%	55.5%	11,912	182,010
Cardboard - recyclable	2.9%	58.5%	9,622	191,631
Total	**58.5%**			**191,631**

Table B - 10 – Detailed Composition Profile, North

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**83,904**	**25.6%**			***C&D***	**72,556**	**22.1%**		
Newsprint	15,641	4.8%	3.2%	6.4%	Wood - treated	2,870	0.9%	0.0%	1.8%
High Grade Paper	9,606	2.9%	0.0%	6.0%	Wood - untreated	38,841	11.8%	8.2%	15.5%
Magazines/Catalogs	3,963	1.2%	0.7%	1.7%	Rock/Concrete/Brick	4,190	1.3%	0.7%	1.9%
Cardboard - recyclable	9,622	2.9%	0.9%	4.9%	Drywall	8,153	2.5%	0.7%	4.3%
Cardboard - coated	209	0.1%	0.0%	0.2%	Roofing Shingles	3,009	0.9%	0.3%	1.6%
Boxboard	2,632	0.8%	0.6%	1.0%	PVC	560	0.2%	0.1%	0.3%
Mixed Recyclable Paper	16,357	5.0%	3.8%	6.2%	Ceramics/Porcelain	728	0.2%	0.0%	0.5%
Compostable Paper	13,619	4.2%	3.3%	5.0%	Other C&D	14,204	4.3%	1.3%	7.4%
R/C Paper	12,254	3.7%	0.0%	8.0%	***Problem Wastes***	**17,199**	**5.2%**		
Plastics	**38,463**	**11.7%**			Televisions	2,552	0.8%	0.0%	1.8%
PET Bottles	2,270	0.7%	0.5%	0.9%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	834	0.3%	0.2%	0.3%	Computer Equipment	528	0.2%	0.0%	0.4%
HDPE Bottles - colored	1,346	0.4%	0.3%	0.5%	Electronic Equipment	4,284	1.3%	0.6%	2.0%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	2,734	0.8%	0.3%	1.4%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	3,014	0.9%	0.7%	1.1%	Lead-Acid Batteries	7	0.0%	0.0%	0.0%
Plastic Film	16,353	5.0%	2.1%	7.9%	Other Household Batteries	231	0.1%	0.0%	0.1%
R/C Plastic	11,912	3.6%	0.7%	6.5%	Tires	291	0.1%	0.0%	0.2%
Metal	**16,221**	**4.9%**			Bulky Items	5,247	1.6%	0.1%	3.1%
Aluminum Cans	2,370	0.7%	0.5%	0.9%	Fluorescent Lights	1	0.0%	0.0%	0.0%
Other Aluminum	1,068	0.3%	0.1%	0.5%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	3,473	1.1%	0.8%	1.3%	Pallets	4,058	1.2%	0.3%	2.2%
Ferrous Metals	6,139	1.9%	1.1%	2.6%	***Household Hazardous***	**261**	**0.1%**		
Non-Ferrous Metals	231	0.1%	0.0%	0.2%	Latex Paint	123	0.0%	0.0%	0.1%
R/C Metal	2,939	0.9%	0.4%	1.4%	Oil Paint	69	0.0%	0.0%	0.0%
Glass	**15,363**	**4.7%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	6,770	2.1%	1.4%	2.8%	Auto Used Oil Filters	48	0.0%	0.0%	0.0%
R/C Glass	8,593	2.6%	0.0%	6.4%	Mercury	0	0.0%	0.0%	0.0%
Organics	**68,606**	**20.9%**			Other Hazardous	21	0.0%	0.0%	0.0%
Yard Waste - <6"	864	0.3%	0.1%	0.4%	***Other Wastes***	**15,231**	**4.6%**		
Yard Waste - >6"	0	0.0%	0.0%	0.0%	Textiles	7,385	2.3%	1.6%	2.9%
Food	42,828	13.1%	10.5%	15.6%	Carpet	7,338	2.2%	0.5%	4.0%
Diapers	7,596	2.3%	1.3%	3.3%	Carpet Padding	509	0.2%	0.0%	0.3%
Animal Waste/Kitty Litter	3,464	1.1%	0.3%	1.8%					
Bottom Fines/Dirt	7,845	2.4%	1.4%	3.4%					
R/C Organic	6,010	1.8%	0.9%	2.8%					

Total Tons	**327,802**
Sample Count	**74**

Residential

Figure B - 6 – Overview of Composition, North Residential

(Calendar Year 2001)

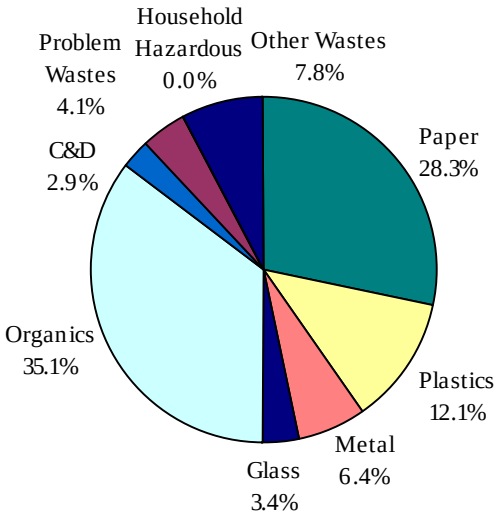


Table B - 11 – Top Ten Components, North Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	22.6%	22.6%	31,261	31,261
Newsprint	7.4%	30.0%	10,275	41,536
Compostable Paper	6.9%	36.9%	9,495	51,031
Mixed Recyclable Paper	6.7%	43.7%	9,329	60,359
Plastic Film	5.3%	49.0%	7,375	67,734
Bottom Fines/Dirt	4.2%	53.2%	5,820	73,554
Textiles	4.1%	57.3%	5,649	79,203
Carpet	3.7%	61.0%	5,125	84,328
Diapers	3.1%	64.1%	4,329	88,657
Glass - recyclable	2.9%	67.0%	4,003	92,660
Total	**67.0%**			**92,660**

Table B - 12 – Detailed Composition Profile, North Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**39,052**	**28.3%**		
Newsprint	10,275	7.4%	4.7%	10.1%
High Grade Paper	1,506	1.1%	0.5%	1.7%
Magazines/Catalogs	2,494	1.8%	1.1%	2.5%
Cardboard - recyclable	2,226	1.6%	0.5%	2.7%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	2,014	1.5%	1.1%	1.8%
Mixed Recyclable Paper	9,329	6.7%	5.3%	8.2%
Compostable Paper	9,495	6.9%	5.5%	8.3%
R/C Paper	1,715	1.2%	0.9%	1.6%
Plastics	**16,733**	**12.1%**		
PET Bottles	1,588	1.1%	0.9%	1.4%
HDPE Bottles - natural	650	0.5%	0.3%	0.6%
HDPE Bottles - colored	987	0.7%	0.5%	0.9%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%
Polystyrene	828	0.6%	0.4%	0.8%
Other Rigid Plastic Containers	1,872	1.4%	1.1%	1.6%
Plastic Film	7,375	5.3%	2.8%	7.9%
R/C Plastic	3,433	2.5%	1.6%	3.3%
Metal	**8,821**	**6.4%**		
Aluminum Cans	1,633	1.2%	0.9%	1.5%
Other Aluminum	475	0.3%	0.2%	0.5%
Tin Cans	2,865	2.1%	1.6%	2.5%
Ferrous Metals	2,767	2.0%	0.6%	3.4%
Non-Ferrous Metals	18	0.0%	0.0%	0.0%
R/C Metal	1,064	0.8%	0.2%	1.3%
Glass	**4,633**	**3.4%**		
Glass - recyclable	4,003	2.9%	1.9%	3.9%
R/C Glass	630	0.5%	0.2%	0.7%
Organics	**48,505**	**35.1%**		
Yard Waste - <6"	413	0.3%	0.0%	0.6%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	31,261	22.6%	18.1%	27.1%
Diapers	4,329	3.1%	1.4%	4.9%
Animal Waste/Kitty Litter	2,747	2.0%	0.3%	3.7%
Bottom Fines/Dirt	5,820	4.2%	2.0%	6.4%
R/C Organic	3,936	2.8%	1.2%	4.5%
C&D	**4,002**	**2.9%**		
Wood - treated	120	0.1%	0.0%	0.2%
Wood - untreated	1,630	1.2%	0.5%	1.8%
Rock/Concrete/Brick	237	0.2%	0.0%	0.4%
Drywall	28	0.0%	0.0%	0.1%
Roofing Shingles	74	0.1%	0.0%	0.1%
PVC	63	0.0%	0.0%	0.1%
Ceramics/Porcelain	125	0.1%	0.0%	0.2%
Other C&D	1,725	1.2%	0.0%	2.8%
Problem Wastes	**5,622**	**4.1%**		
Televisions	1,973	1.4%	0.0%	3.8%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	2,712	2.0%	0.5%	3.4%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	168	0.1%	0.0%	0.2%
Tires	291	0.2%	0.0%	0.6%
Bulky Items	478	0.3%	0.0%	0.6%
Fluorescent Lights	1	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	0	0.0%	0.0%	0.0%
Household Hazardous	**33**	**0.0%**		
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	30	0.0%	0.0%	0.1%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	3	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	0	0.0%	0.0%	0.0%
Other Wastes	**10,822**	**7.8%**		
Textiles	5,649	4.1%	2.7%	5.4%
Carpet	5,125	3.7%	0.0%	7.7%
Carpet Padding	48	0.0%	0.0%	0.1%
Total Tons	**138,222**			
Sample Count	**22**			

Industrial/Commercial/Institutional

Figure B - 7 - Overview of Composition, North ICI

(Calendar Year 2001)

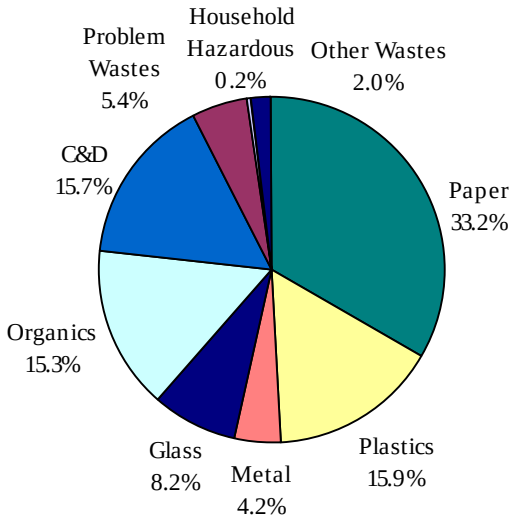


Table B - 13 – Top Ten Components, North ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	8.8%	8.8%	11,567	11,567
Wood - untreated	8.2%	17.0%	10,755	22,322
R/C Paper	7.9%	24.9%	10,353	32,675
Plastic Film	6.8%	31.7%	8,857	41,532
High Grade Paper	6.2%	37.9%	8,071	49,603
Other C&D	6.2%	44.0%	8,067	57,670
R/C Glass	6.1%	50.1%	7,964	65,633
R/C Plastic	6.1%	56.2%	7,956	73,589
Mixed Recyclable Paper	5.3%	61.4%	6,886	80,475
Cardboard - recyclable	5.0%	66.4%	6,494	86,969
Total	**66.4%**			**86,969**

Table B - 14 – Detailed Composition Profile, North ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**43,528**	**33.2%**		
Newsprint	5,354	4.1%	1.3%	6.9%
High Grade Paper	8,071	6.2%	0.0%	13.8%
Magazines/Catalogs	1,470	1.1%	0.2%	2.1%
Cardboard - recyclable	6,494	5.0%	0.1%	9.8%
Cardboard - coated	209	0.2%	0.0%	0.4%
Boxboard	566	0.4%	0.2%	0.6%
Mixed Recyclable Paper	6,886	5.3%	2.7%	7.8%
Compostable Paper	4,124	3.1%	1.8%	4.5%
R/C Paper	10,353	7.9%	0.0%	18.5%
Plastics	**20,800**	**15.9%**		
PET Bottles	675	0.5%	0.2%	0.8%
HDPE Bottles - natural	181	0.1%	0.1%	0.2%
HDPE Bottles - colored	359	0.3%	0.0%	0.5%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%
Polystyrene	1,874	1.4%	0.0%	2.8%
Other Rigid Plastic Containers	898	0.7%	0.3%	1.0%
Plastic Film	8,857	6.8%	0.0%	13.6%
R/C Plastic	7,956	6.1%	0.0%	13.2%
Metal	**5,465**	**4.2%**		
Aluminum Cans	731	0.6%	0.2%	0.9%
Other Aluminum	580	0.4%	0.0%	1.0%
Tin Cans	608	0.5%	0.2%	0.7%
Ferrous Metals	1,711	1.3%	0.3%	2.3%
Non-Ferrous Metals	214	0.2%	0.0%	0.4%
R/C Metal	1,620	1.2%	0.3%	2.2%
Glass	**10,696**	**8.2%**		
Glass - recyclable	2,732	2.1%	0.7%	3.5%
R/C Glass	7,964	6.1%	0.0%	15.6%
Organics	**20,090**	**15.3%**		
Yard Waste - <6"	451	0.3%	0.0%	0.7%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	11,567	8.8%	4.5%	13.2%
Diapers	3,256	2.5%	0.8%	4.2%
Animal Waste/Kitty Litter	717	0.5%	0.0%	1.1%
Bottom Fines/Dirt	2,025	1.5%	0.7%	2.4%
R/C Organic	2,074	1.6%	0.0%	3.2%
C&D	**20,577**	**15.7%**		
Wood - treated	441	0.3%	0.0%	0.9%
Wood - untreated	10,755	8.2%	0.7%	15.8%
Rock/Concrete/Brick	51	0.0%	0.0%	0.1%
Drywall	1,158	0.9%	0.0%	2.4%
Roofing Shingles	0	0.0%	0.0%	0.0%
PVC	2	0.0%	0.0%	0.0%
Ceramics/Porcelain	103	0.1%	0.0%	0.2%
Other C&D	8,067	6.2%	0.0%	13.5%
Problem Wastes	**7,087**	**5.4%**		
Televisions	579	0.4%	0.0%	1.2%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	528	0.4%	0.0%	1.1%
Electronic Equipment	1,434	1.1%	0.3%	1.9%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	7	0.0%	0.0%	0.0%
Other Household Batteries	64	0.0%	0.0%	0.1%
Tires	0	0.0%	0.0%	0.0%
Bulky Items	1,238	0.9%	0.0%	2.2%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	3,238	2.5%	0.2%	4.7%
Household Hazardous	**227**	**0.2%**		
Latex Paint	123	0.1%	0.0%	0.2%
Oil Paint	38	0.0%	0.0%	0.1%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	46	0.0%	0.0%	0.1%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	20	0.0%	0.0%	0.0%
Other Wastes	**2,571**	**2.0%**		
Textiles	1,548	1.2%	0.5%	1.9%
Carpet	1,023	0.8%	0.0%	1.7%
Carpet Padding	0	0.0%	0.0%	0.0%
Total Tons	**131,041**			
Sample Count	**23**			

Construction & Demolition

Figure B - 8 – Overview of Composition, North C&D

(Calendar Year 2001)

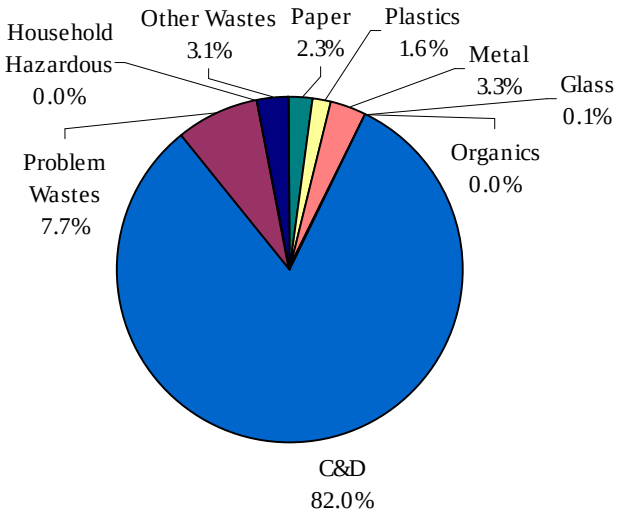


Table B - 15 – Top Ten Components, North C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	45.2%	45.2%	26,457	26,457
Drywall	11.9%	57.1%	6,967	33,424
Other C&D	7.5%	64.6%	4,412	37,836
Rock/Concrete/Brick	6.7%	71.3%	3,902	41,738
Bulky Items	6.0%	77.3%	3,532	45,269
Roofing Shingles	5.0%	82.3%	2,935	48,204
Wood - treated	3.9%	86.3%	2,308	50,512
Ferrous Metals	2.8%	89.1%	1,660	52,173
Carpet	2.0%	91.2%	1,190	53,362
Cardboard - recyclable	1.5%	92.7%	902	54,264
Total	**92.7%**			**54,264**

Table B - 16 – Detailed Composition Profile, North C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**1,324**	**2.3%**		
Newsprint	12	0.0%	0.0%	0.1%
High Grade Paper	30	0.1%	0.0%	0.1%
Magazines/Catalogs	0	0.0%	0.0%	0.0%
Cardboard - recyclable	902	1.5%	0.5%	2.6%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	52	0.1%	0.0%	0.2%
Mixed Recyclable Paper	142	0.2%	0.0%	0.5%
Compostable Paper	0	0.0%	0.0%	0.0%
R/C Paper	186	0.3%	0.0%	0.7%
Plastics	**930**	**1.6%**		
PET Bottles	7	0.0%	0.0%	0.0%
HDPE Bottles - natural	3	0.0%	0.0%	0.0%
HDPE Bottles - colored	0	0.0%	0.0%	0.0%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%
Polystyrene	32	0.1%	0.0%	0.1%
Other Rigid Plastic Containers	244	0.4%	0.0%	0.9%
Plastic Film	122	0.2%	0.0%	0.4%
R/C Plastic	523	0.9%	0.0%	2.3%
Metal	**1,935**	**3.3%**		
Aluminum Cans	7	0.0%	0.0%	0.0%
Other Aluminum	13	0.0%	0.0%	0.1%
Tin Cans	0	0.0%	0.0%	0.0%
Ferrous Metals	1,660	2.8%	1.2%	4.5%
Non-Ferrous Metals	0	0.0%	0.0%	0.0%
R/C Metal	256	0.4%	0.0%	1.0%
Glass	**34**	**0.1%**		
Glass - recyclable	34	0.1%	0.0%	0.2%
R/C Glass	0	0.0%	0.0%	0.0%
Organics	**11**	**0.0%**		
Yard Waste - <6"	0	0.0%	0.0%	0.0%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	0	0.0%	0.0%	0.0%
Diapers	11	0.0%	0.0%	0.1%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%
Bottom Fines/Dirt	0	0.0%	0.0%	0.0%
R/C Organic	0	0.0%	0.0%	0.0%
C&D	**47,977**	**82.0%**		
Wood - treated	2,308	3.9%	0.0%	9.2%
Wood - untreated	26,457	45.2%	33.5%	56.9%
Rock/Concrete/Brick	3,902	6.7%	3.3%	10.0%
Drywall	6,967	11.9%	2.5%	21.3%
Roofing Shingles	2,935	5.0%	1.3%	8.7%
PVC	495	0.8%	0.2%	1.5%
Ceramics/Porcelain	500	0.9%	0.0%	2.1%
Other C&D	4,412	7.5%	4.5%	10.6%
Problem Wastes	**4,490**	**7.7%**		
Televisions	0	0.0%	0.0%	0.0%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	138	0.2%	0.0%	0.5%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	0	0.0%	0.0%	0.0%
Tires	0	0.0%	0.0%	0.0%
Bulky Items	3,532	6.0%	0.0%	13.8%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	820	1.4%	0.3%	2.5%
Household Hazardous	**0**	**0.0%**		
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	0	0.0%	0.0%	0.0%
Other Wastes	**1,838**	**3.1%**		
Textiles	188	0.3%	0.0%	0.8%
Carpet	1,190	2.0%	0.3%	3.7%
Carpet Padding	461	0.8%	0.0%	1.9%

Total Tons	**58,539**
Sample Count	**29**

COMPARISONS AMONG SUBSTREAM TONNAGES IN NORTH REGION

Table B-3-19 – Composition Comparisons among Substreams, North

(Calendar Year 2001)

	(Mean Percentage)				(Mean Percentage)		
Material	**Residential**	**ICI**	**C&D**	**Material**	**Residential**	**ICI**	**C&D**
Paper	**28.3%**	**33.2%**	**2.3%**	**C&D**	**2.9%**	**15.7%**	**82.0%**
Newsprint	7.4%	4.1%	0.0%	Wood - treated	0.1%	0.3%	3.9%
High Grade Paper	1.1%	6.2%	0.1%	Wood - untreated	1.2%	8.2%	45.2%
Magazines/Catalogs	1.8%	1.1%	0.0%	Rock/Concrete/Brick	0.2%	0.0%	6.7%
Cardboard - recyclable	1.6%	5.0%	1.5%	Drywall	0.0%	0.9%	11.9%
Cardboard - coated	0.0%	0.2%	0.0%	Roofing Shingles	0.1%	0.0%	5.0%
Boxboard	1.5%	0.4%	0.1%	PVC	0.0%	0.0%	0.8%
Mixed Recyclable Paper	6.7%	5.3%	0.2%	Ceramics/Porcelain	0.1%	0.1%	0.9%
Compostable Paper	6.9%	3.1%	0.0%	Other C&D	1.2%	6.2%	7.5%
R/C Paper	1.2%	7.9%	0.3%	**Problem Wastes**	**4.1%**	**5.4%**	**7.7%**
Plastics	**12.1%**	**15.9%**	**1.6%**	Televisions	1.4%	0.4%	0.0%
PET Bottles	1.1%	0.5%	0.0%	Computer Monitors	0.0%	0.0%	0.0%
HDPE Bottles - natural	0.5%	0.1%	0.0%	Computer Equipment	0.0%	0.4%	0.0%
HDPE Bottles - colored	0.7%	0.3%	0.0%	Electronic Equipment	2.0%	1.1%	0.2%
#3-#7 Other Plastic Bottles	0.0%	0.0%	0.0%	White Goods - refrigerated	0.0%	0.0%	0.0%
Polystyrene	0.6%	1.4%	0.1%	White Goods - non-refrigerated	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	1.4%	0.7%	0.4%	Lead-Acid Batteries	0.0%	0.0%	0.0%
Plastic Film	5.3%	6.8%	0.2%	Other Household Batteries	0.1%	0.0%	0.0%
R/C Plastic	2.5%	6.1%	0.9%	Tires	0.2%	0.0%	0.0%
Metal	**6.4%**	**4.2%**	**3.3%**	Bulky Items	0.3%	0.9%	6.0%
Aluminum Cans	1.2%	0.6%	0.0%	Fluorescent Lights	0.0%	0.0%	0.0%
Other Aluminum	0.3%	0.4%	0.0%	Ballasts	0.0%	0.0%	0.0%
Tin Cans	2.1%	0.5%	0.0%	Pallets	0.0%	2.5%	1.4%
Ferrous Metals	2.0%	1.3%	2.8%	**Household Hazardous**	**0.0%**	**0.2%**	**0.0%**
Non-Ferrous Metals	0.0%	0.2%	0.0%	Latex Paint	0.0%	0.1%	0.0%
R/C Metal	0.8%	1.2%	0.4%	Oil Paint	0.0%	0.0%	0.0%
Glass	**3.4%**	**8.2%**	**0.1%**	Pesticides/Fertilizers	0.0%	0.0%	0.0%
Glass - recyclable	2.9%	2.1%	0.1%	Auto Used Oil Filters	0.0%	0.0%	0.0%
R/C Glass	0.5%	6.1%	0.0%	Mercury	0.0%	0.0%	0.0%
Organics	**35.1%**	**15.3%**	**0.0%**	Other Hazardous	0.0%	0.0%	0.0%
Yard Waste - <6"	0.3%	0.3%	0.0%	**Other Wastes**	**7.8%**	**2.0%**	**3.1%**
Yard Waste - >6"	0.0%	0.0%	0.0%	Textiles	4.1%	1.2%	0.3%
Food	22.6%	8.8%	0.0%	Carpet	3.7%	0.8%	2.0%
Diapers	3.1%	2.5%	0.0%	Carpet Padding	0.0%	0.0%	0.8%
Animal Waste/Kitty Litter	2.0%	0.5%	0.0%				
Bottom Fines/Dirt	4.2%	1.5%	0.0%				
R/C Organic	2.8%	1.6%	0.0%	**Total**	**100.0%**	**100.0%**	**100.0%**

SOUTH CENTRAL REGION

Overall

Figure B - 9 – Overview of Composition, South central

(Calendar Year 2001)

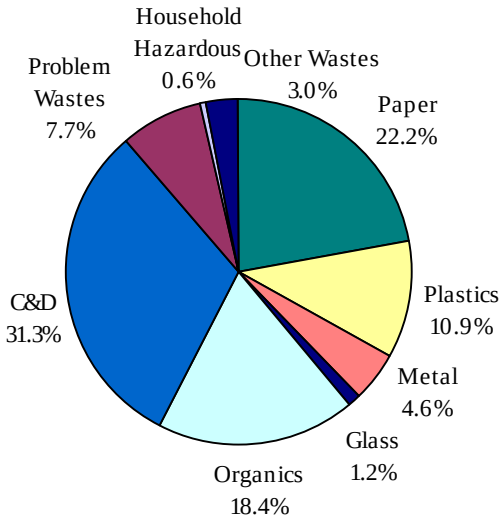


Table B - 17 – Top Ten Components, South central

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Roofing Shingles	11.7%	11.7%	109,258	109,258
Food	11.3%	23.0%	105,369	214,627
Wood - untreated	11.2%	34.2%	104,463	319,089
Mixed Recyclable Paper	5.3%	39.5%	49,714	368,804
Compostable Paper	5.3%	44.8%	49,538	418,341
R/C Plastic	4.1%	48.8%	38,029	456,370
Plastic Film	4.0%	52.9%	37,710	494,080
Cardboard - recyclable	3.1%	56.0%	29,227	523,307
Bulky Items	3.1%	59.1%	28,631	551,937
Ferrous Metals	3.0%	62.0%	27,792	579,729
Total	**62.0%**			**579,729**

Table B - 18 – Detailed Composition Profile, South central

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**207,790**	**22.2%**			***C&D***	**292,682**	**31.3%**		
Newsprint	19,912	2.1%	1.7%	2.6%	Wood - treated	14,001	1.5%	0.3%	2.7%
High Grade Paper	14,301	1.5%	1.0%	2.1%	Wood - untreated	104,463	11.2%	5.7%	16.6%
Magazines/Catalogs	9,432	1.0%	0.7%	1.3%	Rock/Concrete/Brick	26,515	2.8%	0.4%	5.2%
Cardboard - recyclable	29,227	3.1%	2.1%	4.2%	Drywall	13,805	1.5%	0.2%	2.8%
Cardboard - coated	169	0.0%	0.0%	0.0%	Roofing Shingles	109,258	11.7%	5.1%	18.2%
Boxboard	8,572	0.9%	0.7%	1.1%	PVC	96	0.0%	0.0%	0.0%
Mixed Recyclable Paper	49,714	5.3%	4.3%	6.4%	Ceramics/Porcelain	2,165	0.2%	0.0%	0.5%
Compostable Paper	49,538	5.3%	4.5%	6.1%	Other C&D	22,380	2.4%	0.7%	4.1%
R/C Paper	26,924	2.9%	1.3%	4.5%	***Problem Wastes***	**72,029**	**7.7%**		
Plastics	**102,082**	**10.9%**			Televisions	1,703	0.2%	0.0%	0.4%
PET Bottles	3,530	0.4%	0.3%	0.5%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	1,544	0.2%	0.1%	0.2%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	994	0.1%	0.1%	0.1%	Electronic Equipment	10,029	1.1%	0.6%	1.6%
#3-#7 Other Plastic Bottles	347	0.0%	0.0%	0.1%	White Goods - refrigerated	5,152	0.6%	0.0%	1.2%
Polystyrene	4,707	0.5%	0.4%	0.7%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	15,222	1.6%	1.0%	2.2%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	37,710	4.0%	3.3%	4.8%	Other Household Batteries	653	0.1%	0.0%	0.1%
R/C Plastic	38,029	4.1%	1.6%	6.5%	Tires	2,890	0.3%	0.0%	0.7%
Metal	**43,286**	**4.6%**			Bulky Items	28,631	3.1%	1.5%	4.7%
Aluminum Cans	2,307	0.2%	0.2%	0.3%	Fluorescent Lights	48	0.0%	0.0%	0.0%
Other Aluminum	2,162	0.2%	0.2%	0.3%	Ballasts	8	0.0%	0.0%	0.0%
Tin Cans	5,066	0.5%	0.4%	0.7%	Pallets	22,914	2.5%	0.8%	4.1%
Ferrous Metals	27,792	3.0%	1.1%	4.9%	***Household Hazardous***	**5,501**	**0.6%**		
Non-Ferrous Metals	768	0.1%	0.0%	0.1%	Latex Paint	4,031	0.4%	0.0%	1.1%
R/C Metal	5,191	0.6%	0.3%	0.8%	Oil Paint	0	0.0%	0.0%	0.0%
Glass	**10,916**	**1.2%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	8,364	0.9%	0.6%	1.2%	Auto Used Oil Filters	216	0.0%	0.0%	0.1%
R/C Glass	2,552	0.3%	0.1%	0.5%	Mercury	0	0.0%	0.0%	0.0%
Organics	**172,336**	**18.4%**			Other Hazardous	1,254	0.1%	0.0%	0.3%
Yard Waste - <6"	3,979	0.4%	0.2%	0.7%	***Other Wastes***	**27,725**	**3.0%**		
Yard Waste - >6"	1,432	0.2%	0.0%	0.4%	Textiles	12,832	1.4%	0.9%	1.8%
Food	105,369	11.3%	8.6%	13.9%	Carpet	11,152	1.2%	0.5%	1.9%
Diapers	10,733	1.1%	0.8%	1.5%	Carpet Padding	3,742	0.4%	0.0%	0.8%
Animal Waste/Kitty Litter	11,106	1.2%	0.7%	1.7%					
Bottom Fines/Dirt	20,757	2.2%	1.5%	2.9%					
R/C Organic	18,961	2.0%	0.6%	3.5%					

Total Tons	**934,348**
Sample Count	**73**

Residential

Figure B - 10 – Overview of Composition, South central Residential

(Calendar Year 2001)

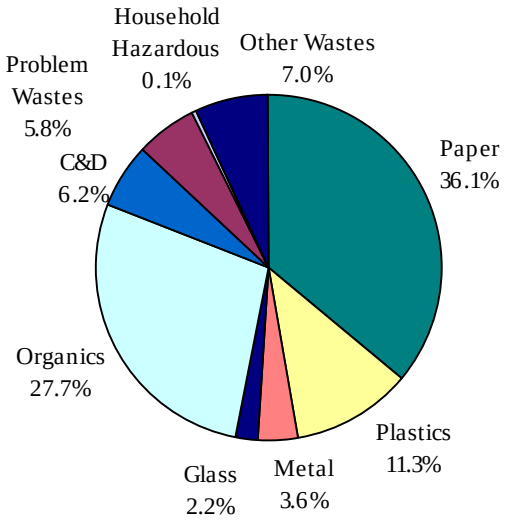


Table B - 19 – Top Ten Components, South central Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	15.1%	15.1%	46,640	46,640
Mixed Recyclable Paper	10.8%	25.9%	33,136	79,776
Compostable Paper	8.8%	34.7%	26,955	106,731
Newsprint	5.2%	39.9%	16,035	122,766
Plastic Film	5.2%	45.1%	15,977	138,743
Bottom Fines/Dirt	3.6%	48.7%	11,217	149,960
Bulky Items	3.5%	52.2%	10,645	160,604
Animal Waste/Kitty Litter	3.4%	55.5%	10,368	170,973
Wood - untreated	3.3%	58.9%	10,211	181,184
Carpet	3.2%	62.1%	9,868	191,051
Total	**62.1%**			**191,051**

Table B - 20 – Detailed Composition Profile, South central Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**110,989**	**36.1%**		
Newsprint	16,035	5.2%	3.9%	6.5%
High Grade Paper	7,132	2.3%	1.1%	3.5%
Magazines/Catalogs	7,275	2.4%	1.6%	3.1%
Cardboard - recyclable	7,021	2.3%	1.5%	3.1%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	6,060	2.0%	1.6%	2.4%
Mixed Recyclable Paper	33,136	10.8%	8.4%	13.1%
Compostable Paper	26,955	8.8%	7.6%	9.9%
R/C Paper	7,376	2.4%	1.6%	3.2%
Plastics	**34,663**	**11.3%**		
PET Bottles	1,583	0.5%	0.4%	0.6%
HDPE Bottles - natural	1,212	0.4%	0.2%	0.6%
HDPE Bottles - colored	588	0.2%	0.1%	0.2%
#3-#7 Other Plastic Bottles	148	0.0%	0.0%	0.1%
Polystyrene	1,610	0.5%	0.4%	0.6%
Other Rigid Plastic Containers	6,203	2.0%	1.4%	2.6%
Plastic Film	15,977	5.2%	4.5%	5.9%
R/C Plastic	7,342	2.4%	1.9%	2.8%
Metal	**11,025**	**3.6%**		
Aluminum Cans	874	0.3%	0.2%	0.4%
Other Aluminum	1,064	0.3%	0.3%	0.4%
Tin Cans	2,843	0.9%	0.4%	1.4%
Ferrous Metals	3,085	1.0%	0.3%	1.7%
Non-Ferrous Metals	484	0.2%	0.0%	0.3%
R/C Metal	2,674	0.9%	0.3%	1.4%
Glass	**6,881**	**2.2%**		
Glass - recyclable	5,467	1.8%	0.9%	2.7%
R/C Glass	1,414	0.5%	0.0%	0.9%
Organics	**85,237**	**27.7%**		
Yard Waste - <6"	3,010	1.0%	0.3%	1.7%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	46,640	15.1%	12.5%	17.8%
Diapers	8,601	2.8%	1.8%	3.8%
Animal Waste/Kitty Litter	10,368	3.4%	1.9%	4.8%
Bottom Fines/Dirt	11,217	3.6%	2.2%	5.1%
R/C Organic	5,401	1.8%	1.0%	2.5%

	Tons	Mean	Conf. Interval Low	Conf. Interval High
C&D	**19,050**	**6.2%**		
Wood - treated	1,096	0.4%	0.0%	0.9%
Wood - untreated	10,211	3.3%	0.1%	6.5%
Rock/Concrete/Brick	1,144	0.4%	0.0%	0.9%
Drywall	3,029	1.0%	0.0%	2.4%
Roofing Shingles	0	0.0%	0.0%	0.0%
PVC	87	0.0%	0.0%	0.1%
Ceramics/Porcelain	1,779	0.6%	0.0%	1.5%
Other C&D	1,703	0.6%	0.0%	1.3%
Problem Wastes	**17,979**	**5.8%**		
Televisions	1,703	0.6%	0.0%	1.2%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	5,043	1.6%	0.7%	2.5%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	540	0.2%	0.1%	0.3%
Tires	0	0.0%	0.0%	0.0%
Bulky Items	10,645	3.5%	1.1%	5.8%
Fluorescent Lights	40	0.0%	0.0%	0.0%
Ballasts	8	0.0%	0.0%	0.0%
Pallets	0	0.0%	0.0%	0.0%
Household Hazardous	**358**	**0.1%**		
Latex Paint	215	0.1%	0.0%	0.2%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	143	0.0%	0.0%	0.1%
Other Wastes	**21,684**	**7.0%**		
Textiles	9,295	3.0%	2.0%	4.1%
Carpet	9,868	3.2%	1.1%	5.3%
Carpet Padding	2,521	0.8%	0.0%	1.9%

Total Tons	**307,865**
Sample Count	**19**

Industrial/Commercial/Institutional

Figure B - 11 – Overview of Composition, South central ICI

(Calendar Year 2001)

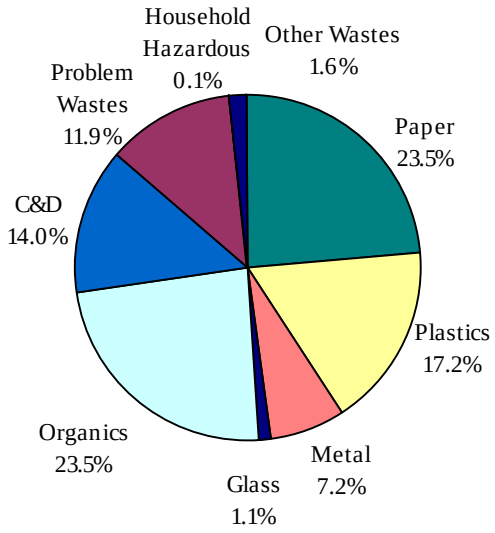


Table B - 21 – Top Ten Components, South central ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	15.8%	15.8%	58,729	58,729
R/C Plastic	8.1%	24.0%	30,248	88,977
Wood - untreated	6.6%	30.5%	24,377	113,355
Compostable Paper	5.8%	36.4%	21,643	134,998
Plastic Film	5.8%	42.2%	21,498	156,496
Ferrous Metals	5.3%	47.5%	19,855	176,351
Bulky Items	4.8%	52.4%	17,986	194,337
R/C Paper	4.8%	57.1%	17,657	211,994
Mixed Recyclable Paper	4.4%	61.5%	16,222	228,216
Cardboard - recyclable	4.3%	65.8%	16,012	244,228
Total	**65.8%**			**244,228**

Table B - 22 – Detailed Composition Profile, South central ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**87,381**	**23.5%**		
Newsprint	3,877	1.0%	0.6%	1.5%
High Grade Paper	7,152	1.9%	0.9%	3.0%
Magazines/Catalogs	2,157	0.6%	0.3%	0.9%
Cardboard - recyclable	16,012	4.3%	2.1%	6.5%
Cardboard - coated	169	0.0%	0.0%	0.1%
Boxboard	2,491	0.7%	0.3%	1.0%
Mixed Recyclable Paper	16,222	4.4%	2.5%	6.2%
Compostable Paper	21,643	5.8%	4.0%	7.6%
R/C Paper	17,657	4.8%	0.8%	8.8%
Plastics	**63,801**	**17.2%**		
PET Bottles	1,916	0.5%	0.3%	0.7%
HDPE Bottles - natural	325	0.1%	0.1%	0.1%
HDPE Bottles - colored	404	0.1%	0.0%	0.2%
#3-#7 Other Plastic Bottles	198	0.1%	0.0%	0.1%
Polystyrene	2,675	0.7%	0.4%	1.0%
Other Rigid Plastic Containers	6,536	1.8%	0.7%	2.8%
Plastic Film	21,498	5.8%	3.9%	7.7%
R/C Plastic	30,248	8.1%	2.0%	14.3%
Metal	**26,630**	**7.2%**		
Aluminum Cans	1,364	0.4%	0.2%	0.5%
Other Aluminum	1,028	0.3%	0.1%	0.4%
Tin Cans	1,583	0.4%	0.3%	0.6%
Ferrous Metals	19,855	5.3%	0.8%	9.9%
Non-Ferrous Metals	284	0.1%	0.0%	0.2%
R/C Metal	2,517	0.7%	0.2%	1.2%
Glass	**3,925**	**1.1%**		
Glass - recyclable	2,886	0.8%	0.4%	1.2%
R/C Glass	1,039	0.3%	0.0%	0.6%
Organics	**87,100**	**23.5%**		
Yard Waste - <6"	969	0.3%	0.0%	0.6%
Yard Waste - >6"	1,432	0.4%	0.0%	1.0%
Food	58,729	15.8%	9.5%	22.2%
Diapers	2,131	0.6%	0.2%	0.9%
Animal Waste/Kitty Litter	737	0.2%	0.0%	0.4%
Bottom Fines/Dirt	9,540	2.6%	1.2%	4.0%
R/C Organic	13,561	3.7%	0.1%	7.2%
C&D	**51,917**	**14.0%**		
Wood - treated	12,528	3.4%	0.3%	6.4%
Wood - untreated	24,377	6.6%	1.6%	11.5%
Rock/Concrete/Brick	5,881	1.6%	0.0%	3.3%
Drywall	555	0.1%	0.0%	0.4%
Roofing Shingles	3,596	1.0%	0.0%	2.4%
PVC	8	0.0%	0.0%	0.0%
Ceramics/Porcelain	386	0.1%	0.0%	0.3%
Other C&D	4,586	1.2%	0.2%	2.2%
Problem Wastes	**44,086**	**11.9%**		
Televisions	0	0.0%	0.0%	0.0%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	4,540	1.2%	0.2%	2.2%
White Goods - refrigerated	5,152	1.4%	0.0%	3.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	113	0.0%	0.0%	0.1%
Tires	2,890	0.8%	0.0%	1.8%
Bulky Items	17,986	4.8%	1.3%	8.4%
Fluorescent Lights	8	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	13,396	3.6%	0.9%	6.4%
Household Hazardous	**390**	**0.1%**		
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	216	0.1%	0.0%	0.1%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	174	0.0%	0.0%	0.1%
Other Wastes	**5,925**	**1.6%**		
Textiles	3,420	0.9%	0.2%	1.6%
Carpet	1,284	0.3%	0.0%	0.9%
Carpet Padding	1,220	0.3%	0.0%	0.9%

Total Tons	**371,155**
Sample Count	**38**

Construction & Demolition

Figure B - 12 – Overview of Composition, South central C&D

(Calendar Year 2001)

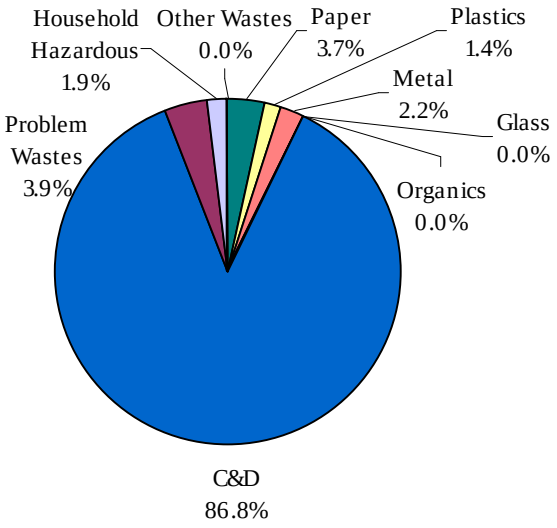


Table B - 23 – Top Ten Components, South central C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Roofing Shingles	41.4%	41.4%	105,662	105,662
Wood - untreated	27.4%	68.7%	69,874	175,537
Rock/Concrete/Brick	7.6%	76.4%	19,489	195,026
Other C&D	6.3%	82.7%	16,091	211,117
Drywall	4.0%	86.7%	10,221	221,338
Pallets	3.7%	90.4%	9,518	230,856
Cardboard - recyclable	2.4%	92.8%	6,194	237,050
Ferrous Metals	1.9%	94.7%	4,852	241,902
Latex Paint	1.5%	96.2%	3,816	245,718
Other Rigid Plastic Containers	1.0%	97.2%	2,484	248,202
Total	**97.2%**			**248,202**

Table B - 24 – Detailed Composition Profile, South central C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**9,420**	**3.7%**		
Newsprint	0	0.0%	0.0%	0.0%
High Grade Paper	18	0.0%	0.0%	0.0%
Magazines/Catalogs	0	0.0%	0.0%	0.0%
Cardboard - recyclable	6,194	2.4%	0.6%	4.2%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	22	0.0%	0.0%	0.0%
Mixed Recyclable Paper	356	0.1%	0.0%	0.3%
Compostable Paper	939	0.4%	0.0%	1.0%
R/C Paper	1,892	0.7%	0.0%	1.4%
Plastics	**3,619**	**1.4%**		
PET Bottles	31	0.0%	0.0%	0.0%
HDPE Bottles - natural	6	0.0%	0.0%	0.0%
HDPE Bottles - colored	2	0.0%	0.0%	0.0%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%
Polystyrene	423	0.2%	0.0%	0.4%
Other Rigid Plastic Containers	2,484	1.0%	0.0%	2.3%
Plastic Film	235	0.1%	0.0%	0.2%
R/C Plastic	438	0.2%	0.0%	0.4%
Metal	**5,631**	**2.2%**		
Aluminum Cans	69	0.0%	0.0%	0.0%
Other Aluminum	69	0.0%	0.0%	0.1%
Tin Cans	640	0.3%	0.0%	0.5%
Ferrous Metals	4,852	1.9%	0.0%	4.0%
Non-Ferrous Metals	0	0.0%	0.0%	0.0%
R/C Metal	0	0.0%	0.0%	0.0%
Glass	**110**	**0.0%**		
Glass - recyclable	10	0.0%	0.0%	0.0%
R/C Glass	100	0.0%	0.0%	0.1%
Organics	**0**	**0.0%**		
Yard Waste - <6"	0	0.0%	0.0%	0.0%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	0	0.0%	0.0%	0.0%
Diapers	0	0.0%	0.0%	0.0%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%
Bottom Fines/Dirt	0	0.0%	0.0%	0.0%
R/C Organic	0	0.0%	0.0%	0.0%
C&D	**221,715**	**86.8%**		
Wood - treated	377	0.1%	0.0%	0.4%
Wood - untreated	69,874	27.4%	9.2%	45.5%
Rock/Concrete/Brick	19,489	7.6%	0.0%	16.0%
Drywall	10,221	4.0%	0.0%	8.4%
Roofing Shingles	105,662	41.4%	17.5%	65.2%
PVC	0	0.0%	0.0%	0.0%
Ceramics/Porcelain	0	0.0%	0.0%	0.0%
Other C&D	16,091	6.3%	0.3%	12.3%
Problem Wastes	**9,964**	**3.9%**		
Televisions	0	0.0%	0.0%	0.0%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	446	0.2%	0.0%	0.5%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	0	0.0%	0.0%	0.0%
Tires	0	0.0%	0.0%	0.0%
Bulky Items	0	0.0%	0.0%	0.0%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	9,518	3.7%	0.0%	8.3%
Household Hazardous	**4,753**	**1.9%**		
Latex Paint	3,816	1.5%	0.0%	4.0%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	937	0.4%	0.0%	1.0%
Other Wastes	**117**	**0.0%**		
Textiles	117	0.0%	0.0%	0.1%
Carpet	0	0.0%	0.0%	0.0%
Carpet Padding	0	0.0%	0.0%	0.0%

Total Tons	**255,328**
Sample Count	**16**

COMPARISONS AMONG SUBSTREAM TONNAGES IN SOUTH CENTRAL REGION

Table B-3-20 – Composition Comparisons among Substreams, South central

(Calendar Year 2001)

	(Mean Percentage)				(Mean Percentage)		
Material	**Residential**	**ICI**	**C&D**	**Material**	**Residential**	**ICI**	**C&D**
Paper	**36.1%**	**23.5%**	**3.7%**	**C&D**	**6.2%**	**14.0%**	**86.8%**
Newsprint	5.2%	1.0%	0.0%	Wood - treated	0.4%	3.4%	0.1%
High Grade Paper	2.3%	1.9%	0.0%	Wood - untreated	3.3%	6.6%	27.4%
Magazines/Catalogs	2.4%	0.6%	0.0%	Rock/Concrete/Brick	0.4%	1.6%	7.6%
Cardboard - recyclable	2.3%	4.3%	2.4%	Drywall	1.0%	0.1%	4.0%
Cardboard - coated	0.0%	0.0%	0.0%	Roofing Shingles	0.0%	1.0%	41.4%
Boxboard	2.0%	0.7%	0.0%	PVC	0.0%	0.0%	0.0%
Mixed Recyclable Paper	10.8%	4.4%	0.1%	Ceramics/Porcelain	0.6%	0.1%	0.0%
Compostable Paper	8.8%	5.8%	0.4%	Other C&D	0.6%	1.2%	6.3%
R/C Paper	2.4%	4.8%	0.7%	**Problem Wastes**	**5.8%**	**11.9%**	**3.9%**
Plastics	**11.3%**	**17.2%**	**1.4%**	Televisions	0.6%	0.0%	0.0%
PET Bottles	0.5%	0.5%	0.0%	Computer Monitors	0.0%	0.0%	0.0%
HDPE Bottles - natural	0.4%	0.1%	0.0%	Computer Equipment	0.0%	0.0%	0.0%
HDPE Bottles - colored	0.2%	0.1%	0.0%	Electronic Equipment	1.6%	1.2%	0.2%
#3-#7 Other Plastic Bottles	0.0%	0.1%	0.0%	White Goods - refrigerated	0.0%	1.4%	0.0%
Polystyrene	0.5%	0.7%	0.2%	White Goods - non-refrigerated	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	2.0%	1.8%	1.0%	Lead-Acid Batteries	0.0%	0.0%	0.0%
Plastic Film	5.2%	5.8%	0.1%	Other Household Batteries	0.2%	0.0%	0.0%
R/C Plastic	2.4%	8.1%	0.2%	Tires	0.0%	0.8%	0.0%
Metal	**3.6%**	**7.2%**	**2.2%**	Bulky Items	3.5%	4.8%	0.0%
Aluminum Cans	0.3%	0.4%	0.0%	Fluorescent Lights	0.0%	0.0%	0.0%
Other Aluminum	0.3%	0.3%	0.0%	Ballasts	0.0%	0.0%	0.0%
Tin Cans	0.9%	0.4%	0.3%	Pallets	0.0%	3.6%	3.7%
Ferrous Metals	1.0%	5.3%	1.9%	**Household Hazardous**	**0.1%**	**0.1%**	**1.9%**
Non-Ferrous Metals	0.2%	0.1%	0.0%	Latex Paint	0.1%	0.0%	1.5%
R/C Metal	0.9%	0.7%	0.0%	Oil Paint	0.0%	0.0%	0.0%
Glass	**2.2%**	**1.1%**	**0.0%**	Pesticides/Fertilizers	0.0%	0.0%	0.0%
Glass - recyclable	1.8%	0.8%	0.0%	Auto Used Oil Filters	0.0%	0.1%	0.0%
R/C Glass	0.5%	0.3%	0.0%	Mercury	0.0%	0.0%	0.0%
Organics	**27.7%**	**23.5%**	**0.0%**	Other Hazardous	0.0%	0.0%	0.4%
Yard Waste - <6"	1.0%	0.3%	0.0%	**Other Wastes**	**7.0%**	**1.6%**	**0.0%**
Yard Waste - >6"	0.0%	0.4%	0.0%	Textiles	3.0%	0.9%	0.0%
Food	15.1%	15.8%	0.0%	Carpet	3.2%	0.3%	0.0%
Diapers	2.8%	0.6%	0.0%	Carpet Padding	0.8%	0.3%	0.0%
Animal Waste/Kitty Litter	3.4%	0.2%	0.0%				
Bottom Fines/Dirt	3.6%	2.6%	0.0%				
R/C Organic	1.8%	3.7%	0.0%	**Total**	**100.0%**	**100.0%**	**100.0%**

SOUTHEAST REGION

Overall

Figure B - 13 – Overview of Composition, Southeast

(Calendar Year 2001)

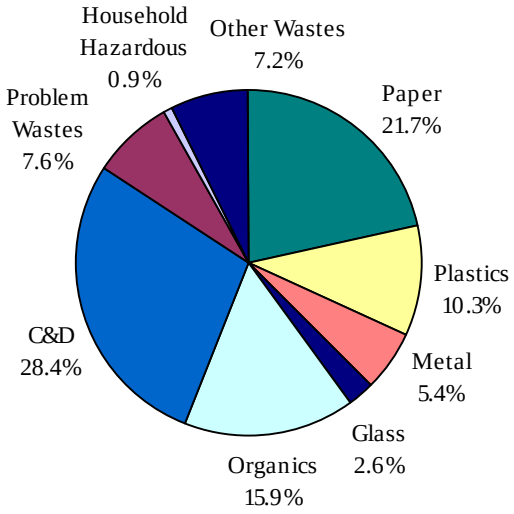


Table B - 25 – Top Ten Components, Southeast

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.4%	12.4%	214,178	214,178
Food	8.7%	21.1%	149,121	363,299
Roofing Shingles	5.9%	27.0%	102,262	465,561
Cardboard - recyclable	5.3%	32.4%	91,796	557,357
Compostable Paper	5.1%	37.5%	87,504	644,861
Rock/Concrete/Brick	4.2%	41.7%	73,091	717,952
Carpet	4.0%	45.7%	69,384	787,336
Mixed Recyclable Paper	3.9%	49.7%	67,738	855,075
Plastic Film	3.9%	53.6%	67,060	922,135
R/C Plastic	3.8%	57.3%	64,910	987,045
Total	**57.3%**			**987,045**

Table B - 26 – Detailed Composition Profile, Southeast

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**374,332**	**21.7%**		
Newsprint	33,337	1.9%	1.4%	2.4%
High Grade Paper	23,509	1.4%	1.0%	1.8%
Magazines/Catalogs	16,827	1.0%	0.7%	1.3%
Cardboard - recyclable	91,796	5.3%	3.1%	7.5%
Cardboard - coated	6,810	0.4%	0.0%	0.8%
Boxboard	10,685	0.6%	0.5%	0.7%
Mixed Recyclable Paper	67,738	3.9%	3.3%	4.6%
Compostable Paper	87,504	5.1%	4.0%	6.2%
R/C Paper	36,126	2.1%	1.0%	3.2%
Plastics	**177,206**	**10.3%**		
PET Bottles	7,202	0.4%	0.3%	0.5%
HDPE Bottles - natural	2,697	0.2%	0.1%	0.2%
HDPE Bottles - colored	3,526	0.2%	0.1%	0.3%
#3-#7 Other Plastic Bottles	155	0.0%	0.0%	0.0%
Polystyrene	7,238	0.4%	0.3%	0.5%
Other Rigid Plastic Containers	24,418	1.4%	1.0%	1.8%
Plastic Film	67,060	3.9%	3.3%	4.5%
R/C Plastic	64,910	3.8%	2.6%	4.9%
Metal	**93,066**	**5.4%**		
Aluminum Cans	4,477	0.3%	0.2%	0.3%
Other Aluminum	5,867	0.3%	0.1%	0.6%
Tin Cans	5,814	0.3%	0.3%	0.4%
Ferrous Metals	44,838	2.6%	1.3%	4.0%
Non-Ferrous Metals	3,018	0.2%	0.0%	0.4%
R/C Metal	29,052	1.7%	0.7%	2.6%
Glass	**43,918**	**2.6%**		
Glass - recyclable	12,673	0.7%	0.5%	0.9%
R/C Glass	31,245	1.8%	0.0%	3.7%
Organics	**273,199**	**15.9%**		
Yard Waste - <6"	34,319	2.0%	1.0%	3.0%
Yard Waste - >6"	1,691	0.1%	0.0%	0.3%
Food	149,121	8.7%	6.4%	10.9%
Diapers	24,611	1.4%	0.8%	2.0%
Animal Waste/Kitty Litter	10,651	0.6%	0.2%	1.1%
Bottom Fines/Dirt	23,669	1.4%	1.0%	1.8%
R/C Organic	29,138	1.7%	0.7%	2.7%

	Tons	Mean	Conf. Interval Low	Conf. Interval High
C&D	**488,463**	**28.4%**		
Wood - treated	23,032	1.3%	0.2%	2.5%
Wood - untreated	214,178	12.4%	8.5%	16.4%
Rock/Concrete/Brick	73,091	4.2%	1.4%	7.1%
Drywall	29,955	1.7%	0.6%	2.9%
Roofing Shingles	102,262	5.9%	2.3%	9.6%
PVC	1,111	0.1%	0.0%	0.1%
Ceramics/Porcelain	7,232	0.4%	0.1%	0.7%
Other C&D	37,601	2.2%	0.0%	4.5%
Problem Wastes	**131,260**	**7.6%**		
Televisions	9,254	0.5%	0.0%	1.1%
Computer Monitors	3,036	0.2%	0.0%	0.5%
Computer Equipment	528	0.0%	0.0%	0.1%
Electronic Equipment	29,991	1.7%	1.0%	2.5%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	9,609	0.6%	0.0%	1.3%
Lead-Acid Batteries	3,807	0.2%	0.0%	0.6%
Other Household Batteries	681	0.0%	0.0%	0.1%
Tires	22,048	1.3%	0.2%	2.3%
Bulky Items	35,542	2.1%	0.9%	3.2%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	759	0.0%	0.0%	0.1%
Pallets	16,005	0.9%	0.3%	1.6%
Household Hazardous	**15,920**	**0.9%**		
Latex Paint	1,170	0.1%	0.0%	0.1%
Oil Paint	372	0.0%	0.0%	0.1%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	376	0.0%	0.0%	0.0%
Mercury	6	0.0%	0.0%	0.0%
Other Hazardous	13,995	0.8%	0.0%	1.9%
Other Wastes	**123,997**	**7.2%**		
Textiles	45,637	2.7%	1.5%	3.8%
Carpet	69,384	4.0%	1.2%	6.9%
Carpet Padding	8,976	0.5%	0.2%	0.9%

Total Tons	**1,721,362**
Sample Count	**82**

Residential

Figure B - 14 – Overview of Composition, Southeast Residential

(Calendar Year 2001)

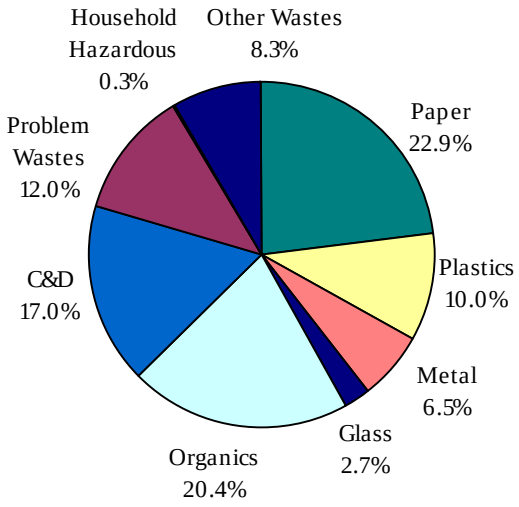


Table B - 27 – Top Ten Components, Southeast Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	9.4%	9.4%	52,243	52,243
Wood - untreated	8.3%	17.8%	46,125	98,368
Roofing Shingles	5.8%	23.5%	32,005	130,373
Mixed Recyclable Paper	5.6%	29.2%	31,210	161,583
Bulky Items	4.6%	33.8%	25,759	187,342
Compostable Paper	4.4%	38.2%	24,370	211,712
Carpet	4.3%	42.5%	23,733	235,445
R/C Plastic	4.0%	46.5%	22,257	257,703
Electronic Equipment	3.8%	50.4%	21,266	278,968
Plastic Film	3.5%	53.8%	19,300	298,268
Total	**53.8%**			**298,268**

Table B - 28 – Detailed Composition Profile, Southeast Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**127,084**	**22.9%**		
Newsprint	18,132	3.3%	2.3%	4.2%
High Grade Paper	7,415	1.3%	0.8%	1.9%
Magazines/Catalogs	10,057	1.8%	1.3%	2.4%
Cardboard - recyclable	18,400	3.3%	1.0%	5.7%
Cardboard - coated	0	0.0%	0.0%	0.0%
Boxboard	6,431	1.2%	0.9%	1.5%
Mixed Recyclable Paper	31,210	5.6%	4.4%	6.8%
Compostable Paper	24,370	4.4%	3.1%	5.7%
R/C Paper	11,070	2.0%	0.2%	3.8%
Plastics	**55,417**	**10.0%**		
PET Bottles	2,593	0.5%	0.3%	0.7%
HDPE Bottles - natural	813	0.1%	0.1%	0.2%
HDPE Bottles - colored	1,955	0.4%	0.1%	0.6%
#3-#7 Other Plastic Bottles	104	0.0%	0.0%	0.0%
Polystyrene	1,653	0.3%	0.2%	0.4%
Other Rigid Plastic Containers	6,742	1.2%	0.9%	1.5%
Plastic Film	19,300	3.5%	2.5%	4.5%
R/C Plastic	22,257	4.0%	2.1%	6.0%
Metal	**35,778**	**6.5%**		
Aluminum Cans	1,799	0.3%	0.2%	0.5%
Other Aluminum	4,781	0.9%	0.1%	1.6%
Tin Cans	2,515	0.5%	0.3%	0.6%
Ferrous Metals	17,034	3.1%	1.4%	4.7%
Non-Ferrous Metals	439	0.1%	0.0%	0.1%
R/C Metal	9,210	1.7%	0.5%	2.9%
Glass	**14,721**	**2.7%**		
Glass - recyclable	4,975	0.9%	0.6%	1.2%
R/C Glass	9,746	1.8%	0.0%	3.6%
Organics	**113,077**	**20.4%**		
Yard Waste - <6"	16,592	3.0%	1.9%	4.1%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	52,243	9.4%	6.4%	12.5%
Diapers	16,689	3.0%	1.6%	4.5%
Animal Waste/Kitty Litter	6,182	1.1%	0.3%	2.0%
Bottom Fines/Dirt	11,896	2.1%	1.2%	3.0%
R/C Organic	9,475	1.7%	0.9%	2.5%
C&D	**94,044**	**17.0%**		
Wood - treated	2,519	0.5%	0.0%	1.0%
Wood - untreated	46,125	8.3%	4.6%	12.1%
Rock/Concrete/Brick	2,412	0.4%	0.1%	0.8%
Drywall	7,727	1.4%	0.0%	3.7%
Roofing Shingles	32,005	5.8%	0.0%	13.7%
PVC	297	0.1%	0.0%	0.1%
Ceramics/Porcelain	1,790	0.3%	0.0%	0.7%
Other C&D	1,170	0.2%	0.0%	0.4%
Problem Wastes	**66,208**	**12.0%**		
Televisions	1,896	0.3%	0.0%	0.9%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	21,266	3.8%	1.9%	5.8%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	7,134	1.3%	0.0%	3.4%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	587	0.1%	0.0%	0.2%
Tires	8,807	1.6%	0.0%	4.2%
Bulky Items	25,759	4.6%	1.7%	7.6%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	759	0.1%	0.0%	0.4%
Pallets	0	0.0%	0.0%	0.0%
Household Hazardous	**1,581**	**0.3%**		
Latex Paint	0	0.0%	0.0%	0.0%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	376	0.1%	0.0%	0.1%
Mercury	6	0.0%	0.0%	0.0%
Other Hazardous	1,198	0.2%	0.1%	0.4%
Other Wastes	**46,114**	**8.3%**		
Textiles	18,198	3.3%	2.1%	4.4%
Carpet	23,733	4.3%	1.8%	6.7%
Carpet Padding	4,183	0.8%	0.1%	1.4%
Total Tons	**554,024**			
Sample Count	**24**			

Industrial/Commercial/Institutional

Figure B - 15 – Overview of Composition, Southeast ICI

(Calendar Year 2001)

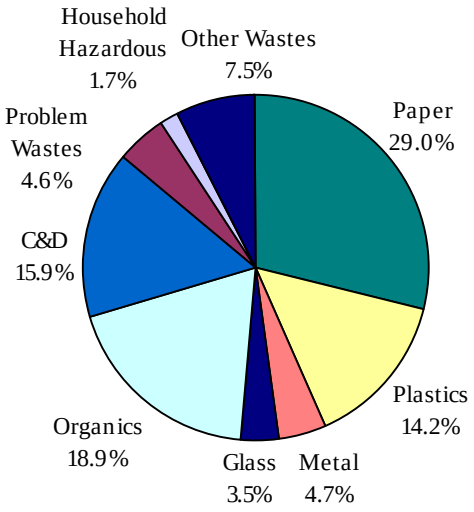


Table B - 29 – Top Ten Components, Southeast ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.1%	12.1%	97,889	97,889
Food	11.8%	23.9%	95,241	193,130
Cardboard - recyclable	8.2%	32.1%	66,204	259,334
Compostable Paper	7.8%	39.9%	62,854	322,188
Plastic Film	5.8%	45.7%	46,466	368,654
Carpet	5.4%	51.0%	43,459	412,113
R/C Plastic	4.8%	55.8%	38,877	450,990
Mixed Recyclable Paper	4.3%	60.1%	34,511	485,501
R/C Paper	3.0%	63.2%	24,482	509,982
R/C Glass	2.5%	65.7%	20,576	530,559
Total	**65.7%**			**530,559**

Table B - 30 – Detailed Composition Profile, Southeast ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**233,878**	**29.0%**		
Newsprint	14,412	1.8%	1.0%	2.6%
High Grade Paper	13,717	1.7%	1.0%	2.4%
Magazines/Catalogs	6,714	0.8%	0.3%	1.4%
Cardboard - recyclable	66,204	8.2%	3.8%	12.6%
Cardboard - coated	6,782	0.8%	0.0%	1.7%
Boxboard	4,202	0.5%	0.3%	0.7%
Mixed Recyclable Paper	34,511	4.3%	3.2%	5.4%
Compostable Paper	62,854	7.8%	5.5%	10.0%
R/C Paper	24,482	3.0%	0.9%	5.1%
Plastics	**114,928**	**14.2%**		
PET Bottles	4,542	0.6%	0.4%	0.7%
HDPE Bottles - natural	1,884	0.2%	0.1%	0.3%
HDPE Bottles - colored	1,551	0.2%	0.1%	0.3%
#3-#7 Other Plastic Bottles	41	0.0%	0.0%	0.0%
Polystyrene	4,441	0.5%	0.4%	0.7%
Other Rigid Plastic Containers	17,127	2.1%	1.3%	2.9%
Plastic Film	46,466	5.8%	4.6%	6.9%
R/C Plastic	38,877	4.8%	2.8%	6.8%
Metal	**38,078**	**4.7%**		
Aluminum Cans	2,606	0.3%	0.2%	0.5%
Other Aluminum	1,086	0.1%	0.1%	0.2%
Tin Cans	3,230	0.4%	0.2%	0.6%
Ferrous Metals	19,805	2.5%	0.1%	4.8%
Non-Ferrous Metals	2,578	0.3%	0.0%	0.7%
R/C Metal	8,773	1.1%	0.0%	2.3%
Glass	**28,088**	**3.5%**		
Glass - recyclable	7,512	0.9%	0.6%	1.3%
R/C Glass	20,576	2.5%	0.0%	6.4%
Organics	**152,965**	**18.9%**		
Yard Waste - <6"	15,769	2.0%	0.0%	4.0%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	95,241	11.8%	7.4%	16.1%
Diapers	7,905	1.0%	0.2%	1.7%
Animal Waste/Kitty Litter	4,469	0.6%	0.0%	1.3%
Bottom Fines/Dirt	11,773	1.5%	0.8%	2.1%
R/C Organic	17,809	2.2%	0.2%	4.2%
C&D	**128,059**	**15.9%**		
Wood - treated	12,993	1.6%	0.0%	3.9%
Wood - untreated	97,889	12.1%	6.3%	18.0%
Rock/Concrete/Brick	5,028	0.6%	0.1%	1.2%
Drywall	8,301	1.0%	0.0%	2.2%
Roofing Shingles	10	0.0%	0.0%	0.0%
PVC	0	0.0%	0.0%	0.0%
Ceramics/Porcelain	993	0.1%	0.0%	0.2%
Other C&D	2,845	0.4%	0.0%	0.9%
Problem Wastes	**37,292**	**4.6%**		
Televisions	2,752	0.3%	0.0%	0.9%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	528	0.1%	0.0%	0.2%
Electronic Equipment	3,329	0.4%	0.1%	0.8%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	3,807	0.5%	0.0%	1.2%
Other Household Batteries	94	0.0%	0.0%	0.0%
Tires	13,242	1.6%	0.3%	3.0%
Bulky Items	5,233	0.6%	0.0%	1.8%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	8,307	1.0%	0.1%	2.0%
Household Hazardous	**13,397**	**1.7%**		
Latex Paint	228	0.0%	0.0%	0.1%
Oil Paint	372	0.0%	0.0%	0.1%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	12,797	1.6%	0.0%	3.9%
Other Wastes	**60,828**	**7.5%**		
Textiles	15,662	1.9%	0.6%	3.3%
Carpet	43,459	5.4%	0.0%	11.2%
Carpet Padding	1,707	0.2%	0.0%	0.6%
Total Tons	**807,513**			
Sample Count	**32**			

Construction & Demolition

Figure B - 16 – Overview of Composition, Southeast C&D

(Calendar Year 2001)

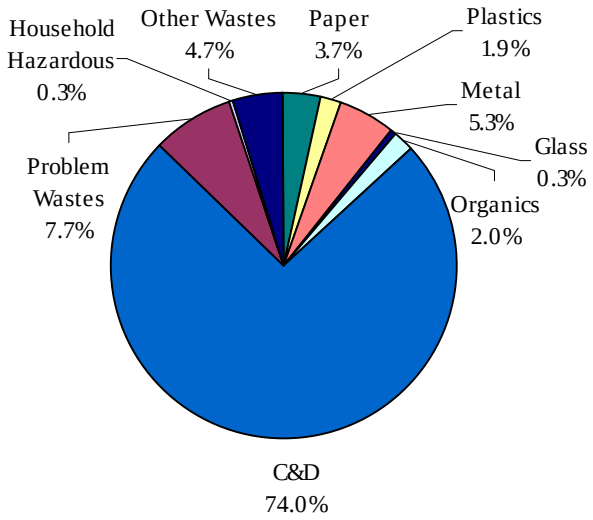


Table B - 31 – Top Ten Components, Southeast C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Roofing Shingles	19.5%	19.5%	70,248	70,248
Wood - untreated	19.5%	39.0%	70,164	140,411
Rock/Concrete/Brick	18.2%	57.3%	65,652	206,063
Other C&D	9.3%	66.6%	33,587	239,649
Drywall	3.9%	70.5%	13,927	253,576
Textiles	3.3%	73.7%	11,777	265,354
R/C Metal	3.1%	76.8%	11,069	276,423
Ferrous Metals	2.2%	79.0%	7,999	284,422
Pallets	2.1%	81.2%	7,698	292,120
Wood - treated	2.1%	83.3%	7,520	299,639
Total	**83.3%**			**299,639**

Table B - 32 – Detailed Composition Profile, Southeast C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**13,370**	**3.7%**			***C&D***	**266,359**	**74.0%**		
Newsprint	793	0.2%	0.0%	0.4%	Wood - treated	7,520	2.1%	0.3%	3.9%
High Grade Paper	2,377	0.7%	0.0%	1.4%	Wood - untreated	70,164	19.5%	7.1%	31.9%
Magazines/Catalogs	56	0.0%	0.0%	0.0%	Rock/Concrete/Brick	65,652	18.2%	4.8%	31.7%
Cardboard - recyclable	7,193	2.0%	0.8%	3.2%	Drywall	13,927	3.9%	0.7%	7.0%
Cardboard - coated	28	0.0%	0.0%	0.0%	Roofing Shingles	70,248	19.5%	6.9%	32.2%
Boxboard	53	0.0%	0.0%	0.0%	PVC	814	0.2%	0.0%	0.6%
Mixed Recyclable Paper	2,018	0.6%	0.0%	1.3%	Ceramics/Porcelain	4,449	1.2%	0.1%	2.4%
Compostable Paper	279	0.1%	0.0%	0.2%	Other C&D	33,587	9.3%	0.0%	20.2%
R/C Paper	574	0.2%	0.0%	0.3%	***Problem Wastes***	**27,761**	**7.7%**		
Plastics	**6,861**	**1.9%**			Televisions	4,606	1.3%	0.0%	3.4%
PET Bottles	67	0.0%	0.0%	0.0%	Computer Monitors	3,036	0.8%	0.0%	2.2%
HDPE Bottles - natural	0	0.0%	0.0%	0.0%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	21	0.0%	0.0%	0.0%	Electronic Equipment	5,396	1.5%	0.0%	3.4%
#3-#7 Other Plastic Bottles	9	0.0%	0.0%	0.0%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	1,144	0.3%	0.0%	0.8%	White Goods - non-refrigerated	2,476	0.7%	0.0%	1.8%
Other Rigid Plastic Containers	549	0.2%	0.0%	0.3%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	1,294	0.4%	0.1%	0.6%	Other Household Batteries	0	0.0%	0.0%	0.0%
R/C Plastic	3,776	1.0%	0.3%	1.8%	Tires	0	0.0%	0.0%	0.0%
Metal	**19,210**	**5.3%**			Bulky Items	4,549	1.3%	0.0%	3.4%
Aluminum Cans	73	0.0%	0.0%	0.0%	Fluorescent Lights	0	0.0%	0.0%	0.0%
Other Aluminum	0	0.0%	0.0%	0.0%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	69	0.0%	0.0%	0.0%	Pallets	7,698	2.1%	0.0%	4.3%
Ferrous Metals	7,999	2.2%	0.0%	4.8%	***Household Hazardous***	**943**	**0.3%**		
Non-Ferrous Metals	0	0.0%	0.0%	0.0%	Latex Paint	943	0.3%	0.0%	0.6%
R/C Metal	11,069	3.1%	0.0%	6.2%	Oil Paint	0	0.0%	0.0%	0.0%
Glass	**1,110**	**0.3%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	187	0.1%	0.0%	0.1%	Auto Used Oil Filters	0	0.0%	0.0%	0.0%
R/C Glass	923	0.3%	0.0%	0.6%	Mercury	0	0.0%	0.0%	0.0%
Organics	**7,157**	**2.0%**			Other Hazardous	0	0.0%	0.0%	0.0%
Yard Waste - <6"	1,958	0.5%	0.0%	1.1%	***Other Wastes***	**17,055**	**4.7%**		
Yard Waste - >6"	1,691	0.5%	0.0%	1.2%	Textiles	11,777	3.3%	0.0%	7.6%
Food	1,637	0.5%	0.0%	1.0%	Carpet	2,192	0.6%	0.0%	1.2%
Diapers	18	0.0%	0.0%	0.0%	Carpet Padding	3,087	0.9%	0.0%	1.8%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%					
Bottom Fines/Dirt	0	0.0%	0.0%	0.0%					
R/C Organic	1,853	0.5%	0.0%	1.1%					

Total Tons	**359,825**
Sample Count	**26**

COMPARISONS AMONG SUBSTREAM TONNAGES IN SOUTHEAST REGION

Table B-3-21 – Composition Comparisons among Substreams, Southeast

(Calendar Year 2001)

	(Mean Percentage)				(Mean Percentage)		
Material	**Residential**	**ICI**	**C&D**	**Material**	**Residential**	**ICI**	**C&D**
Paper	**22.9%**	**29.0%**	**3.7%**	**C&D**	**17.0%**	**15.9%**	**74.0%**
Newsprint	3.3%	1.8%	0.2%	Wood - treated	0.5%	1.6%	2.1%
High Grade Paper	1.3%	1.7%	0.7%	Wood - untreated	8.3%	12.1%	19.5%
Magazines/Catalogs	1.8%	0.8%	0.0%	Rock/Concrete/Brick	0.4%	0.6%	18.2%
Cardboard - recyclable	3.3%	8.2%	2.0%	Drywall	1.4%	1.0%	3.9%
Cardboard - coated	0.0%	0.8%	0.0%	Roofing Shingles	5.8%	0.0%	19.5%
Boxboard	1.2%	0.5%	0.0%	PVC	0.1%	0.0%	0.2%
Mixed Recyclable Paper	5.6%	4.3%	0.6%	Ceramics/Porcelain	0.3%	0.1%	1.2%
Compostable Paper	4.4%	7.8%	0.1%	Other C&D	0.2%	0.4%	9.3%
R/C Paper	2.0%	3.0%	0.2%	**Problem Wastes**	**12.0%**	**4.6%**	**7.7%**
Plastics	**10.0%**	**14.2%**	**1.9%**	Televisions	0.3%	0.3%	1.3%
PET Bottles	0.5%	0.6%	0.0%	Computer Monitors	0.0%	0.0%	0.8%
HDPE Bottles - natural	0.1%	0.2%	0.0%	Computer Equipment	0.0%	0.1%	0.0%
HDPE Bottles - colored	0.4%	0.2%	0.0%	Electronic Equipment	3.8%	0.4%	1.5%
#3-#7 Other Plastic Bottles	0.0%	0.0%	0.0%	White Goods - refrigerated	0.0%	0.0%	0.0%
Polystyrene	0.3%	0.5%	0.3%	White Goods - non-refrigerated	1.3%	0.0%	0.7%
Other Rigid Plastic Containers	1.2%	2.1%	0.2%	Lead-Acid Batteries	0.0%	0.5%	0.0%
Plastic Film	3.5%	5.8%	0.4%	Other Household Batteries	0.1%	0.0%	0.0%
R/C Plastic	4.0%	4.8%	1.0%	Tires	1.6%	1.6%	0.0%
Metal	**6.5%**	**4.7%**	**5.3%**	Bulky Items	4.6%	0.6%	1.3%
Aluminum Cans	0.3%	0.3%	0.0%	Fluorescent Lights	0.0%	0.0%	0.0%
Other Aluminum	0.9%	0.1%	0.0%	Ballasts	0.1%	0.0%	0.0%
Tin Cans	0.5%	0.4%	0.0%	Pallets	0.0%	1.0%	2.1%
Ferrous Metals	3.1%	2.5%	2.2%	**Household Hazardous**	**0.3%**	**1.7%**	**0.3%**
Non-Ferrous Metals	0.1%	0.3%	0.0%	Latex Paint	0.0%	0.0%	0.3%
R/C Metal	1.7%	1.1%	3.1%	Oil Paint	0.0%	0.0%	0.0%
Glass	**2.7%**	**3.5%**	**0.3%**	Pesticides/Fertilizers	0.0%	0.0%	0.0%
Glass - recyclable	0.9%	0.9%	0.1%	Auto Used Oil Filters	0.1%	0.0%	0.0%
R/C Glass	1.8%	2.5%	0.3%	Mercury	0.0%	0.0%	0.0%
Organics	**20.4%**	**18.9%**	**2.0%**	Other Hazardous	0.2%	1.6%	0.0%
Yard Waste - <6"	3.0%	2.0%	0.5%	**Other Wastes**	**8.3%**	**7.5%**	**4.7%**
Yard Waste - >6"	0.0%	0.0%	0.5%	Textiles	3.3%	1.9%	3.3%
Food	9.4%	11.8%	0.5%	Carpet	4.3%	5.4%	0.6%
Diapers	3.0%	1.0%	0.0%	Carpet Padding	0.8%	0.2%	0.9%
Animal Waste/Kitty Litter	1.1%	0.6%	0.0%				
Bottom Fines/Dirt	2.1%	1.5%	0.0%				
R/C Organic	1.7%	2.2%	0.5%	**Total**	**100.0%**	**100.0%**	**100.0%**

WEST CENTRAL REGION

Overall

Figure B - 17 – Overview of Composition, West central

(Calendar Year 2001)

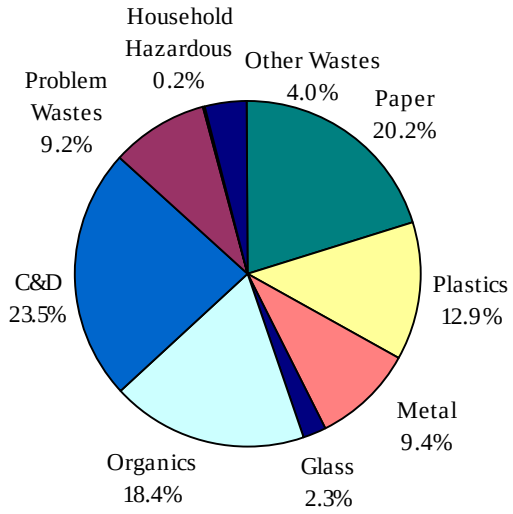


Table B - 33 – Top Ten Components, West central

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	11.7%	11.7%	68,398	68,398
Food	9.4%	21.1%	54,997	123,395
Ferrous Metals	5.7%	26.8%	33,446	156,841
Roofing Shingles	4.9%	31.7%	28,645	185,486
Mixed Recyclable Paper	4.5%	36.2%	26,110	211,597
Compostable Paper	4.3%	40.5%	25,406	237,002
Plastic Film	4.0%	44.5%	23,116	260,118
Rock/Concrete/Brick	3.9%	48.4%	22,797	282,915
R/C Plastic	3.6%	52.0%	21,137	304,052
Diapers	3.5%	55.4%	20,348	324,399
Total	**55.4%**			**324,399**

Table B - 34 – Detailed Composition Profile, West central

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**117,916**	**20.2%**			***C&D***	**137,602**	**23.5%**		
Newsprint	9,610	1.6%	1.2%	2.1%	Wood - treated	0	0.0%	0.0%	0.0%
High Grade Paper	6,574	1.1%	0.7%	1.5%	Wood - untreated	68,398	11.7%	8.2%	15.2%
Magazines/Catalogs	7,202	1.2%	0.8%	1.6%	Rock/Concrete/Brick	22,797	3.9%	0.8%	7.0%
Cardboard - recyclable	20,056	3.4%	2.3%	4.5%	Drywall	5,979	1.0%	0.2%	1.8%
Cardboard - coated	2,575	0.4%	0.1%	0.8%	Roofing Shingles	28,645	4.9%	1.0%	8.8%
Boxboard	4,956	0.8%	0.7%	1.0%	PVC	48	0.0%	0.0%	0.0%
Mixed Recyclable Paper	26,110	4.5%	3.5%	5.4%	Ceramics/Porcelain	3,834	0.7%	0.0%	1.4%
Compostable Paper	25,406	4.3%	3.5%	5.2%	Other C&D	7,901	1.4%	0.6%	2.1%
R/C Paper	15,427	2.6%	0.9%	4.4%	***Problem Wastes***	**53,803**	**9.2%**		
Plastics	**75,470**	**12.9%**			Televisions	4,089	0.7%	0.0%	1.8%
PET Bottles	3,137	0.5%	0.4%	0.7%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	1,720	0.3%	0.1%	0.5%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	2,205	0.4%	0.2%	0.6%	Electronic Equipment	8,960	1.5%	0.6%	2.5%
#3-#7 Other Plastic Bottles	210	0.0%	0.0%	0.0%	White Goods - refrigerated	5,493	0.9%	0.0%	2.4%
Polystyrene	3,763	0.6%	0.4%	0.8%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	20,182	3.4%	0.1%	6.8%	Lead-Acid Batteries	3,171	0.5%	0.0%	1.5%
Plastic Film	23,116	4.0%	3.2%	4.7%	Other Household Batteries	337	0.1%	0.0%	0.1%
R/C Plastic	21,137	3.6%	2.3%	4.9%	Tires	932	0.2%	0.0%	0.4%
Metal	**55,214**	**9.4%**			Bulky Items	17,783	3.0%	0.3%	5.8%
Aluminum Cans	4,463	0.8%	0.4%	1.1%	Fluorescent Lights	188	0.0%	0.0%	0.1%
Other Aluminum	1,473	0.3%	0.2%	0.3%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	4,644	0.8%	0.6%	1.0%	Pallets	12,850	2.2%	0.4%	4.0%
Ferrous Metals	33,446	5.7%	2.3%	9.1%	***Household Hazardous***	**1,060**	**0.2%**		
Non-Ferrous Metals	800	0.1%	0.0%	0.3%	Latex Paint	680	0.1%	0.0%	0.3%
R/C Metal	10,389	1.8%	1.0%	2.6%	Oil Paint	0	0.0%	0.0%	0.0%
Glass	**13,313**	**2.3%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	8,400	1.4%	1.0%	1.9%	Auto Used Oil Filters	242	0.0%	0.0%	0.1%
R/C Glass	4,914	0.8%	0.2%	1.5%	Mercury	0	0.0%	0.0%	0.0%
Organics	**107,423**	**18.4%**			Other Hazardous	137	0.0%	0.0%	0.0%
Yard Waste - <6"	2,571	0.4%	0.1%	0.8%	***Other Wastes***	**23,296**	**4.0%**		
Yard Waste - >6"	0	0.0%	0.0%	0.0%	Textiles	15,692	2.7%	1.8%	3.5%
Food	54,997	9.4%	6.8%	12.0%	Carpet	6,572	1.1%	0.4%	1.9%
Diapers	20,348	3.5%	2.0%	5.0%	Carpet Padding	1,032	0.2%	0.0%	0.4%
Animal Waste/Kitty Litter	8,954	1.5%	0.7%	2.4%					
Bottom Fines/Dirt	11,193	1.9%	1.1%	2.8%					
R/C Organic	9,359	1.6%	1.2%	2.0%					

Total Tons	**585,096**
Sample Count	**56**

Residential

Figure B - 18 – Overview of Composition, West central Residential

(Calendar Year 2001)

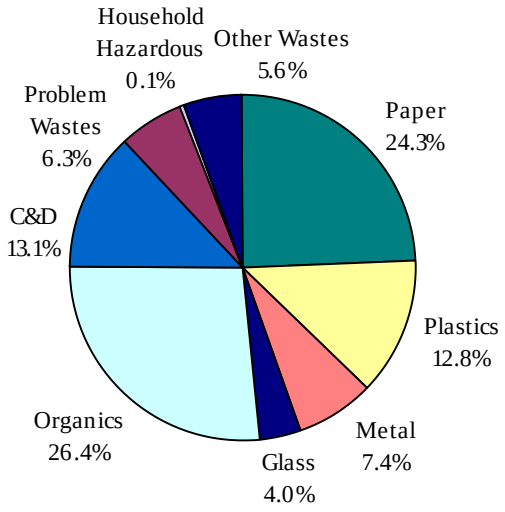


Table B - 35 – Top Ten Components, West central Residential

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Wood - untreated	12.0%	12.0%	22,238	22,238
Food	10.7%	22.7%	19,778	42,016
Compostable Paper	6.2%	28.9%	11,446	53,462
Mixed Recyclable Paper	5.9%	34.8%	10,853	64,314
Diapers	5.7%	40.5%	10,567	74,881
Plastic Film	5.3%	45.8%	9,789	84,670
Textiles	4.5%	50.3%	8,284	92,954
Bulky Items	4.0%	54.3%	7,355	100,309
Animal Waste/Kitty Litter	3.5%	57.9%	6,548	106,857
R/C Plastic	3.3%	61.2%	6,111	112,968
Total	**61.2%**			**112,968**

Table B - 36 – Detailed Composition Profile, West central Residential

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**44,903**	**24.3%**			***C&D***	**24,174**	**13.1%**		
Newsprint	5,095	2.8%	1.7%	3.8%	Wood - treated	0	0.0%	0.0%	0.0%
High Grade Paper	3,371	1.8%	0.9%	2.8%	Wood - untreated	22,238	12.0%	4.8%	19.3%
Magazines/Catalogs	3,232	1.7%	1.1%	2.4%	Rock/Concrete/Brick	485	0.3%	0.0%	0.6%
Cardboard - recyclable	4,993	2.7%	1.0%	4.4%	Drywall	6	0.0%	0.0%	0.0%
Cardboard - coated	116	0.1%	0.0%	0.2%	Roofing Shingles	0	0.0%	0.0%	0.0%
Boxboard	2,507	1.4%	1.0%	1.7%	PVC	23	0.0%	0.0%	0.0%
Mixed Recyclable Paper	10,853	5.9%	4.3%	7.4%	Ceramics/Porcelain	225	0.1%	0.0%	0.3%
Compostable Paper	11,446	6.2%	4.5%	7.9%	Other C&D	1,196	0.6%	0.1%	1.2%
R/C Paper	3,291	1.8%	1.1%	2.4%	***Problem Wastes***	**11,672**	**6.3%**		
Plastics	**23,614**	**12.8%**			Televisions	0	0.0%	0.0%	0.0%
PET Bottles	1,341	0.7%	0.5%	0.9%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	503	0.3%	0.2%	0.4%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	1,040	0.6%	0.1%	1.1%	Electronic Equipment	3,855	2.1%	0.4%	3.8%
#3-#7 Other Plastic Bottles	137	0.1%	0.0%	0.1%	White Goods - refrigerated	0	0.0%	0.0%	0.0%
Polystyrene	1,772	1.0%	0.5%	1.4%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	2,922	1.6%	1.2%	2.0%	Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Plastic Film	9,789	5.3%	4.0%	6.6%	Other Household Batteries	196	0.1%	0.0%	0.2%
R/C Plastic	6,111	3.3%	2.1%	4.5%	Tires	92	0.1%	0.0%	0.1%
Metal	**13,673**	**7.4%**			Bulky Items	7,355	4.0%	0.0%	9.0%
Aluminum Cans	2,375	1.3%	0.2%	2.4%	Fluorescent Lights	173	0.1%	0.0%	0.2%
Other Aluminum	628	0.3%	0.2%	0.5%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	1,923	1.0%	0.8%	1.3%	Pallets	0	0.0%	0.0%	0.0%
Ferrous Metals	4,949	2.7%	1.1%	4.3%	***Household Hazardous***	**268**	**0.1%**		
Non-Ferrous Metals	210	0.1%	0.0%	0.2%	Latex Paint	2	0.0%	0.0%	0.0%
R/C Metal	3,588	1.9%	0.4%	3.4%	Oil Paint	0	0.0%	0.0%	0.0%
Glass	**7,316**	**4.0%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	5,063	2.7%	1.5%	4.0%	Auto Used Oil Filters	173	0.1%	0.0%	0.2%
R/C Glass	2,253	1.2%	0.3%	2.2%	Mercury	0	0.0%	0.0%	0.0%
Organics	**48,775**	**26.4%**			Other Hazardous	92	0.1%	0.0%	0.1%
Yard Waste - <6"	1,829	1.0%	0.0%	2.2%	***Other Wastes***	**10,301**	**5.6%**		
Yard Waste - >6"	0	0.0%	0.0%	0.0%	Textiles	8,284	4.5%	2.5%	6.5%
Food	19,778	10.7%	8.7%	12.7%	Carpet	1,751	0.9%	0.0%	2.5%
Diapers	10,567	5.7%	2.6%	8.8%	Carpet Padding	266	0.1%	0.0%	0.4%
Animal Waste/Kitty Litter	6,548	3.5%	1.1%	6.0%					
Bottom Fines/Dirt	4,606	2.5%	0.3%	4.7%					
R/C Organic	5,447	2.9%	1.8%	4.1%					

Total Tons	**184,697**
Sample Count	**16**

Industrial/Commercial/Institutional

Figure B - 19 – Overview of Composition, West central ICI

(Calendar Year 2001)

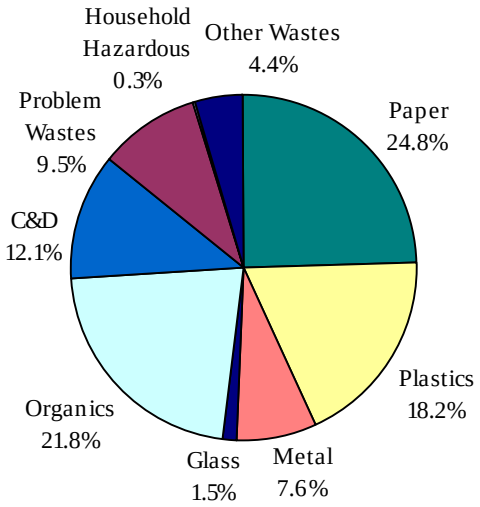


Table B - 37 – Top Ten Components, West central ICI

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Food	13.1%	13.1%	35,212	35,212
Wood - untreated	8.0%	21.1%	21,354	56,566
Other Rigid Plastic Containers	6.4%	27.5%	17,104	73,670
Mixed Recyclable Paper	5.5%	32.9%	14,678	88,348
Compostable Paper	5.2%	38.1%	13,955	102,303
R/C Plastic	5.1%	43.2%	13,627	115,930
Plastic Film	4.5%	47.7%	12,139	128,068
R/C Paper	4.5%	52.2%	12,076	140,144
Bulky Items	3.9%	56.1%	10,428	150,572
Diapers	3.6%	59.8%	9,781	160,353
Total	**59.8%**			**160,353**

Table B - 38 – Detailed Composition Profile, West central ICI

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**66,467**	**24.8%**		
Newsprint	4,515	1.7%	1.0%	2.4%
High Grade Paper	3,203	1.2%	0.5%	1.8%
Magazines/Catalogs	3,970	1.5%	0.7%	2.3%
Cardboard - recyclable	9,164	3.4%	1.9%	4.9%
Cardboard - coated	2,459	0.9%	0.1%	1.8%
Boxboard	2,447	0.9%	0.6%	1.2%
Mixed Recyclable Paper	14,678	5.5%	3.7%	7.2%
Compostable Paper	13,955	5.2%	3.8%	6.6%
R/C Paper	12,076	4.5%	0.8%	8.2%
Plastics	**48,829**	**18.2%**		
PET Bottles	1,789	0.7%	0.4%	0.9%
HDPE Bottles - natural	1,217	0.5%	0.1%	0.8%
HDPE Bottles - colored	1,096	0.4%	0.2%	0.7%
#3-#7 Other Plastic Bottles	73	0.0%	0.0%	0.0%
Polystyrene	1,786	0.7%	0.4%	0.9%
Other Rigid Plastic Containers	17,104	6.4%	0.0%	13.7%
Plastic Film	12,139	4.5%	3.4%	5.7%
R/C Plastic	13,627	5.1%	2.4%	7.8%
Metal	**20,337**	**7.6%**		
Aluminum Cans	2,002	0.7%	0.4%	1.1%
Other Aluminum	458	0.2%	0.1%	0.3%
Tin Cans	2,721	1.0%	0.6%	1.5%
Ferrous Metals	9,048	3.4%	1.4%	5.4%
Non-Ferrous Metals	153	0.1%	0.0%	0.1%
R/C Metal	5,956	2.2%	0.9%	3.5%
Glass	**4,048**	**1.5%**		
Glass - recyclable	3,299	1.2%	0.7%	1.8%
R/C Glass	748	0.3%	0.1%	0.4%
Organics	**58,396**	**21.8%**		
Yard Waste - <6"	723	0.3%	0.1%	0.5%
Yard Waste - >6"	0	0.0%	0.0%	0.0%
Food	35,212	13.1%	7.7%	18.6%
Diapers	9,781	3.6%	1.1%	6.2%
Animal Waste/Kitty Litter	2,406	0.9%	0.3%	1.5%
Bottom Fines/Dirt	6,547	2.4%	1.3%	3.6%
R/C Organic	3,727	1.4%	0.9%	1.9%
C&D	**32,502**	**12.1%**		
Wood - treated	0	0.0%	0.0%	0.0%
Wood - untreated	21,354	8.0%	3.5%	12.4%
Rock/Concrete/Brick	5,530	2.1%	0.0%	4.8%
Drywall	888	0.3%	0.0%	0.7%
Roofing Shingles	0	0.0%	0.0%	0.0%
PVC	5	0.0%	0.0%	0.0%
Ceramics/Porcelain	102	0.0%	0.0%	0.1%
Other C&D	4,623	1.7%	0.3%	3.1%
Problem Wastes	**25,364**	**9.5%**		
Televisions	0	0.0%	0.0%	0.0%
Computer Monitors	0	0.0%	0.0%	0.0%
Computer Equipment	0	0.0%	0.0%	0.0%
Electronic Equipment	4,880	1.8%	0.2%	3.5%
White Goods - refrigerated	0	0.0%	0.0%	0.0%
White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Lead-Acid Batteries	0	0.0%	0.0%	0.0%
Other Household Batteries	136	0.1%	0.0%	0.1%
Tires	775	0.3%	0.0%	0.7%
Bulky Items	10,428	3.9%	0.0%	8.9%
Fluorescent Lights	0	0.0%	0.0%	0.0%
Ballasts	0	0.0%	0.0%	0.0%
Pallets	9,145	3.4%	0.0%	7.2%
Household Hazardous	**692**	**0.3%**		
Latex Paint	678	0.3%	0.0%	0.7%
Oil Paint	0	0.0%	0.0%	0.0%
Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Auto Used Oil Filters	0	0.0%	0.0%	0.0%
Mercury	0	0.0%	0.0%	0.0%
Other Hazardous	15	0.0%	0.0%	0.0%
Other Wastes	**11,676**	**4.4%**		
Textiles	7,277	2.7%	1.4%	4.0%
Carpet	4,132	1.5%	0.4%	2.7%
Carpet Padding	267	0.1%	0.0%	0.2%

Total Tons	**268,310**
Sample Count	**24**

Construction & Demolition

Figure B - 20 – Overview of Composition, West central C&D

(Calendar Year 2001)

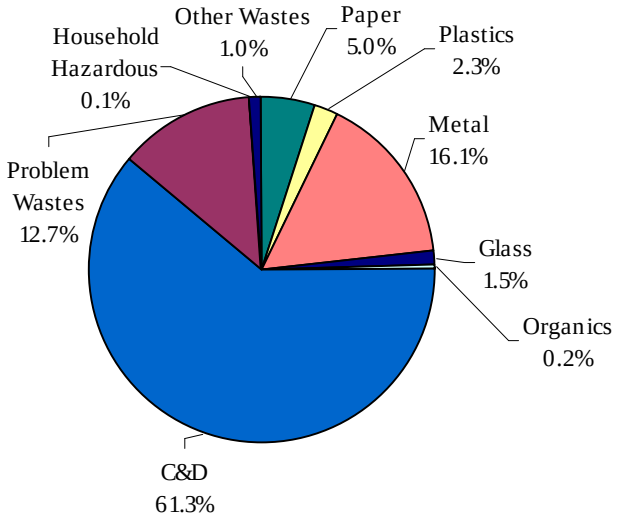


Table B - 39 – Top Ten Components, West central C&D

(Calendar Year 2001)

Component	Mean	Cum. %	Tons	Cum. Tons
Roofing Shingles	21.7%	21.7%	28,645	28,645
Wood - untreated	18.8%	40.5%	24,806	53,451
Ferrous Metals	14.7%	55.2%	19,449	72,901
Rock/Concrete/Brick	12.7%	67.9%	16,781	89,682
Cardboard - recyclable	4.5%	72.4%	5,900	95,582
White Goods - refrigerated	4.2%	76.5%	5,493	101,074
Drywall	3.8%	80.4%	5,085	106,159
Televisions	3.1%	83.5%	4,089	110,249
Pallets	2.8%	86.3%	3,705	113,954
Ceramics/Porcelain	2.7%	88.9%	3,507	117,461
Total	**88.9%**			**117,461**

Table B - 40 – Detailed Composition Profile, West central C&D

(Calendar Year 2001)

Calculated at a 90% confidence level

	Tons	Mean	Conf. Interval Low	Conf. Interval High		Tons	Mean	Conf. Interval Low	Conf. Interval High
Paper	**6,546**	**5.0%**			***C&D***	**80,926**	**61.3%**		
Newsprint	0	0.0%	0.0%	0.0%	Wood - treated	0	0.0%	0.0%	0.0%
High Grade Paper	0	0.0%	0.0%	0.0%	Wood - untreated	24,806	18.8%	11.5%	26.1%
Magazines/Catalogs	0	0.0%	0.0%	0.0%	Rock/Concrete/Brick	16,781	12.7%	0.3%	25.1%
Cardboard - recyclable	5,900	4.5%	1.5%	7.4%	Drywall	5,085	3.8%	0.4%	7.3%
Cardboard - coated	0	0.0%	0.0%	0.0%	Roofing Shingles	28,645	21.7%	4.5%	38.9%
Boxboard	2	0.0%	0.0%	0.0%	PVC	20	0.0%	0.0%	0.0%
Mixed Recyclable Paper	580	0.4%	0.0%	1.0%	Ceramics/Porcelain	3,507	2.7%	0.0%	6.0%
Compostable Paper	5	0.0%	0.0%	0.0%	Other C&D	2,081	1.6%	0.4%	2.7%
R/C Paper	60	0.0%	0.0%	0.1%	***Problem Wastes***	**16,767**	**12.7%**		
Plastics	**3,026**	**2.3%**			Televisions	4,089	3.1%	0.0%	7.8%
PET Bottles	8	0.0%	0.0%	0.0%	Computer Monitors	0	0.0%	0.0%	0.0%
HDPE Bottles - natural	0	0.0%	0.0%	0.0%	Computer Equipment	0	0.0%	0.0%	0.0%
HDPE Bottles - colored	70	0.1%	0.0%	0.1%	Electronic Equipment	225	0.2%	0.0%	0.5%
#3-#7 Other Plastic Bottles	0	0.0%	0.0%	0.0%	White Goods - refrigerated	5,493	4.2%	0.0%	10.5%
Polystyrene	205	0.2%	0.0%	0.4%	White Goods - non-refrigerated	0	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	156	0.1%	0.0%	0.3%	Lead-Acid Batteries	3,171	2.4%	0.0%	6.4%
Plastic Film	1,188	0.9%	0.0%	2.1%	Other Household Batteries	5	0.0%	0.0%	0.0%
R/C Plastic	1,399	1.1%	0.1%	2.0%	Tires	65	0.0%	0.0%	0.1%
Metal	**21,204**	**16.1%**			Bulky Items	0	0.0%	0.0%	0.0%
Aluminum Cans	86	0.1%	0.0%	0.1%	Fluorescent Lights	15	0.0%	0.0%	0.0%
Other Aluminum	386	0.3%	0.0%	0.6%	Ballasts	0	0.0%	0.0%	0.0%
Tin Cans	0	0.0%	0.0%	0.0%	Pallets	3,705	2.8%	0.1%	5.5%
Ferrous Metals	19,449	14.7%	0.4%	29.1%	***Household Hazardous***	**99**	**0.1%**		
Non-Ferrous Metals	436	0.3%	0.0%	0.9%	Latex Paint	0	0.0%	0.0%	0.0%
R/C Metal	845	0.6%	0.0%	1.6%	Oil Paint	0	0.0%	0.0%	0.0%
Glass	**1,950**	**1.5%**			Pesticides/Fertilizers	0	0.0%	0.0%	0.0%
Glass - recyclable	37	0.0%	0.0%	0.1%	Auto Used Oil Filters	69	0.1%	0.0%	0.1%
R/C Glass	1,912	1.4%	0.0%	3.9%	Mercury	0	0.0%	0.0%	0.0%
Organics	**251**	**0.2%**			Other Hazardous	30	0.0%	0.0%	0.1%
Yard Waste - <6"	20	0.0%	0.0%	0.0%	***Other Wastes***	**1,319**	**1.0%**		
Yard Waste - >6"	0	0.0%	0.0%	0.0%	Textiles	131	0.1%	0.0%	0.2%
Food	7	0.0%	0.0%	0.0%	Carpet	689	0.5%	0.0%	1.4%
Diapers	0	0.0%	0.0%	0.0%	Carpet Padding	499	0.4%	0.0%	1.0%
Animal Waste/Kitty Litter	0	0.0%	0.0%	0.0%					
Bottom Fines/Dirt	40	0.0%	0.0%	0.1%					
R/C Organic	185	0.1%	0.0%	0.4%					

Total Tons	**132,089**
Sample Count	**16**

COMPARISONS AMONG SUBSTREAM TONNAGES IN WEST CENTRAL REGION

Table B-3-22 – Composition Comparisons among Substreams, West central

(Calendar Year 2001)

	(Mean Percentage)				(Mean Percentage)		
Material	**Residential**	**ICI**	**C&D**	**Material**	**Residential**	**ICI**	**C&D**
Paper	**24.3%**	**24.8%**	**5.0%**	**C&D**	**13.1%**	**12.1%**	**61.3%**
Newsprint	2.8%	1.7%	0.0%	Wood - treated	0.0%	0.0%	0.0%
High Grade Paper	1.8%	1.2%	0.0%	Wood - untreated	12.0%	8.0%	18.8%
Magazines/Catalogs	1.7%	1.5%	0.0%	Rock/Concrete/Brick	0.3%	2.1%	12.7%
Cardboard - recyclable	2.7%	3.4%	4.5%	Drywall	0.0%	0.3%	3.8%
Cardboard - coated	0.1%	0.9%	0.0%	Roofing Shingles	0.0%	0.0%	21.7%
Boxboard	1.4%	0.9%	0.0%	PVC	0.0%	0.0%	0.0%
Mixed Recyclable Paper	5.9%	5.5%	0.4%	Ceramics/Porcelain	0.1%	0.0%	2.7%
Compostable Paper	6.2%	5.2%	0.0%	Other C&D	0.6%	1.7%	1.6%
R/C Paper	1.8%	4.5%	0.0%	**Problem Wastes**	**6.3%**	**9.5%**	**12.7%**
Plastics	**12.8%**	**18.2%**	**2.3%**	Televisions	0.0%	0.0%	3.1%
PET Bottles	0.7%	0.7%	0.0%	Computer Monitors	0.0%	0.0%	0.0%
HDPE Bottles - natural	0.3%	0.5%	0.0%	Computer Equipment	0.0%	0.0%	0.0%
HDPE Bottles - colored	0.6%	0.4%	0.1%	Electronic Equipment	2.1%	1.8%	0.2%
#3-#7 Other Plastic Bottles	0.1%	0.0%	0.0%	White Goods - refrigerated	0.0%	0.0%	4.2%
Polystyrene	1.0%	0.7%	0.2%	White Goods - non-refrigerated	0.0%	0.0%	0.0%
Other Rigid Plastic Containers	1.6%	6.4%	0.1%	Lead-Acid Batteries	0.0%	0.0%	2.4%
Plastic Film	5.3%	4.5%	0.9%	Other Household Batteries	0.1%	0.1%	0.0%
R/C Plastic	3.3%	5.1%	1.1%	Tires	0.1%	0.3%	0.0%
Metal	**7.4%**	**7.6%**	**16.1%**	Bulky Items	4.0%	3.9%	0.0%
Aluminum Cans	1.3%	0.7%	0.1%	Fluorescent Lights	0.1%	0.0%	0.0%
Other Aluminum	0.3%	0.2%	0.3%	Ballasts	0.0%	0.0%	0.0%
Tin Cans	1.0%	1.0%	0.0%	Pallets	0.0%	3.4%	2.8%
Ferrous Metals	2.7%	3.4%	14.7%	**Household Hazardous**	**0.1%**	**0.3%**	**0.1%**
Non-Ferrous Metals	0.1%	0.1%	0.3%	Latex Paint	0.0%	0.3%	0.0%
R/C Metal	1.9%	2.2%	0.6%	Oil Paint	0.0%	0.0%	0.0%
Glass	**4.0%**	**1.5%**	**1.5%**	Pesticides/Fertilizers	0.0%	0.0%	0.0%
Glass - recyclable	2.7%	1.2%	0.0%	Auto Used Oil Filters	0.1%	0.0%	0.1%
R/C Glass	1.2%	0.3%	1.4%	Mercury	0.0%	0.0%	0.0%
Organics	**26.4%**	**21.8%**	**0.2%**	Other Hazardous	0.1%	0.0%	0.0%
Yard Waste - <6"	1.0%	0.3%	0.0%	**Other Wastes**	**5.6%**	**4.4%**	**1.0%**
Yard Waste - >6"	0.0%	0.0%	0.0%	Textiles	4.5%	2.7%	0.1%
Food	10.7%	13.1%	0.0%	Carpet	0.9%	1.5%	0.5%
Diapers	5.7%	3.6%	0.0%	Carpet Padding	0.1%	0.1%	0.4%
Animal Waste/Kitty Litter	3.5%	0.9%	0.0%				
Bottom Fines/Dirt	2.5%	2.4%	0.0%				
R/C Organic	2.9%	1.4%	0.1%	**Total**	**100.0%**	**100.0%**	**100.0%**

Appendix C: SAMPLING METHODOLOGY

OBJECTIVE

The objective of this study was to provide statistically valid composition and quantity estimates of Wisconsin generated municipal solid waste (MSW) at the statewide level as well as on a regional basis and according to the *substream* from which the waste came: *residential*, *industrial/ commercial/institutional* (ICI), or *construction/demolition* (C&D). This appendix outlines the sampling methodology that was used for this study.

SAMPLING GROUPS

Waste analyzed for this study includes all MSW that is generated by residents and businesses within the State of Wisconsin and that is also disposed in MSW landfills located within the state. Special industrial wastes, such as foundry sand and paper mill sludge, as well as out-of-state wastes were not included in the study.

For any specific geographic area, the total waste stream can be divided into *substreams* to facilitate more accurate analysis. For this study, a waste *substream* was identified by the particular generation characteristics that make it a unique portion of the total waste stream. There were three distinct **substreams** identified for this study.

1. **Residential** – MSW generated by single-family and two- to four-unit residences.[9] This waste is primarily collected in packer trucks (e.g., commercially- or municipally-operated collection vehicles that compact the residential waste as it is collected), but some residential waste is "self-hauled" to disposal facilities by residents.

2. **Industrial/commercial/institutional (ICI)** – MSW generated by industrial facilities, and by businesses, institutions, and multi-family dwellings consisting of five or more units. This waste is collected in a variety of vehicles including loose drop boxes, compactor drop boxes and packer trucks. Some of this waste is self-hauled by the businesses that generated it.[10]

3. **Construction/demolition (C&D)** – MSW generated from construction or demolition activities. This waste typically is collected in vehicles such as dump trucks, loose roll-off boxes, and end dump vehicles. It may be transported either by a municipality, commercial hauler, or by the business or resident that generated the waste.

Within each substream, there are two different **hauler types**: *commercial* and *self-haul*.

- **Commercially collected waste** is collected and transported to the disposal facility by municipalities or companies whose primary business is to haul waste.
- **Self-hauled waste** is collected and transported to the disposal facility by the individual, business, or government agency that generated the waste.

[9] This definition of "residential" is consistent with regulatory language identifying waste generated from the residential sector.

[10] Special industrial wastes such as foundry sand and paper mill sludge were not included in this study. Wisconsin MSW landfills track and report these wastes separate from MSW.

Wisconsin's waste stream was further divided into five distinct geographic regions identified by the Wisconsin Department of Natural Resources (WDNR): North, Northeast, Southeast, South Central, and West Central. Sampling sites were selected within each of these regions to ensure a geographically representative sample of statewide disposal. The site selection methodology is explained in the next section.

SITE SELECTION

The *number* of sites at which sampling occurred was governed by the resources available for this study. The choice of *specific sites* where sampling occurred was guided by the strategy of including the disposal facilities that handle the largest amounts of in-state MSW (excluding special industrial wastes) disposed within the state. Of the 400 waste samples afforded by project resources, it was known that approximately 14 samples could be sorted each day over the course of 28 sorting days. Fourteen of the state's largest disposal sites were chosen for inclusion in the study, which corresponded to a waste sorting period of two days at each site.

An initial list of 14 sites was drawn up. The list was then adjusted to include the two largest publicly owned disposal facilities and to ensure that at least two facilities were included from each of the five designated regions of the state. Each disposal facility on the resulting list was contacted and taken through a qualifying interview. Landfills that refused to participate in the study were replaced by the next largest ones, by tonnage, in the region.[11] Collectively, the 14 facilities that ultimately were selected disposed of 78% of Wisconsin's MSW in 2001.

The qualifying interviews were conducted to ensure that the selected facilities were fully informed about the assistance that would be required during their participation in the study, and to verify that the facilities receive MSW representative of that disposed in Wisconsin generally. The interviews were also used to verify that the selected facilities handled enough MSW from each sampling group to warrant two days of sampling and sorting.

Table C-1 lists the disposal facilities selected for participation in this study. The corresponding WDNR region, county, in-state disposed tons (excluding special industrial wastes), and percent of statewide disposal are listed. Two of the fourteen sites shown are publicly operated (Outagamie County and Dane County landfills), while private companies maintain the other 12 facilities. Each WDNR region was represented by at least two sites to ensure a geographically representative sample and to protect each participating landfill's anonymity with regards to specific waste data.

[11] In fact, a landfill located in the South central region refused to participate in the study. The next largest facility, by tonnage, in the South central agreed to participate.

Table C - 1 – Sampling Sites[12]

Facility Name	Disposed MSW Tons	Pct. of Statewide Disposal	Cum Pct. of Statewide Disposal	Region	County
W M W I - ORCHARD RIDGE RECYCLING & DISPOSAL	586,401	12.34%	12.34%	Southeast	Waukesha
W M W I - METRO RECYCLING & DISPOSAL FACILTY	395,021	8.31%	20.65%	Southeast	Milwaukee
W M W I - RIDGEVIEW RDF	360,134	7.58%	28.23%	Northeast	Manitowoc
W M W I - DEER TRACK PARK INC	354,121	7.45%	35.68%	South central	Jefferson
SUPERIOR GLACIER RIDGE LANDFILL	352,110	7.41%	43.09%	South central	Dodge
SUPERIOR EMERALD PARK LF LLC	334,289	7.03%	50.13%	Southeast	Waukesha
W M W I - VALLEY TRAIL RDF	233,414	4.91%	55.04%	Northeast	Green Lake
SUPERIOR HICKORY MEADOWS LANDFILL LLC	202,169	4.25%	59.29%	Northeast	Calumet
SUPERIOR SEVEN MILE CREEK LANDFILL INC-SEC 2	200,032	4.21%	63.50%	West central	Eau Claire
SUPERIOR CRANBERRY CREEK	198,811	4.18%	67.68%	West central	Wood
W M W I - TIMBERLINE TRAIL RDF	191,186	4.02%	71.71%	North	Rusk
OUTAGAMIE COUNTY SW DIV LF	152,429	3.21%	74.91%	Northeast	Outagamie
DANE COUNTY LF # 2 RODEFELD	83,661	1.76%	76.68%	South central	Dane
BFI WASTE SYSTEMS OF NORTH AMERICA INC	68,650	1.44%	78.12%	North	Washburn

Table C-2 shows the distribution of disposed tons from which samples were drawn for each of the five WDNR regions. The percent of sampled tons roughly matches the percent of statewide disposed tons for each region, which ensured that sampled waste was geographically representative of waste disposed statewide.

Table C - 2 – MSW Tons Disposed and Sampled by Region

Region	Total MSW Tons Disposed	Pct. of Statewide Disposed MSW	Tons of MSW from which samples were drawn	Pct. of Statewide Sampled Tons
Northeast	1,183,610	24.9%	948,146	25.5%
North	327,802	6.9%	259,836	7.0%
South central	934,348	19.7%	789,892	21.3%
Southeast	1,721,362	36.2%	1,315,711	35.4%
West central	585,096	12.3%	398,843	10.7%
Total	4,752,218	100.0%	3,712,428	100.0%

SAMPLE ALLOCATION

The samples were apportioned among the three waste substreams as shown in Table C-3. More samples were allocated to the ICI substream than to the residential substream, because the ICI samples were expected to display greater variability in composition. During the study design phase of the project, the Construction and Demolition (C&D) substream was identified as meriting its own allocation of samples and its own analyses. Samples were assigned to the C&D substream to the extent permitted by study resources, while still preserving a sufficient number for the residential and ICI substreams.

[12] WDNR provided the tonnages listed in this table. They correspond to in-state tons disposed during the 2001 calendar year, and are reported on an annual basis by all registered landfills within the state.

Table C - 3 – Proposed Number of Samples

Substream	No. of Samples
Residential	115
Industrial/Commercial/Institutional	170
Construction & Demolition	115

Within each of these substreams, both commercially collected and self-hauled waste was sampled. Roughly 70%, or 280 samples, were planned from commercially collected loads, and 120 samples (about 30%) were planned from self-haul vehicles.

SAMPLING CALENDAR

To ensure representation of seasonal variation in the types and amounts of waste disposed, 400 samples were apportioned evenly between two seasons – summer and winter. Since the field crew was capable of sorting about 14 samples per day, and a total of 400 samples were planned, roughly 28 days of waste sorting were required.

Each selected site was assigned to one of the two sampling seasons using a random selection procedure. This procedure was designed to select at least one site per region per season. This ensured that all five WDNR regions were represented during each season.[13] Table C-4 lists the sampling sites, seasons, and specific dates during which sampling occurred.

Table C - 4 – Sampling Sites and Seasons

Facility Name	Region	Season	Dates
SUPERIOR GLACIER RIDGE LANDFILL	South central	Summer	Aug 19-20
OUTAGAMIE COUNTY SW DIV LF	Northeast	Summer	Aug 26-27
W M W I - VALLEY TRAIL RDF	Northeast	Summer	Aug 29-30
W M W I - METRO RECYCLING & DISPOSAL FACILITY	Southeast	Summer	Oct 1-2
DANE COUNTY LF # 2 RODEFELD	South central	Summer	Oct 3-4
SUPERIOR CRANBERRY CREEK	West central	Summer	Sept 24-25
SUPERIOR SEVEN MILE CREEK LANDFILL INC-SEC 2	West central	Summer	Sept 26-27
BFI WASTE SYSTEMS OF NORTH AMERICA INC	North	Winter	Dec 2-4
W M W I - TIMBERLINE TRAIL RDF	North	Winter	Dec 5-6
W M W I - DEER TRACK PARK INC	South central	Winter	Dec 9-10
SUPERIOR EMERALD PARK LF LLC	Southeast	Winter	Nov 11-12
W M W I - ORCHARD RIDGE RECYCLING & DISPOSAL	Southeast	Winter	Nov 13-14
W M W I - RIDGEVIEW RDF	Northeast	Winter	Nov 18-19
SUPERIOR HICKORY MEADOWS LANDFILL LLC	Northeast	Winter	Nov 20-21

Working around major holidays and special events (e.g., college student move-in), and the sorting crew's availability, 14 sampling days were selected within each season. Summer sampling

[13] Sampling did not occur, as planned, in the west central region during the winter season due to a tornado storm.

occurred during August and September 2002. Winter sampling occurred during November and December 2002.

In order to meet the objective of sorting 400 samples at a rate of approximately 14 samples per day at each of 14 disposal facilities, the study design provided for selecting two consecutive sampling/sorting days at each facility. This arrangement also served to maximize the efficiency of the sorting crew by avoiding the need to change locations on a daily basis, and it thereby afforded more samples to the study than would otherwise have been possible.

DEVELOPMENT OF SAMPLING PLAN

Development of a sampling plan required the collection of data from each selected facility about the numbers and types of vehicles that typically arrive on each day of the week. Each facility provided average daily traffic counts for commercially collected and self-haul MSW loads delivered by four vehicle types: front-end packer trucks, other packer trucks (e.g., side or rear loading), roll-off boxes (loose and compacted), and self-hauled vehicles (e.g., cars, pickups, flatbed trucks, etc.). These traffic counts excluded vehicles delivering out-of-state and special industrial wastes, such as foundry sand and paper mill sludge. Please see Appendix E for a copy of the interview form that was used when interviewing personnel at the disposal facilities.

Forms were then developed to be used by each facility's scalehouse personnel for *systematically selecting* vehicles for sampling. Please refer to Appendix E for an example of a vehicle selection form. The systematic selection procedure is described in the next section.

FIELD PROCEDURES

Random Selection of Waste Loads

To determine which vehicles to target for sampling on a given day, vehicles were systematically selected as they entered the facility. Systematic selection consisted of taking every "nth" vehicle entering the facility. Sample intervals for each vehicle type were determined by dividing the day's expected number of vehicles by the number of samples needed on that day. For example, if 21 front-end packers were expected and three samples were needed, then every seventh vehicle would be selected for sampling.

Vehicle selection occurred at the inbound scale at each facility. The scalehouse staff was instructed to systematically select four types of vehicles (front packer trucks, other packer trucks, roll-offs, and self-haul vehicles) as they entered the facility. Numbers of vehicles were tracked on a vehicle selection form given to scalehouse staff at the beginning of each sampling day. (See Appendix E for an example of a vehicle selection form.) Selected vehicles were flagged with a brightly colored placard on the windshield and were directed to the sorting area. (Appendix E contains a copy of the windshield placard.)

The sorting crew's Field Supervisor then intercepted the selected vehicles near the designated waste sorting location and checked to determine whether the day's sampling quotas had been met for each type of vehicle arriving. If sampling quotas had already been met for a given combination of substream and hauler type, then the vehicle that had been selected at the scalehouse was allowed to tip its load without being sampled.

Driver Interviews

As the vehicle approached the sorting area, the Field Supervisor noted the hauler type (commercial or self-haul) and assigned the load a unique sample identification number. The driver was asked to identify the load as residential, ICI, or C&D, and then instructed to tip the load in the designated area.

Random Selection of Samples

At the tipping area, a designated member of the field crew collected the sample placard from each selected vehicle and worked closely with the loader operator to capture the sample by:

1. **Visually dividing each sample load into 16 cells** after the load was tipped onto the ground. Once tipped, MSW loads tend to be distributed in an elongated configuration similar to that shown in Figure C-1 below.

2. **Instructing the loader operator to capture waste from two randomly selected cells in the grid** – one from the top half of the load and one from the bottom half. These two cells were randomly selected prior to sampling using a random number generator. The desired cell numbers were printed on each load's sampling sheet (see Appendix E for a copy).[14]

3. **Mixing the waste extracted from the two cells** on a hard, flat surface. The loader operator was instructed to mix the waste so as to distribute the various waste materials throughout the pile. First, the loader mixed the waste back and forth in one direction. Then, the loader operator took waste from a cross-section of the pile (perpendicular to the mixing direction), ensuring a representative sample (see Figure C-2 below).

4. **Selecting 200 to 300 pounds of material from the mixed pile.** As indicated above, material from a cross-section of the mixed waste pile was then captured and placed into barrels or onto a tarpaulin for sorting.

   If a sample load weighed less than 300 pounds, but more than 200 pounds, the entire load was sorted as a sample. If a load weighed less than 200 pounds, additional material from the same type of load was combined, or the next load was taken as an alternate.

[14] A variation of this method was used for homogeneous loads, such as those from roofing companies. Waste was taken from one of the two pre-selected cells, and placed directly onto a tarp for sorting. In other words, step 2 was modified and step 3 was skipped.

Figure C - 1 – The 16-Cell Grid as Applied to a Tipped Load[15]

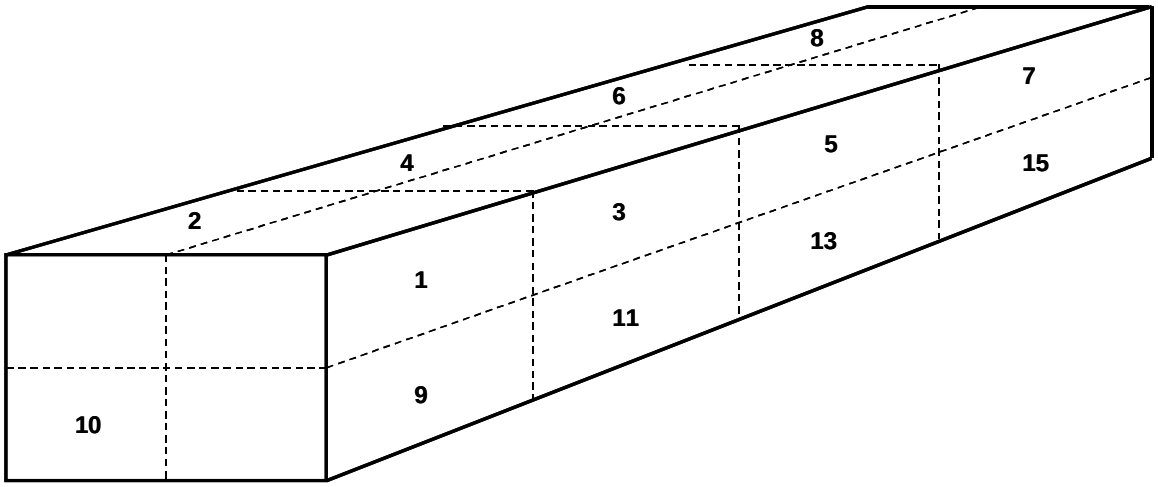
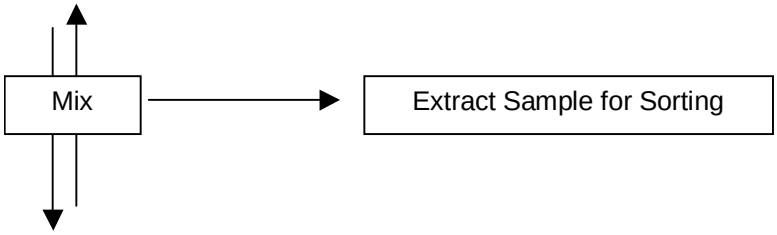


Figure C - 2 – Mixing and Extracting Waste



If very few loads from a substream were delivered on a given sampling day, it was been necessary to capture two samples from the same load. To accomplish this, waste was captured from four randomly selected cells, two from the top half of the load and two from the bottom. The two waste piles (two cells per pile) were mixed once again and then were sampled as described above.

Waste Sorting and Weighing

The extracted material was placed into tared barrels or onto a tarp; it was weighed to verify that enough material had been accumulated to constitute a sample. At that time, the sample also was screened for hazardous materials (e.g., sharps). Any hazardous materials were set aside, and the sample was sorted by hand into the prescribed material categories. (Please refer to Appendix A for the complete list and definitions of this study's material categories.) The Field Supervisor monitored the homogeneity of the materials as they were sorted, reclassifying any items that were improperly sorted.

For a given sample, individual material weights were recorded on a sampling sheet (please see Appendix E for a copy) to the nearest $1/10^{th}$ of a pound. In addition to the material weights, the

[15] The number of cells in this grid was adjusted downward for small loads. For example, a small load would have been divided into eight cells instead of 16 to ensure that a sufficient amount of waste (between 200 and 300 pounds per cell) was captured for sampling.

Field Supervisor noted the incidence of (1) sharps and bio-hazardous wastes, and (2) reusable items. A count of mercury-containing items was also recorded.

At the end of each sampling day, the Field Supervisor reviewed each waste sampling sheet to ensure accuracy, completeness, and legibility. A copy was made of each form, and the originals were shipped to Cascadia Consulting Group, Inc. for data entry and analysis.

Upon completing the summer and winter waste sorts, data from the sampling forms were entered into a Microsoft Access database customized for this project.

COLLECTION OF WASTE QUANTITY DATA

Caveat: To protect each participating landfill's privacy, all facility-specific composition and waste quantity information was kept confidential by the consultant team. This information was neither published nor shared with the WDNR. These data were instead aggregated at the statewide, substream, and regional levels.

Two types of data were collected related to waste quantities. The first type concerned the total amount of waste originating from within the State of Wisconsin and disposed at a particular disposal facility or within an entire region of the state. This information came from records maintained by WDNR. The second type of data concerned the relative amounts of waste entering each disposal facility from each type of load (i.e., residential, ICI or C&D, and commercially hauled or self-hauled). These data were obtained from participating landfills and assembled based on a combination of facility records and surveys that were conducted at the gatehouses of some facilities.

Vehicle surveys were conducted at 2 of the 14 participating facilities – Metro Recycling and Disposal Facility, in Milwaukee, and Valley Trail RDF, in Greenlake – that were unable to provide information about the relative amounts of waste associated with each type of load (e.g., residential self-haul, commercially hauled ICI, etc.). The surveys provided data with which to estimate the fraction of the waste at a facility that belonged to each type of load. The methodology used for vehicle surveys is described below.

For each survey day, the surveyor was on site for the full operating day, or roughly 8 to 10 hours. As each vehicle carrying waste arrived at the facility's gatehouse, the surveyor conducted a brief interview with the driver and recorded the following information if the waste was generated within Wisconsin and was not considered as special industrial waste (e.g., foundry sand, paper mill sludge):

- the type of waste – residential, ICI, or C&D
- the hauler type – commercially collected or self-hauled
- the vehicle type – packer, roll-off, self-haul, or transfer trailer

A net weight for each vehicle was obtained from scalehouse records. A copy of the form that was used during vehicle surveys is included in Appendix E.

When the vehicle surveys for a facility were complete, the net weights of all vehicles belonging to each load type were added together to arrive at the relative contributions from each load type (i.e., residential, ICI or C&D, and commercially hauled or self-hauled).

Appendix D: COMPOSITION CALCULATIONS

To develop composition and quantity profiles for this study, three main steps were taken. These steps are as follows:

1. Calculate the estimated *composition* of the waste;
2. Calculate the estimated *quantity* of waste; and,
3. Combine composition and quantity estimates using a weighted average calculation.

Each of these steps is described in detail below.

COMPOSITION CALCULATIONS

The composition estimates represent the **ratio of the components' weight to the total waste** for each noted substream. They were derived by summing each component's weight across all of the selected records and dividing by the sum of the total weight of waste, as shown in the following equation:

$$r_j = \frac{\sum_i c_{ij}}{\sum_i w_i}$$

where:

c = weight of particular component
w = sum of all component weights
for i = 1 to n
where n = number of selected samples
for j = 1 to m
where m = number of components

The confidence interval for this estimate was derived in two steps. First, the variance around the estimate was calculated, accounting for the fact that the ratio includes two random variables (the component and total sample weights). The **variance of the ratio estimator** equation follows:

$$\hat{V}_{r_j} = \left(\frac{1}{n}\right) \cdot \left(\frac{1}{\overline{w}^2}\right) \cdot \left(\frac{\sum_i \left(c_{ij} - r_j w_i\right)^2}{n-1}\right)$$

where:

$$\overline{w} = \frac{\sum_i w_i}{n}$$

Next, **precision levels** at the 90% confidence interval were calculated for a component's mean as follows:

$$r_j \pm \left(t \cdot \sqrt{\hat{V}_{r_j}} \right)$$

where:

t = the value of the t-statistic (1.645) corresponding to a 90% confidence level

For more detail, please refer to Chapter 6 "Ratio, Regression and Difference Estimation" of *Elementary Survey Sampling* by R.L. Scheaffer, W. Mendenhall and L. Ott (PWS Publishers, 1986).

QUANTITY CALCULATIONS

First, quantity estimates were derived for each substream at each of the landfills that participated in the study. The steps involved are described below.

1. From WDNR, Cascadia obtained annual tonnage figures for the total amount of MSW disposed at each participating landfill during 2001. Out-of-state and special industrial wastes, such as foundry sand and paper mill sludge, were not included in these totals.

2. When possible, Cascadia obtained from each landfill specific estimates of the tonnage (or the percent of the landfill's annual tonnage) for:
   - the waste associated with each substream and hauler type
   - the amount of waste that arrives in mixed loads
   - the amount of waste that arrives from transfer stations

3. When possible, Cascadia obtained an estimate of the amount of waste to be assigned to the residential and ICI substreams from mixed loads delivered to the facility.

4. For landfills that receive *more than half* of their waste from transfer stations, Cascadia contacted the transfer stations to obtain estimates of tonnage (or percent of annual tons) associated with each substream and hauler type. This was done with the transfer stations associated with seven of the 14 participating landfills.

5. For the transfer stations associated with landfills that receive *less than half* of their waste from transfer stations (i.e., for those landfills not covered in Step 4 above), an alternate method was used to estimate the portion of transfer station waste belonging to each substream. Average percentages associated with each substream and hauler type were calculated for each of three groups of transfer stations – (1) those owned by Waste Management, (2) those owned by Superior, and (3) all other transfer stations. The estimated portions by substream were then applied to the total tonnage that passes through the transfer station to the landfill.

The best available information was assembled from the steps described above to bring together a complete picture of the waste entering each of the participating landfills, broken out by substream and hauler type.

Next, tonnages from the landfills within each region were combined to estimate the proportions of waste by substream and hauler type at the regional level.

While collecting tonnage data and developing tonnage estimates, only waste generated by residents and businesses within Wisconsin was considered. Additionally, special industrial wastes, such as foundry sand and paper mill sludge, and other wastes diverted from disposal (e.g., green waste) were not included.

COMBINING COMPOSITION AND QUANTITY CALCULATIONS

Because each composition and quantity profile is made up of different types of waste (e.g., residential waste in the West central region is made up of waste from the two hauler types – commercial and self-haul), a weighted average calculation was used to assign relative importance to each type of waste according to their relative tonnage contribution.

For example, to develop a composition and quantity profile for residential waste from the West central region, both self-haul and commercially collected waste samples were combined, with more importance given to the commercially collected ones (contributing about 85% of total residential tons disposed in that region).

The tonnages used for these calculations are shown in Table D - 1 below.

Table D - 1 – Tonnage and Weighting Figures Associated with Each Substream

	Residential waste		ICI waste		C&D waste		
Region	Commercially hauled	Self-hauled	Commercially hauled	Self-hauled	Commercially hauled	Self-hauled	Total by region
Northeast	312,478	38,393	497,579	24,600	250,104	60,456	1,183,610
Northeast	131,776	6,446	127,142	3,899	51,685	6,854	327,802
South central	282,283	25,582	353,428	17,727	208,765	46,563	934,348
Southeast	463,414	90,610	744,185	63,327	290,317	69,508	1,721,362
West central	155,973	28,724	253,467	14,844	110,391	21,697	585,096
Total by substream	1,345,924	189,755	1,975,800	124,398	911,263	205,077	**4,752,218**

Some or all of the figures in Table D - 1 were converted to relative percents, depending on which combination of substreams and regions was being considered in a particular analysis. The relative percents were then used as weighting factors in the analysis (*p* in the equations that follow). To develop a quantity profile, the appropriate tonnages were also applied to the 62 waste component percentages for each analysis.[16]

[16] *Sharps* and *reusable items* were not included in these analyses. *Sharps* were not included in the weight of the sample (only incidence was noted), and the weights of *reusable items* were categorized according to the 62 individual categories defined for the study (e.g., bulky items or white goods).

The **weighted average for a composition estimate for combined substreams** was performed as follows:

$$O_j = \left(p_1 * r_{j1}\right) + (p_2 * r_{j2}) + (p_3 * r_{j3}) + \ldots$$

where:

p = the proportion of tonnage contributed by the noted substream
r = ratio of component weight to total waste weight in the noted substream
for j = 1 to m
where m = number of components

The **variance of the weighted average** was calculated:

$$VarO_j = (p_1^2 * \hat{V}_{r_{j1}}) + (p_2^2 * \hat{V}_{r_{j2}}) + (p_3^2 * \hat{V}_{r_{j3}}) + \ldots$$

Appendix E: FIELD FORMS

The field forms for this study are included in the following order:

- Initial Site Interview Form
- Vehicle Survey Form
- Vehicle selection sheet
- Sample identification placard
- Sampling instructions
- Waste sampling sheet

Initial Site Interview Form

Thank you for your cooperation in completing this questionnaire.
We will be sorting in August/September and November/December of 2002, over 2-3 days.
We will **sort** about **14 loads** of waste entering the site per day, and **survey all** vehicles entering the site on that day.

Sort Season: Summer ☐ Winter ☐ **Out-of-state waste**? Yes No

Facility Information

Facility Name _____

Facility Address _____

City _____ County _____ Region _____

Contact Name _____ Phone Number _____

Primary Data Contact _____ Phone Number _____

Primary Field Contact _____ Phone Number _____

Additional Information _____

Does this facility receive in-state waste from transfer stations? Yes No

If yes, what percentage of total in-state waste comes from these stations?

Please list all transfer stations delivering in-state waste below.

Transfer Station Information (if applicable)

Station Name	Contact	Phone	Notes

1. Space requirements: 2-3 truck bays (or equivalent space) will be needed adjacent to the working face/tip area of the facility. Could you provide a map of this area?

2. Equipment needs: will a front-end loader (or Bobcat) and operator be available to provide load samples?

3. Does the site have a vehicle scale(s)? Yes No How many?

   Who uses the scale(s)? (e.g., commercial vehicles only, all vehicles)

4. Does the site have gates? Yes No How many?

   Who uses each gate? (e.g., commercial vehicles only)

5. Hours facility is open to the public for self-haul?

6. Hours facility is open to commercial haulers?

7. In the table below, provide information for commercial and self-hauled loads during a typical week.

(IN-STATE MSW and C&D WASTE ONLY)

(For a typical week)	**COMMERCIAL HAULERS (Packers and Roll-offs)**	**SELF-HAUL (Trucks and cars)**
# OF LOADS		
TONNAGE		

8. Please provide the following information on commercial haulers that use their facility:

Company	Contact	Phone	Resid'l	Comm'l
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐
			☐	☐

9. Please complete the following table for **in-state waste** accepted during a typical week:

Direct haul loads by day of week. (Please do not include Transfer Trailers)

DAY	FRONT PACKER	OTHER PACKER	ROLL-OFF	SELF-HAUL	SPECIAL*
MONDAY					
# OF LOADS					
TUESDAY					
# OF LOADS					
WEDNESDAY					
# OF LOADS					
THURSDAY					
# OF LOADS					
FRIDAY					
# OF LOADS					
SATURDAY					
# OF LOADS					
SUNDAY					
# OF LOADS					

*Special includes whole loads of contaminated soil, foundry sand, paper mill sludge, and materials used for daily cover or other beneficial uses.

Additional information:

10. Can you provide written directions and/or a map to the site (such as used for directing tour groups)?

11. With prior notice, would you be willing to allow WDNR staff, local officials, and/or media persons on site during this study? How much notice would you prefer?

Thank you for completing this questionnaire. Upon completion, please fax to Mary Chamberlain at R. W. Beck: (651) 994-8396.

Wisconsin Waste Characterization Study: Vehicle Survey Form

Date _____ **Surveyor** _____ **Page** _____ **of** _____

Site _____

	Vehicle License or ID Number	Substream	Hauler	Vehicle Type	For **Mixed** Res and ICI loads		Net Weight of Load	Surveyor's Notes
		R = residential ICI = commercial C&D = const/demo M = mixed TS = transfer station S = special	S = self-haul C = comm'l	P = packer R = roll-off S = self-haul T = transfer trailer	Ask driver to estimate % of load that is Res and ICI (Must total to 100%) % Res	% ICI	T = tons P = pounds C = cubic yards	
1		R ICI CD M TS S	S C	P R S T				
2		R ICI CD M TS S	S C	P R S T				
3		R ICI CD M TS S	S C	P R S T				
4		R ICI CD M TS S	S C	P R S T				
5		R ICI CD M TS S	S C	P R S T				
6		R ICI CD M TS S	S C	P R S T				
7		R ICI CD M TS S	S C	P R S T				
8		R ICI CD M TS S	S C	P R S T				
9		R ICI CD M TS S	S C	P R S T				
10		R ICI CD M TS S	S C	P R S T				
11		R ICI CD M TS S	S C	P R S T				
12		R ICI CD M TS S	S C	P R S T				
13		R ICI CD M TS S	S C	P R S T				
14		R ICI CD M TS S	S C	P R S T				
15		R ICI CD M TS S	S C	P R S T				
16		R ICI CD M TS S	S C	P R S T				
17		R ICI CD M TS S	S C	P R S T				
18		R ICI CD M TS S	S C	P R S T				
19		R ICI CD M TS S	S C	P R S T				
20		R ICI CD M TS S	S C	P R S T				
21		R ICI CD M TS S	S C	P R S T				
22		R ICI CD M TS S	S C	P R S T				
23		R ICI CD M TS S	S C	P R S T				
24		R ICI CD M TS S	S C	P R S T				
25		R ICI CD M TS S	S C	P R S T				

1. Make entries neatly in pen.
2. Enter the information at the top of each page. Enter total # of pages on each page at the end of the day.
3. If you circle the mixed substream, ask the driver for the % of each.
4. If you make an error on an entry, draw a line through the entire entry and start over on a new line.

Wisconsin Waste Characterization Study
Vehicle Selection Sheet

Site: Outagamie Co. Landfill

Date: August 26, 2002

1. Cross off one number for each vehicle type entering your facility.
2. When you reach the circled number, give the driver the sample placard to put on the windshield and alert the sampling crew the vehicle has been selected.
3. Repeat this process until the specified number of vehicles are selected.

FRONT-LOADING PACKERS — **NEED 3 TOTAL - SAMPLE EVERY VEHICLE**

(1)	
(1)	
(1)	

OTHER PACKERS (e.g. Side or Rear Loaders) — **NEED 3 TOTAL - SAMPLE EVERY 13th VEHICLE**

1	2	3	4	5	6	7	8	9	10	11	12	(13)
1	2	3	4	5	6	7	8	9	10	11	12	(13)
1	2	3	4	5	6	7	8	9	10	11	12	(13)

ROLL - OFFS (e.g. Loose drop boxes, compactor boxes, luggers) — **NEED 4 TOTAL - SAMPLE EVERY 5th VEHICLE**

1	2	3	4	(5)
1	2	3	4	(5)
1	2	3	4	(5)
1	2	3	4	(5)

SELF-HAUL (e.g. Cars, pick-ups, moving vans, flatbed trucks, dump trucks) — **NEED 4 TOTAL - SAMPLE EVERY 20th VEHICLE**

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	(20)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	(20)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	(20)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	(20)

Sample Identification Placard

Sampling Instructions

AS THE VEHICLE APPROACHES:

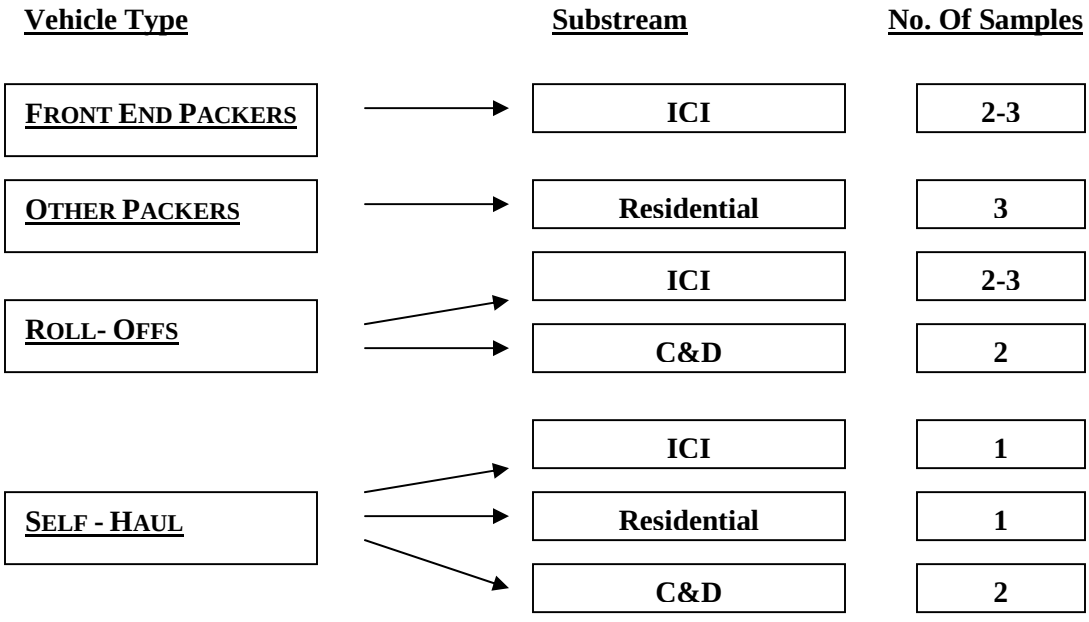
- Record the **date and site** in the upper left-hand box.
- Assign the load a unique **sample ID** (e.g., "Res1" for the 1st residential sample).
- Remove bright pink **placard** from vehicle windshield.

ASK THE DRIVER THE FOLLOWING:

- Is the load commercially collected or self-hauled? Mark off the **collection type.**
  - **Commercial haulers** - companies whose primary business is to haul garbage, usually have the company name printed on the truck.
  - **Self haulers** – individuals, businesses, or government agencies that haul their own garbage.
- Is the load is from a **house**, **industrial/commercial/institutional**, or **construction/demolition site**? Mark the **substream**.
  - If the load is from more than one of these substreams, ask the driver to estimate the percent of each (e.g., 80% from houses and 20% from businesses).
  - If more than 80% is from one, mark that substream on the sampling sheet.

SELECT SAMPLE AND TRACK SAMPLING GOALS:

- Direct the loader operator to the **2 cell numbers designated on the sampling sheet.** There is one cell for the top of the load and one for the bottom.
- The **sample should be mixed** before sorting.
- Track the daily sampling goals by substream as listed below. These are listed on the bottom of the sampling sheet also.



Waste Sampling Sheet

Date: _____

Site: _____

Sample ID: _____

Collection Type: SH Com

Substream: Res ICI C&D

If mixed, % Res and ICI: _____%Res _____%ICI

Notes:

Top Cell: 1 2 3 4 5 6 7 8

Bottom Cell: 9 10 11 12 13 14 15 16

59. Sharps/Infectious Waste ☐
(List No. of times found)

Reusable Items ☐
(Check if yes)

List Reusable Items (Types and Quantities)
(NOT including toilets, single-pane windows, large carpet rolls)

SAMPLING GOALS

Substream:	Res	ICI	CD
Daily	4	6	4
Per Site	8	12	8

PAPER	1. Newsprint				
	2. High Grade				
	3. Magazines/Catalogs				
	4. Cardboard - recyclable				
	5. Cardboard - coated				
	6. Boxboard				
	7. Mixed Recyclable				
	8. Compostable				
	9. R/C Paper				
PLASTIC	10. PET Bottles				
	11. HDPE Bottles - natural				
	12. HDPE Bottles - colored				
	13. #2 - #7 - Other Bottles				
	14. Styrofoam				
	15. Other Rigid Containers				
	16. Film				
	17. R/C Plastic				
METAL	18. Aluminum Cans				
	19. Other Aluminum				
	20. Tin Cans				
	21. Ferrous				
	22. Non-Ferrous				
	23. R/C Metal				
GLASS	24. All Colors - recyclable				
	25. R/C Glass				
ORGANICS	26. Yard Waste - <6"				
	27. Yard Waste - >6"				
	28. Food				
	29. Diapers				
	30. Animal Waste/Kitty Litter				
	31. Bottom Fines/Dirt				
	32. R/C Organic				

C&D	33. Wood - treated				
	34. Wood - untreated				
	35. Rock/Concrete/Brick				
	36. Drywall				
	37. Roofing Shingles				
	38. PVC				
	39. Ceramics/Porcelain				
	40. Other C&D				
PROBLEM	41. Televisions				
	42. Computer Monitors				
	43. Computer Equipment				
	44. Electronic Equipment				
	45. White Gds - refrig.				
	46. White Gds - non-refrig.				
	47. Lead-Acid Batteries				
	48. Other Hshld Batteries				
	49. Tires				
	50. Bulky Items				
	51. Fluorescent Lights				
	52. Ballasts				
	53. Pallets				
HHW	54. Latex Paint				
	55. Oil Paint				
	56. Pesticides/Fertilizers				
	57. Auto Used Oil Filters				
	58. Mercury			Item Count:	
	60. Other Hazardous				
OTHER	61. Textiles				
	62. Carpet				
	63. Carpet Padding				

64. Top Fines	Total Wt.:
(Visually estimate each material in residue and record a % for each)	