

Seattle Public Utilities



2000

Commercial and Self-Haul Waste Streams
Composition Study
Final Report

prepared by

Cascadia Consulting Group, Inc.

in cooperation with

Seattle Public Utilities Staff

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1 Overview

1.1 Introduction

Seattle Public Utilities (SPU) provides for the collection, transfer, and disposal of municipal solid waste (MSW) from within the City of Seattle. As part of this responsibility, SPU designs and implements programs intended to achieve a 60% recycling goal by 2008. The evaluation of these programs depends on basic information about the types and amounts of materials that are disposed within the City of Seattle.

To better understand the types and quantities of MSW disposed, and to assess the city's recycling potential, SPU has conducted ongoing waste composition studies since 1988. The objectives of these studies include

- Obtaining specific information about the commercial, residential, and self-haul substreams in order to estimate the recycling potential within each;
- Understanding the differences between substreams so that targeted recycling programs can be designed, implemented, and monitored;
- Establishing a baseline for continued long-term measurement of system performance; and
- Creating and maintaining a database for ongoing analysis and evaluation of waste composition data.

The MSW stream is characterized by evaluating the types and quantities of materials that are disposed both by residents and businesses. Estimates are made by sampling waste – sorting and weighing samples of waste - from randomly selected loads arriving at transfer stations within the City of Seattle.

Nearly 3,000 samples have been collected and sorted since the beginning of this study. With the exception of the 1988-89 and 1990 study periods, the commercial and self-haul substreams were sampled every other study period, while the residential substream was sampled during the alternate study periods. Table 1-1 shows the number of waste samples sorted from each major substream from 1988 through the year 2000.

Table 1-1 Samples per Study Period: by Substream

Year	<i>(Number of Samples)</i>			Overall
	Commercial	Residential	Self-Haul	
1988-89	121	212	217	550
1990	0	114	203	317
1992	251	0	197	448
1994-95	0	368	0	368
1996	348	0	199	547
1998-99	0	174	0	174
2000	347	0	200	547
Study to date	1,067	868	1,016	2,951

This report summarizes the results of the commercial and self-haul waste samples taken during the Year 2000 waste composition study. Cascadia Consulting Group served as the primary contractor for this research; Sky Valley Associates conducted the fieldwork.

This report is organized into six sections. Section 1 briefly summarizes the project while Section 2 provides an overview of the results obtained during the Year 2000 sampling period. In Section 3, commercial results are compared to those obtained in the 1988/89, 1992, and 1996 study periods. The same is done for the self-haul substream in Section 4.¹ Complete results of the commercial waste sampling are presented in Section 5. Finally, Section 6 contains the results of the self-haul waste sampling. Detailed appendices follow the main body of the report.

1.2 Sources of Disposed Waste

For any specific geographic area, the total *waste stream* is composed of various substreams. A *waste substream* is determined by the particular generation and collection characteristics that make it a unique portion of the total waste stream. The City of Seattle has three substreams. In the year 2000, the commercial and self-haul substreams were sampled. No residential loads were sampled.² The commercial and self-haul substreams are defined as follows.

- The **commercial** substream is comprised of municipal solid wastes a) generated at businesses and institutions, and b) collected by hauling companies that are authorized to collect these wastes within Seattle. Commercial wastes generated within Seattle are hauled to two private transfer stations.
- The **self-haul** substream is comprised of wastes a) generated at residences as well as businesses and institutions, and b) hauled by the household or business that generated the waste. All self-hauled wastes included in this study were disposed at either the NRDS or SRDS (North and South Recycling and Disposal Stations, respectively).

For the commercial substream, most *CDL waste* (construction, demolition and landclearing debris) is disposed separately from MSW and was not included in this study. *CDL waste* includes components such as *dimension lumber*, *sand/soil/dirt*, and *gypsum scrap*. No samples were taken from Black River (a dedicated CDL site), nor the CDL-only loads delivered to the Third & Lander or Eastmont transfer facilities.³ However *CDL waste* was still found in some commercial MSW loads.

Most self-haulers do not separate *CDL waste* from MSW before delivering their loads to the two city-owned transfer stations. Therefore all self-haul loads delivered to the NRDS or SRDS were included in this study, except for recycling or yard waste loads.

¹ The self-haul substream was sampled in 1990, while the commercial substream was not. Therefore, self-haul results are compared across five studies, and commercial results are compared across four.

² For more detail regarding Seattle's residential waste stream, please see the *1998/99 Residential Waste Stream Final Report* prepared for Seattle Public Utilities by Cascadia Consulting Group (2000). View the document electronically at <http://www.cityofseattle.net/util/solidwaste/reports.htm>.

³ For more detail regarding Seattle's CDL waste stream, please see the *Construction, Demolition and Landclearing Debris Study Final Report* prepared for Seattle Public Utilities by Cunningham Environmental Consulting and Cascadia Consulting Group (1997). View the document electronically at <http://www.cityofseattle.net/util/solidwaste/reports.htm>.

1.3 Changes in Study Methodology: 1996 to 2000

The 1996 and 2000 studies differed from one another in a variety of ways. All differences were discussed with the Seattle Public Utilities staff, and shaped the design of this study. A list of these differences are provided below:

1. The component list for the 1996 study included 85 components; this study included 88 components. Items containing cathode ray tubes (such as computer monitors and television sets) were separated from *other computer equipment* (e.g. mice, mousepads, and keyboards). Both of these items were categorized as *A/V equipment* in the 1996 study. Also, *motor oil filters* were a separate category in the 2000 study. In 1996, they were sorted into the *mixed metals/materials* category. See Appendix A for detailed definitions of all component categories, and a table that tracks the changes in component categories.
2. There was one additional commercial generator type added to the Year 2000 study – *other non-residential*. This category includes generators that could not be classified into one of the other 12 generator types.
3. Between the 1996 and 2000 studies, Seattle Public Utilities revised the definition of *trucks* to include vans. Therefore, self-haul samples from vans were classified as *passenger vehicle* samples in the 1996 study, and *truck* samples in 2000. To avoid over sampling passenger vehicles and to estimate the ratio of residential to non-residential waste, self-haul samples were not stratified by vehicle type in the 2000 study.

2 Summary of Year 2000 Sampling Results

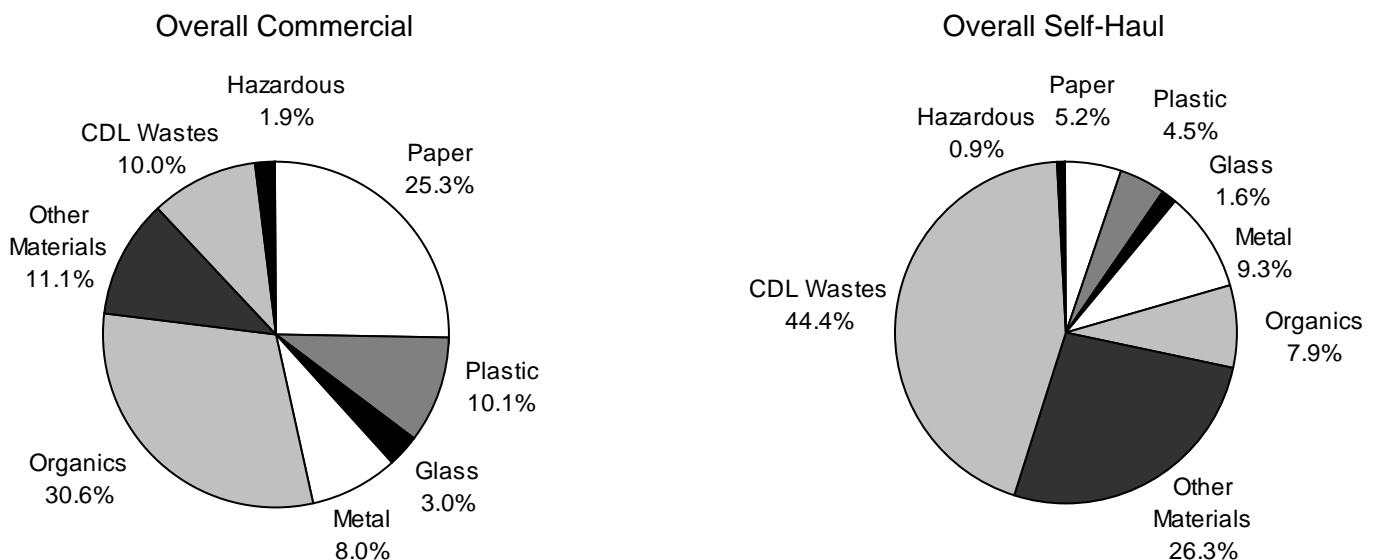
The Year 2000 phase of Seattle’s waste study focused on the commercial and self-haul substreams. Commercial samples were proportionally allocated to the Third & Lander and Eastmont transfer stations by shift (day or night) and vehicle type, based upon the estimated tonnage of waste received. Because the amount of self-hauled waste that was received at the NRDS and SRDS was roughly equal, the number of self-haul samples was divided evenly between those two facilities.

The waste samples were sorted into eight broad material categories: *paper*, *plastic*, *glass*, *metal*, *organics*, *other materials*, *CDL wastes*, and *hazardous*. Each broad material category was then sorted into various components such as *newspaper* or *PET plastic bottles*. A total of 88 components were included in this study.⁴ Composition results are presented in the following order in this report. First, a pie chart reflects the composition percentages of the eight broad material categories. A table that lists the top ten components, by weight, follows the pie charts. Lastly, a table depicting the full composition results of all 88 components is presented.

Weighted averages were used to calculate composition estimates for the commercial and self-haul substreams. Please see Appendix D for more detail regarding these calculations.

Composition results are illustrated in Figure 2-1. As shown, *paper* and *organics* accounted for more than 55% of the commercial tonnage, while *CDL wastes* and *other materials* composed approximately 70% of the self-haul waste. *CDL waste* (construction, demolition and landclearing debris) includes components such as *dimension lumber*, *sand/soil/dirt*, and *gypsum scrap*. *Other materials* includes components such as *textiles/clothing*, *carpet/upholstery* and *furniture*.

**Figure 2-1 Overview of Composition Estimates: by Substream
(January – December 2000)**



⁴ Two additional waste component categories were added to the Year 2000 study since the City’s last waste composition study conducted in 1998. The new categories included “computer monitors and television sets” and “other computer equipment.” For more detail regarding the component definitions, please see Appendix A.

2.1 Overall Commercial Substream

A total of 347 loads were sampled from the commercial substream between January and December 2000. The commercial substream disposed approximately 225,000 tons of waste during the 2000 calendar year. The composition estimates for this substream were applied to the 225,000 tons to estimate the amount of waste disposed for each component category. The top ten components disposed in the commercial substream are listed in Table 2-1. When summed, they accounted for approximately 59% of the overall commercial tonnage. Accounting for nearly 25%, *food* stood out as the largest single component of the commercial substream. *Unwaxed OCC/Kraft paper* and *mixed low grade paper* were large components (each more than 5%, by weight) of this substream as well. Table 2-2 lists the composition percentages, by weight, of each component in the overall commercial substream.⁵

**Table 2-1 Top Ten Components: Overall Commercial
(January – December 2000)**

Component	Mean	Cum. %	Tons
Food	25.0%	25.0%	56,352
Unwaxed OCC/Kraft Paper	5.5%	30.5%	12,417
Mixed Low Grade Paper	5.0%	35.5%	11,339
Compostable/Soiled Paper	4.9%	40.4%	11,013
Other Ferrous Metal	3.6%	44.0%	8,083
Mixed Metals/Materials	3.2%	47.2%	7,200
Other Plastic Film	3.1%	50.3%	7,065
Newspaper	3.1%	53.4%	7,008
Office Paper	3.0%	56.4%	6,681
Pallets	2.7%	59.2%	6,188
Total	59.2%		133,346

⁵ All waste composition results were derived using a 90% confidence level. This means that there is a 90% certainty that the actual composition is within the calculated range. In charts throughout this report, the values graphed represent the mean component percentage, not the range.

Table 2-2 Composition by Weight: Overall Commercial⁶
(January – December 2000)

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	56,994	25.3%			Organics	68,964	30.6%		
Newspaper	7,008	3.1%	2.6%	3.6%	Pallets	6,188	2.7%	2.0%	3.5%
OCC/Kraft, unwaxed	12,417	5.5%	4.9%	6.1%	Crates/Boxes	1,150	0.5%	0.1%	0.9%
OCC/Kraft, waxed	1,892	0.8%	0.6%	1.1%	Leaves and Grass	4,162	1.8%	1.3%	2.4%
Office Paper	6,681	3.0%	2.4%	3.5%	Prunings	1,112	0.5%	0.3%	0.7%
Computer Paper	492	0.2%	0.1%	0.3%	Food	56,352	25.0%	22.9%	27.1%
Mixed Low Grade	11,339	5.0%	4.2%	5.8%	Other Materials	25,007	11.1%		
Phone Books	498	0.2%	0.1%	0.4%	Textiles/Clothing	6,058	2.7%	1.7%	3.6%
Milk/Juice Polycoats	696	0.3%	0.2%	0.4%	Carpet/Upholstery	5,706	2.5%	1.5%	3.5%
Frozen Food Polycoats	167	0.1%	0.0%	0.1%	Leather	79	0.0%	0.0%	0.1%
Compostable/Soiled	11,013	4.9%	4.3%	5.5%	Disposable Diapers	570	0.3%	0.2%	0.3%
Paper/Other Materials	3,747	1.7%	1.4%	2.0%	Animal By-Products	155	0.1%	0.0%	0.1%
Other Paper	1,045	0.5%	0.1%	0.8%	Rubber Products	1,370	0.6%	0.4%	0.9%
Plastic	22,686	10.1%			Tires	123	0.1%	0.0%	0.1%
PET Pop and Liquor	246	0.1%	0.1%	0.1%	Ash	407	0.2%	0.0%	0.4%
Other PET Bottles	342	0.2%	0.1%	0.2%	Furniture	2,118	0.9%	0.5%	1.4%
HDPE Milk and Juice	449	0.2%	0.1%	0.3%	Mattresses	86	0.0%	0.0%	0.1%
Other HDPE Bottles	426	0.2%	0.2%	0.2%	Small Appliances	632	0.3%	0.2%	0.4%
Other Plastic Bottles	113	0.1%	0.0%	0.1%	A/V Equipment	636	0.3%	0.1%	0.5%
Jars and Tubs	824	0.4%	0.3%	0.4%	Monitors and TVs	740	0.3%	0.1%	0.6%
Expanded Polystyrene	1,563	0.7%	0.5%	0.9%	Other Computer Components	1,723	0.8%	0.4%	1.2%
Other Rigid Packaging	1,204	0.5%	0.4%	0.6%	Ceramics/Porcelain	433	0.2%	0.1%	0.3%
Grocery/Bread Bags	261	0.1%	0.1%	0.1%	Non-distinct Fines	424	0.2%	0.1%	0.3%
Garbage Bags	2,757	1.2%	1.1%	1.4%	Misc. Organics	2,175	1.0%	0.4%	1.5%
Other Film	7,065	3.1%	2.6%	3.7%	Misc. Inorganics	1,574	0.7%	0.3%	1.1%
Plastic Products	4,288	1.9%	1.2%	2.6%	CDL Wastes	22,506	10.0%		
Plastic/Other Materials	3,148	1.4%	1.0%	1.8%	Dimension Lumber	6,035	2.7%	1.8%	3.5%
Glass	6,850	3.0%			Other Untreated Wood	316	0.1%	0.1%	0.2%
Clear Beverage	2,374	1.1%	0.9%	1.2%	Treated Wood	2,622	1.2%	0.7%	1.7%
Green Beverage	1,020	0.5%	0.4%	0.5%	Contaminated Wood	3,156	1.4%	0.9%	1.9%
Brown Beverage	884	0.4%	0.3%	0.5%	New Gypsum Scrap	424	0.2%	0.0%	0.3%
Container Glass	574	0.3%	0.0%	0.5%	Demo Gypsum Scrap	2,721	1.2%	0.6%	1.8%
Fluorescent Tubes	48	0.0%	0.0%	0.0%	Fiberglass Insulation	367	0.2%	0.0%	0.3%
Other Glass	1,951	0.9%	0.3%	1.4%	Rock/Concrete/Brick	3,180	1.4%	0.6%	2.2%
Metal	18,132	8.0%			Asphaltic Roofing	761	0.3%	0.0%	0.6%
Aluminum Cans	634	0.3%	0.2%	0.3%	Other Construction Debris	1,694	0.8%	0.3%	1.2%
Alum. Foil/Containers	168	0.1%	0.0%	0.1%	Sand/Soil/Dirt	1,230	0.5%	0.2%	0.9%
Other Aluminum	95	0.0%	0.0%	0.1%	Hazardous	4,295	1.9%		
Other Nonferrous	247	0.1%	0.0%	0.2%	Latex Paints	56	0.0%	0.0%	0.0%
Tin Food Cans	1,155	0.5%	0.4%	0.6%	Hazardous Adhesives/Glues	97	0.0%	0.0%	0.1%
Empty Aerosol Cans	379	0.2%	0.0%	0.3%	NonHazardous Adhesives/Glues	438	0.2%	0.0%	0.5%
Other Ferrous	8,083	3.6%	2.7%	4.5%	Oil-based Paints/Solvents	36	0.0%	0.0%	0.0%
Mixed Metals/Materials	7,200	3.2%	2.3%	4.0%	Cleaners	12	0.0%	0.0%	0.0%
Motor Oil Filters	171	0.1%	0.0%	0.1%	Pesticides/Herbicides	6	0.0%	0.0%	0.0%
					Dry-Cell Batteries	42	0.0%	0.0%	0.0%
					Wet-Cell Batteries	75	0.0%	0.0%	0.1%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	16	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	225,435				Other Hazardous Chemicals	3,441	1.5%	0.7%	2.3%
Sample Count	347				Other NonHazardous Chemicals	78	0.0%	0.0%	0.1%

⁶ As shown in this table, *other hazardous chemicals* accounted for about 1.5% of total commercial waste in 2000. In 1996, they made up about .2% of the total. This increase is due to medical draping and tubing found in commercial samples during the 2000 study.

2.2 Results by Commercial Subpopulation

Commercial waste composition estimates were calculated for the overall commercial substream, each vehicle type, season, and generator type. The largest components for each subpopulation are shown in Table 2-3. The largest components are those that accounted for at least 5% of the subpopulation's total tonnage, by weight. *Food* was a large component disposed by all commercial subpopulations. When the data are stratified, (according to generator type, etc.) the sample size for each analysis is smaller – which means that the calculations are subject to a more substantial range of error. Refer to Section 5 for more detail regarding the commercial substream.

**Table 2-3 Largest Waste Components: by Commercial Subpopulation
(January – December 2000)**

Subpopulation	Paper				Plastic			Glass		Metal	
	Newspaper	OCC/ Kraft, unwaxed	Mixed Low Grade	Compostable/ Soiled	Other Film	Plastic Products	Plastic/ Other Materials	Clear Beverage	Other Glass	Other Ferrous	Mixed Metals/ Materials
Vehicle Type											
Front Loader											
Rear Loader		5.3%	7.8%	6.2%							
Compactor Roll-off		6.6%	5.8%	7.3%							
Loose Roll-off		7.1%								5.4%	
Season											
Spring		6.9%	5.6%								
Summer			5.7%							5.0%	
Autumn		5.2%		6.2%							
Winter		6.3%									
Generator Type											
CDL		8.1%				6.9%			7.5%		
Education			12.2%	7.6%							
Health Care		5.5%		7.9%							
Hotel/Motel	5.4%										10.8%
Manufacturing		8.1%			11.9%					6.3%	
Office			11.2%	12.8%						7.1%	
Other Non-Res.			5.4%	12.5%							
Other Services	7.2%	9.0%	5.9%	9.3%	12.4%	6.2%		5.5%			
Restaurant		7.6%		5.3%							
Retail		7.3%	5.5%								
Transportation	6.4%	10.9%		7.8%							10.0%
Wholesale		14.1%								11.6%	
Mixed Generator Types											
Overall Commercial		5.5%	5.0%								

**Table 2-3 Continued Largest Waste Components: by Commercial Subpopulation
(January – December 2000)**

Subpopulation	Organics			Other Materials					CDL Wastes				Hazardous	Sum of Largest
	Pallets	Leaves and Grass	Food	Textiles/ Clothing	Carpet/ Upholstery	Furniture	Other Computer Components	Misc. Organics	Dimension Lumber	Treated Wood	Rock/ Concrete/ Brick	Sand/ Soil/ Dirt	Other Haz. Chemicals	
Vehicle Type														
Front Loader			28.5%											28.5%
Rear Loader			26.5%											45.8%
Compactor Roll-off			27.5%											47.3%
Loose Roll-off	6.9%		11.3%											30.8%
Season														
Spring			23.2%		6.9%									42.6%
Summer	5.0%		23.0%											38.7%
Autumn			25.3%											36.7%
Winter			21.1%											27.3%
Generator Type														
CDL								12.4%	5.1%	6.7%				46.7%
Education	5.1%	6.0%	21.7%			6.7%	5.7%							64.8%
Health Care			9.4%									34.2%		64.6%
Hotel/Motel			39.5%		12.4%									68.2%
Manufacturing	6.0%		11.1%	5.9%										49.3%
Office			12.9%				5.1%							49.0%
Other Non-Res.			33.3%											63.0%
Other Services			23.4%											67.1%
Restaurant			64.4%											77.4%
Retail	8.0%		28.1%											48.9%
Transportation	11.0%	9.3%	7.0%											62.5%
Wholesale	7.7%		18.4%	7.1%	6.9%									66.0%
Mixed Generator Types			27.7%											27.7%
Overall Commercial			25.0%											35.5%

2.3 Overall Self-Haul Substream

A total of 200 self-haul loads were sampled in 2000. Table 2-4 lists the top ten components disposed by the self-haul substream. The self-haul substream disposed approximately 102,000 tons of waste during the 2000 calendar year. The composition estimates for this substream were applied to the 102,000 tons to estimate the amount of waste disposed for each component category. Together, these ten components accounted for approximately 64% of the entire self-haul tonnage. *Dimension lumber, furniture, carpet/ upholstery, contaminated wood, treated wood, demo gypsum scrap, and other construction debris* are all large components of this substream. The composition percentages, by weight, of each component in the self-haul substream, are listed in Table 2-5.

**Table 2-4 Top Ten Components: Overall Self-Haul
(January – December 2000)**

Component	Mean	Cum. %	Tons
Dimension Lumber	10.2%	10.2%	10,357
Furniture	9.8%	20.0%	10,020
Carpet/Upholstery	7.8%	27.8%	7,960
Contaminated Wood	6.5%	34.3%	6,601
Treated Wood	5.4%	39.7%	5,477
Demo Gypsum Scrap	5.3%	44.9%	5,354
Other Construction Debris	5.1%	50.0%	5,215
Rock/Concrete/Brick	4.9%	54.9%	4,986
Mixed Metals/Materials	4.4%	59.4%	4,513
Other Ferrous Metal	4.2%	63.6%	4,315
Total	63.6%		64,798

**Table 2-5 Composition by Weight: Overall Self-Haul
(January – December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	5,268	5.2%			Organics	8,045	7.9%		
Newspaper	303	0.3%	0.2%	0.4%	Pallets	643	0.6%	0.1%	1.2%
OCC/Kraft, unwaxed	2,235	2.2%	1.5%	2.9%	Crates/Boxes	176	0.2%	0.0%	0.3%
OCC/Kraft, waxed	87	0.1%	0.0%	0.2%	Leaves and Grass	3,845	3.8%	2.0%	5.6%
Office Paper	193	0.2%	0.1%	0.3%	Prunings	2,389	2.3%	0.9%	3.7%
Computer Paper	6	0.0%	0.0%	0.0%	Food	992	1.0%	0.6%	1.3%
Mixed Low Grade	1,155	1.1%	0.8%	1.5%	Other Materials	26,774	26.3%		
Phone Books	297	0.3%	0.1%	0.5%	Textiles/Clothing	1,764	1.7%	1.2%	2.3%
Milk/Juice Polycoats	10	0.0%	0.0%	0.0%	Carpet/Upholstery	7,960	7.8%	5.5%	10.1%
Frozen Food Polycoats	5	0.0%	0.0%	0.0%	Leather	294	0.3%	0.1%	0.5%
Compostable/Soiled	151	0.1%	0.1%	0.2%	Disposable Diapers	86	0.1%	0.0%	0.2%
Paper/Other Materials	677	0.7%	0.3%	1.0%	Animal By-Products	167	0.2%	0.0%	0.3%
Other Paper	150	0.1%	0.0%	0.3%	Rubber Products	723	0.7%	0.3%	1.1%
Plastic	4,567	4.5%			Tires	119	0.1%	0.0%	0.3%
PET Pop and Liquor	19	0.0%	0.0%	0.0%	Ash	21	0.0%	0.0%	0.0%
Other PET Bottles	13	0.0%	0.0%	0.0%	Furniture	10,020	9.8%	6.9%	12.8%
HDPE Milk and Juice	28	0.0%	0.0%	0.0%	Mattresses	1,515	1.5%	0.7%	2.3%
Other HDPE Bottles	251	0.2%	0.0%	0.5%	Small Appliances	968	1.0%	0.5%	1.4%
Other Plastic Bottles	20	0.0%	0.0%	0.0%	A/V Equipment	714	0.7%	0.3%	1.1%
Jars and Tubs	189	0.2%	0.0%	0.4%	Monitors and TVs	608	0.6%	0.2%	1.0%
Expanded Polystyrene	181	0.2%	0.1%	0.3%	Other Computer Components	304	0.3%	0.0%	0.6%
Other Rigid Packaging	100	0.1%	0.1%	0.1%	Ceramics/Porcelain	998	1.0%	0.3%	1.7%
Grocery/Bread Bags	35	0.0%	0.0%	0.0%	Non-distinct Fines	36	0.0%	0.0%	0.1%
Garbage Bags	72	0.1%	0.0%	0.1%	Misc. Organics	265	0.3%	0.1%	0.5%
Other Film	409	0.4%	0.2%	0.6%	Misc. Inorganics	211	0.2%	0.0%	0.5%
Plastic Products	1,987	2.0%	1.4%	2.5%	CDL Wastes	45,219	44.4%		
Plastic/Other Materials	1,263	1.2%	0.8%	1.6%	Dimension Lumber	10,357	10.2%	7.4%	12.9%
Glass	1,614	1.6%			Other Untreated Wood	1,203	1.2%	0.5%	1.9%
Clear Beverage	110	0.1%	0.0%	0.2%	Treated Wood	5,477	5.4%	3.4%	7.3%
Green Beverage	58	0.1%	0.0%	0.1%	Contaminated Wood	6,601	6.5%	4.6%	8.4%
Brown Beverage	68	0.1%	0.0%	0.1%	New Gypsum Scrap	2,296	2.3%	0.9%	3.6%
Container Glass	43	0.0%	0.0%	0.1%	Demo Gypsum Scrap	5,354	5.3%	3.0%	7.5%
Fluorescent Tubes	33	0.0%	0.0%	0.1%	Fiberglass Insulation	158	0.2%	0.1%	0.3%
Other Glass	1,302	1.3%	0.5%	2.0%	Rock/Concrete/Brick	4,986	4.9%	2.7%	7.1%
Metal	9,468	9.3%			Asphaltic Roofing	2,016	2.0%	0.6%	3.4%
Aluminum Cans	35	0.0%	0.0%	0.1%	Other Construction Debris	5,215	5.1%	2.9%	7.3%
Alum. Foil/Containers	5	0.0%	0.0%	0.0%	Sand/Soil/Dirt	1,556	1.5%	0.5%	2.6%
Other Aluminum	348	0.3%	0.0%	0.7%	Hazardous	928	0.9%		
Other Nonferrous	193	0.2%	0.1%	0.3%	Latex Paints	319	0.3%	0.1%	0.6%
Tin Food Cans	30	0.0%	0.0%	0.0%	Hazardous Adhesives/Glues	66	0.1%	0.0%	0.1%
Empty Aerosol Cans	26	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	125	0.1%	0.0%	0.2%
Other Ferrous	4,315	4.2%	2.9%	5.5%	Oil-based Paints/Solvents	22	0.0%	0.0%	0.0%
Mixed Metals/Materials	4,513	4.4%	3.1%	5.7%	Cleaners	9	0.0%	0.0%	0.0%
Motor Oil Filters	2	0.0%	0.0%	0.0%	Pesticides/Herbicides	143	0.1%	0.0%	0.3%
					Dry-Cell Batteries	98	0.1%	0.0%	0.2%
					Wet-Cell Batteries	3	0.0%	0.0%	0.0%
					Gasoline/Kerosene	14	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	4	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
					Other Hazardous Chemicals	61	0.1%	0.0%	0.1%
Total Tons	101,882				Other NonHazardous Chemicals	63	0.1%	0.0%	0.1%
Sample Count	200								

2.4 Results by Self-Haul Subpopulation

Waste composition estimates were calculated for the various subpopulations of the self-haul substream, including:

- Transfer station: NRDS and SRDS
- Vehicle type: Passenger and Trucks
- Season: Spring, Summer, Autumn, and Winter
- Generator type, by Transfer Station: Residential and Non-Residential at the NRDS and SRDS

The largest components (each accounting for more than 5% of the total tonnage) for each subpopulation are shown in Table 2-6. *Carpet/upholstery* and *dimension lumber* were largest components of all self-haul subpopulations. In addition, *furniture* and *contaminated wood* were quite prevalent in most self-haul subpopulations. When the data are stratified, (according to season, etc.) the sample size for each analysis is smaller – which means that the calculations are subject to a more substantial range of error. Please see Section 6 for more detail regarding the self-haul substream.

**Table 2-6 Largest Waste Components: by Self-Haul Subpopulation
(January – December 2000)**

Subpopulation	Metals	Organics	Other Materials		CDL Wastes								Sum of Largest	
	Mixed Metals/ Materials	Leaves and Grass	Carpet/ Upholstery	Furniture	Dimension Lumber	Treated Wood	Contaminated Wood	New Gypsum Scrap	Demo Gypsum Scrap	Rock/ Concrete/ Brick	Asphaltic Roofing	Other Construction Debris		Sand/ Soil/ Dirt
Transfer Station														
North	5.2%		5.5%	8.3%	11.9%	5.2%	6.7%		6.9%	6.3%		6.5%		62.5%
South		5.8%	10.6%	11.6%	8.1%	5.6%	6.3%							48.0%
Vehicle Type														
Passenger			16.5%	12.5%	12.1%		10.3%							51.3%
Trucks			7.2%	9.7%	10.0%	5.6%	6.2%		5.4%	5.1%		5.3%		54.5%
Season														
Spring	6.9%		7.6%	15.4%	11.2%		8.0%							49.1%
Summer			8.5%	6.7%	7.8%					6.0%	5.3%	9.7%		44.0%
Autumn			9.1%	7.6%	10.6%	6.1%	10.2%		5.2%	7.8%				56.6%
Winter	5.3%		5.7%	9.9%	11.6%	9.0%			8.0%					49.5%
Generator Type, by Transfer Station														
Residential, NRDS			7.6%	7.5%	11.8%		9.6%		5.5%	5.9%		5.2%		53.2%
Residential, SRDS			10.7%	13.8%	7.2%	6.8%	6.5%							45.1%
Non-Residential, NRDS			5.9%		17.7%		6.7%		11.1%	10.6%		11.3%	6.6%	69.9%
Non-Residential, SRDS		8.0%	10.8%	14.1%	7.8%			6.2%						46.9%
Overall Self-Haul			7.8%	9.8%	10.2%	5.4%	6.5%		5.3%			5.1%		50.0%

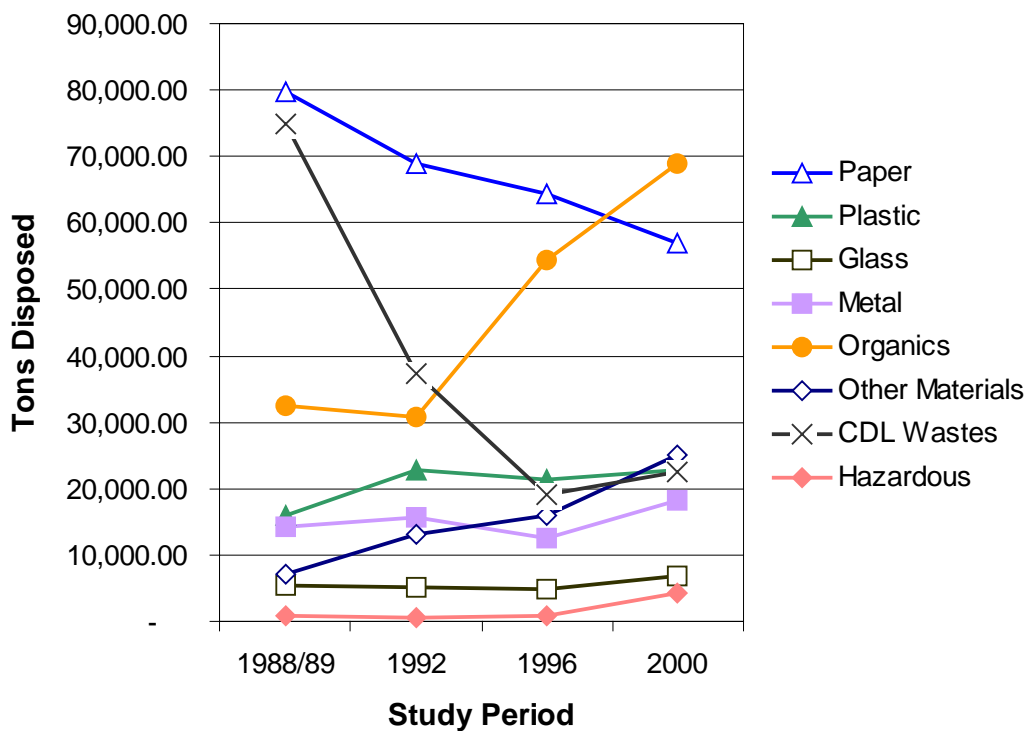
3 Commercial Results Compared to Previous Studies

In this section, the commercial results from the Year 2000 study are compared to the 1988/89, 1992, and 1996 findings. These studies followed the same basic methodology as the Year 2000 study. Changes in the composition percentages and the total amount of waste disposed of each broad waste category were analyzed to compare findings between study periods.⁷ Section 3.1 provides an overview of the changes in the last 12 years. Sections 3.2, 3.3, and 3.4 provide detailed results of the comparisons.

3.1 Trends in Disposed Commercial Waste

Figure 3-1 illustrates the changes in disposed commercial waste over the last 12 years. Overall, the quantity of disposed commercial waste decreased from about 230,780 tons in 1988/89 to about 194,338 in 1992. Disposal remained relatively steady from 1992 to 1996 (about 194,000 tons). In 2000, approximately 225,435 tons were disposed (an increase of about 31,600 tons). Overall, the *CDL wastes*, *organics*, and *paper* material categories showed the greatest changes.⁸

Figure 3-1 Changes in Commercial Disposed Tons, 1988/89 to 2000



⁷ The composition percentages used to analyze the differences in disposed tonnage, and to perform statistical tests were calculated using unweighted averages. Please Appendix D for more detail.

⁸ *Organics* increased in tonnage from about 30,000 tons to about 70,000 tons from 1992 to 2000. A major contributor to this growth is the large increase in *food* disposed by the commercial substream (26,000 tons in 1992 to about 56,000 tons in 2000).

3.2 Changes in Commercial Waste: 1988/89 to 2000

In Table 3-1, broad material categories that are bolded showed significant differences between the 1988/89 and 2000 study periods. *Paper, plastic, organics, other materials, and CDL wastes* all experienced a significant change.⁹ Of these seven broad material categories, the proportion of *CDL wastes* decreased the most, from about 32.5% (75,004 tons) in 1988/89 to 10.0% (22,506 tons) in 2000. *Organics* displayed the largest increase in proportion from 14.1% (32,517 tons) in 1988/89 to 30.6% (68,964 tons) in 2000.

Table 3-1 Changes in Commercial Waste: 1988/89 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1988/89	2000		1988/89	2000
Paper	34.6%	25.3%	-9.3% ↓	79,827	56,994
Plastic	6.9%	10.1%	3.2% ↑	15,878	22,686
Glass	2.3%	3.0%	0.7% ↑	5,308	6,850
Metal	6.1%	8.0%	1.9% ↑	14,170	18,132
Organics	14.1%	30.6%	16.5% ↑	32,517	68,964
Other Materials	3.1%	11.1%	8.0% ↑	7,154	25,007
CDL Wastes	32.5%	10.0%	-22.5% ↓	75,004	22,506
Hazardous	0.4%	1.9%	1.5% ↑	923	4,295
Total	100%	100%		230,780	225,435

* Bold type indicates statistically significant changes.

⁹ For the purposes of this study, only those calculation results with a p-value of less than 1.25% are considered to be statistically significant. For more detail about these calculations, please see Appendix D.

3.3 Changes in Commercial Waste: 1992 to 2000

As shown in Table 3-2, *paper*, *organics*, *other materials*, *CDL wastes*, and *hazardous* broad material categories exhibited a significant change from 1992 to 2000. Of these five categories, the proportion of *paper* decreased the most, from about 35.5% (68,971 tons) in 1992 to 25.3% (56,994 tons) in 2000. *Organics* displayed the largest increase in proportion from 15.8% (30,783 tons) in 1992 to 30.6% (68,964 tons) in 2000.

Table 3-2 Changes in Commercial Waste: 1992 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1992	2000		1992	2000
Paper	35.5%	25.3%	-10.2% ↓	68,971	56,994
Plastic	11.7%	10.1%	-1.7% ↓	22,796	22,686
Glass	2.6%	3.0%	0.4% ↑	5,053	6,850
Metal	8.1%	8.0%	0.0% ↓	15,722	18,132
Organics	15.8%	30.6%	14.8% ↑	30,783	68,964
Other Materials	6.7%	11.1%	4.4% ↑	13,060	25,007
CDL Wastes	19.3%	10.0%	-9.3% ↓	37,410	22,506
Hazardous	0.3%	1.9%	1.6% ↑	544	4,295
Total	100%	100%		194,338	225,435

* Bold type indicates statistically significant changes.

3.4 Changes in Commercial Waste: 1996 to 2000

Paper, *other materials*, and *hazardous* categories experienced significant changes between the 1996 and 2000 study periods. As shown in Table 3-3, the proportion of *paper* decreased from 33.3% (64,488 tons) in 1996 to 25.3% (56,994 tons) in 2000. In 1996, *other materials* (such as *textiles/clothing*, *carpet/upholstery* and *furniture*) composed 8.2% (15,939 tons) of the total commercial substream. This proportion increased to 11.1% (25,007 tons) in 2000. The proportion of *hazardous* wastes also increased significantly (from .5% in 1996 to 1.9% in 2000).

Table 3-3 Changes in Commercial Waste: 1996 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1996	2000		1996	2000
Paper	33.3%	25.3%	-8.0% ↓	64,488	56,994
Plastic	11.0%	10.1%	-1.0% ↓	21,357	22,686
Glass	2.5%	3.0%	0.6% ↑	4,815	6,850
Metal	6.5%	8.0%	1.5% ↑	12,672	18,132
Organics	28.1%	30.6%	2.5% ↑	54,389	68,964
Other Materials	8.2%	11.1%	2.9% ↑	15,939	25,007
CDL Wastes	9.9%	10.0%	0.1% ↑	19,184	22,506
Hazardous	0.5%	1.9%	1.4% ↑	949	4,295
Total	100%	100%		193,793	225,435

* Bold type indicates statistically significant changes.

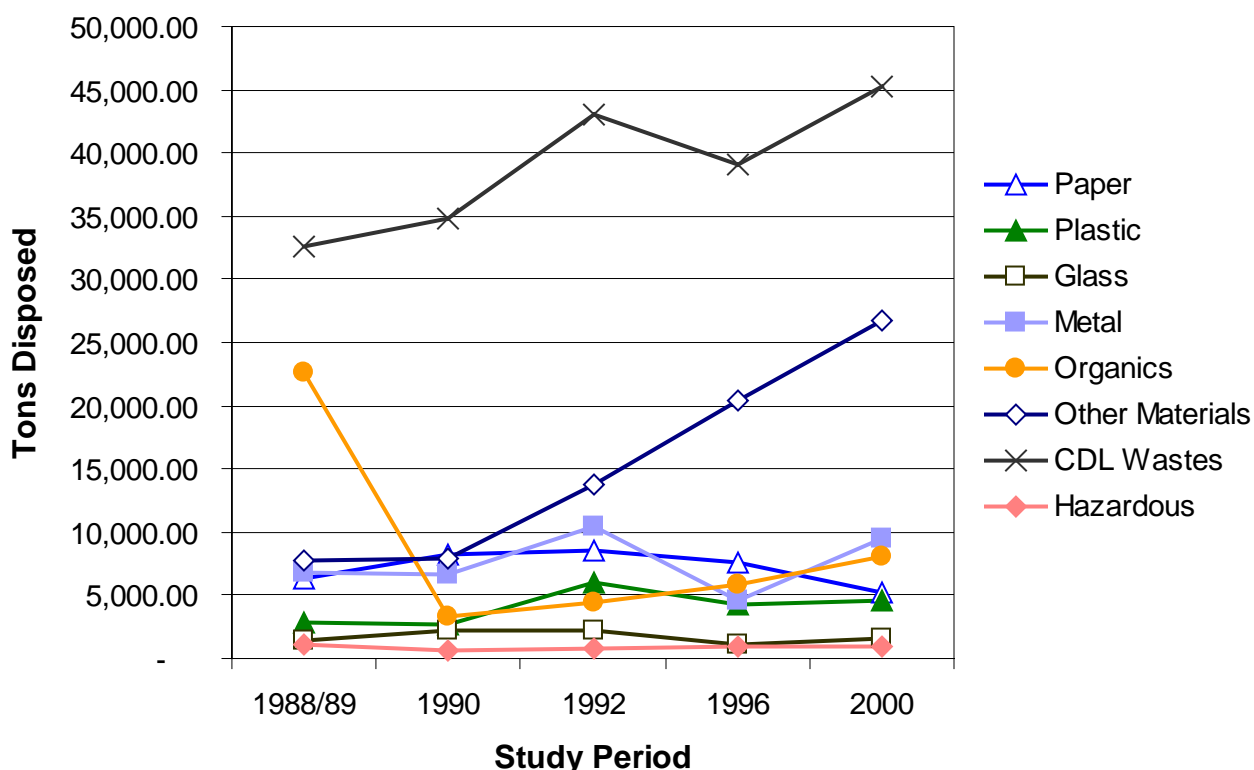
4 Self-Haul Results Compared to Previous Studies

Self-haul results from 2000 are compared to the 1988/89, 1990, 1992, and 1996 studies in this section.¹⁰ As with the commercial substream, both composition percentages and the total amount of waste disposed of each broad material category were analyzed for the self-haul substream. Section 4.1 provides an overview of the changes in the last 12 years. Sections 4.2, 4.3, 4.4, and 4.5 provide the detailed results of the comparisons.

4.1 Trends in Disposed Self-Haul Waste

Changes in the quantity of disposed self-haul waste over the last 12 years are depicted in Figure 4-1. The total amount of self-haul waste decreased from approximately 81,475 tons in 1988/89 to about 66,198 tons in 1990. Disposal then increased to about 89,308 tons 1990, followed by a slight decrease to about 83,724 tons in 1996. In 2000, the self-haul substream disposed of approximately 101,882 tons. Overall, the *CDL wastes* and *other materials* (such as *textiles/clothing*, *carpet/upholstery* and *furniture*) categories showed the greatest changes.¹¹

Figure 4-1 Changes in Self-Haul Disposed Tons, 1988/89 to 2000



¹⁰ In the 1996 study, self-haul vehicles were stratified by vehicle type (passenger and large other) during the vehicle selection process. However in the Year 2000 study, self-haul vehicles were not stratified by vehicle type. For more detail, please see the methodology described in Appendix B.

¹¹ Prior to 1996, *furniture*, *mattresses*, *small appliances*, and *A/V equipment* were split out among various components; *mixed metal*, *textiles*, *other plastics*, etc. For the 1996 and 2000 study periods, these components were individually identified and then aggregated under the *other materials* category. Most likely, this contributed to the large increase in *other materials* from 1992 to 2000.

4.2 Changes in Self-Haul Waste: 1988/89 to 2000

In Table 4-1, bolded broad material categories experienced significant differences between the 1988/89 and 2000 study periods. *Organics* and *other materials* displayed a significant change. The proportion of *organics* decreased from about 27.9% (22,691 tons) in 1988/89 to 7.9% (8,045 tons) in 2000, while *other materials* (such as *textiles/clothing*, *carpet/upholstery* and *furniture*) increased in proportion from 9.5% (7,708 tons) in 1988/89 to 26.3% (26,774 tons) in 2000.¹²

Table 4-1 Changes in Self-Haul Waste: 1988/89 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1988/89	2000		1988/89	2000
Paper	7.8%	5.2%	-2.6% ↓	6,314	5,268
Plastic	3.5%	4.5%	1.0% ↑	2,852	4,567
Glass	1.7%	1.6%	-0.1% ↓	1,401	1,614
Metal	8.3%	9.3%	1.0% ↑	6,787	9,468
Organics	27.9%	7.9%	-20.0% ↓	22,691	8,045
Other Materials	9.5%	26.3%	16.8% ↑	7,708	26,774
CDL Wastes	40.1%	44.4%	4.3% ↑	32,639	45,219
Hazardous	1.3%	0.9%	-0.4% ↓	1,084	928
Total	100%	100%		81,475	101,882

* Bold type indicates statistically significant changes.

¹² Prior to 1988, yard waste was disposed with garbage at both of Seattle's recycling and disposal stations. However, in 1988 the City initiated a "clean green" program, requiring yard waste to be separated from MSW at the two recycling and disposal stations. This contributed to the large decrease in *organics* from 1988/89 to 2000.

4.3 Changes in Self-Haul Waste: 1990 to 2000

From the 1990 study period to the 2000 study period, both the *paper* and *other materials* category showed significant changes in proportion: *paper* decreased from about 12.3% (8,165 tons) to about 5.2% (5,268 tons) and *other materials* (such as *textiles/clothing, carpet/upholstery* and *furniture*) increased from about 11.9% (7,841 tons) to about 26.3% (26,774 tons). Table 4-2 compares the broad material categories from the 1990 study period to the 2000 study period.

Table 4-2 Changes in Self-Haul Waste: 1990 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1990	2000		1990	2000
Paper	12.3%	5.2%	-7.2% ↓	8,165	5,268
Plastic	4.1%	4.5%	0.4% ↑	2,726	4,567
Glass	3.3%	1.6%	-1.7% ↓	2,197	1,614
Metal	9.9%	9.3%	-0.6% ↓	6,570	9,468
Organics	5.0%	7.9%	2.9% ↑	3,321	8,045
Other Materials	11.9%	26.3%	14.4% ↑	7,841	26,774
CDL Wastes	52.6%	44.4%	-8.2% ↓	34,809	45,219
Hazardous	0.9%	0.9%	0.1% ↑	569	928
Total	100%	100%		66,165	101,882

* Bold type indicates statistically significant changes.

4.4 Changes in Self-Haul Waste: 1992 to 2000

Table 4-3 outlines the changes in self-haul waste composition by broad material category from 1992 to 2000. *Paper* and *other materials* were the two categories that exhibited a significant change between the two study periods. While the proportion of *paper* decreased from approximately 9.6% (8,565 tons) to about 5.2% (5,268 tons), *other materials* (such as *textiles/clothing, carpet/upholstery* and *furniture*) increased from approximately 15.5% (13,807 tons) to about 26.3% (26,774 tons) in proportion.

Table 4-3 Changes in Self-Haul Waste: 1992 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1992	2000		1992	2000
Paper	9.6%	5.2%	-4.4% ↓	8,565	5,268
Plastic	6.7%	4.5%	-2.2% ↓	5,993	4,567
Glass	2.5%	1.6%	-0.9% ↓	2,188	1,614
Metal	11.7%	9.3%	-2.4% ↓	10,449	9,468
Organics	5.0%	7.9%	2.9% ↑	4,430	8,045
Other Materials	15.5%	26.3%	10.8% ↑	13,807	26,774
CDL Wastes	48.2%	44.4%	-3.8% ↓	43,064	45,219
Hazardous	0.9%	0.9%	0.0% -	813	928
Total	100%	100%		89,308	101,882

* Bold type indicates statistically significant changes.

4.5 Changes in Self-Haul Waste: 1996 to 2000

As shown in Table 4-4, *paper* appeared to be the only broad waste category that experienced a significant change in proportion from the 1996 study period to the 2000 study period. This category composed approximately 9.1% (7,629 tons) of self-haul waste in 1996, decreasing to 5.2% (5,268 tons) during the 2000 study period.

Table 4-4 Changes in Self-Haul Waste: 1996 to 2000*

	Percent		Change in Composition %	Disposed Tons	
	1996	2000		1996	2000
Paper	9.1%	5.2%	-3.9% ↓	7,629	5,268
Plastic	5.2%	4.5%	-0.7% ↓	4,342	4,567
Glass	1.2%	1.6%	0.4% ↑	1,029	1,614
Metal	5.4%	9.3%	3.9% ↑	4,520	9,468
Organics	7.0%	7.9%	0.9% ↑	5,854	8,045
Other Materials	24.3%	26.3%	1.9% ↑	20,404	26,774
CDL Wastes	46.6%	44.4%	-2.2% ↓	39,029	45,219
Hazardous	1.1%	0.9%	-0.2% ↓	917	928
Total	100%	100%		83,724	101,882

* Bold type indicates statistically significant changes.

5 Commercial Composition Results, by Subpopulation

A total of 347 loads from the commercial substream were sampled from January to December 2000. Table 5-1 summarizes the sample information for each commercial subpopulation. The average sample weight for the 347 commercial samples was approximately 287 pounds. The City's authorized waste haulers provided the total 2000 disposal tonnages presented in this section of the report.

As shown in Table 5-1, many of the generator-specific analyses are based on a very small number of samples and are thus subject to a relatively wide margin of error. Generator-specific results are presented in order to provide rough estimates only.¹³

**Table 5-1 Description of Samples for each Commercial Subpopulation
(January – December 2000)**

Subpopulation	Sample Count	<i>(All Weights in pounds)</i>		
		Total Sample	Average Sample	Average Net Load Weight
Vehicle Type				
Front Loader	154	44,709.2	290.3	19,904.3
Rear Loader	20	5,704.3	285.2	9,828.3
Compactor Roll-off	78	21,692.9	278.1	13,434.4
Loose Roll-off	95	27,327.6	287.7	6,815.2
Season				
Spring	80	22,133.6	276.7	13,304.3
Summer	80	24,514.6	306.4	15,488.3
Autumn	98	23,550.2	298.3	14,731.4
Winter	89	29,235.8	264.6	13,596.3
Generator Type				
CDL	20	5,663.0	283.2	7,568.6
Education	10	3,216.4	321.6	6,170.0
Health Care	11	2,848.5	259.0	10,060.5
Hotel/Motel	5	1,414.0	282.8	11,712.0
Manufacturing	26	6,841.8	263.2	9,113.9
Mixed Residential/Non-Residential	6	1,917.6	319.6	12,463.3
Office	11	2,945.3	267.8	7,284.6
Other Non-Residential	5	1,299.9	260.0	7,636.0
Other Services	12	3,135.8	261.3	7,693.3
Restaurant	6	1,681.2	280.2	9,304.2
Retail	32	9,311.2	291.0	17,056.5
Transportation	4	1,216.7	304.2	7,235.0
Wholesale	9	2,789.9	310.0	7,066.7
Mixed Generator Types	139	41,867.7	301.2	18,133.2
Overall Commercial	347	99,434.1	286.6	14,285.7

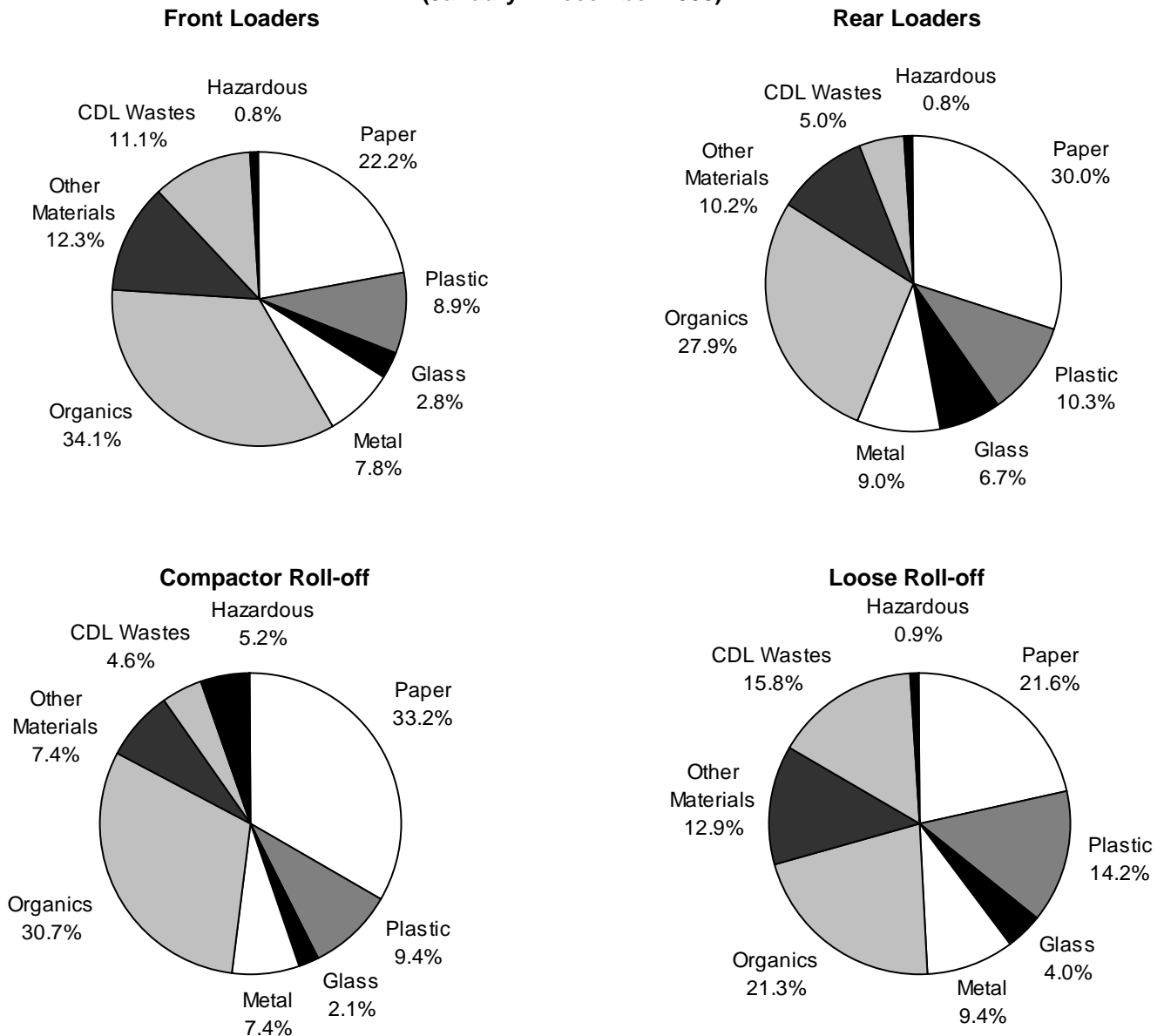
¹³ There was no intent to capture a certain number of samples from any particular generator type. (Sample selection was based on vehicle type; please refer to Appendix C for more detail.)

In the following sections commercial waste composition results are presented by vehicle type, season, and generator type. Results are depicted in three ways: a pie chart reflects composition by the nine broad material categories; then, a table lists the top ten components, by weight; and finally, the full composition results are presented in a detailed table. Following the top ten tables in Sections 5.1, 5.2, and 5.3, composition results from relevant subpopulations are compared.

5.1 Composition by Vehicle Type

Figure 5-1 displays the overall composition results, by weight, of the waste disposed by front loaders, rear loaders, compactor roll-offs, and loose roll-offs. Combined, *paper* and *organics* accounted for over 40% of the waste for each vehicle type. The following sections examine each vehicle type's waste in more detail.

**Figure 5-1 Commercial Composition Summary: by Vehicle Type
(January – December 2000)**



5.1.1 Front Loaders

A total of 154 front-loading packer truckloads were sampled during this study period. Commercial front loaders disposed approximately 116,000 tons of waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 116,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 5-2, *food* was the only large component, accounting for almost 29% of the total tons disposed by front loaders in 2000. When added together, all of the top ten components summed to approximately 60% of the total, by weight. The full composition results for front loader trucks are presented in Table 5-6.

**Table 5-2 Top Ten Components: Commercial Front Loaders
(January – December 2000)**

Component	Mean	Cum. %	Tons
Food	28.5%	28.5%	33,047
Mixed Low Grade Paper	4.9%	33.3%	5,674
Unwaxed OCC/Kraft Paper	4.5%	37.8%	5,169
Compostable/Soiled Paper	3.9%	41.7%	4,541
Textiles/Clothing	3.7%	45.4%	4,333
Mixed Metals/Materials	3.4%	48.8%	3,898
Other Ferrous Metal	3.1%	51.9%	3,637
Dimension Lumber	3.1%	55.0%	3,602
Newspaper	3.0%	58.0%	3,437
Office Paper	2.5%	60.5%	2,959
Total	60.5%		70,298

5.1.2 Rear Loaders

From the commercial substream, 20 rear loader samples were taken between January and December 2000. Commercial rear loaders disposed approximately 12,000 tons of waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 12,000 tons to estimate the amount of waste disposed for each component category. Table 5-3 lists the top ten components disposed by rear loader trucks. *Food* alone accounted for almost 27%, by weight. *Mixed low grade paper*, *compostable/soiled paper*, and *unwaxed OCC/Kraft paper* were also large components. The top ten components listed in Table 5-3 summed to approximately 67% of the total waste disposed by rear loaders. The full composition results for rear loaders are listed in Table 5-7.

**Table 5-3 Top Ten Components: Commercial Rear Loaders
(January – December 2000)**

Component	Mean	Cum. %	Tons
Food	26.5%	26.5%	3,161
Mixed Low Grade Paper	7.8%	34.3%	933
Compostable/Soiled Paper	6.2%	40.5%	736
Unwaxed OCC/Kraft Paper	5.3%	45.8%	633
Newspaper	4.3%	50.1%	515
Office Paper	4.0%	54.1%	476
Other Ferrous Metal	3.5%	57.6%	424
Carpet/Upholstery	3.5%	61.1%	417
Clear Glass Beverage	3.3%	64.4%	398
Textiles/Clothing	2.6%	67.1%	315
Total	67.1%		8,007

5.1.3 Compactor Roll-offs

There were a total of 78 samples taken from compactor roll-off boxes during this study period. Commercial compactor roll-offs disposed approximately 56,000 tons of waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 56,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 5-4, *food* was the largest component of waste hauled in compactors. It accounted for nearly 28% of the total compactor tonnage, by weight. *Compostable/soiled paper, unwaxed OCC/Kraft paper, and mixed low grade paper* were large components, also. Together, the top ten components made up approximately 69% of the total, by weight. Table 5-8 contains detailed composition results for compactor roll-offs.

**Table 5-4 Top Ten Components: Commercial Compactor Roll-offs
(January – December 2000)**

Component	Mean	Cum. %	Tons
Food	27.5%	27.5%	15,496
Compostable/Soiled Paper	7.3%	34.9%	4,118
Unwaxed OCC/Kraft Paper	6.6%	41.4%	3,685
Mixed Low Grade Paper	5.8%	47.3%	3,290
Other Hazardous Chemicals	4.5%	51.7%	2,511
Office Paper	4.2%	56.0%	2,388
Newspaper	3.6%	59.6%	2,048
Other Plastic Film	3.6%	63.2%	1,999
Other Ferrous Metal	3.2%	66.4%	1,805
Mixed Metals/Materials	3.0%	69.4%	1,702
Total	69.4%		39,044

5.1.4 Loose Roll-offs

A total of 95 commercial samples were captured from loose roll-off dropboxes from January – December 2000. Commercial loose roll-offs disposed approximately 41,000 tons of waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 41,000 tons to estimate the amount of waste disposed for each component category. Table 5-5 lists the top ten components of waste hauled in loose roll-offs. *Food, unwaxed OCC/Kraft paper, pallets, and other ferrous metal* were large components (over 5% of loose roll-off tonnage, by weight). When summed, the top ten components made up about 54% of all loose roll-off waste, by weight. See Table 5-9 for the complete composition results for loose roll-offs.

**Table 5-5 Top Ten Components Commercial Loose Roll-offs
(January – December 2000)**

Component	Mean	Cum. %	Tons
Food	11.3%	11.3%	4,643
Unwaxed OCC/Kraft Paper	7.1%	18.4%	2,931
Pallets	6.9%	25.4%	2,855
Other Ferrous Metal	5.4%	30.8%	2,217
Other Plastic Film	4.8%	35.6%	1,975
Carpet/Upholstery	4.7%	40.3%	1,950
Compostable/Soiled Paper	3.9%	44.2%	1,617
Mixed Low Grade Paper	3.5%	47.7%	1,442
Dimension Lumber	3.3%	51.0%	1,339
Plastic Products	3.2%	54.2%	1,332
Total	54.2%		22,301

5.1.5 Comparisons between Vehicle Types

The wastes disposed by front and rear-loaders, and compactor and loose roll-offs contain many of the same top ten components. *Food* was the largest component for waste hauled by all vehicle types (28%, 26.5%, 27.5%, and 11.3%, respectively). *Mixed low grade paper, unwaxed OCC/Kraft paper, compostable/soiled paper, and other ferrous metal* were top ten components for all vehicle types.

There were also differences between the waste hauled by these vehicles. For example, *clear glass beverage* was a top ten component for rear loaders only while *other hazardous chemicals* was a top ten component for compactor roll-offs only, and *pallets* was a top ten component for loose roll-offs only.

**Table 5-6 Composition by Weight: Commercial Front Loaders
(January – December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	25,823	22.2%			Organics	39,572	34.1%		
Newspaper	3,437	3.0%	2.4%	3.5%	Pallets	2,228	1.9%	0.9%	2.9%
OCC/Kraft, unwaxed	5,169	4.5%	3.9%	5.0%	Crates/Boxes	878	0.8%	0.1%	1.4%
OCC/Kraft, waxed	661	0.6%	0.4%	0.7%	Leaves and Grass	2,551	2.2%	1.3%	3.1%
Office Paper	2,959	2.5%	2.0%	3.1%	Prunings	867	0.7%	0.3%	1.2%
Computer Paper	206	0.2%	0.1%	0.3%	Food	33,047	28.5%	25.4%	31.5%
Mixed Low Grade	5,674	4.9%	4.0%	5.7%	Other Materials	14,309	12.3%		
Phone Books	475	0.4%	0.1%	0.7%	Textiles/Clothing	4,333	3.7%	1.9%	5.5%
Milk/Juice Polycoats	301	0.3%	0.2%	0.3%	Carpet/Upholstery	2,361	2.0%	0.7%	3.4%
Frozen Food Polycoats	112	0.1%	0.1%	0.1%	Leather	19	0.0%	0.0%	0.0%
Compostable/Soiled	4,541	3.9%	3.3%	4.5%	Disposable Diapers	382	0.3%	0.2%	0.5%
Paper/Other Materials	1,960	1.7%	1.2%	2.1%	Animal By-Products	54	0.0%	0.0%	0.1%
Other Paper	327	0.3%	0.1%	0.5%	Rubber Products	969	0.8%	0.4%	1.3%
Plastic	10,356	8.9%			Tires	123	0.1%	0.0%	0.3%
PET Pop and Liquor	117	0.1%	0.1%	0.1%	Ash	55	0.0%	0.0%	0.1%
Other PET Bottles	175	0.2%	0.1%	0.2%	Furniture	1,422	1.2%	0.5%	1.9%
HDPE Milk and Juice	127	0.1%	0.1%	0.1%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	285	0.2%	0.2%	0.3%	Small Appliances	218	0.2%	0.1%	0.3%
Other Plastic Bottles	60	0.1%	0.0%	0.1%	A/V Equipment	480	0.4%	0.0%	0.8%
Jars and Tubs	445	0.4%	0.3%	0.5%	Monitors and TVs	461	0.4%	0.0%	0.8%
Expanded Polystyrene	721	0.6%	0.4%	0.8%	Other Computer Components	953	0.8%	0.3%	1.4%
Other Rigid Packaging	616	0.5%	0.4%	0.7%	Ceramics/Porcelain	298	0.3%	0.1%	0.4%
Grocery/Bread Bags	160	0.1%	0.1%	0.2%	Non-distinct Fines	219	0.2%	0.1%	0.3%
Garbage Bags	1,602	1.4%	1.2%	1.6%	Misc. Organics	728	0.6%	0.4%	0.9%
Other Film	2,786	2.4%	1.9%	2.9%	Misc. Inorganics	1,233	1.1%	0.3%	1.8%
Plastic Products	2,186	1.9%	0.8%	2.9%	CDL Wastes	12,842	11.1%		
Plastic/Other Materials	1,076	0.9%	0.5%	1.3%	Dimension Lumber	3,602	3.1%	1.8%	4.4%
Glass	3,251	2.8%			Other Untreated Wood	117	0.1%	0.0%	0.2%
Clear Beverage	985	0.8%	0.7%	1.0%	Treated Wood	1,114	1.0%	0.5%	1.4%
Green Beverage	592	0.5%	0.4%	0.7%	Contaminated Wood	1,418	1.2%	0.5%	1.9%
Brown Beverage	564	0.5%	0.4%	0.6%	New Gypsum Scrap	139	0.1%	0.0%	0.3%
Container Glass	208	0.2%	0.1%	0.2%	Demo Gypsum Scrap	1,564	1.3%	0.5%	2.2%
Fluorescent Tubes	27	0.0%	0.0%	0.0%	Fiberglass Insulation	101	0.1%	0.0%	0.2%
Other Glass	876	0.8%	0.0%	1.6%	Rock/Concrete/Brick	2,495	2.1%	0.7%	3.6%
Metal	9,043	7.8%			Asphaltic Roofing	720	0.6%	0.0%	1.2%
Aluminum Cans	318	0.3%	0.2%	0.3%	Other Construction Debris	1,092	0.9%	0.2%	1.7%
Alum. Foil/Containers	64	0.1%	0.0%	0.1%	Sand/Soil/Dirt	479	0.4%	0.1%	0.7%
Other Aluminum	55	0.0%	0.0%	0.1%	Hazardous	927	0.8%		
Other Nonferrous	194	0.2%	0.0%	0.3%	Latex Paints	41	0.0%	0.0%	0.1%
Tin Food Cans	628	0.5%	0.4%	0.7%	Hazardous Adhesives/Glues	74	0.1%	0.0%	0.1%
Empty Aerosol Cans	94	0.1%	0.1%	0.1%	NonHazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Other Ferrous	3,637	3.1%	2.0%	4.2%	Oil-based Paints/Solvents	22	0.0%	0.0%	0.0%
Mixed Metals/Materials	3,898	3.4%	2.1%	4.6%	Cleaners	8	0.0%	0.0%	0.0%
Motor Oil Filters	154	0.1%	0.0%	0.2%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	19	0.0%	0.0%	0.0%
					Wet-Cell Batteries	75	0.1%	0.0%	0.2%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	16	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	116,122				Other Hazardous Chemicals	607	0.5%	0.3%	0.8%
Sample Count	154				Other NonHazardous Chemicals	65	0.1%	0.0%	0.1%

**Table 5-7 Composition by Weight: Commercial Rear Loaders
(January – December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	3,583	30.0%			Organics	3,335	27.9%		
Newspaper	515	4.3%	3.5%	5.1%	Pallets	47	0.4%	0.0%	1.0%
OCC/Kraft, unwaxed	633	5.3%	4.4%	6.2%	Crates/Boxes	17	0.1%	0.0%	0.3%
OCC/Kraft, waxed	33	0.3%	0.0%	0.6%	Leaves and Grass	67	0.6%	0.1%	1.0%
Office Paper	476	4.0%	2.9%	5.1%	Prunings	43	0.4%	0.3%	0.4%
Computer Paper	40	0.3%	0.1%	0.6%	Food	3,161	26.5%	23.0%	30.0%
Mixed Low Grade	933	7.8%	5.9%	9.8%	Other Materials	1,218	10.2%		
Phone Books	5	0.0%	0.0%	0.1%	Textiles/Clothing	315	2.6%	1.0%	4.3%
Milk/Juice Polycoats	18	0.2%	0.1%	0.2%	Carpet/Upholstery	417	3.5%	0.2%	6.8%
Frozen Food Polycoats	11	0.1%	0.1%	0.1%	Leather	0	0.0%	0.0%	0.0%
Compostable/Soiled	736	6.2%	5.3%	7.0%	Disposable Diapers	80	0.7%	0.1%	1.2%
Paper/Other Materials	150	1.3%	0.7%	1.8%	Animal By-Products	0	0.0%	0.0%	0.0%
Other Paper	33	0.3%	0.0%	0.7%	Rubber Products	139	1.2%	0.0%	2.8%
Plastic	1,225	10.3%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	30	0.2%	0.2%	0.3%	Ash	16	0.1%	0.0%	0.3%
Other PET Bottles	40	0.3%	0.3%	0.4%	Furniture	11	0.1%	0.0%	0.2%
HDPE Milk and Juice	17	0.1%	0.1%	0.2%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	43	0.4%	0.2%	0.5%	Small Appliances	29	0.2%	0.0%	0.5%
Other Plastic Bottles	4	0.0%	0.0%	0.1%	A/V Equipment	22	0.2%	0.0%	0.5%
Jars and Tubs	48	0.4%	0.1%	0.7%	Monitors and TVs	0	0.0%	0.0%	0.0%
Expanded Polystyrene	103	0.9%	0.7%	1.0%	Other Computer Components	37	0.3%	0.0%	0.8%
Other Rigid Packaging	78	0.7%	0.5%	0.8%	Ceramics/Porcelain	35	0.3%	0.1%	0.5%
Grocery/Bread Bags	25	0.2%	0.2%	0.3%	Non-distinct Fines	12	0.1%	0.0%	0.2%
Garbage Bags	155	1.3%	0.2%	2.4%	Misc. Organics	105	0.9%	0.5%	1.2%
Other Film	305	2.6%	2.0%	3.1%	Misc. Inorganics	0	0.0%	0.0%	0.0%
Plastic Products	201	1.7%	0.3%	3.1%	CDL Wastes	592	5.0%		
Plastic/Other Materials	176	1.5%	1.1%	1.9%	Dimension Lumber	193	1.6%	0.9%	2.3%
Glass	804	6.7%			Other Untreated Wood	8	0.1%	0.0%	0.2%
Clear Beverage	398	3.3%	2.7%	4.0%	Treated Wood	174	1.5%	0.0%	3.1%
Green Beverage	193	1.6%	1.1%	2.1%	Contaminated Wood	110	0.9%	0.1%	1.8%
Brown Beverage	170	1.4%	0.0%	2.8%	New Gypsum Scrap	0	0.0%	0.0%	0.0%
Container Glass	16	0.1%	0.0%	0.2%	Demo Gypsum Scrap	85	0.7%	0.0%	1.7%
Fluorescent Tubes	4	0.0%	0.0%	0.1%	Fiberglass Insulation	0	0.0%	0.0%	0.0%
Other Glass	24	0.2%	0.0%	0.4%	Rock/Concrete/Brick	0	0.0%	0.0%	0.0%
Metal	1,080	9.0%			Asphaltic Roofing	0	0.0%	0.0%	0.0%
Aluminum Cans	58	0.5%	0.4%	0.5%	Other Construction Debris	22	0.2%	0.0%	0.4%
Alum. Foil/Containers	34	0.3%	0.0%	0.6%	Sand/Soil/Dirt	0	0.0%	0.0%	0.0%
Other Aluminum	12	0.1%	0.1%	0.1%	Hazardous	98	0.8%		
Other Nonferrous	9	0.1%	0.0%	0.2%	Latex Paints	0	0.0%	0.0%	0.0%
Tin Food Cans	229	1.9%	0.7%	3.1%	Hazardous Adhesives/Glues	23	0.2%	0.0%	0.5%
Empty Aerosol Cans	9	0.1%	0.0%	0.1%	NonHazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Other Ferrous	424	3.5%	1.5%	5.6%	Oil-based Paints/Solvents	7	0.1%	0.0%	0.1%
Mixed Metals/Materials	305	2.6%	0.7%	4.4%	Cleaners	0	0.0%	0.0%	0.0%
Motor Oil Filters	1	0.0%	0.0%	0.0%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	16	0.1%	0.0%	0.3%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
					Other Hazardous Chemicals	52	0.4%	0.1%	0.8%
Total Tons	11,936				Other NonHazardous Chemicals	0	0.0%	0.0%	0.0%
Sample Count	20								

**Table 5-8 Composition by Weight: Commercial Compactor Roll-offs
(January – December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	18,685	33.2%			Organics	17,292	30.7%		
Newspaper	2,048	3.6%	2.2%	5.1%	Pallets	1,059	1.9%	0.3%	3.5%
OCC/Kraft, unwaxed	3,685	6.6%	5.0%	8.1%	Crates/Boxes	147	0.3%	0.1%	0.5%
OCC/Kraft, waxed	1,044	1.9%	1.1%	2.6%	Leaves and Grass	471	0.8%	0.3%	1.4%
Office Paper	2,388	4.2%	2.4%	6.1%	Prunings	119	0.2%	0.0%	0.4%
Computer Paper	181	0.3%	0.0%	0.6%	Food	15,496	27.5%	22.6%	32.5%
Mixed Low Grade	3,290	5.8%	3.4%	8.3%	Other Materials	4,179	7.4%		
Phone Books	0	0.0%	0.0%	0.0%	Textiles/Clothing	694	1.2%	0.5%	2.0%
Milk/Juice Polycoats	332	0.6%	0.1%	1.1%	Carpet/Upholstery	978	1.7%	0.0%	3.6%
Frozen Food Polycoats	32	0.1%	0.0%	0.1%	Leather	57	0.1%	0.0%	0.2%
Compostable/Soiled	4,118	7.3%	5.4%	9.2%	Disposable Diapers	24	0.0%	0.0%	0.1%
Paper/Other Materials	1,012	1.8%	1.1%	2.5%	Animal By-Products	88	0.2%	0.0%	0.3%
Other Paper	554	1.0%	0.0%	2.3%	Rubber Products	114	0.2%	0.1%	0.3%
Plastic	5,285	9.4%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	55	0.1%	0.0%	0.1%	Ash	0	0.0%	0.0%	0.0%
Other PET Bottles	84	0.1%	0.1%	0.2%	Furniture	136	0.2%	0.0%	0.5%
HDPE Milk and Juice	248	0.4%	0.1%	0.8%	Mattresses	86	0.2%	0.0%	0.4%
Other HDPE Bottles	56	0.1%	0.1%	0.1%	Small Appliances	200	0.4%	0.1%	0.6%
Other Plastic Bottles	36	0.1%	0.0%	0.1%	A/V Equipment	107	0.2%	0.0%	0.5%
Jars and Tubs	255	0.5%	0.2%	0.7%	Monitors and TVs	72	0.1%	0.0%	0.3%
Expanded Polystyrene	283	0.5%	0.3%	0.7%	Other Computer Components	265	0.5%	0.0%	0.9%
Other Rigid Packaging	342	0.6%	0.4%	0.8%	Ceramics/Porcelain	13	0.0%	0.0%	0.0%
Grocery/Bread Bags	46	0.1%	0.1%	0.1%	Non-distinct Fines	139	0.2%	0.1%	0.4%
Garbage Bags	704	1.3%	1.0%	1.5%	Misc. Organics	1,117	2.0%	0.0%	4.0%
Other Film	1,999	3.6%	2.3%	4.8%	Misc. Inorganics	91	0.2%	0.0%	0.3%
Plastic Products	569	1.0%	0.7%	1.3%	CDL Wastes	2,586	4.6%		
Plastic/Other Materials	607	1.1%	0.4%	1.7%	Dimension Lumber	900	1.6%	0.3%	2.9%
Glass	1,165	2.1%			Other Untreated Wood	48	0.1%	0.0%	0.2%
Clear Beverage	676	1.2%	0.7%	1.7%	Treated Wood	176	0.3%	0.0%	0.6%
Green Beverage	155	0.3%	0.1%	0.4%	Contaminated Wood	311	0.6%	0.2%	0.9%
Brown Beverage	120	0.2%	0.1%	0.3%	New Gypsum Scrap	12	0.0%	0.0%	0.1%
Container Glass	39	0.1%	0.0%	0.1%	Demo Gypsum Scrap	402	0.7%	0.0%	1.8%
Fluorescent Tubes	4	0.0%	0.0%	0.0%	Fiberglass Insulation	0	0.0%	0.0%	0.0%
Other Glass	173	0.3%	0.1%	0.5%	Rock/Concrete/Brick	44	0.1%	0.0%	0.2%
Metal	4,144	7.4%			Asphaltic Roofing	0	0.0%	0.0%	0.0%
Aluminum Cans	127	0.2%	0.2%	0.3%	Other Construction Debris	208	0.4%	0.0%	0.8%
Alum. Foil/Containers	37	0.1%	0.0%	0.1%	Sand/Soil/Dirt	485	0.9%	0.0%	1.9%
Other Aluminum	2	0.0%	0.0%	0.0%	Hazardous	2,915	5.2%		
Other Nonferrous	23	0.0%	0.0%	0.1%	Latex Paints	0	0.0%	0.0%	0.0%
Tin Food Cans	183	0.3%	0.2%	0.4%	Hazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Empty Aerosol Cans	259	0.5%	0.0%	1.1%	NonHazardous Adhesives/Glues	388	0.7%	0.0%	1.8%
Other Ferrous	1,805	3.2%	1.2%	5.2%	Oil-based Paints/Solvents	0	0.0%	0.0%	0.0%
Mixed Metals/Materials	1,702	3.0%	1.1%	5.0%	Cleaners	1	0.0%	0.0%	0.0%
Motor Oil Filters	7	0.0%	0.0%	0.0%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	3	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
					Other Hazardous Chemicals	2,511	4.5%	1.3%	7.6%
Total Tons	56,253				Other NonHazardous Chemicals	11	0.0%	0.0%	0.0%
Sample Count	78								

**Table 5-9 Composition by Weight: Commercial Loose Roll-offs
(January – December 2000)**

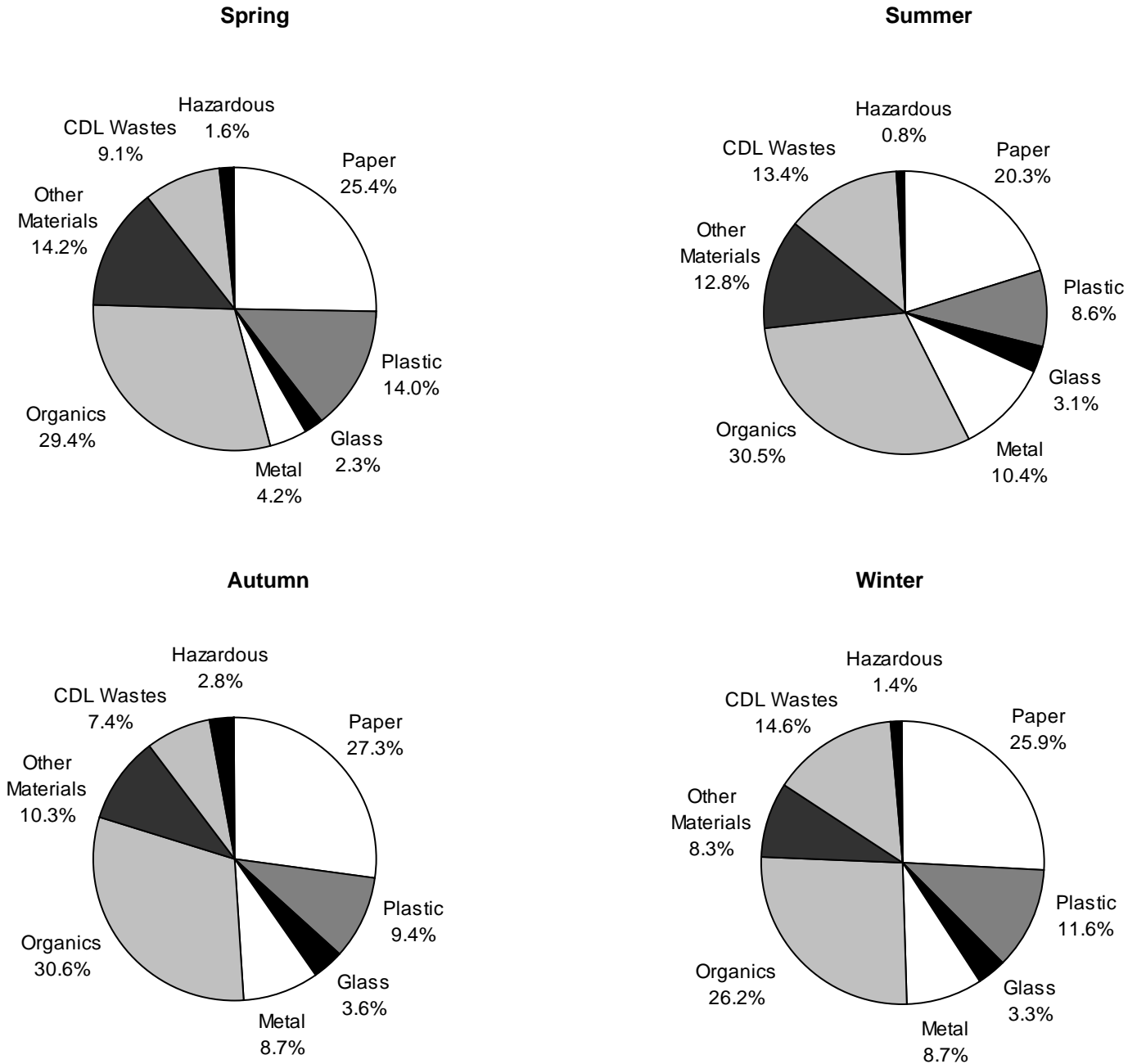
Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	8,903	21.6%			Organics	8,761	21.3%		
Newspaper	1,008	2.5%	1.6%	3.3%	Pallets	2,855	6.9%	4.5%	9.4%
OCC/Kraft, unwaxed	2,931	7.1%	5.0%	9.3%	Crates/Boxes	109	0.3%	0.0%	0.6%
OCC/Kraft, waxed	153	0.4%	0.1%	0.6%	Leaves and Grass	1,073	2.6%	1.3%	3.9%
Office Paper	857	2.1%	0.8%	3.4%	Prunings	82	0.2%	0.0%	0.4%
Computer Paper	65	0.2%	0.0%	0.3%	Food	4,643	11.3%	7.7%	14.9%
Mixed Low Grade	1,442	3.5%	2.3%	4.7%	Other Materials	5,303	12.9%		
Phone Books	18	0.0%	0.0%	0.1%	Textiles/Clothing	716	1.7%	0.7%	2.8%
Milk/Juice Polycoats	45	0.1%	0.0%	0.2%	Carpet/Upholstery	1,950	4.7%	2.0%	7.5%
Frozen Food Polycoats	12	0.0%	0.0%	0.0%	Leather	3	0.0%	0.0%	0.0%
Compostable/Soiled	1,617	3.9%	2.7%	5.2%	Disposable Diapers	84	0.2%	0.1%	0.3%
Paper/Other Materials	624	1.5%	1.0%	2.1%	Animal By-Products	13	0.0%	0.0%	0.1%
Other Paper	132	0.3%	0.0%	0.7%	Rubber Products	148	0.4%	0.1%	0.6%
Plastic	5,820	14.2%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	45	0.1%	0.1%	0.2%	Ash	336	0.8%	0.0%	2.2%
Other PET Bottles	44	0.1%	0.1%	0.2%	Furniture	550	1.3%	0.4%	2.3%
HDPE Milk and Juice	57	0.1%	0.1%	0.2%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	42	0.1%	0.1%	0.1%	Small Appliances	184	0.4%	0.0%	0.9%
Other Plastic Bottles	13	0.0%	0.0%	0.1%	A/V Equipment	27	0.1%	0.0%	0.2%
Jars and Tubs	76	0.2%	0.1%	0.3%	Monitors and TVs	208	0.5%	0.0%	1.1%
Expanded Polystyrene	455	1.1%	0.2%	2.0%	Other Computer Components	468	1.1%	0.0%	2.5%
Other Rigid Packaging	168	0.4%	0.2%	0.6%	Ceramics/Porcelain	87	0.2%	0.0%	0.5%
Grocery/Bread Bags	29	0.1%	0.0%	0.1%	Non-distinct Fines	54	0.1%	0.0%	0.2%
Garbage Bags	296	0.7%	0.5%	0.9%	Misc. Organics	225	0.5%	0.1%	1.0%
Other Film	1,975	4.8%	2.5%	7.1%	Misc. Inorganics	250	0.6%	0.0%	1.4%
Plastic Products	1,332	3.2%	1.2%	5.2%	CDL Wastes	6,487	15.8%		
Plastic/Other Materials	1,289	3.1%	1.5%	4.8%	Dimension Lumber	1,339	3.3%	1.3%	5.2%
Glass	1,628	4.0%			Other Untreated Wood	143	0.3%	0.0%	0.7%
Clear Beverage	316	0.8%	0.4%	1.1%	Treated Wood	1,159	2.8%	0.5%	5.2%
Green Beverage	81	0.2%	0.1%	0.3%	Contaminated Wood	1,317	3.2%	1.5%	4.9%
Brown Beverage	30	0.1%	0.0%	0.1%	New Gypsum Scrap	273	0.7%	0.0%	1.3%
Container Glass	311	0.8%	0.0%	1.9%	Demo Gypsum Scrap	672	1.6%	0.3%	3.0%
Fluorescent Tubes	13	0.0%	0.0%	0.1%	Fiberglass Insulation	266	0.6%	0.0%	1.6%
Other Glass	877	2.1%	0.0%	4.3%	Rock/Concrete/Brick	640	1.6%	0.3%	2.8%
Metal	3,866	9.4%			Asphaltic Roofing	40	0.1%	0.0%	0.2%
Aluminum Cans	131	0.3%	0.1%	0.5%	Other Construction Debris	372	0.9%	0.0%	2.1%
Alum. Foil/Containers	33	0.1%	0.0%	0.1%	Sand/Soil/Dirt	266	0.6%	0.0%	1.3%
Other Aluminum	26	0.1%	0.0%	0.1%	Hazardous	355	0.9%		
Other Nonferrous	22	0.1%	0.0%	0.1%	Latex Paints	14	0.0%	0.0%	0.1%
Tin Food Cans	115	0.3%	0.2%	0.4%	Hazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Empty Aerosol Cans	18	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	49	0.1%	0.0%	0.3%
Other Ferrous	2,217	5.4%	3.0%	7.8%	Oil-based Paints/Solvents	7	0.0%	0.0%	0.0%
Mixed Metals/Materials	1,296	3.2%	1.9%	4.4%	Cleaners	2	0.0%	0.0%	0.0%
Motor Oil Filters	9	0.0%	0.0%	0.1%	Pesticides/Herbicides	6	0.0%	0.0%	0.0%
					Dry-Cell Batteries	3	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	41,124				Other Hazardous Chemicals	271	0.7%	0.0%	1.6%
Sample Count	95				Other NonHazardous Chemicals	2	0.0%	0.0%	0.0%

5.2 Composition by Season

Waste composition results were examined for seasonal variations. Samples were classified into four seasons according to the month in which they were captured: March, April, and May are spring months; June, July, and August are summer; September, October, and November are autumn; and December, January, and February are winter. Figure 5-2 summarizes the results of the broad material categories by season. When summed together, *paper* and *organics* accounted for at least 50% of the total tonnage for each of the four seasons.

Figure 5-2 Commercial Composition Summary: by Season



5.2.1 Spring

A total of 80 samples were captured from commercial loads between the months of March and May 2000. Approximately 56,000 tons of commercial waste was disposed during the spring of 2000. The composition estimates for this subpopulation were applied to the 56,000 tons to estimate the amount of waste disposed for each component category. *Food* accounted for nearly one fourth of the total tons disposed in the spring. *Carpet/upholstery, unwaxed OCC/Kraft paper, and mixed low grade paper* were also large components (each more than 5%, by weight). The top ten components, which are listed in Table 5-10, sum to approximately 64% of the total, by weight. Table 5-14 lists the full composition results for commercial waste disposed during the spring of 2000.

**Table 5-10 Top Ten Components: Commercial in Spring
(March – May 2000)**

Component	Mean	Cum. %	Tons
Food	23.2%	23.2%	12,950
Carpet/Upholstery	6.9%	30.1%	3,847
Unwaxed OCC/Kraft Paper	6.9%	37.0%	3,845
Mixed Low Grade Paper	5.6%	42.6%	3,151
Compostable/Soiled Paper	4.8%	47.4%	2,681
Other Plastic Film	4.1%	51.6%	2,297
Plastic/Other Materials	4.1%	55.7%	2,294
Textiles/Clothing	3.0%	58.7%	1,673
Pallets	3.0%	61.6%	1,648
Newspaper	2.7%	64.3%	1,497
Total	64.3%		35,883

5.2.2 Summer

In the summer of 2000, 80 samples were taken from the commercial substream. Approximately 58,000 tons of commercial waste was disposed during the summer of 2000. The composition estimates for this subpopulation were applied to the 58,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 5-11, *food, mixed low grade paper, other ferrous metal* and *pallets* were all large components, accounting for approximately 23%, 6%, 5%, and 5% of the 58,249 tons of commercial waste disposed between June - August 2000. See Table 5-15 for a complete list of the composition results for commercial waste disposed in the summer.

**Table 5-11 Top Ten Components: Commercial in Summer
(June – August 2000)**

Component	Mean	Cum. %	Tons
Food	23.0%	23.0%	13,409
Mixed Low Grade Paper	5.7%	28.7%	3,317
Other Ferrous Metal	5.0%	33.7%	2,923
Pallets	5.0%	38.7%	2,902
Other Plastic Film	4.5%	43.2%	2,628
Mixed Metals/Materials	4.4%	47.6%	2,564
Unwaxed OCC/Kraft Paper	4.3%	52.0%	2,530
Dimension Lumber	3.9%	55.9%	2,287
Newspaper	3.0%	58.9%	1,748
Compostable/Soiled Paper	2.6%	61.5%	1,534
Total	61.5%		35,841

5.2.3 Autumn

Between September and November of 2000, a total of 98 samples were captured from commercial loads. Approximately 57,000 tons of commercial waste was disposed during the autumn of 2000. The composition estimates for this subpopulation were applied to the 57,000 tons to estimate the amount of waste disposed for each component category. Table 5-12 lists the top ten components of waste disposed in the autumn. *Food* composed about 25% of the total, while *compostable/soiled paper* and *unwaxed OCC/Kraft paper* accounted for another 11%, by weight. When summed together, the top ten components made up almost 63% of the total waste disposed in the autumn of 2000. Table 5-16 lists the composition results for this season in detail.

**Table 5-12 Top Ten Components: Commercial in Autumn
(September – November 2000)**

Component	Mean	Cum. %	Tons
Food	25.3%	25.3%	14,522
Compostable/Soiled Paper	6.2%	31.5%	3,573
Unwaxed OCC/Kraft Paper	5.2%	36.7%	2,980
Mixed Low Grade Paper	4.4%	41.1%	2,534
Office Paper	4.2%	45.2%	2,392
Other Ferrous Metal	4.0%	49.2%	2,275
Textiles/Clothing	3.7%	53.0%	2,155
Mixed Metals/Materials	3.6%	56.6%	2,092
Newspaper	3.2%	59.8%	1,844
Leaves and Grass	2.8%	62.6%	1,587
Total	62.6%		35,955

5.2.4 Winter

A total of 89 samples were sorted from commercial waste disposed during the winter of 2000. Approximately 54,000 tons of commercial waste was disposed during the winter of 2000. The composition estimates for this subpopulation were applied to the 54,000 tons to estimate the amount of waste disposed for each component category. The top ten components are listed in Table 5-13, and sum to approximately 57% of the total, by weight. *Food* and *unwaxed OCC/Kraft paper* were the two large components of waste disposed during January, February, and December 2000. Table 5-17 details the full composition results of this season's waste.

**Table 5-13 Top Ten Components: Commercial in Winter
(January, February, and December 2000)**

Component	Mean	Cum. %	Tons
Food	21.1%	21.1%	11,367
Unwaxed OCC/Kraft Paper	6.3%	27.3%	3,373
Compostable/Soiled Paper	4.9%	32.2%	2,625
Mixed Low Grade Paper	4.3%	36.5%	2,330
Dimension Lumber	4.3%	40.8%	2,327
Other Ferrous Metal	4.0%	44.8%	2,155
Plastic Products	3.2%	48.0%	1,708
Newspaper	3.2%	51.2%	1,702
Other Plastic Film	2.9%	54.1%	1,584
Pallets	2.9%	57.0%	1,547
Total	57.0%		30,717

5.2.5 Comparisons between Seasons

Food was the largest component of commercial waste disposed in each of the four seasons. *Unwaxed OCC/Kraft paper* was a large component of spring, autumn, and winter waste. There were large components specific to individual seasons: *carpet/upholstery* was a largest component in the spring; *other ferrous metal* and *pallets* were largest components in the summer; and *compostable/soiled paper* was a largest component in the autumn.

**Table 5-14 Composition by Weight: Commercial in Spring
(March – May 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	14,146	25.4%			Organics	16,379	29.4%		
Newspaper	1,497	2.7%	1.8%	3.5%	Pallets	1,648	3.0%	1.3%	4.6%
OCC/Kraft, unwaxed	3,845	6.9%	4.9%	8.9%	Crates/Boxes	673	1.2%	0.1%	2.3%
OCC/Kraft, waxed	444	0.8%	0.3%	1.3%	Leaves and Grass	682	1.2%	0.6%	1.8%
Office Paper	1,364	2.4%	1.6%	3.3%	Prunings	426	0.8%	0.2%	1.3%
Computer Paper	40	0.1%	0.0%	0.1%	Food	12,950	23.2%	18.6%	27.8%
Mixed Low Grade	3,151	5.6%	4.0%	7.3%	Other Materials	7,940	14.2%		
Phone Books	210	0.4%	0.0%	0.8%	Textiles/Clothing	1,673	3.0%	1.2%	4.8%
Milk/Juice Polycoats	103	0.2%	0.1%	0.3%	Carpet/Upholstery	3,847	6.9%	3.0%	10.8%
Frozen Food Polycoats	71	0.1%	0.0%	0.2%	Leather	6	0.0%	0.0%	0.0%
Compostable/Soiled	2,681	4.8%	3.6%	6.1%	Disposable Diapers	122	0.2%	0.1%	0.4%
Paper/Other Materials	705	1.3%	0.6%	1.9%	Animal By-Products	7	0.0%	0.0%	0.0%
Other Paper	35	0.1%	0.0%	0.1%	Rubber Products	212	0.4%	0.1%	0.6%
Plastic	7,822	14.0%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	48	0.1%	0.1%	0.1%	Ash	18	0.0%	0.0%	0.1%
Other PET Bottles	80	0.1%	0.1%	0.2%	Furniture	493	0.9%	0.0%	1.8%
HDPE Milk and Juice	68	0.1%	0.1%	0.2%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	75	0.1%	0.1%	0.2%	Small Appliances	52	0.1%	0.0%	0.2%
Other Plastic Bottles	30	0.1%	0.0%	0.1%	A/V Equipment	198	0.4%	0.1%	0.6%
Jars and Tubs	182	0.3%	0.2%	0.4%	Monitors and TVs	83	0.1%	0.0%	0.4%
Expanded Polystyrene	656	1.2%	0.0%	2.3%	Other Computer Components	174	0.3%	0.0%	0.7%
Other Rigid Packaging	361	0.6%	0.4%	0.9%	Ceramics/Porcelain	24	0.0%	0.0%	0.1%
Grocery/Bread Bags	79	0.1%	0.1%	0.2%	Non-distinct Fines	239	0.4%	0.2%	0.6%
Garbage Bags	616	1.1%	0.8%	1.4%	Misc. Organics	170	0.3%	0.2%	0.5%
Other Film	2,297	4.1%	2.2%	6.1%	Misc. Inorganics	622	1.1%	0.0%	2.8%
Plastic Products	1,036	1.9%	1.0%	2.7%	CDL Wastes	5,057	9.1%		
Plastic/Other Materials	2,294	4.1%	1.7%	6.5%	Dimension Lumber	1,480	2.7%	1.1%	4.2%
Glass	1,265	2.3%			Other Untreated Wood	45	0.1%	0.0%	0.2%
Clear Beverage	623	1.1%	0.8%	1.5%	Treated Wood	548	1.0%	0.4%	1.5%
Green Beverage	245	0.4%	0.3%	0.6%	Contaminated Wood	1,004	1.8%	0.3%	3.3%
Brown Beverage	200	0.4%	0.2%	0.5%	New Gypsum Scrap	667	1.2%	0.0%	2.6%
Container Glass	75	0.1%	0.0%	0.2%	Demo Gypsum Scrap	280	0.5%	0.0%	1.0%
Fluorescent Tubes	14	0.0%	0.0%	0.0%	Fiberglass Insulation	27	0.0%	0.0%	0.1%
Other Glass	108	0.2%	0.0%	0.4%	Rock/Concrete/Brick	242	0.4%	0.1%	0.8%
Metal	2,328	4.2%			Asphaltic Roofing	83	0.1%	0.0%	0.3%
Aluminum Cans	135	0.2%	0.2%	0.3%	Other Construction Debris	609	1.1%	0.0%	2.3%
Alum. Foil/Containers	36	0.1%	0.0%	0.1%	Sand/Soil/Dirt	73	0.1%	0.0%	0.3%
Other Aluminum	26	0.0%	0.0%	0.1%	Hazardous	866	1.6%		
Other Nonferrous	30	0.1%	0.0%	0.1%	Latex Paints	15	0.0%	0.0%	0.1%
Tin Food Cans	246	0.4%	0.3%	0.6%	Hazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Empty Aerosol Cans	48	0.1%	0.0%	0.1%	NonHazardous Adhesives/Glues	77	0.1%	0.0%	0.4%
Other Ferrous	1,070	1.9%	1.1%	2.7%	Oil-based Paints/Solvents	0	0.0%	0.0%	0.0%
Mixed Metals/Materials	737	1.3%	0.7%	1.9%	Cleaners	5	0.0%	0.0%	0.0%
Motor Oil Filters	0	0.0%	0.0%	0.0%	Pesticides/Herbicides	14	0.0%	0.0%	0.1%
					Dry-Cell Batteries	8	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	2	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
					Other Hazardous Chemicals	730	1.3%	0.3%	2.4%
Total Tons	55,803				Other NonHazardous Chemicals	15	0.0%	0.0%	0.1%
Sample Count	80								

**Table 5-15 Composition by Weight: Commercial in Summer
(June – August 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	11,845	20.3%			Organics	17,758	30.5%		
Newspaper	1,748	3.0%	2.1%	3.9%	Pallets	2,902	5.0%	2.3%	7.6%
OCC/Kraft, unwaxed	2,530	4.3%	3.3%	5.4%	Crates/Boxes	230	0.4%	0.1%	0.7%
OCC/Kraft, waxed	486	0.8%	0.2%	1.5%	Leaves and Grass	1,096	1.9%	0.7%	3.1%
Office Paper	1,183	2.0%	1.4%	2.7%	Prunings	122	0.2%	0.0%	0.4%
Computer Paper	106	0.2%	0.0%	0.3%	Food	13,409	23.0%	18.5%	27.6%
Mixed Low Grade	3,317	5.7%	3.3%	8.1%	Other Materials	7,435	12.8%		
Phone Books	57	0.1%	0.0%	0.3%	Textiles/Clothing	1,281	2.2%	1.0%	3.4%
Milk/Juice Polycoats	106	0.2%	0.1%	0.3%	Carpet/Upholstery	1,074	1.8%	0.4%	3.3%
Frozen Food Polycoats	28	0.0%	0.0%	0.1%	Leather	5	0.0%	0.0%	0.0%
Compostable/Soiled	1,534	2.6%	1.9%	3.4%	Disposable Diapers	116	0.2%	0.0%	0.4%
Paper/Other Materials	696	1.2%	0.8%	1.6%	Animal By-Products	0	0.0%	0.0%	0.0%
Other Paper	55	0.1%	0.0%	0.2%	Rubber Products	502	0.9%	0.0%	1.7%
Plastic	4,995	8.6%			Tires	133	0.2%	0.0%	0.6%
PET Pop and Liquor	43	0.1%	0.0%	0.1%	Ash	382	0.7%	0.0%	1.7%
Other PET Bottles	39	0.1%	0.0%	0.1%	Furniture	842	1.4%	0.3%	2.6%
HDPE Milk and Juice	46	0.1%	0.0%	0.1%	Mattresses	80	0.1%	0.0%	0.4%
Other HDPE Bottles	72	0.1%	0.1%	0.2%	Small Appliances	114	0.2%	0.0%	0.4%
Other Plastic Bottles	20	0.0%	0.0%	0.1%	A/V Equipment	0	0.0%	0.0%	0.0%
Jars and Tubs	200	0.3%	0.2%	0.5%	Monitors and TVs	618	1.1%	0.1%	2.0%
Expanded Polystyrene	445	0.8%	0.2%	1.3%	Other Computer Components	1,177	2.0%	0.5%	3.6%
Other Rigid Packaging	191	0.3%	0.1%	0.5%	Ceramics/Porcelain	255	0.4%	0.0%	0.9%
Grocery/Bread Bags	27	0.0%	0.0%	0.1%	Non-distinct Fines	0	0.0%	0.0%	0.0%
Garbage Bags	385	0.7%	0.5%	0.8%	Misc. Organics	399	0.7%	0.2%	1.2%
Other Film	2,628	4.5%	2.2%	6.8%	Misc. Inorganics	458	0.8%	0.0%	1.6%
Plastic Products	546	0.9%	0.6%	1.3%	CDL Wastes	7,834	13.4%		
Plastic/Other Materials	353	0.6%	0.4%	0.8%	Dimension Lumber	2,287	3.9%	1.7%	6.2%
Glass	1,829	3.1%			Other Untreated Wood	105	0.2%	0.0%	0.4%
Clear Beverage	466	0.8%	0.5%	1.1%	Treated Wood	843	1.4%	0.0%	3.5%
Green Beverage	262	0.5%	0.2%	0.7%	Contaminated Wood	1,510	2.6%	1.2%	4.0%
Brown Beverage	379	0.7%	0.0%	1.3%	New Gypsum Scrap	90	0.2%	0.0%	0.3%
Container Glass	67	0.1%	0.0%	0.2%	Demo Gypsum Scrap	1,418	2.4%	0.8%	4.1%
Fluorescent Tubes	0	0.0%	0.0%	0.0%	Fiberglass Insulation	6	0.0%	0.0%	0.0%
Other Glass	655	1.1%	0.0%	2.6%	Rock/Concrete/Brick	337	0.6%	0.0%	1.2%
Metal	6,082	10.4%			Asphaltic Roofing	318	0.5%	0.0%	1.4%
Aluminum Cans	85	0.1%	0.1%	0.2%	Other Construction Debris	584	1.0%	0.0%	2.5%
Alum. Foil/Containers	18	0.0%	0.0%	0.0%	Sand/Soil/Dirt	335	0.6%	0.0%	1.2%
Other Aluminum	13	0.0%	0.0%	0.0%	Hazardous	471	0.8%		
Other Nonferrous	36	0.1%	0.0%	0.1%	Latex Paints	0	0.0%	0.0%	0.0%
Tin Food Cans	413	0.7%	0.3%	1.1%	Hazardous Adhesives/Glues	60	0.1%	0.0%	0.2%
Empty Aerosol Cans	21	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Other Ferrous	2,923	5.0%	2.5%	7.5%	Oil-based Paints/Solvents	24	0.0%	0.0%	0.1%
Mixed Metals/Materials	2,564	4.4%	2.4%	6.4%	Cleaners	0	0.0%	0.0%	0.0%
Motor Oil Filters	8	0.0%	0.0%	0.0%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	4	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	58,249				Other Hazardous Chemicals	354	0.6%	0.1%	1.1%
Sample Count	80				Other NonHazardous Chemicals	29	0.0%	0.0%	0.1%

**Table 5-16 Composition by Weight: Commercial in Autumn
(September – November 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	15,695	27.3%			Organics	17,589	30.6%		
Newspaper	1,844	3.2%	2.6%	3.9%	Pallets	1,116	1.9%	0.9%	3.0%
OCC/Kraft, unwaxed	2,980	5.2%	4.0%	6.3%	Crates/Boxes	54	0.1%	0.0%	0.2%
OCC/Kraft, waxed	647	1.1%	0.7%	1.6%	Leaves and Grass	1,587	2.8%	1.3%	4.2%
Office Paper	2,392	4.2%	2.9%	5.5%	Prunings	310	0.5%	0.0%	1.0%
Computer Paper	213	0.4%	0.2%	0.6%	Food	14,522	25.3%	21.4%	29.1%
Mixed Low Grade	2,534	4.4%	3.7%	5.1%	Other Materials	5,899	10.3%		
Phone Books	95	0.2%	0.0%	0.4%	Textiles/Clothing	2,155	3.7%	1.7%	5.8%
Milk/Juice Polycoats	126	0.2%	0.1%	0.3%	Carpet/Upholstery	816	1.4%	0.4%	2.5%
Frozen Food Polycoats	39	0.1%	0.0%	0.1%	Leather	43	0.1%	0.0%	0.2%
Compostable/Soiled	3,573	6.2%	4.9%	7.5%	Disposable Diapers	194	0.3%	0.1%	0.6%
Paper/Other Materials	1,082	1.9%	1.3%	2.5%	Animal By-Products	77	0.1%	0.0%	0.3%
Other Paper	170	0.3%	0.0%	0.6%	Rubber Products	211	0.4%	0.2%	0.6%
Plastic	5,377	9.4%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	78	0.1%	0.1%	0.2%	Ash	25	0.0%	0.0%	0.1%
Other PET Bottles	122	0.2%	0.2%	0.3%	Furniture	485	0.8%	0.1%	1.5%
HDPE Milk and Juice	85	0.1%	0.1%	0.2%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	109	0.2%	0.1%	0.2%	Small Appliances	333	0.6%	0.1%	1.0%
Other Plastic Bottles	27	0.0%	0.0%	0.1%	A/V Equipment	172	0.3%	0.0%	0.6%
Jars and Tubs	166	0.3%	0.1%	0.4%	Monitors and TVs	98	0.2%	0.0%	0.4%
Expanded Polystyrene	340	0.6%	0.4%	0.8%	Other Computer Components	360	0.6%	0.0%	1.2%
Other Rigid Packaging	356	0.6%	0.4%	0.8%	Ceramics/Porcelain	57	0.1%	0.0%	0.2%
Grocery/Bread Bags	73	0.1%	0.1%	0.2%	Non-distinct Fines	111	0.2%	0.1%	0.3%
Garbage Bags	823	1.4%	1.1%	1.7%	Misc. Organics	582	1.0%	0.0%	2.2%
Other Film	1,210	2.1%	1.7%	2.5%	Misc. Inorganics	181	0.3%	0.1%	0.5%
Plastic Products	1,225	2.1%	0.6%	3.7%	CDL Wastes	4,238	7.4%		
Plastic/Other Materials	763	1.3%	0.6%	2.1%	Dimension Lumber	647	1.1%	0.7%	1.6%
Glass	2,060	3.6%			Other Untreated Wood	111	0.2%	0.0%	0.3%
Clear Beverage	542	0.9%	0.7%	1.2%	Treated Wood	456	0.8%	0.2%	1.4%
Green Beverage	276	0.5%	0.3%	0.7%	Contaminated Wood	672	1.2%	0.6%	1.7%
Brown Beverage	186	0.3%	0.2%	0.4%	New Gypsum Scrap	0	0.0%	0.0%	0.0%
Container Glass	436	0.8%	0.0%	1.7%	Demo Gypsum Scrap	480	0.8%	0.1%	1.6%
Fluorescent Tubes	5	0.0%	0.0%	0.0%	Fiberglass Insulation	63	0.1%	0.0%	0.2%
Other Glass	616	1.1%	0.0%	2.1%	Rock/Concrete/Brick	1,224	2.1%	0.2%	4.0%
Metal	5,018	8.7%			Asphaltic Roofing	266	0.5%	0.0%	1.1%
Aluminum Cans	226	0.4%	0.2%	0.6%	Other Construction Debris	94	0.2%	0.0%	0.3%
Alum. Foil/Containers	37	0.1%	0.0%	0.1%	Sand/Soil/Dirt	224	0.4%	0.0%	0.7%
Other Aluminum	22	0.0%	0.0%	0.1%	Hazardous	1,592	2.8%		
Other Nonferrous	15	0.0%	0.0%	0.1%	Latex Paints	0	0.0%	0.0%	0.0%
Tin Food Cans	230	0.4%	0.3%	0.5%	Hazardous Adhesives/Glues	13	0.0%	0.0%	0.1%
Empty Aerosol Cans	39	0.1%	0.0%	0.1%	NonHazardous Adhesives/Glues	252	0.4%	0.0%	1.2%
Other Ferrous	2,275	4.0%	2.5%	5.5%	Oil-based Paints/Solvents	2	0.0%	0.0%	0.0%
Mixed Metals/Materials	2,092	3.6%	2.2%	5.1%	Cleaners	3	0.0%	0.0%	0.0%
Motor Oil Filters	81	0.1%	0.0%	0.3%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	28	0.0%	0.0%	0.1%
					Wet-Cell Batteries	59	0.1%	0.0%	0.3%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	57,467				Other Hazardous Chemicals	1,234	2.1%	0.2%	4.1%
Sample Count	98				Other NonHazardous Chemicals	0	0.0%	0.0%	0.0%

**Table 5-17 Composition by Weight: Commercial in Winter
(January, February, and December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	13,976	25.9%			Organics	14,102	26.2%		
Newspaper	1,702	3.2%	2.0%	4.3%	Pallets	1,547	2.9%	1.4%	4.3%
OCC/Kraft, unwaxed	3,373	6.3%	4.8%	7.7%	Crates/Boxes	126	0.2%	0.0%	0.4%
OCC/Kraft, waxed	302	0.6%	0.1%	1.0%	Leaves and Grass	935	1.7%	0.9%	2.6%
Office Paper	1,305	2.4%	1.2%	3.7%	Prunings	127	0.2%	0.0%	0.5%
Computer Paper	99	0.2%	0.1%	0.3%	Food	11,367	21.1%	16.7%	25.4%
Mixed Low Grade	2,330	4.3%	3.5%	5.2%	Other Materials	4,501	8.3%		
Phone Books	31	0.1%	0.0%	0.1%	Textiles/Clothing	533	1.0%	0.6%	1.4%
Milk/Juice Polycoats	268	0.5%	0.1%	0.9%	Carpet/Upholstery	653	1.2%	0.1%	2.3%
Frozen Food Polycoats	20	0.0%	0.0%	0.1%	Leather	30	0.1%	0.0%	0.1%
Compostable/Soiled	2,625	4.9%	3.7%	6.1%	Disposable Diapers	149	0.3%	0.1%	0.5%
Paper/Other Materials	1,235	2.3%	1.6%	3.0%	Animal By-Products	35	0.1%	0.0%	0.2%
Other Paper	686	1.3%	0.0%	2.6%	Rubber Products	424	0.8%	0.3%	1.3%
Plastic	6,264	11.6%			Tires	0	0.0%	0.0%	0.0%
PET Pop and Liquor	59	0.1%	0.1%	0.1%	Ash	26	0.0%	0.0%	0.1%
Other PET Bottles	66	0.1%	0.1%	0.2%	Furniture	499	0.9%	0.2%	1.7%
HDPE Milk and Juice	199	0.4%	0.1%	0.6%	Mattresses	0	0.0%	0.0%	0.0%
Other HDPE Bottles	153	0.3%	0.2%	0.4%	Small Appliances	199	0.4%	0.0%	0.8%
Other Plastic Bottles	35	0.1%	0.0%	0.1%	A/V Equipment	192	0.4%	0.0%	0.9%
Jars and Tubs	244	0.5%	0.3%	0.6%	Monitors and TVs	0	0.0%	0.0%	0.0%
Expanded Polystyrene	296	0.5%	0.3%	0.8%	Other Computer Components	176	0.3%	0.0%	0.8%
Other Rigid Packaging	280	0.5%	0.3%	0.7%	Ceramics/Porcelain	87	0.2%	0.0%	0.3%
Grocery/Bread Bags	70	0.1%	0.1%	0.2%	Non-distinct Fines	107	0.2%	0.1%	0.3%
Garbage Bags	762	1.4%	1.1%	1.7%	Misc. Organics	809	1.5%	0.5%	2.5%
Other Film	1,584	2.9%	2.3%	3.6%	Misc. Inorganics	581	1.1%	0.0%	2.3%
Plastic Products	1,708	3.2%	1.2%	5.1%	CDL Wastes	7,858	14.6%		
Plastic/Other Materials	808	1.5%	0.8%	2.2%	Dimension Lumber	2,327	4.3%	1.9%	6.8%
Glass	1,762	3.3%			Other Untreated Wood	65	0.1%	0.0%	0.2%
Clear Beverage	693	1.3%	0.7%	1.8%	Treated Wood	1,255	2.3%	0.4%	4.2%
Green Beverage	229	0.4%	0.2%	0.6%	Contaminated Wood	500	0.9%	0.0%	1.9%
Brown Beverage	196	0.4%	0.2%	0.6%	New Gypsum Scrap	118	0.2%	0.0%	0.6%
Container Glass	30	0.1%	0.0%	0.1%	Demo Gypsum Scrap	876	1.6%	0.0%	3.2%
Fluorescent Tubes	48	0.1%	0.0%	0.2%	Fiberglass Insulation	313	0.6%	0.0%	1.5%
Other Glass	566	1.0%	0.0%	2.6%	Rock/Concrete/Brick	1,247	2.3%	0.2%	4.4%
Metal	4,699	8.7%			Asphaltic Roofing	51	0.1%	0.0%	0.2%
Aluminum Cans	170	0.3%	0.2%	0.4%	Other Construction Debris	449	0.8%	0.2%	1.4%
Alum. Foil/Containers	64	0.1%	0.1%	0.2%	Sand/Soil/Dirt	658	1.2%	0.0%	2.5%
Other Aluminum	29	0.1%	0.0%	0.1%	Hazardous	753	1.4%		
Other Nonferrous	170	0.3%	0.0%	0.7%	Latex Paints	45	0.1%	0.0%	0.2%
Tin Food Cans	327	0.6%	0.3%	0.9%	Hazardous Adhesives/Glues	17	0.0%	0.0%	0.1%
Empty Aerosol Cans	210	0.4%	0.0%	0.9%	NonHazardous Adhesives/Glues	28	0.1%	0.0%	0.1%
Other Ferrous	2,155	4.0%	2.6%	5.4%	Oil-based Paints/Solvents	11	0.0%	0.0%	0.1%
Mixed Metals/Materials	1,517	2.8%	1.4%	4.3%	Cleaners	4	0.0%	0.0%	0.0%
Motor Oil Filters	58	0.1%	0.0%	0.2%	Pesticides/Herbicides	0	0.0%	0.0%	0.0%
					Dry-Cell Batteries	8	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	12	0.0%	0.0%	0.1%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
					Other Hazardous Chemicals	592	1.1%	0.2%	2.0%
Total Tons	53,916				Other NonHazardous Chemicals	36	0.1%	0.0%	0.2%
Sample Count	89								

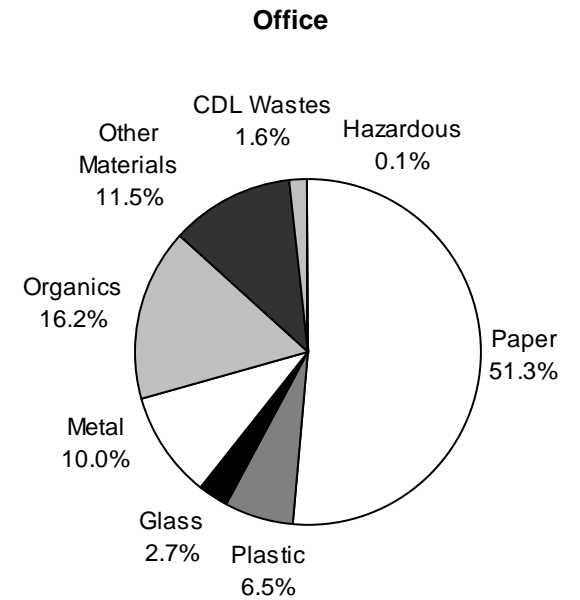
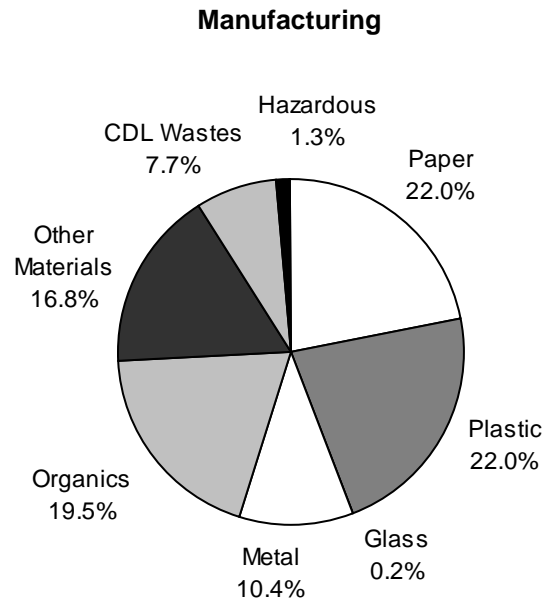
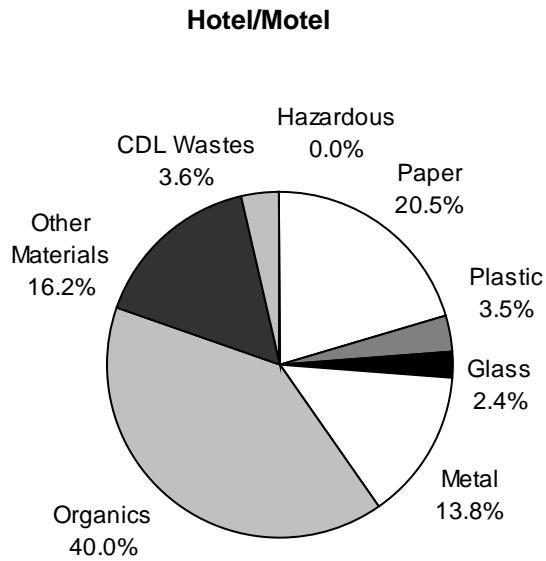
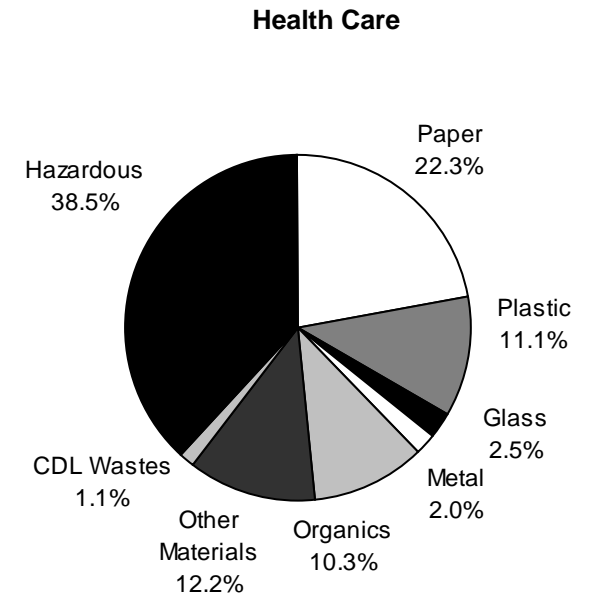
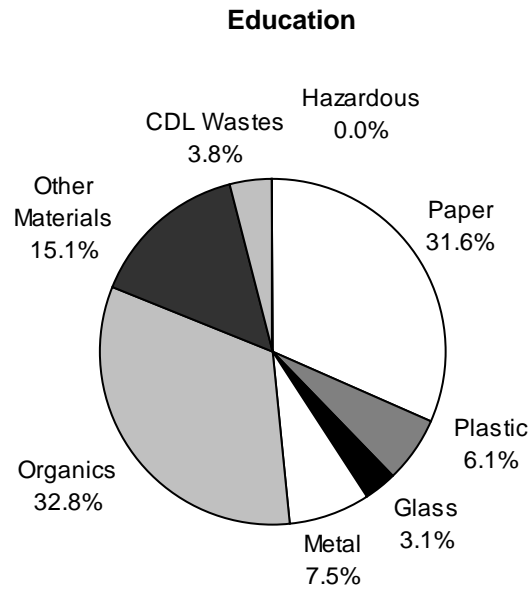
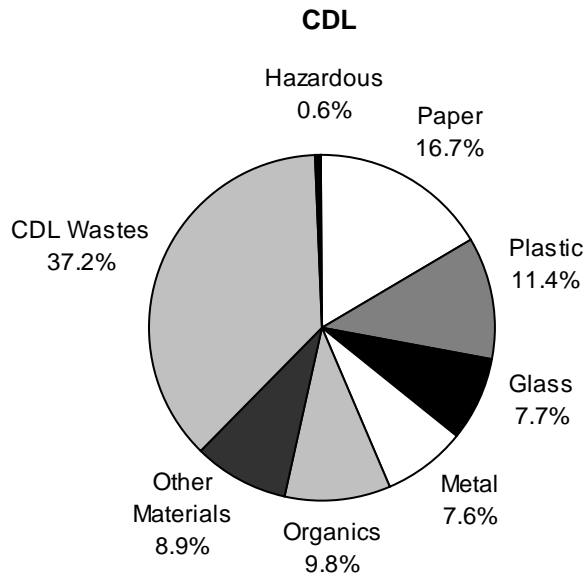
5.3 Composition by Generator Type

As discussed at the beginning of this section, drivers were asked to identify from which type of business they had collected the sample load.¹⁴ Since commercial garbage trucks often haul waste from a variety of different business types, most samples are of the *mixed generator type*. The remaining generator-specific analyses are based on a very small number of samples and are thus subject to a relatively wide margin of error. These results provide rough estimates only.

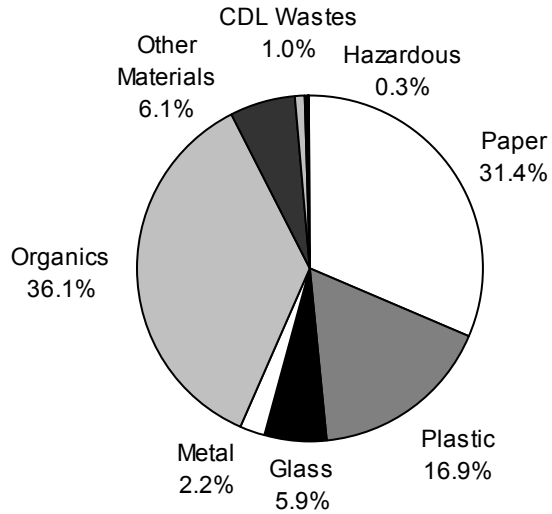
Figure 5-3 depicts the composition, by weight, of the waste disposed by 13 commercial generator types. Although each generator's waste is unique, *paper* accounts for at least 20% of each subpopulation's waste, with the exception of the *education* generator type.

¹⁴ These generator types are defined by Standard Industry Codes (SIC) in Appendix B.

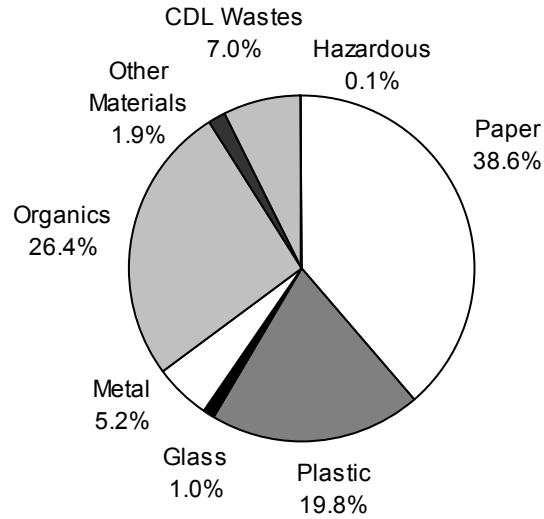
**Figure 5-3 Commercial Composition Summary: by Generator Type
(January – December 2000)**



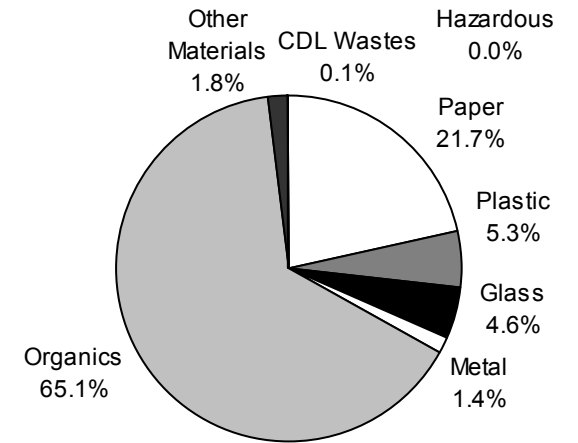
Other Non-Residential



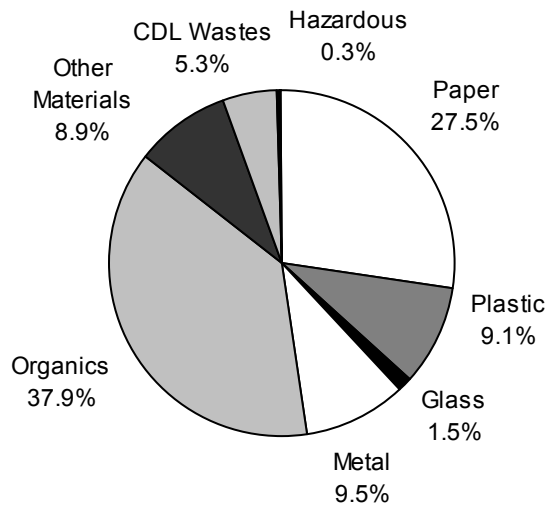
Other Services



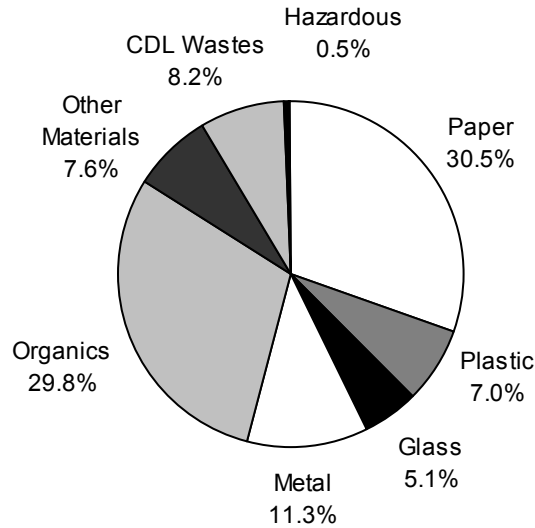
Restaurant



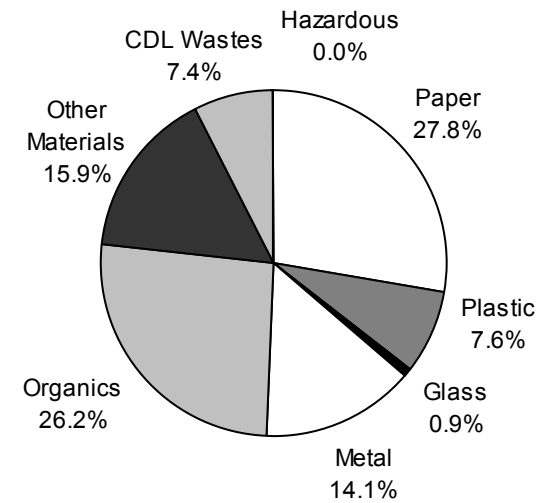
Retail



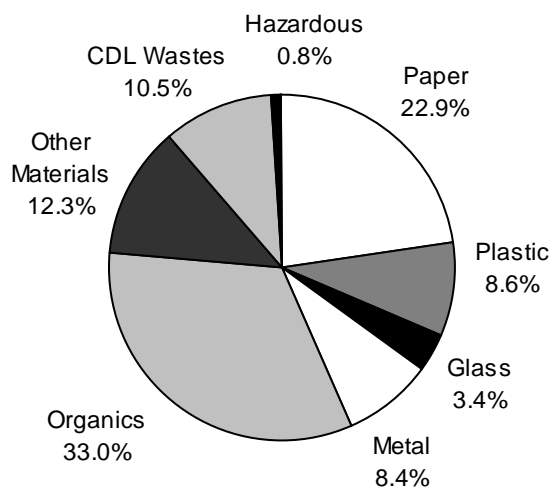
Transportation



Wholesale



Mixed Generator Types



5.3.1 Construction, Demolition & Landclearing

A total of 20 *CDL* loads were sampled. As shown in Table 5-18, the top ten components accounted for a combined total of 64.1% of the tonnage. Table 5-31 shows the detailed composition results for the samples taken from *CDL* generators.

Table 5-18 Top Ten Components: Construction, Demolition & Landclearing (January – December 2000)

Component	Mean	Cum. %
Dimension Lumber	12.4%	12.4%
Unwaxed OCC/Kraft Paper	8.1%	20.5%
Other Glass	7.5%	28.0%
Plastic Products	6.9%	34.9%
Rock/Concrete/Brick	6.7%	41.6%
Treated Wood	5.1%	46.7%
Demo Gypsum Scrap	4.7%	51.4%
Pallets	4.6%	56.0%
Other Ferrous Metal	4.2%	60.2%
Carpet/Upholstery	3.9%	64.1%
Total	64.1%	

5.3.2 Education

A total of 10 loads from educational institutions were sampled. As shown in Table 5-19, the top ten components accounted for a combined total of 74.3% of the tonnage. Table 5-32 shows the detailed composition results for the samples taken from educational institutions.

**Table 5-19 Top Ten Components: Education
(January – December 2000)**

Component	Mean	Cum. %
Food	21.7%	21.7%
Mixed Low Grade Paper	12.2%	33.9%
Compostable/Soiled Paper	7.6%	41.5%
Furniture	6.7%	48.1%
Leaves and Grass	6.0%	54.1%
Other Computer Components	5.7%	59.7%
Pallets	5.1%	64.8%
Mixed Metals/Materials	3.9%	68.7%
Office Paper	2.9%	71.6%
Newspaper	2.7%	74.3%
Total	74.3%	

5.3.3 Health Care

A total of 11 loads from health care facilities were sampled. As shown in Table 5-20, the top ten components accounted for a combined total of 80.4% of the tonnage. Table 5-33 shows the detailed composition results for the samples taken from health care facilities.

**Table 5-20 Top Ten Components: Health Care
(January – December 2000)**

Component	Mean	Cum. %
Other Hazardous Chemicals	34.2%	34.2%
Food	9.4%	43.6%
Compostable/Soiled Paper	7.9%	51.5%
Misc. Organics	7.5%	59.1%
Unwaxed OCC/Kraft Paper	5.5%	64.6%
NonHazardous Adhesives/Glues	4.2%	68.8%
Mixed Low Grade Paper	3.9%	72.7%
Plastic/Other Materials	3.2%	75.9%
Office Paper	2.4%	78.3%
Other Plastic Film	2.1%	80.4%
Total	80.4%	

5.3.4 Hotel/Motel

A total of 5 loads were sampled from *hotel/motel* generators. As shown in Table 5-21, the top ten components accounted for a combined total of 84.4% of the tonnage. Table 5-34 shows the detailed composition results for the samples taken from *hotel/motel* generators.

**Table 5-21 Top Ten Components: Hotel/Motel
(January – December 2000)**

Component	Mean	Cum. %
Food	39.5%	39.5%
Carpet/Upholstery	12.4%	51.9%
Mixed Metals/Materials	10.8%	62.7%
Newspaper	5.4%	68.2%
Unwaxed OCC/Kraft Paper	3.1%	71.2%
Waxed OCC/Kraft Paper	2.9%	74.1%
Office Paper	2.7%	76.8%
Other Ferrous Metal	2.7%	79.5%
Compostable/Soiled Paper	2.6%	82.1%
Mixed Low Grade Paper	2.3%	84.4%
Total	84.4%	

5.3.5 Manufacturing

A total of 26 loads from manufacturing businesses were sampled. As shown in Table 5-22, the top ten components accounted for a combined total of 62.8% of the tonnage. Table 5-35 shows the detailed composition results for the samples taken from manufacturing businesses.

**Table 5-22 Top Ten Components: Manufacturing
(January – December 2000)**

Component	Mean	Cum. %
Other Plastic Film	11.9%	11.9%
Food	11.1%	23.0%
Unwaxed OCC/Kraft Paper	8.1%	31.1%
Other Ferrous Metal	6.3%	37.4%
Pallets	6.0%	43.4%
Textiles/Clothing	5.9%	49.3%
Carpet/Upholstery	3.7%	53.0%
Paper/Other Materials	3.4%	56.3%
Plastic Products	3.3%	59.6%
Plastic/Other Materials	3.2%	62.8%
Total	62.8%	

5.3.6 Office

A total of 11 samples were taken from *office* waste loads. As shown in Table 5-23, the top ten components accounted for a combined total of 79.2% of the tonnage. Table 5-36 shows the detailed composition results for the samples taken from *office* waste loads.

**Table 5-23 Top Ten Components: Office
(January – December 2000)**

Component	Mean	Cum. %
Office Paper	16.3%	16.3%
Food	12.9%	29.2%
Compostable/Soiled Paper	12.8%	41.9%
Mixed Low Grade Paper	11.2%	53.2%
Other Ferrous Metal	7.1%	60.2%
Other Computer Components	5.1%	65.3%
Newspaper	4.8%	70.1%
Monitors and TVs	3.8%	73.9%
Unwaxed OCC/Kraft Paper	3.0%	76.9%
Leaves and Grass	2.2%	79.2%
Total	79.2%	

5.3.7 Other Non-Residential

A total of 5 samples were taken from *other non-residential* loads. As shown in Table 5-24, the top ten components accounted for a combined total of 81.8% of the tonnage. Table 5-37 shows the detailed composition results for the samples taken from *other non-residential* loads.

**Table 5-24 Top Ten Components: Other Non-Residential
(January – December 2000)**

Component	Mean	Cum. %
Food	33.3%	33.3%
Compostable/Soiled Paper	12.5%	45.8%
Plastic/Other Materials	6.2%	52.0%
Clear Glass Beverage	5.5%	57.6%
Mixed Low Grade Paper	5.4%	63.0%
Unwaxed OCC/Kraft Paper	4.1%	67.1%
Other Plastic Film	4.0%	71.1%
Furniture	3.8%	75.0%
Newspaper	3.6%	78.6%
Office Paper	3.2%	81.8%
Total	81.8%	

5.3.8 Other Services

A total of 12 samples were taken from *other services* loads. As shown in Table 5-25, the top ten components accounted for a combined total of 81.6% of the tonnage. Table 5-38 shows the detailed composition results for the samples taken from *other services* loads.

**Table 5-25 Top Ten Components: Other Services
(January – December 2000)**

Component	Mean	Cum. %
Food	23.4%	23.4%
Other Plastic Film	12.4%	35.8%
Compostable/Soiled Paper	9.3%	45.0%
Unwaxed OCC/Kraft Paper	9.0%	54.1%
Newspaper	7.2%	61.3%
Mixed Low Grade Paper	5.9%	67.1%
Other Paper	4.8%	71.9%
Demo Gypsum Scrap	4.3%	76.2%
Plastic/Other Materials	3.0%	79.1%
Other Ferrous Metal	2.4%	81.6%
Total	81.6%	

5.3.9 Restaurant

A total of 6 samples were taken from restaurants. As shown in Table 5-26, the top ten components accounted for a combined total of 91.8% of the tonnage. Table 5-39 shows the detailed composition results for the samples taken from restaurants.

**Table 5-26 Top Ten Components: Restaurant
(January – December 2000)**

Component	Mean	Cum. %
Food	64.4%	64.4%
Unwaxed OCC/Kraft Paper	7.6%	72.1%
Compostable/Soiled Paper	5.3%	77.4%
Mixed Low Grade Paper	3.3%	80.6%
Waxed OCC/Kraft Paper	2.9%	83.5%
Clear Glass Beverage	2.4%	85.9%
Other Plastic Film	2.1%	88.0%
Garbage Bags	1.5%	89.4%
Office Paper	1.2%	90.6%
Green Glass Beverage	1.1%	91.8%
Total	91.8%	

5.3.10 Retail

A total of 32 samples were taken from retail business loads. As shown in Table 5-27, the top ten components accounted for a combined total of 71.3% of the tonnage. Table 5-40 shows the detailed composition results for the samples taken from retail business loads.

**Table 5-27 Top Ten Components: Retail
(January – December 2000)**

Component	Mean	Cum. %
Food	28.1%	28.1%
Pallets	8.0%	36.1%
Unwaxed OCC/Kraft Paper	7.3%	43.4%
Mixed Low Grade Paper	5.5%	48.9%
Other Ferrous Metal	4.9%	53.8%
Compostable/Soiled Paper	4.1%	57.8%
Mixed Metals/Materials	3.7%	61.6%
Waxed OCC/Kraft Paper	3.5%	65.1%
Other Plastic Film	3.1%	68.2%
Newspaper	3.1%	71.3%
Total	71.3%	

5.3.11 Transportation

A total of 4 samples were taken from the transportation industry. As shown in Table 5-28, the top ten components accounted for a combined total of 73.0% of the tonnage. Table 5-41 shows the detailed composition results for the samples taken from the transportation industry.

**Table 5-28 Top Ten Components: Transportation
(January – December 2000)**

Component	Mean	Cum. %
Pallets	11.0%	11.0%
Unwaxed OCC/Kraft Paper	10.9%	21.9%
Mixed Metals/Materials	10.0%	31.9%
Leaves and Grass	9.3%	41.2%
Compostable/Soiled Paper	7.8%	49.0%
Food	7.0%	56.1%
Newspaper	6.4%	62.5%
Clear Glass Beverage	3.6%	66.1%
Carpet/Upholstery	3.5%	69.6%
Contaminated Wood	3.4%	73.0%
Total	73.0%	

5.3.12 Wholesale

A total of 9 samples were taken from wholesale establishments. As shown in Table 5-29, the top ten components accounted for a combined total of 80.2% of the tonnage. Table 5-42 shows the detailed composition results for the samples taken from wholesale establishments.

**Table 5-29 Top Ten Components: Wholesale
(January – December 2000)**

Component	Mean	Cum. %
Food	18.4%	18.4%
Unwaxed OCC/Kraft Paper	14.1%	32.6%
Other Ferrous Metal	11.6%	44.2%
Pallets	7.7%	51.9%
Textiles/Clothing	7.1%	59.0%
Carpet/Upholstery	6.9%	66.0%
Contaminated Wood	4.8%	70.8%
Other Plastic Film	3.7%	74.5%
Office Paper	3.2%	77.7%
Newspaper	2.5%	80.2%
Total	80.2%	

5.3.13 Mixed Commercial Generators

A total of 139 samples were taken from *mixed commercial generator* loads. As shown in Table 5-30, the top ten components accounted for a combined total of 60.2% of the tonnage. Table 5-43 shows the detailed composition results for the samples taken from *mixed commercial generator* loads.

**Table 5-30 Top Ten Components: Mixed Commercial Generators
(January – December 2000)**

Component	Mean	Cum. %
Food	27.7%	27.7%
Mixed Low Grade Paper	4.9%	32.6%
Compostable/Soiled Paper	4.4%	37.1%
Unwaxed OCC/Kraft Paper	4.0%	41.1%
Mixed Metals/Materials	3.6%	44.7%
Newspaper	3.4%	48.1%
Carpet/Upholstery	3.2%	51.3%
Other Ferrous Metal	3.2%	54.4%
Dimension Lumber	2.9%	57.4%
Textiles/Clothing	2.8%	60.2%
Total	60.2%	

5.3.14 Comparisons between Generator Types

Food was a large waste component disposed by all 13 generator types. *Unwaxed OCC/Kraft paper* was a large component of waste from eight generator types. On the other hand, components such as *clear beverage glass* for *other non-residential* generators, and *plastic products* for *CDL* generators were large components only for a single generator group.

**Table 5-31 Composition by Weight: Construction, Demolition & Landclearing
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	16.7%			Organics	9.8%		
Newspaper	1.4%	0.2%	2.6%	Pallets	4.6%	1.0%	8.3%
OCC/Kraft, unwaxed	8.1%	2.4%	13.8%	Crates/Boxes	0.8%	0.0%	2.1%
OCC/Kraft, waxed	0.0%	0.0%	0.1%	Leaves and Grass	1.6%	0.0%	3.1%
Office Paper	3.7%	0.0%	9.4%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.0%	0.0%	0.0%	Food	2.8%	0.8%	4.8%
Mixed Low Grade	1.1%	0.2%	2.0%	Other Materials	8.9%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.8%	0.0%	1.9%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	3.9%	0.0%	9.8%
Frozen Food Polycoats	0.0%	0.0%	0.1%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	1.2%	0.4%	1.9%	Disposable Diapers	0.0%	0.0%	0.1%
Paper/Other Materials	1.1%	0.4%	1.9%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.4%	0.0%	0.8%
Plastic	11.4%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.1%	0.0%	0.1%	Furniture	0.0%	0.0%	0.0%
HDPE Milk and Juice	0.1%	0.0%	0.1%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.1%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.1%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.1%	0.0%	0.2%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.3%	0.0%	0.5%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.2%	0.0%	0.4%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.0%	0.0%	0.0%	Non-distinct Fines	0.3%	0.0%	0.7%
Garbage Bags	0.4%	0.1%	0.6%	Misc. Organics	1.9%	0.0%	4.6%
Other Film	2.7%	0.6%	4.9%	Misc. Inorganics	1.5%	0.0%	3.7%
Plastic Products	6.9%	0.0%	15.0%	CDL Wastes	37.2%		
Plastic/Other Materials	0.6%	0.2%	1.0%	Dimension Lumber	12.4%	4.3%	20.5%
Glass	7.7%			Other Untreated Wood	0.9%	0.0%	2.2%
Clear Beverage	0.1%	0.0%	0.2%	Treated Wood	5.1%	0.0%	12.9%
Green Beverage	0.1%	0.0%	0.1%	Contaminated Wood	3.1%	0.0%	7.1%
Brown Beverage	0.0%	0.0%	0.0%	New Gypsum Scrap	2.0%	0.0%	5.4%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	4.7%	0.0%	9.8%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.2%	0.0%	0.3%
Other Glass	7.5%	0.0%	15.8%	Rock/Concrete/Brick	6.7%	1.1%	12.2%
Metal	7.6%			Asphaltic Roofing	0.4%	0.0%	0.9%
Aluminum Cans	0.5%	0.0%	1.3%	Other Construction Debris	0.3%	0.0%	0.9%
Alum. Foil/Containers	0.0%	0.0%	0.1%	Sand/Soil/Dirt	1.4%	0.0%	3.8%
Other Aluminum	0.1%	0.0%	0.2%	Hazardous	0.6%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.1%	0.0%	0.2%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.6%	0.0%	1.3%
Other Ferrous	4.2%	1.9%	6.4%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	2.7%	0.0%	5.8%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%

**Table 5-32 Composition by Weight: Education
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	31.6%			Organics	32.8%		
Newspaper	2.7%	0.6%	4.7%	Pallets	5.1%	0.3%	9.8%
OCC/Kraft, unwaxed	2.7%	1.1%	4.2%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.2%	0.0%	0.5%	Leaves and Grass	6.0%	0.0%	12.7%
Office Paper	2.9%	0.7%	5.2%	Prunings	0.0%	0.0%	0.1%
Computer Paper	0.1%	0.0%	0.3%	Food	21.7%	9.6%	33.8%
Mixed Low Grade	12.2%	0.0%	26.3%	Other Materials	15.1%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.8%	0.0%	1.6%
Milk/Juice Polycoats	0.3%	0.0%	0.7%	Carpet/Upholstery	0.1%	0.0%	0.2%
Frozen Food Polycoats	0.0%	0.0%	0.1%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	7.6%	2.5%	12.7%	Disposable Diapers	1.0%	0.1%	1.8%
Paper/Other Materials	1.2%	0.0%	2.4%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	1.6%	0.0%	4.3%	Rubber Products	0.0%	0.0%	0.1%
Plastic	6.1%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.2%	0.1%	0.3%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.2%	0.0%	0.4%	Furniture	6.7%	1.0%	12.4%
HDPE Milk and Juice	0.4%	0.1%	0.6%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.1%	Small Appliances	0.3%	0.0%	0.9%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.1%	0.0%	0.2%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.3%	0.0%	0.5%	Other Computer Components	5.7%	0.0%	14.0%
Other Rigid Packaging	0.3%	0.1%	0.5%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.2%	0.1%	0.3%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	1.5%	0.5%	2.5%	Misc. Organics	0.0%	0.0%	0.1%
Other Film	0.9%	0.4%	1.4%	Misc. Inorganics	0.5%	0.0%	1.4%
Plastic Products	0.9%	0.2%	1.7%	CDL Wastes	3.8%		
Plastic/Other Materials	1.1%	0.0%	2.3%	Dimension Lumber	1.4%	0.0%	3.3%
Glass	3.1%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	1.3%	0.4%	2.3%	Treated Wood	1.0%	0.0%	2.5%
Green Beverage	0.5%	0.0%	1.1%	Contaminated Wood	0.6%	0.0%	1.6%
Brown Beverage	0.2%	0.0%	0.5%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.1%	0.0%	0.2%	Demo Gypsum Scrap	0.1%	0.0%	0.1%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.9%	0.0%	2.1%	Rock/Concrete/Brick	0.7%	0.0%	1.9%
Metal	7.5%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.2%	0.1%	0.3%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.1%	0.0%	0.3%	Sand/Soil/Dirt	0.1%	0.0%	0.2%
Other Aluminum	0.1%	0.0%	0.4%	Hazardous	0.0%		
Other Nonferrous	0.2%	0.0%	0.5%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.4%	0.0%	0.8%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	2.5%	0.0%	5.9%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	3.9%	1.3%	6.5%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	10						

**Table 5-33 Composition by Weight: Health Care
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	22.3%			Organics	10.3%		
Newspaper	1.2%	0.4%	1.9%	Pallets	0.3%	0.0%	0.8%
OCC/Kraft, unwaxed	5.5%	3.4%	7.6%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.2%	0.0%	0.4%	Leaves and Grass	0.6%	0.0%	1.5%
Office Paper	2.4%	1.1%	3.8%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.0%	0.0%	0.0%	Food	9.4%	4.7%	14.1%
Mixed Low Grade	3.9%	1.8%	5.9%	Other Materials	12.2%		
Phone Books	0.2%	0.0%	0.5%	Textiles/Clothing	1.4%	0.4%	2.5%
Milk/Juice Polycoats	0.6%	0.1%	1.1%	Carpet/Upholstery	1.2%	0.0%	3.0%
Frozen Food Polycoats	0.0%	0.0%	0.1%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	7.9%	4.2%	11.7%	Disposable Diapers	0.1%	0.0%	0.3%
Paper/Other Materials	0.5%	0.2%	0.8%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.8%	0.3%	1.2%
Plastic	11.1%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.1%	0.0%	0.1%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.1%	0.0%	0.2%	Furniture	0.6%	0.0%	1.6%
HDPE Milk and Juice	0.3%	0.0%	0.6%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.3%	Small Appliances	0.1%	0.0%	0.4%
Other Plastic Bottles	0.3%	0.0%	0.6%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.3%	0.1%	0.5%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.9%	0.2%	1.6%	Other Computer Components	0.1%	0.0%	0.2%
Other Rigid Packaging	0.8%	0.3%	1.3%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.1%	0.0%	0.2%	Non-distinct Fines	0.3%	0.0%	0.6%
Garbage Bags	2.0%	1.2%	2.9%	Misc. Organics	7.5%	0.0%	18.4%
Other Film	2.1%	0.3%	3.9%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	0.8%	0.2%	1.5%	CDL Wastes	1.1%		
Plastic/Other Materials	3.2%	0.2%	6.3%	Dimension Lumber	0.0%	0.0%	0.1%
Glass	2.5%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	1.3%	0.6%	1.9%	Treated Wood	0.0%	0.0%	0.0%
Green Beverage	0.1%	0.0%	0.3%	Contaminated Wood	0.8%	0.0%	1.6%
Brown Beverage	0.0%	0.0%	0.1%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.1%	0.0%	0.2%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	1.0%	0.0%	2.1%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	2.0%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.2%	0.1%	0.3%	Other Construction Debris	0.3%	0.0%	0.8%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	38.5%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.4%	0.1%	0.8%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	4.2%	0.0%	10.9%
Other Ferrous	0.3%	0.0%	0.5%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	1.0%	0.0%	2.2%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	34.2%	18.0%	50.4%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	11						

**Table 5-34 Composition by Weight: Hotel/Motel
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	20.5%			Organics	40.0%		
Newspaper	5.4%	2.1%	8.7%	Pallets	0.5%	0.0%	1.3%
OCC/Kraft, unwaxed	3.1%	1.7%	4.5%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	2.9%	0.7%	5.0%	Leaves and Grass	0.0%	0.0%	0.0%
Office Paper	2.7%	0.7%	4.8%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.0%	0.0%	0.0%	Food	39.5%	18.2%	60.9%
Mixed Low Grade	2.3%	1.2%	3.4%	Other Materials	16.2%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.5%	0.3%	0.7%
Milk/Juice Polycoats	0.0%	0.0%	0.1%	Carpet/Upholstery	12.4%	0.0%	33.5%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	2.6%	0.0%	5.5%	Disposable Diapers	0.0%	0.0%	0.1%
Paper/Other Materials	1.5%	0.4%	2.6%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.7%	0.0%	1.5%
Plastic	3.5%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.2%	0.0%	0.4%	Furniture	0.0%	0.0%	0.0%
HDPE Milk and Juice	0.1%	0.0%	0.3%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.0%	0.0%	0.1%	Small Appliances	1.3%	0.0%	3.5%
Other Plastic Bottles	0.0%	0.0%	0.1%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.3%	0.0%	0.9%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.2%	0.0%	0.4%	Other Computer Components	0.4%	0.0%	1.2%
Other Rigid Packaging	0.1%	0.0%	0.2%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.0%	0.0%	0.1%	Non-distinct Fines	0.2%	0.0%	0.6%
Garbage Bags	0.4%	0.1%	0.7%	Misc. Organics	0.5%	0.0%	1.2%
Other Film	0.8%	0.1%	1.6%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	0.7%	0.0%	1.4%	CDL Wastes	3.6%		
Plastic/Other Materials	0.6%	0.0%	1.7%	Dimension Lumber	0.1%	0.0%	0.2%
Glass	2.4%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	0.3%	0.0%	0.7%	Treated Wood	1.9%	0.0%	5.3%
Green Beverage	0.3%	0.0%	0.6%	Contaminated Wood	1.6%	0.0%	4.4%
Brown Beverage	0.3%	0.0%	0.5%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.1%	0.0%	0.2%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	1.4%	0.0%	3.3%	Rock/Concrete/Brick	0.1%	0.0%	0.2%
Metal	13.8%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.2%	0.0%	0.4%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.0%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.1%	0.0%	0.2%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	2.7%	0.0%	6.5%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	10.8%	0.0%	27.7%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	5						

**Table 5-35 Composition by Weight: Manufacturing
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	22.0%			Organics	19.5%		
Newspaper	1.2%	0.1%	2.3%	Pallets	6.0%	1.4%	10.6%
OCC/Kraft, unwaxed	8.1%	5.1%	11.1%	Crates/Boxes	2.3%	0.0%	6.2%
OCC/Kraft, waxed	0.1%	0.0%	0.1%	Leaves and Grass	0.0%	0.0%	0.0%
Office Paper	2.2%	0.7%	3.7%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.3%	0.0%	0.6%	Food	11.1%	3.2%	19.0%
Mixed Low Grade	2.7%	0.0%	5.6%	Other Materials	16.8%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	5.9%	0.0%	12.4%
Milk/Juice Polycoats	1.2%	0.0%	2.6%	Carpet/Upholstery	3.7%	0.0%	8.7%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	2.5%	0.9%	4.1%	Disposable Diapers	0.0%	0.0%	0.0%
Paper/Other Materials	3.4%	1.6%	5.2%	Animal By-Products	0.2%	0.0%	0.6%
Other Paper	0.4%	0.0%	1.0%	Rubber Products	0.0%	0.0%	0.1%
Plastic	22.0%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	2.7%	0.0%	7.2%
Other PET Bottles	0.0%	0.0%	0.0%	Furniture	0.2%	0.0%	0.5%
HDPE Milk and Juice	0.9%	0.0%	2.0%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.2%	Small Appliances	1.0%	0.0%	2.7%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.6%	0.2%	1.0%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	1.3%	0.0%	3.1%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.3%	0.1%	0.6%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.0%	0.0%	0.1%	Non-distinct Fines	0.1%	0.0%	0.2%
Garbage Bags	0.4%	0.1%	0.6%	Misc. Organics	0.9%	0.0%	2.0%
Other Film	11.9%	4.6%	19.1%	Misc. Inorganics	2.1%	0.0%	5.5%
Plastic Products	3.3%	0.8%	5.7%	CDL Wastes	7.7%		
Plastic/Other Materials	3.2%	0.0%	6.6%	Dimension Lumber	1.1%	0.5%	1.8%
Glass	0.2%			Other Untreated Wood	0.2%	0.0%	0.6%
Clear Beverage	0.2%	0.0%	0.4%	Treated Wood	0.3%	0.0%	0.8%
Green Beverage	0.0%	0.0%	0.0%	Contaminated Wood	0.0%	0.0%	0.0%
Brown Beverage	0.0%	0.0%	0.1%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	2.2%	0.0%	5.9%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.0%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	10.4%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.0%	0.0%	0.1%	Other Construction Debris	3.1%	0.0%	7.5%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.7%	0.0%	1.4%
Other Aluminum	0.0%	0.0%	0.1%	Hazardous	1.3%		
Other Nonferrous	0.1%	0.0%	0.3%	Latex Paints	0.1%	0.0%	0.2%
Tin Food Cans	0.3%	0.0%	0.6%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	1.2%	0.0%	3.1%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	6.3%	1.9%	10.8%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	2.5%	0.0%	5.4%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	1.2%	0.0%	3.3%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%

Sample Count

26

**Table 5-36 Composition by Weight: Office
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	51.3%			Organics	16.2%		
Newspaper	4.8%	3.1%	6.5%	Pallets	1.1%	0.0%	2.9%
OCC/Kraft, unwaxed	3.0%	2.2%	3.7%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.6%	0.0%	1.5%	Leaves and Grass	2.2%	0.0%	4.6%
Office Paper	16.3%	5.4%	27.1%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.2%	0.0%	0.4%	Food	12.9%	7.7%	18.0%
Mixed Low Grade	11.2%	6.9%	15.6%	Other Materials	11.5%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.3%	0.1%	0.5%
Milk/Juice Polycoats	0.2%	0.1%	0.3%	Carpet/Upholstery	0.1%	0.0%	0.4%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.5%	0.0%	1.3%
Compostable/Soiled	12.8%	6.1%	19.4%	Disposable Diapers	0.0%	0.0%	0.1%
Paper/Other Materials	2.2%	0.3%	4.0%	Animal By-Products	0.6%	0.0%	1.4%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.1%	0.0%	0.1%
Plastic	6.5%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.2%	0.0%	0.3%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.2%	0.1%	0.3%	Furniture	0.0%	0.0%	0.0%
HDPE Milk and Juice	0.5%	0.1%	0.9%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.2%	Small Appliances	0.1%	0.0%	0.3%
Other Plastic Bottles	0.1%	0.0%	0.2%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.4%	0.0%	0.8%	Monitors and TVs	3.8%	0.0%	10.1%
Expanded Polystyrene	0.3%	0.1%	0.5%	Other Computer Components	5.1%	0.0%	13.1%
Other Rigid Packaging	0.8%	0.4%	1.3%	Ceramics/Porcelain	0.1%	0.0%	0.2%
Grocery/Bread Bags	0.2%	0.0%	0.4%	Non-distinct Fines	0.5%	0.0%	0.9%
Garbage Bags	1.4%	0.8%	1.9%	Misc. Organics	0.1%	0.0%	0.3%
Other Film	1.5%	0.8%	2.3%	Misc. Inorganics	0.2%	0.0%	0.4%
Plastic Products	0.3%	0.2%	0.5%	CDL Wastes	1.6%		
Plastic/Other Materials	0.5%	0.1%	0.8%	Dimension Lumber	0.2%	0.0%	0.4%
Glass	2.7%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	1.5%	0.6%	2.4%	Treated Wood	0.0%	0.0%	0.0%
Green Beverage	0.8%	0.0%	2.2%	Contaminated Wood	0.6%	0.0%	1.6%
Brown Beverage	0.1%	0.0%	0.2%	New Gypsum Scrap	0.8%	0.0%	2.2%
Container Glass	0.2%	0.0%	0.4%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.1%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	10.0%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.7%	0.1%	1.4%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.1%	0.0%	0.1%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.1%		
Other Nonferrous	0.1%	0.0%	0.3%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.2%	0.1%	0.3%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.1%	0.0%	0.2%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	7.1%	0.0%	14.2%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	1.8%	0.3%	3.4%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	11			Other NonHazardous Chemicals	0.1%	0.0%	0.2%

**Table 5-37 Composition by Weight: Other Non-Residential
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	31.4%			Organics	36.1%		
Newspaper	3.6%	1.4%	5.9%	Pallets	0.0%	0.0%	0.1%
OCC/Kraft, unwaxed	4.1%	2.4%	5.8%	Crates/Boxes	0.6%	0.0%	1.5%
OCC/Kraft, waxed	1.2%	0.0%	2.9%	Leaves and Grass	2.2%	0.0%	4.4%
Office Paper	3.2%	0.8%	5.6%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.1%	0.0%	0.3%	Food	33.3%	21.5%	45.1%
Mixed Low Grade	5.4%	2.5%	8.4%	Other Materials	6.1%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.5%	0.0%	1.0%
Milk/Juice Polycoats	0.1%	0.0%	0.2%	Carpet/Upholstery	0.1%	0.0%	0.2%
Frozen Food Polycoats	0.2%	0.1%	0.4%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	12.5%	6.1%	18.9%	Disposable Diapers	0.1%	0.0%	0.2%
Paper/Other Materials	0.9%	0.3%	1.6%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.0%	0.0%	0.0%
Plastic	16.9%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.2%	0.1%	0.3%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.1%	0.0%	0.2%	Furniture	3.8%	0.0%	10.4%
HDPE Milk and Juice	0.3%	0.1%	0.4%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.2%	0.0%	0.3%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.3%	0.0%	0.9%
Jars and Tubs	0.5%	0.1%	1.0%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.3%	0.1%	0.5%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.7%	0.3%	1.1%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.2%	0.1%	0.2%	Non-distinct Fines	0.8%	0.0%	2.1%
Garbage Bags	2.8%	1.6%	4.1%	Misc. Organics	0.4%	0.0%	1.1%
Other Film	4.0%	1.8%	6.2%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	1.3%	0.6%	2.1%	CDL Wastes	1.0%		
Plastic/Other Materials	6.2%	0.0%	13.7%	Dimension Lumber	1.0%	0.0%	2.6%
Glass	5.9%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	5.5%	0.0%	12.4%	Treated Wood	0.0%	0.0%	0.0%
Green Beverage	0.3%	0.0%	0.7%	Contaminated Wood	0.0%	0.0%	0.0%
Brown Beverage	0.1%	0.0%	0.2%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.0%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	2.2%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.5%	0.2%	0.9%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.3%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.5%	0.1%	0.9%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.1%	0.0%	0.2%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	0.0%	0.0%	0.1%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	1.0%	0.0%	2.6%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.1%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	5			Other NonHazardous Chemicals	0.2%	0.0%	0.6%

**Table 5-38 Composition by Weight: Other Services
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	38.6%			Organics	26.4%		
Newspaper	7.2%	0.0%	15.7%	Pallets	1.6%	0.0%	4.1%
OCC/Kraft, unwaxed	9.0%	1.4%	16.7%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.1%	0.0%	0.2%	Leaves and Grass	1.1%	0.0%	2.9%
Office Paper	1.2%	0.5%	1.8%	Prunings	0.3%	0.0%	0.8%
Computer Paper	0.5%	0.0%	1.1%	Food	23.4%	5.2%	41.6%
Mixed Low Grade	5.9%	2.9%	8.9%	Other Materials	1.9%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.6%	0.0%	1.4%
Milk/Juice Polycoats	0.0%	0.0%	0.1%	Carpet/Upholstery	0.1%	0.0%	0.3%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	9.3%	3.2%	15.4%	Disposable Diapers	0.0%	0.0%	0.1%
Paper/Other Materials	0.7%	0.1%	1.4%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	4.8%	0.0%	12.1%	Rubber Products	0.2%	0.0%	0.3%
Plastic	19.8%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.3%	0.0%	0.6%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.4%	0.0%	0.8%	Furniture	0.0%	0.0%	0.1%
HDPE Milk and Juice	0.0%	0.0%	0.1%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.2%	0.1%	0.3%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.1%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.2%	0.0%	0.4%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.2%	0.1%	0.4%	Other Computer Components	0.0%	0.0%	0.1%
Other Rigid Packaging	1.1%	0.0%	2.4%	Ceramics/Porcelain	0.0%	0.0%	0.1%
Grocery/Bread Bags	0.1%	0.0%	0.1%	Non-distinct Fines	0.4%	0.0%	1.0%
Garbage Bags	1.1%	0.3%	1.9%	Misc. Organics	0.1%	0.0%	0.3%
Other Film	12.4%	2.3%	22.4%	Misc. Inorganics	0.3%	0.0%	0.7%
Plastic Products	0.8%	0.2%	1.5%	CDL Wastes	7.0%		
Plastic/Other Materials	3.0%	0.0%	6.4%	Dimension Lumber	0.9%	0.0%	1.7%
Glass	1.0%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	0.7%	0.1%	1.3%	Treated Wood	0.1%	0.0%	0.4%
Green Beverage	0.1%	0.0%	0.1%	Contaminated Wood	1.4%	0.0%	3.1%
Brown Beverage	0.1%	0.0%	0.2%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.0%	0.0%	0.1%	Demo Gypsum Scrap	4.3%	0.0%	11.1%
Fluorescent Tubes	0.1%	0.0%	0.2%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.1%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	5.2%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.2%	0.0%	0.3%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.0%	0.0%	0.1%	Sand/Soil/Dirt	0.2%	0.0%	0.6%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.1%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.2%	0.0%	0.5%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	2.4%	0.0%	4.9%	Oil-based Paints/Solvents	0.1%	0.0%	0.3%
Mixed Metals/Materials	2.3%	0.0%	4.8%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	12						

**Table 5-39 Composition by Weight: Restaurant
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	21.7%			Organics	65.1%		
Newspaper	0.5%	0.0%	1.1%	Pallets	0.0%	0.0%	0.0%
OCC/Kraft, unwaxed	7.6%	5.4%	9.9%	Crates/Boxes	0.7%	0.0%	1.9%
OCC/Kraft, waxed	2.9%	0.1%	5.7%	Leaves and Grass	0.0%	0.0%	0.0%
Office Paper	1.2%	0.0%	3.1%	Prunings	0.0%	0.0%	0.0%
Computer Paper	0.0%	0.0%	0.0%	Food	64.4%	59.3%	69.6%
Mixed Low Grade	3.3%	0.9%	5.6%	Other Materials	1.8%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.4%	0.0%	0.8%
Milk/Juice Polycoats	0.0%	0.0%	0.1%	Carpet/Upholstery	0.4%	0.0%	0.9%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	5.3%	3.3%	7.3%	Disposable Diapers	0.0%	0.0%	0.1%
Paper/Other Materials	0.7%	0.2%	1.2%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.1%	0.0%	0.4%	Rubber Products	0.1%	0.0%	0.2%
Plastic	5.3%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.1%	0.0%	0.2%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.1%	0.0%	0.3%	Furniture	0.0%	0.0%	0.0%
HDPE Milk and Juice	0.1%	0.0%	0.2%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.1%	0.0%	0.2%	Small Appliances	0.9%	0.0%	2.4%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.2%	0.2%	0.3%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.4%	0.0%	0.8%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.2%	0.1%	0.4%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.1%	0.0%	0.1%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	1.5%	0.9%	2.1%	Misc. Organics	0.0%	0.0%	0.0%
Other Film	2.1%	0.4%	3.8%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	0.1%	0.0%	0.2%	CDL Wastes	0.1%		
Plastic/Other Materials	0.4%	0.1%	0.8%	Dimension Lumber	0.0%	0.0%	0.0%
Glass	4.6%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	2.4%	1.2%	3.6%	Treated Wood	0.0%	0.0%	0.0%
Green Beverage	1.1%	0.1%	2.1%	Contaminated Wood	0.0%	0.0%	0.1%
Brown Beverage	0.8%	0.2%	1.4%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.0%	0.0%	0.1%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.3%	0.0%	0.6%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	1.4%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.4%	0.0%	0.8%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.1%	0.0%	0.1%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.0%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.6%	0.0%	1.2%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	0.0%	0.0%	0.0%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	0.4%	0.0%	1.1%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	6						

**Table 5-40 Composition by Weight: Retail
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	27.5%			Organics	37.9%		
Newspaper	3.1%	1.4%	4.8%	Pallets	8.0%	2.8%	13.3%
OCC/Kraft, unwaxed	7.3%	5.1%	9.4%	Crates/Boxes	0.4%	0.0%	0.8%
OCC/Kraft, waxed	3.5%	1.4%	5.6%	Leaves and Grass	1.0%	0.0%	2.4%
Office Paper	2.0%	0.9%	3.1%	Prunings	0.3%	0.0%	0.7%
Computer Paper	0.1%	0.0%	0.2%	Food	28.1%	19.9%	36.3%
Mixed Low Grade	5.5%	3.3%	7.7%	Other Materials	8.9%		
Phone Books	0.1%	0.0%	0.3%	Textiles/Clothing	2.3%	0.1%	4.6%
Milk/Juice Polycoats	0.2%	0.1%	0.3%	Carpet/Upholstery	0.7%	0.3%	1.2%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.2%	0.0%	0.5%
Compostable/Soiled	4.1%	1.9%	6.3%	Disposable Diapers	0.1%	0.0%	0.4%
Paper/Other Materials	1.6%	0.8%	2.3%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.1%	0.0%	0.2%	Rubber Products	0.1%	0.0%	0.2%
Plastic	9.1%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.1%	0.1%	0.2%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.1%	0.0%	0.2%	Furniture	1.5%	0.0%	3.5%
HDPE Milk and Juice	0.1%	0.0%	0.1%	Mattresses	0.3%	0.0%	0.9%
Other HDPE Bottles	0.2%	0.1%	0.3%	Small Appliances	0.8%	0.0%	1.7%
Other Plastic Bottles	0.0%	0.0%	0.1%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.4%	0.0%	0.8%	Monitors and TVs	0.3%	0.0%	0.7%
Expanded Polystyrene	0.4%	0.2%	0.7%	Other Computer Components	0.9%	0.0%	1.9%
Other Rigid Packaging	0.9%	0.4%	1.4%	Ceramics/Porcelain	0.6%	0.0%	1.5%
Grocery/Bread Bags	0.1%	0.0%	0.1%	Non-distinct Fines	0.2%	0.0%	0.4%
Garbage Bags	1.0%	0.6%	1.4%	Misc. Organics	0.8%	0.0%	1.7%
Other Film	3.1%	2.0%	4.2%	Misc. Inorganics	0.1%	0.0%	0.2%
Plastic Products	1.8%	1.0%	2.6%	CDL Wastes	5.3%		
Plastic/Other Materials	0.8%	0.3%	1.3%	Dimension Lumber	0.3%	0.0%	0.6%
Glass	1.5%			Other Untreated Wood	0.1%	0.0%	0.2%
Clear Beverage	0.8%	0.1%	1.5%	Treated Wood	0.2%	0.0%	0.4%
Green Beverage	0.2%	0.0%	0.4%	Contaminated Wood	2.1%	0.0%	4.2%
Brown Beverage	0.2%	0.0%	0.3%	New Gypsum Scrap	0.0%	0.0%	0.1%
Container Glass	0.2%	0.0%	0.3%	Demo Gypsum Scrap	0.0%	0.0%	0.1%
Fluorescent Tubes	0.1%	0.0%	0.2%	Fiberglass Insulation	1.6%	0.0%	4.3%
Other Glass	0.1%	0.0%	0.2%	Rock/Concrete/Brick	0.2%	0.0%	0.6%
Metal	9.5%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.2%	0.0%	0.3%	Other Construction Debris	0.4%	0.0%	1.1%
Alum. Foil/Containers	0.1%	0.0%	0.2%	Sand/Soil/Dirt	0.3%	0.0%	0.6%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.3%		
Other Nonferrous	0.0%	0.0%	0.0%	Latex Paints	0.1%	0.0%	0.4%
Tin Food Cans	0.4%	0.2%	0.7%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.1%	0.0%	0.3%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	4.9%	1.3%	8.4%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	3.7%	0.9%	6.5%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.1%	Pesticides/Herbicides	0.1%	0.0%	0.2%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.1%	0.0%	0.2%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	32						

**Table 5-41 Composition by Weight: Transportation
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	30.5%			Organics	29.8%		
Newspaper	6.4%	1.3%	11.5%	Pallets	11.0%	0.0%	25.6%
OCC/Kraft, unwaxed	10.9%	1.9%	19.9%	Crates/Boxes	0.8%	0.0%	2.1%
OCC/Kraft, waxed	0.3%	0.0%	0.7%	Leaves and Grass	9.3%	1.2%	17.3%
Office Paper	0.9%	0.4%	1.4%	Prunings	1.8%	0.0%	4.5%
Computer Paper	0.2%	0.0%	0.5%	Food	7.0%	1.9%	12.1%
Mixed Low Grade	3.4%	0.9%	5.9%	Other Materials	7.6%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	0.7%	0.2%	1.2%
Milk/Juice Polycoats	0.1%	0.0%	0.2%	Carpet/Upholstery	3.5%	0.0%	7.9%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	7.8%	3.3%	12.4%	Disposable Diapers	0.2%	0.0%	0.5%
Paper/Other Materials	0.5%	0.3%	0.6%	Animal By-Products	0.6%	0.0%	1.5%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	1.7%	0.0%	4.5%
Plastic	7.0%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.3%	0.0%	0.9%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.5%	0.0%	1.0%	Furniture	0.9%	0.0%	2.4%
HDPE Milk and Juice	0.1%	0.0%	0.3%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.0%	0.0%	0.1%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.0%	0.0%	0.0%
Jars and Tubs	0.0%	0.0%	0.1%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.2%	0.0%	0.4%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.2%	0.0%	0.6%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.1%	0.0%	0.2%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	1.7%	0.0%	3.9%	Misc. Organics	0.0%	0.0%	0.0%
Other Film	0.5%	0.0%	1.1%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	1.0%	0.3%	1.7%	CDL Wastes	8.2%		
Plastic/Other Materials	2.3%	0.2%	4.4%	Dimension Lumber	0.9%	0.0%	2.1%
Glass	5.1%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	3.6%	0.0%	7.5%	Treated Wood	2.1%	0.0%	4.9%
Green Beverage	1.3%	0.0%	3.4%	Contaminated Wood	3.4%	0.0%	8.5%
Brown Beverage	0.2%	0.0%	0.5%	New Gypsum Scrap	0.0%	0.0%	0.0%
Container Glass	0.1%	0.0%	0.2%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.0%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	11.3%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.5%	0.0%	1.3%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	1.7%	0.0%	4.5%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.5%		
Other Nonferrous	0.1%	0.0%	0.3%	Latex Paints	0.4%	0.0%	1.2%
Tin Food Cans	0.1%	0.0%	0.3%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.3%	0.0%	0.7%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	0.2%	0.0%	0.3%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	10.0%	0.0%	22.8%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.1%	0.0%	0.2%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.1%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	4						

**Table 5-42 Composition by Weight: Wholesale
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	27.8%			Organics	26.2%		
Newspaper	2.5%	0.0%	5.7%	Pallets	7.7%	1.0%	14.5%
OCC/Kraft, unwaxed	14.1%	1.8%	26.5%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	2.1%	0.0%	4.6%	Leaves and Grass	0.0%	0.0%	0.1%
Office Paper	3.2%	0.0%	8.0%	Prunings	0.0%	0.0%	0.0%
Computer Paper	1.2%	0.0%	3.0%	Food	18.4%	0.3%	36.6%
Mixed Low Grade	2.2%	0.4%	4.0%	Other Materials	15.9%		
Phone Books	0.0%	0.0%	0.0%	Textiles/Clothing	7.1%	0.0%	16.7%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	6.9%	0.0%	18.3%
Frozen Food Polycoats	0.2%	0.0%	0.6%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	1.6%	0.0%	3.9%	Disposable Diapers	0.0%	0.0%	0.0%
Paper/Other Materials	0.5%	0.1%	0.8%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.2%	0.0%	0.6%	Rubber Products	0.1%	0.0%	0.2%
Plastic	7.6%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.0%	0.0%	0.1%	Furniture	0.0%	0.0%	0.0%
HDPE Milk and Juice	0.0%	0.0%	0.0%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.0%	0.0%	0.0%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.5%	0.0%	1.3%
Jars and Tubs	0.4%	0.0%	0.9%	Monitors and TVs	1.3%	0.0%	3.5%
Expanded Polystyrene	0.7%	0.0%	1.4%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.3%	0.0%	0.7%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.0%	0.0%	0.1%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	0.3%	0.0%	0.6%	Misc. Organics	0.0%	0.0%	0.0%
Other Film	3.7%	0.0%	7.5%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	1.7%	0.0%	3.6%	CDL Wastes	7.4%		
Plastic/Other Materials	0.4%	0.0%	0.9%	Dimension Lumber	0.2%	0.0%	0.6%
Glass	0.9%			Other Untreated Wood	0.0%	0.0%	0.0%
Clear Beverage	0.7%	0.0%	1.4%	Treated Wood	2.2%	0.0%	4.6%
Green Beverage	0.0%	0.0%	0.0%	Contaminated Wood	4.8%	0.0%	12.2%
Brown Beverage	0.2%	0.0%	0.4%	New Gypsum Scrap	0.2%	0.0%	0.4%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	0.0%	0.0%	0.0%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.0%	0.0%	0.0%
Other Glass	0.0%	0.0%	0.0%	Rock/Concrete/Brick	0.0%	0.0%	0.0%
Metal	14.1%			Asphaltic Roofing	0.0%	0.0%	0.0%
Aluminum Cans	0.1%	0.0%	0.1%	Other Construction Debris	0.0%	0.0%	0.0%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.0%	0.0%	0.0%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.0%		
Other Nonferrous	0.3%	0.0%	0.8%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.0%	0.0%	0.1%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	11.6%	0.0%	28.1%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	2.1%	0.0%	4.2%	Cleaners	0.0%	0.0%	0.1%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	9						

**Table 5-43 Composition by Weight: Mixed Commercial Generators
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	22.9%			Organics	33.0%		
Newspaper	3.4%	2.8%	4.0%	Pallets	1.7%	0.7%	2.7%
OCC/Kraft, unwaxed	4.0%	3.5%	4.5%	Crates/Boxes	0.3%	0.1%	0.5%
OCC/Kraft, waxed	0.6%	0.4%	0.8%	Leaves and Grass	2.5%	1.5%	3.6%
Office Paper	2.7%	2.2%	3.3%	Prunings	0.8%	0.3%	1.2%
Computer Paper	0.2%	0.1%	0.3%	Food	27.7%	24.5%	30.9%
Mixed Low Grade	4.9%	4.1%	5.8%	Other Materials	12.3%		
Phone Books	0.3%	0.0%	0.6%	Textiles/Clothing	2.8%	1.4%	4.3%
Milk/Juice Polycoats	0.3%	0.2%	0.3%	Carpet/Upholstery	3.2%	1.3%	5.1%
Frozen Food Polycoats	0.1%	0.1%	0.1%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	4.4%	3.7%	5.2%	Disposable Diapers	0.4%	0.2%	0.6%
Paper/Other Materials	1.5%	1.1%	2.0%	Animal By-Products	0.0%	0.0%	0.1%
Other Paper	0.3%	0.1%	0.6%	Rubber Products	0.8%	0.3%	1.4%
Plastic	8.6%			Tires	0.1%	0.0%	0.3%
PET Pop and Liquor	0.1%	0.1%	0.1%	Ash	0.1%	0.0%	0.1%
Other PET Bottles	0.2%	0.1%	0.2%	Furniture	1.3%	0.6%	2.1%
HDPE Milk and Juice	0.1%	0.1%	0.2%	Mattresses	0.0%	0.0%	0.0%
Other HDPE Bottles	0.2%	0.2%	0.3%	Small Appliances	0.2%	0.1%	0.3%
Other Plastic Bottles	0.1%	0.0%	0.1%	A/V Equipment	0.3%	0.1%	0.5%
Jars and Tubs	0.4%	0.3%	0.5%	Monitors and TVs	0.4%	0.0%	0.9%
Expanded Polystyrene	0.8%	0.4%	1.3%	Other Computer Components	1.0%	0.4%	1.6%
Other Rigid Packaging	0.5%	0.4%	0.6%	Ceramics/Porcelain	0.3%	0.1%	0.5%
Grocery/Bread Bags	0.1%	0.1%	0.2%	Non-distinct Fines	0.1%	0.0%	0.1%
Garbage Bags	1.4%	1.2%	1.6%	Misc. Organics	0.7%	0.4%	1.0%
Other Film	2.1%	1.7%	2.6%	Misc. Inorganics	0.5%	0.1%	1.0%
Plastic Products	1.1%	0.8%	1.3%	CDL Wastes	10.5%		
Plastic/Other Materials	1.5%	0.7%	2.4%	Dimension Lumber	2.9%	1.6%	4.2%
Glass	3.4%			Other Untreated Wood	0.1%	0.0%	0.2%
Clear Beverage	1.1%	0.9%	1.4%	Treated Wood	0.7%	0.2%	1.1%
Green Beverage	0.7%	0.5%	0.9%	Contaminated Wood	2.0%	0.9%	3.1%
Brown Beverage	0.7%	0.3%	1.1%	New Gypsum Scrap	0.2%	0.0%	0.4%
Container Glass	0.6%	0.0%	1.2%	Demo Gypsum Scrap	1.2%	0.4%	1.9%
Fluorescent Tubes	0.0%	0.0%	0.1%	Fiberglass Insulation	0.1%	0.0%	0.1%
Other Glass	0.3%	0.1%	0.5%	Rock/Concrete/Brick	1.4%	0.1%	2.7%
Metal	8.4%			Asphaltic Roofing	0.6%	0.0%	1.3%
Aluminum Cans	0.3%	0.2%	0.4%	Other Construction Debris	0.9%	0.1%	1.7%
Alum. Foil/Containers	0.1%	0.0%	0.1%	Sand/Soil/Dirt	0.3%	0.0%	0.7%
Other Aluminum	0.0%	0.0%	0.0%	Hazardous	0.8%		
Other Nonferrous	0.2%	0.0%	0.4%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.9%	0.5%	1.2%	Hazardous Adhesives/Glues	0.1%	0.0%	0.1%
Empty Aerosol Cans	0.1%	0.0%	0.1%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	3.2%	2.1%	4.3%	Oil-based Paints/Solvents	0.0%	0.0%	0.1%
Mixed Metals/Materials	3.6%	2.3%	4.9%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.1%	0.0%	0.2%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.1%
				Wet-Cell Batteries	0.1%	0.0%	0.2%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.6%	0.3%	0.8%
				Other NonHazardous Chemicals	0.0%	0.0%	0.1%

Sample Count 139

6 Self-Haul Composition Results, by Subpopulation

A total of 200 self-haul loads were sampled from January to December 2000. Descriptive data about samples from each subpopulation are summarized in Table 6-1. As shown, many of the analyses are based on a very small number of samples. In turn, these calculations are subject to a relatively wide margin of error. The sampling plan was designed to provide statistically valid results for the overall self-haul substream. The more detailed composition results are provided as rough estimates only.

**Table 6-1 Description of Samples for each Self-Haul Subpopulation
(January – December 2000)**

Subpopulation	Sample Count	<i>(All Weights in pounds)</i>		
		Total Sample	Average Sample	Average Net Load Weight
<i>Transfer Station</i>				
NRDS	100	30,862.4	308.6	467.7
SRDS	100	32,334.1	323.3	570.6
<i>Vehicle Type</i>				
Passenger	46	12,162.5	264.4	378.8
Trucks	154	51,033.9	331.4	563.0
<i>Season</i>				
Spring	40	13,707.9	342.7	541.2
Summer	60	17,742.1	295.7	492.4
Autumn	60	19,293.9	321.6	418.0
Winter	40	12,452.5	311.3	646.3
<i>Generator Type, by Site</i>				
Residential, NRDS	79	24,301.0	307.6	403.6
Residential, SRDS	62	18,772.5	302.8	377.3
Non-Residential, NRDS	16	4,998.6	312.4	891.6
Non-Residential, SRDS	34	12,206.5	359.0	902.0
Overall Self-Haul	200	63,196	316.0	517.7

Seattle Public Utilities provided total 2000 disposal quantities for the following waste populations: 1) total self-haul, 2) self-haul by vehicle type, and 3) self-haul by season. The following year 2000 disposal quantities were calculated from the sampling results: 1) residential and non-residential self-haul waste, 2) residential and non-residential passenger vehicle self-haul waste, and 3) residential and non-residential truck self-haul waste.

Approximately 56% of 2000 self-haul waste was residential, while the remaining 44% was from non-residential sources. For self-haul passenger vehicles, about 96% was residential and 4% was non-residential. About 47% of the self-haul truck waste was from residential sources; non-residential generators disposed of the remaining 53%.

Total Self-haul:

Estimated 2000 Self-hauled Residential Tonnage = $101,882 \times .5597 = 57,023$ tons

Estimated 2000 Self-hauled Non-Residential Tonnage = $101,882 \times .4403 = 44,859$

Self-haul Passenger Vehicles:

Estimated 2000 Self-hauled Residential Tonnage = $6,323 \times .9599 = 6,069$ tons

Estimated 2000 Self-hauled Non-Residential Tonnage = $6,323 \times .0401 = 254$ tons

Self-haul Trucks:

Estimated 2000 Self-hauled Residential Tonnage = $95,559 \times .4714 = 45,047$ tons

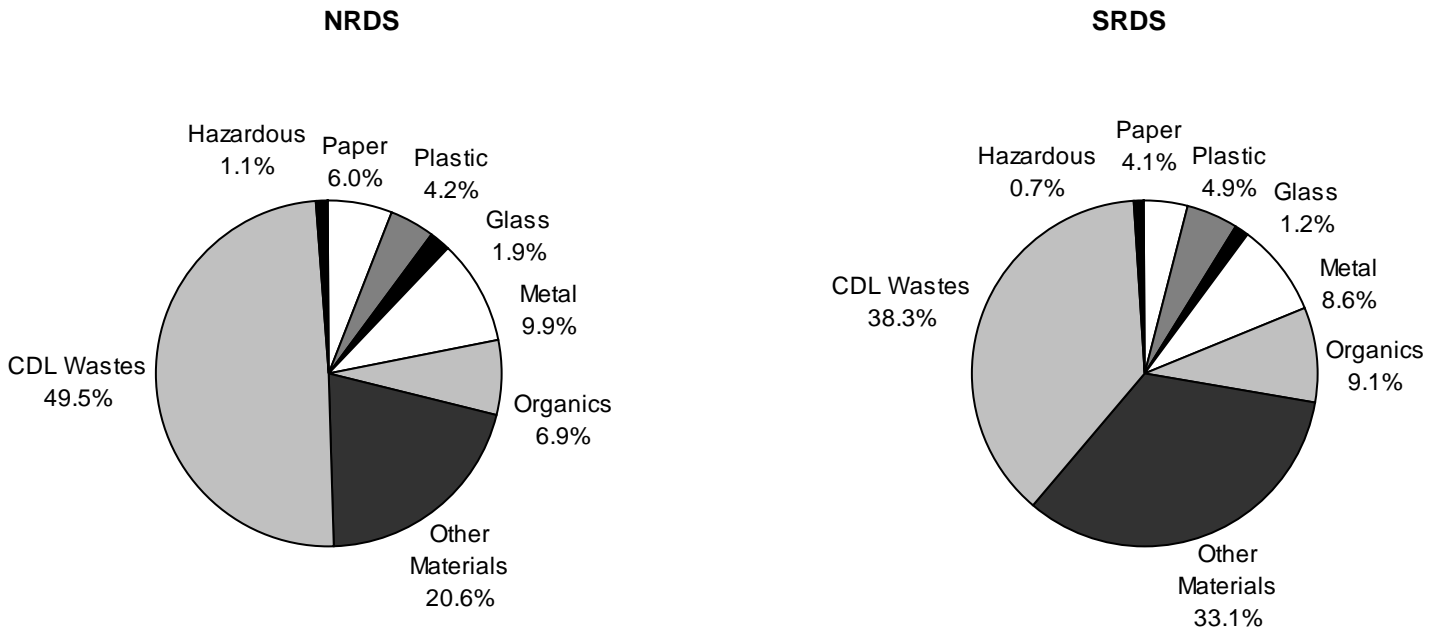
Estimated 2000 Self-hauled Non-Residential Tonnage = $95,559 \times .5286 = 50,512$ tons

In the following sections, self-haul waste composition results are presented by transfer station, vehicle type, season, and generator type, by site. Results are depicted in three ways: a pie chart reflects composition by the nine broad material categories; then, a table lists the top ten components, by weight; and finally, the full composition results are presented in a detailed table. Following the top ten tables in Sections 6.1, 6.2, and 6.3 composition results from the relevant subpopulations are compared.

6.1 Composition by Transfer Station

This section examines the composition of wastes self-hauled to the North and South Recycling and Disposal Stations (NRDS and SRDS). Figure 6-1 summarizes the results on a broad material category level. *Other materials* composed a relatively large percentage of the waste hauled to both of the transfer stations. When combined, *CDL wastes* and *other materials* accounted for a large percentage of waste hauled to both transfer stations (approximately 70% at the NRDS and 71% at the SRDS). *CDL wastes* (construction, demolition, and landclearing) includes components such as *dimension lumber*, *sand/soil/dirt*, and *gypsum scrap*, while *other materials* includes components such as *textiles/clothing*, *carpet/upholstery* and *furniture*. The following sections examine self-hauled waste from each transfer station in more detail.

**Figure 6-1 Self-Haul Composition Summary: by Transfer Station
(January – December 2000)**



6.1.1 North Recycling and Disposal Station (NRDS)

A total of 100 samples were taken from loads that were delivered to the NRDS during the year 2000. Approximately 56,000 tons of self-haul waste was disposed at the NRDS during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 56,000 tons to estimate the amount of waste disposed for each component category. Of the top ten components listed in Table 6-2, nine composed more than 5% of the total tonnage. The sum of these top ten components made up approximately 67% of the total tonnage. Please see Table 6-4 for a detailed listing of the full composition results for waste sampled at the NRDS.

**Table 6-2 Top Ten Components: North Recycling and Disposal Station
(January – December 2000)**

Component	Mean	Cum. %	Tons
Dimension Lumber	11.9%	11.9%	6,621
Furniture	8.3%	20.2%	4,629
Demo Gypsum Scrap	6.9%	27.1%	3,818
Contaminated Wood	6.7%	33.8%	3,704
Other Construction Debris	6.5%	40.3%	3,615
Rock/Concrete/Brick	6.3%	46.6%	3,517
Carpet/Upholstery	5.5%	52.1%	3,038
Mixed Metals/Materials	5.2%	57.3%	2,890
Treated Wood	5.2%	62.5%	2,880
Other Ferrous Metal	4.1%	66.6%	2,299
Total	66.6%		37,011

6.1.2 South Recycling and Disposal Station (SRDS)

A total of 100 samples from the SRDS were examined during this study period. Approximately 46,000 tons of self-haul waste was disposed at the SRDS during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 46,000 tons to estimate the amount of waste disposed for each component category. Table 6-3 illustrates that *furniture*, *carpet/upholstery*, *dimension lumber*, *contaminated wood*, *leaves and grass*, and *treated wood* accounted for a large percentage (each component greater than 5%, by weight) of the self-haul waste disposed at the SRDS. The top ten components of the SRDS subpopulation added together to account for almost 63% of the total, by weight. Please see Table 6-5 for a full list of the composition results for the SRDS.

**Table 6-3 Top Ten Components: South Recycling and Disposal Station
(January – December 2000)**

Component	Mean	Cum. %	Tons
Furniture	11.6%	11.6%	5,392
Carpet/Upholstery	10.6%	22.3%	4,924
Dimension Lumber	8.1%	30.3%	3,736
Contaminated Wood	6.3%	36.6%	2,897
Leaves and Grass	5.8%	42.4%	2,700
Treated Wood	5.6%	48.0%	2,596
Other Ferrous Metal	4.4%	52.4%	2,016
Mixed Metals/Materials	3.5%	55.9%	1,624
New Gypsum Scrap	3.5%	59.4%	1,619
Other Construction Debris	3.5%	62.8%	1,600
Total	62.8%		29,104

6.1.3 Comparisons between Transfer Stations

Several of the top ten components for both the NRDS and the SRDS were types of *CDL wastes* (construction, demolition, and landclearing). These included *dimension lumber, other construction debris, contaminated wood, and treated wood*. Other top ten components shared between the two transfer stations were *furniture, carpet/upholstery, mixed metals/materials, and other ferrous metal*.

On the other hand, *demo gypsum scrap, rock/concrete/brick, and other ferrous metals* were among the top ten components of the NRDS waste, but not among the top ten components of the SRDS waste. *New gypsum scrap and leaves and grass* were top ten components of the SRDS waste stream, but not of the NRDS.

**Table 6-4 Composition by Weight: Self-Haul at the NRDS
(January – December 2000)**

Calculated at a 90% confidence interval

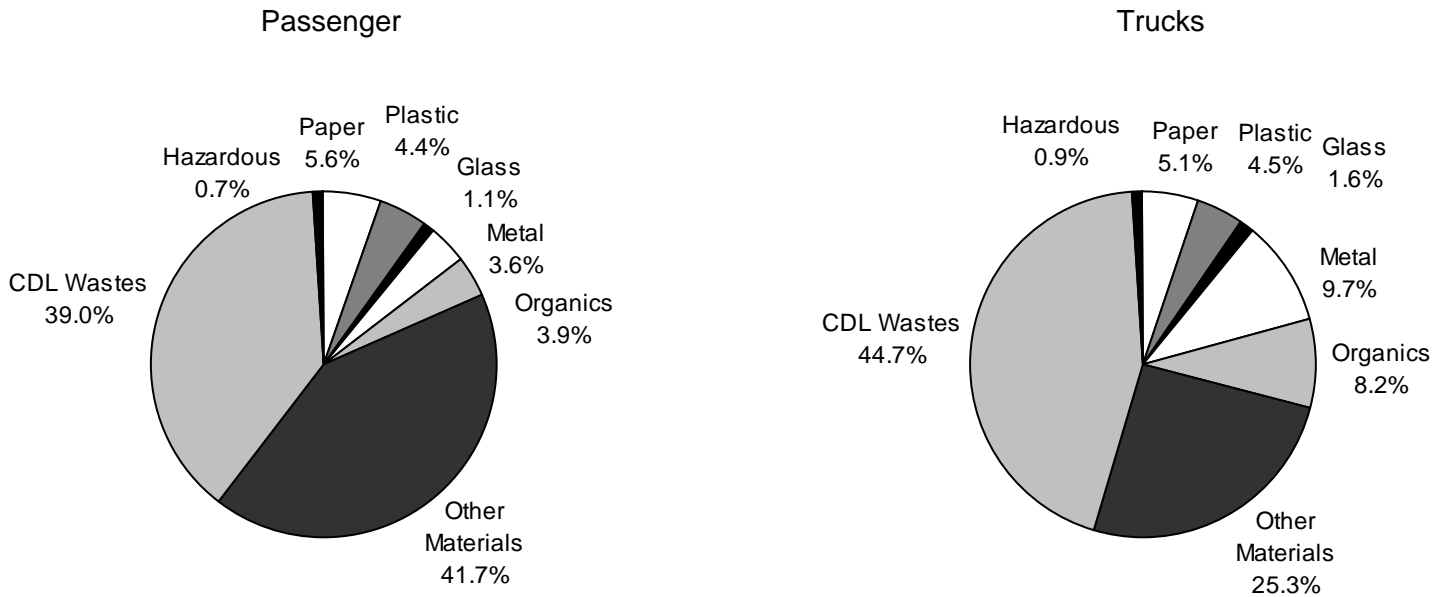
	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	3,347	6.0%			Organics	3,818	6.9%		
Newspaper	243	0.4%	0.2%	0.7%	Pallets	57	0.1%	0.0%	0.3%
OCC/Kraft, unwaxed	1,421	2.6%	1.4%	3.7%	Crates/Boxes	134	0.2%	0.0%	0.5%
OCC/Kraft, waxed	84	0.2%	0.0%	0.4%	Leaves and Grass	1,145	2.1%	0.3%	3.8%
Office Paper	155	0.3%	0.1%	0.4%	Prunings	1,750	3.1%	0.8%	5.5%
Computer Paper	5	0.0%	0.0%	0.0%	Food	731	1.3%	0.7%	1.9%
Mixed Low Grade	685	1.2%	0.7%	1.8%	Other Materials	11,441	20.6%		
Phone Books	229	0.4%	0.1%	0.8%	Textiles/Clothing	1,001	1.8%	1.1%	2.5%
Milk/Juice Polycoats	6	0.0%	0.0%	0.0%	Carpet/Upholstery	3,038	5.5%	3.1%	7.9%
Frozen Food Polycoats	3	0.0%	0.0%	0.0%	Leather	100	0.2%	0.0%	0.3%
Compostable/Soiled	90	0.2%	0.1%	0.3%	Disposable Diapers	67	0.1%	0.0%	0.3%
Paper/Other Materials	292	0.5%	0.2%	0.9%	Animal By-Products	17	0.0%	0.0%	0.1%
Other Paper	135	0.2%	0.0%	0.4%	Rubber Products	168	0.3%	0.0%	0.6%
Plastic	2,319	4.2%			Tires	92	0.2%	0.0%	0.4%
PET Pop and Liquor	9	0.0%	0.0%	0.0%	Ash	14	0.0%	0.0%	0.1%
Other PET Bottles	8	0.0%	0.0%	0.0%	Furniture	4,629	8.3%	4.8%	11.9%
HDPE Milk and Juice	23	0.0%	0.0%	0.1%	Mattresses	720	1.3%	0.3%	2.3%
Other HDPE Bottles	34	0.1%	0.0%	0.1%	Small Appliances	543	1.0%	0.2%	1.8%
Other Plastic Bottles	10	0.0%	0.0%	0.0%	A/V Equipment	250	0.5%	0.1%	0.8%
Jars and Tubs	40	0.1%	0.0%	0.1%	Monitors and TVs	86	0.2%	0.0%	0.3%
Expanded Polystyrene	153	0.3%	0.1%	0.4%	Other Computer Components	141	0.3%	0.0%	0.5%
Other Rigid Packaging	70	0.1%	0.1%	0.2%	Ceramics/Porcelain	338	0.6%	0.1%	1.1%
Grocery/Bread Bags	21	0.0%	0.0%	0.1%	Non-distinct Fines	16	0.0%	0.0%	0.1%
Garbage Bags	36	0.1%	0.0%	0.1%	Misc. Organics	195	0.4%	0.0%	0.7%
Other Film	315	0.6%	0.3%	0.9%	Misc. Inorganics	25	0.0%	0.0%	0.1%
Plastic Products	1,171	2.1%	1.2%	3.0%	CDL Wastes	27,498	49.5%		
Plastic/Other Materials	429	0.8%	0.4%	1.1%	Dimension Lumber	6,621	11.9%	7.3%	16.5%
Glass	1,063	1.9%			Other Untreated Wood	439	0.8%	0.3%	1.3%
Clear Beverage	32	0.1%	0.0%	0.1%	Treated Wood	2,880	5.2%	2.2%	8.2%
Green Beverage	27	0.0%	0.0%	0.1%	Contaminated Wood	3,704	6.7%	4.2%	9.1%
Brown Beverage	56	0.1%	0.0%	0.2%	New Gypsum Scrap	676	1.2%	0.0%	2.4%
Container Glass	1	0.0%	0.0%	0.0%	Demo Gypsum Scrap	3,818	6.9%	3.2%	10.5%
Fluorescent Tubes	23	0.0%	0.0%	0.1%	Fiberglass Insulation	47	0.1%	0.0%	0.2%
Other Glass	925	1.7%	0.4%	3.0%	Rock/Concrete/Brick	3,517	6.3%	2.7%	10.0%
Metal	5,487	9.9%			Asphaltic Roofing	1,471	2.6%	0.4%	4.8%
Aluminum Cans	7	0.0%	0.0%	0.0%	Other Construction Debris	3,615	6.5%	3.2%	9.8%
Alum. Foil/Containers	4	0.0%	0.0%	0.0%	Sand/Soil/Dirt	711	1.3%	0.2%	2.3%
Other Aluminum	77	0.1%	0.0%	0.2%	Hazardous	598	1.1%		
Other Nonferrous	171	0.3%	0.1%	0.6%	Latex Paints	298	0.5%	0.1%	1.0%
Tin Food Cans	22	0.0%	0.0%	0.1%	Hazardous Adhesives/Glues	23	0.0%	0.0%	0.1%
Empty Aerosol Cans	17	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	51	0.1%	0.0%	0.2%
Other Ferrous	2,299	4.1%	2.2%	6.1%	Oil-based Paints/Solvents	19	0.0%	0.0%	0.1%
Mixed Metals/Materials	2,890	5.2%	3.2%	7.2%	Cleaners	8	0.0%	0.0%	0.0%
Motor Oil Filters	0	0.0%	0.0%	0.0%	Pesticides/Herbicides	27	0.0%	0.0%	0.1%
					Dry-Cell Batteries	90	0.2%	0.0%	0.4%
					Wet-Cell Batteries	3	0.0%	0.0%	0.0%
					Gasoline/Kerosene	8	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	1	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	55,572				Other Hazardous Chemicals	12	0.0%	0.0%	0.0%
Sample Count	100				Other NonHazardous Chemicals	59	0.1%	0.0%	0.3%

6.2 Composition by Vehicle Type

Wastes are self-hauled to Seattle's transfer stations in a variety of vehicles that can be categorized into two subpopulations: passenger vehicles and trucks. Passenger vehicles include cars, station wagons, and sport utility vehicles (all without trailers); all others (mostly pick-up trucks, vans, and vehicles with trailers) are classified as trucks.

Figure 6-2 provides an overview of waste disposed by both vehicle types. This figure illustrates that *CDL wastes* (construction, demolition, and landclearing debris) accounted for a relatively large percentage of the total tonnage both for passenger vehicles and trucks, 39% and 45% respectively. *CDL waste* includes such components as *dimension lumber*, *sand/soil/dirt*, and *gypsum scrap*. *Other materials* were largely prevalent both in passenger and truck waste, composing approximately 42% and 25% of the total tonnage. *Other materials* includes components such as *textiles/clothing*, *carpet/upholstery*, and *furniture*.

**Figure 6-2 Self-Haul Composition Summary: by Vehicle Type
(January – December 2000)**



6.2.1 Passenger Vehicles

There were 46 passenger vehicle samples taken between January and December 2000. Passenger vehicles disposed approximately 6,000 tons of self-haul waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 6,000 tons to estimate the amount of waste disposed for each component category. *Carpet/upholstery* was the largest component, accounting for approximately 17% of total. *Furniture, dimension lumber, and contaminated wood* were other large components of waste disposed by passenger vehicles (each accounting for more than 5%, by weight). Table 6-6 lists all top ten components disposed by these vehicles. When summed together, they equal approximately 69% of the total tonnage. The full composition results for passenger vehicles are listed in Table 6-8.

**Table 6-6 Top Ten Components: Self-Haul Passenger Vehicles
(January – December 2000)**

Component	Mean	Cum. %	Tons
Carpet/Upholstery	16.5%	16.5%	1,042
Furniture	12.5%	29.0%	791
Dimension Lumber	12.1%	41.1%	763
Contaminated Wood	10.3%	51.3%	651
Mattresses	4.0%	55.4%	255
Asphaltic Roofing	3.5%	58.9%	223
Demo Gypsum Scrap	3.4%	62.3%	213
A/V Equipment	2.4%	64.6%	150
Rock/Concrete/Brick	2.2%	66.8%	139
Plastic Products	2.2%	69.0%	137
Total	69.0%		4,363

6.2.2 Trucks

A total of 154 self-haul truckloads were sampled during this study period. Trucks disposed approximately 96,000 tons of self-haul waste during the 2000 calendar year. The composition estimates for this subpopulation were applied to the 96,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 6-7, eight of the top ten components accounted for greater than 5% of the total, by weight. These large components accounted for almost 64% of the total waste disposed by self-haul trucks in 2000. Please see Table 6-9 to view the full composition results for self-haul trucks.

**Table 6-7 Top Ten Components: Self-Haul Trucks
(January – December 2000)**

Component	Mean	Cum. %	Tons
Dimension Lumber	10.0%	10.0%	9,594
Furniture	9.7%	19.7%	9,230
Carpet/Upholstery	7.2%	26.9%	6,920
Contaminated Wood	6.2%	33.2%	5,950
Treated Wood	5.6%	38.8%	5,346
Demo Gypsum Scrap	5.4%	44.1%	5,141
Other Construction Debris	5.3%	49.5%	5,081
Rock/Concrete/Brick	5.1%	54.5%	4,847
Mixed Metals/Materials	4.6%	59.1%	4,392
Other Ferrous Metal	4.4%	63.5%	4,221
Total	63.5%		60,722

6.2.3 Comparisons between Vehicle Types

Carpet/upholstery, furniture, dimension lumber, contaminated wood, demo gypsum scrap, and rock/concrete/brick were top ten components shared between passenger vehicles and trucks. *Mattresses, asphaltic roofing, A/V equipment, and plastic products* were among the top ten components for passenger vehicles, but not for trucks. On the other hand, *treated wood, other construction debris, mixed metals/materials, and other ferrous metal* were top ten components for trucks, yet not for passenger vehicles.

**Table 6-8 Composition by Weight: Self-Haul Passenger Vehicles
(January – December 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	357	5.6%			Organics	244	3.9%		
Newspaper	31	0.5%	0.0%	1.0%	Pallets	8	0.1%	0.0%	0.3%
OCC/Kraft, unwaxed	134	2.1%	0.5%	3.7%	Crates/Boxes	7	0.1%	0.0%	0.3%
OCC/Kraft, waxed	1	0.0%	0.0%	0.1%	Leaves and Grass	71	1.1%	0.2%	2.1%
Office Paper	5	0.1%	0.0%	0.2%	Prunings	79	1.3%	0.3%	2.2%
Computer Paper	0	0.0%	0.0%	0.0%	Food	78	1.2%	0.3%	2.2%
Mixed Low Grade	65	1.0%	0.2%	1.8%	Other Materials	2,638	41.7%		
Phone Books	80	1.3%	0.4%	2.1%	Textiles/Clothing	72	1.1%	0.4%	1.9%
Milk/Juice Polycoats	1	0.0%	0.0%	0.0%	Carpet/Upholstery	1,042	16.5%	8.5%	24.5%
Frozen Food Polycoats	0	0.0%	0.0%	0.0%	Leather	1	0.0%	0.0%	0.0%
Compostable/Soiled	3	0.0%	0.0%	0.1%	Disposable Diapers	6	0.1%	0.0%	0.2%
Paper/Other Materials	37	0.6%	0.0%	1.3%	Animal By-Products	2	0.0%	0.0%	0.1%
Other Paper	1	0.0%	0.0%	0.0%	Rubber Products	8	0.1%	0.0%	0.3%
Plastic	276	4.4%			Tires	11	0.2%	0.0%	0.4%
PET Pop and Liquor	0	0.0%	0.0%	0.0%	Ash	5	0.1%	0.0%	0.3%
Other PET Bottles	0	0.0%	0.0%	0.0%	Furniture	791	12.5%	8.9%	16.1%
HDPE Milk and Juice	0	0.0%	0.0%	0.0%	Mattresses	255	4.0%	1.5%	6.6%
Other HDPE Bottles	4	0.1%	0.0%	0.1%	Small Appliances	7	0.1%	0.0%	0.2%
Other Plastic Bottles	0	0.0%	0.0%	0.0%	A/V Equipment	150	2.4%	0.6%	4.1%
Jars and Tubs	8	0.1%	0.0%	0.2%	Monitors and TVs	99	1.6%	0.6%	2.5%
Expanded Polystyrene	51	0.8%	0.2%	1.5%	Other Computer Components	14	0.2%	0.0%	0.6%
Other Rigid Packaging	4	0.1%	0.0%	0.1%	Ceramics/Porcelain	31	0.5%	0.0%	1.0%
Grocery/Bread Bags	1	0.0%	0.0%	0.0%	Non-distinct Fines	0	0.0%	0.0%	0.0%
Garbage Bags	6	0.1%	0.0%	0.2%	Misc. Organics	131	2.1%	0.0%	4.8%
Other Film	20	0.3%	0.1%	0.5%	Misc. Inorganics	14	0.2%	0.0%	0.4%
Plastic Products	137	2.2%	0.7%	3.6%	CDL Wastes	2,464	39.0%		
Plastic/Other Materials	45	0.7%	0.3%	1.1%	Dimension Lumber	763	12.1%	5.8%	18.4%
Glass	71	1.1%			Other Untreated Wood	48	0.8%	0.0%	1.5%
Clear Beverage	1	0.0%	0.0%	0.1%	Treated Wood	131	2.1%	0.8%	3.3%
Green Beverage	7	0.1%	0.0%	0.3%	Contaminated Wood	651	10.3%	7.0%	13.6%
Brown Beverage	1	0.0%	0.0%	0.0%	New Gypsum Scrap	65	1.0%	0.0%	2.3%
Container Glass	2	0.0%	0.0%	0.1%	Demo Gypsum Scrap	213	3.4%	0.7%	6.0%
Fluorescent Tubes	1	0.0%	0.0%	0.0%	Fiberglass Insulation	14	0.2%	0.0%	0.5%
Other Glass	58	0.9%	0.2%	1.6%	Rock/Concrete/Brick	139	2.2%	1.0%	3.4%
Metal	229	3.6%			Asphaltic Roofing	223	3.5%	0.0%	9.3%
Aluminum Cans	0	0.0%	0.0%	0.0%	Other Construction Debris	135	2.1%	0.6%	3.7%
Alum. Foil/Containers	1	0.0%	0.0%	0.0%	Sand/Soil/Dirt	84	1.3%	0.0%	3.0%
Other Aluminum	1	0.0%	0.0%	0.0%	Hazardous	44	0.7%		
Other Nonferrous	3	0.1%	0.0%	0.1%	Latex Paints	17	0.3%	0.0%	0.7%
Tin Food Cans	6	0.1%	0.0%	0.2%	Hazardous Adhesives/Glues	10	0.2%	0.0%	0.4%
Empty Aerosol Cans	2	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	1	0.0%	0.0%	0.0%
Other Ferrous	94	1.5%	0.9%	2.1%	Oil-based Paints/Solvents	1	0.0%	0.0%	0.0%
Mixed Metals/Materials	122	1.9%	1.1%	2.8%	Cleaners	1	0.0%	0.0%	0.0%
Motor Oil Filters	0	0.0%	0.0%	0.0%	Pesticides/Herbicides	2	0.0%	0.0%	0.1%
					Dry-Cell Batteries	0	0.0%	0.0%	0.0%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	6,323				Other Hazardous Chemicals	9	0.1%	0.0%	0.4%
Sample Count	46				Other NonHazardous Chemicals	4	0.1%	0.1%	0.1%

**Table 6-9 Composition by Weight: Self-Haul Trucks
(January – December 2000)**

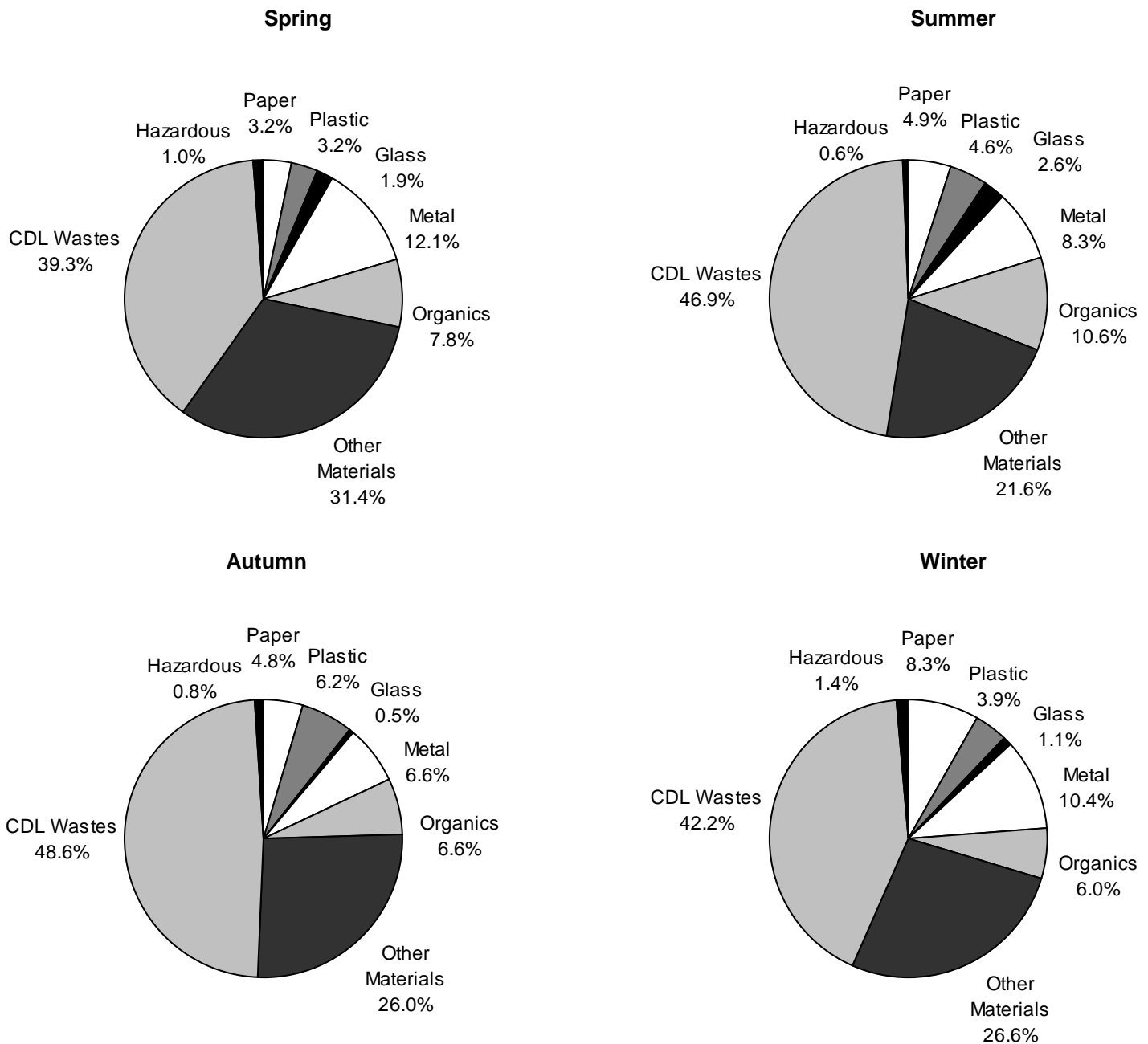
Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	4,911	5.1%			Organics	7,801	8.2%		
Newspaper	272	0.3%	0.1%	0.4%	Pallets	635	0.7%	0.1%	1.2%
OCC/Kraft, unwaxed	2,101	2.2%	1.4%	3.0%	Crates/Boxes	168	0.2%	0.0%	0.3%
OCC/Kraft, waxed	86	0.1%	0.0%	0.2%	Leaves and Grass	3,774	3.9%	2.0%	5.9%
Office Paper	188	0.2%	0.1%	0.3%	Prunings	2,310	2.4%	0.9%	3.9%
Computer Paper	6	0.0%	0.0%	0.0%	Food	913	1.0%	0.6%	1.3%
Mixed Low Grade	1,090	1.1%	0.7%	1.5%	Other Materials	24,135	25.3%		
Phone Books	217	0.2%	0.0%	0.4%	Textiles/Clothing	1,693	1.8%	1.2%	2.3%
Milk/Juice Polycoats	9	0.0%	0.0%	0.0%	Carpet/Upholstery	6,920	7.2%	4.8%	9.7%
Frozen Food Polycoats	5	0.0%	0.0%	0.0%	Leather	293	0.3%	0.1%	0.5%
Compostable/Soiled	149	0.2%	0.1%	0.2%	Disposable Diapers	81	0.1%	0.0%	0.2%
Paper/Other Materials	640	0.7%	0.3%	1.1%	Animal By-Products	165	0.2%	0.0%	0.3%
Other Paper	149	0.2%	0.0%	0.3%	Rubber Products	715	0.7%	0.3%	1.2%
Plastic	4,291	4.5%			Tires	109	0.1%	0.0%	0.3%
PET Pop and Liquor	18	0.0%	0.0%	0.0%	Ash	16	0.0%	0.0%	0.0%
Other PET Bottles	12	0.0%	0.0%	0.0%	Furniture	9,230	9.7%	6.5%	12.8%
HDPE Milk and Juice	28	0.0%	0.0%	0.1%	Mattresses	1,259	1.3%	0.5%	2.1%
Other HDPE Bottles	246	0.3%	0.0%	0.5%	Small Appliances	962	1.0%	0.5%	1.5%
Other Plastic Bottles	20	0.0%	0.0%	0.0%	A/V Equipment	563	0.6%	0.2%	1.0%
Jars and Tubs	181	0.2%	0.0%	0.4%	Monitors and TVs	507	0.5%	0.1%	1.0%
Expanded Polystyrene	129	0.1%	0.1%	0.2%	Other Computer Components	290	0.3%	0.0%	0.6%
Other Rigid Packaging	96	0.1%	0.1%	0.1%	Ceramics/Porcelain	967	1.0%	0.3%	1.8%
Grocery/Bread Bags	34	0.0%	0.0%	0.0%	Non-distinct Fines	36	0.0%	0.0%	0.1%
Garbage Bags	67	0.1%	0.0%	0.1%	Misc. Organics	133	0.1%	0.0%	0.3%
Other Film	390	0.4%	0.2%	0.6%	Misc. Inorganics	198	0.2%	0.0%	0.5%
Plastic Products	1,850	1.9%	1.3%	2.6%	CDL Wastes	42,755	44.7%		
Plastic/Other Materials	1,219	1.3%	0.8%	1.7%	Dimension Lumber	9,594	10.0%	7.1%	13.0%
Glass	1,543	1.6%			Other Untreated Wood	1,155	1.2%	0.5%	2.0%
Clear Beverage	108	0.1%	0.0%	0.2%	Treated Wood	5,346	5.6%	3.5%	7.7%
Green Beverage	51	0.1%	0.0%	0.1%	Contaminated Wood	5,950	6.2%	4.2%	8.2%
Brown Beverage	67	0.1%	0.0%	0.1%	New Gypsum Scrap	2,231	2.3%	0.9%	3.7%
Container Glass	41	0.0%	0.0%	0.1%	Demo Gypsum Scrap	5,141	5.4%	3.0%	7.7%
Fluorescent Tubes	32	0.0%	0.0%	0.1%	Fiberglass Insulation	144	0.2%	0.0%	0.3%
Other Glass	1,244	1.3%	0.5%	2.1%	Rock/Concrete/Brick	4,847	5.1%	2.8%	7.4%
Metal	9,239	9.7%			Asphaltic Roofing	1,794	1.9%	0.4%	3.3%
Aluminum Cans	35	0.0%	0.0%	0.1%	Other Construction Debris	5,081	5.3%	3.0%	7.7%
Alum. Foil/Containers	4	0.0%	0.0%	0.0%	Sand/Soil/Dirt	1,472	1.5%	0.4%	2.6%
Other Aluminum	347	0.4%	0.0%	0.8%	Hazardous	884	0.9%		
Other Nonferrous	189	0.2%	0.1%	0.3%	Latex Paints	302	0.3%	0.0%	0.6%
Tin Food Cans	24	0.0%	0.0%	0.0%	Hazardous Adhesives/Glues	56	0.1%	0.0%	0.1%
Empty Aerosol Cans	24	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	125	0.1%	0.0%	0.3%
Other Ferrous	4,221	4.4%	3.0%	5.8%	Oil-based Paints/Solvents	22	0.0%	0.0%	0.0%
Mixed Metals/Materials	4,392	4.6%	3.2%	6.0%	Cleaners	8	0.0%	0.0%	0.0%
Motor Oil Filters	2	0.0%	0.0%	0.0%	Pesticides/Herbicides	141	0.1%	0.0%	0.3%
					Dry-Cell Batteries	98	0.1%	0.0%	0.2%
					Wet-Cell Batteries	3	0.0%	0.0%	0.0%
					Gasoline/Kerosene	14	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	4	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	95,559				Other Hazardous Chemicals	52	0.1%	0.0%	0.1%
Sample Count	154				Other NonHazardous Chemicals	59	0.1%	0.0%	0.2%

6.3 Composition by Season

As shown in Figure 6-3, *CDL wastes* accounted for a substantial portion of the self-haul substream during the year 2000. *CDL* disposal appeared to reach a peak of approximately 49% in the autumn. In addition, *other materials* composed a relatively large percentage of self-haul waste across seasons: 31% in the spring, 22% in the summer, 26% in the autumn, and 27% in the winter. *CDL wastes* includes such components as *dimension lumber, sand/soil/dirt, and gypsum scrap*. *Other materials* includes components such as *textiles/clothing, carpet/upholstery, and furniture*.

Figure 6-3 Self-Haul Composition Summary: by Season



6.3.1 Spring

A total of 40 self-haul samples were taken during the spring months of 2000 (March – May). Approximately 26,000 tons of self-haul waste was disposed during the spring of 2000. The composition estimates for this subpopulation were applied to the 26,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 6-10, the top ten components summed to approximately 71% of the total spring tonnage. *Furniture* was the largest single component, accounting for about 15% of the total, by weight. *Dimension lumber, contaminated wood, carpet/upholstery, and mixed metals/materials* were also large components of waste sampled in the spring. Table 6-14 lists the full composition results for self-haul waste disposed in the spring.

**Table 6-10 Top Ten Components: Self-Haul in Spring
(March – May 2000)**

Component	Mean	Cum. %	Tons
Furniture	15.4%	15.4%	4,022
Dimension Lumber	11.2%	26.6%	2,927
Contaminated Wood	8.0%	34.6%	2,094
Carpet/Upholstery	7.6%	42.2%	1,996
Mixed Metals/Materials	6.9%	49.1%	1,810
Other Construction Debris	4.9%	54.0%	1,288
Prunings	4.7%	58.7%	1,222
Other Ferrous Metal	4.6%	63.3%	1,191
Demo Gypsum Scrap	4.1%	67.3%	1,069
Treated Wood	3.7%	71.0%	961
Total	71.0%		18,580

6.3.2 Summer

During the summer (June – August, 2000), 60 self-haul loads were sampled. Approximately 29,000 tons of self-haul waste was disposed during the summer of 2000. The composition estimates for this subpopulation were applied to the 29,000 tons to estimate the amount of waste disposed for each component category. *Other construction debris, carpet/upholstery, dimension lumber, furniture, rock/concrete/brick, and asphaltic roofing* were all large components of waste disposed in the summer (each greater than 5%, by weight). Table 6-11 contains a list of the top ten components, which summed to about 62% of the total summer tonnage. Refer to Table 6-15 for the complete composition results of self-haul waste disposed during the summer of 2000.

**Table 6-11 Top Ten Components: Self-Haul in Summer
(June – August 2000)**

Component	Mean	Cum. %	Tons
Other Construction Debris	9.7%	9.7%	2,761
Carpet/Upholstery	8.5%	18.1%	2,415
Dimension Lumber	7.8%	25.9%	2,213
Furniture	6.7%	32.6%	1,924
Rock/Concrete/Brick	6.0%	38.6%	1,709
Asphaltic Roofing	5.3%	44.0%	1,522
Leaves and Grass	4.7%	48.6%	1,330
Contaminated Wood	4.6%	53.2%	1,317
Demo Gypsum Scrap	4.3%	57.6%	1,231
Other Ferrous Metal	4.1%	61.7%	1,178
Total	61.7%		17,601

6.3.3 Autumn

A total of 60 self-haul loads were sampled during the autumn (September – November, 2000). Approximately 26,000 tons of self-haul waste was disposed during the autumn of 2000. The composition estimates for this subpopulation were applied to the 26,000 tons to estimate the amount of waste disposed for each component category. As shown in Table 6-12, *dimension lumber, contaminated wood, carpet/upholstery, rock/concrete/brick, furniture, treated wood, and demo gypsum scrap* were all large components of self-haul waste disposed during the autumn months. When combined, the top ten components accounted for almost 69% of the total, by weight. Table 6-16 lists the detailed composition results for samples taken from September to November 2000.

**Table 6-12 Top Ten Components: Self-Haul in Autumn
(September – November 2000)**

Component	Mean	Cum. %	Tons
Dimension Lumber	10.6%	10.6%	2,724
Contaminated Wood	10.2%	20.8%	2,636
Carpet/Upholstery	9.1%	29.9%	2,330
Rock/Concrete/Brick	7.8%	37.7%	1,998
Furniture	7.6%	45.2%	1,953
Treated Wood	6.1%	51.4%	1,580
Demo Gypsum Scrap	5.2%	56.6%	1,331
Leaves and Grass	4.4%	60.9%	1,120
Other Construction Debris	4.0%	65.0%	1,040
Other Ferrous Metal	3.5%	68.5%	913
Total	68.5%		17,625

6.3.4 Winter

From December through February 2000, a total of 40 samples were taken from self-haul loads. Approximately 21,000 tons of self-haul waste was disposed during the winter of 2000. The composition estimates for this subpopulation were applied to the 21,000 tons to estimate the amount of waste disposed for each component category. Table 6-13 lists the top ten components of waste disposed during the winter. *Dimension lumber, furniture, treated wood, demo gypsum scrap, carpet/upholstery, and mixed metals/materials* were all large components of this waste, summing to approximately 67% of the total, by weight. Please see Table 6-17 for a list of the detailed composition results.

**Table 6-13 Top Ten Components: Self-Haul in Winter
(January, February, and December 2000)**

Component	Mean	Cum. %	Tons
Dimension Lumber	11.6%	11.6%	2,493
Furniture	9.9%	21.5%	2,122
Treated Wood	9.0%	30.5%	1,923
Demo Gypsum Scrap	8.0%	38.5%	1,723
Carpet/Upholstery	5.7%	44.2%	1,220
Mixed Metals/Materials	5.3%	49.5%	1,141
Other Ferrous Metal	4.8%	54.3%	1,033
Rock/Concrete/Brick	4.4%	58.7%	944
Unwaxed OCC/Kraft Paper	4.3%	63.0%	924
Leaves and Grass	4.0%	67.0%	858
Total	67.0%		14,381

6.3.5 Comparisons between Seasons

Furniture, dimension lumber, demo gypsum scrap, carpet/upholstery, other ferrous metal, and leaves and grass were top ten components across all four seasons. *Prunings* was a top ten component only during the spring, while *asphaltic roofing* was a top ten component specific to the summer. None of the top ten components in autumn were specific to that season, but *unwaxed OCC/Kraft paper* was a top ten component in the winter only.

**Table 6-15 Composition by Weight: Self-Haul in Summer
(June – August 2000)**

Calculated at a 90% confidence interval

	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	1,402	4.9%			Organics	3,030	10.6%		
Newspaper	43	0.2%	0.1%	0.2%	Pallets	558	2.0%	0.1%	3.8%
OCC/Kraft, unwaxed	636	2.2%	1.0%	3.4%	Crates/Boxes	94	0.3%	0.0%	0.7%
OCC/Kraft, waxed	84	0.3%	0.0%	0.8%	Leaves and Grass	1,330	4.7%	2.1%	7.2%
Office Paper	39	0.1%	0.0%	0.3%	Prunings	732	2.6%	0.1%	5.0%
Computer Paper	0	0.0%	0.0%	0.0%	Food	315	1.1%	0.5%	1.7%
Mixed Low Grade	272	1.0%	0.3%	1.6%	Other Materials	6,156	21.6%		
Phone Books	218	0.8%	0.1%	1.4%	Textiles/Clothing	412	1.4%	0.4%	2.5%
Milk/Juice Polycoats	4	0.0%	0.0%	0.0%	Carpet/Upholstery	2,415	8.5%	4.6%	12.3%
Frozen Food Polycoats	1	0.0%	0.0%	0.0%	Leather	63	0.2%	0.0%	0.5%
Compostable/Soiled	33	0.1%	0.0%	0.2%	Disposable Diapers	14	0.1%	0.0%	0.1%
Paper/Other Materials	40	0.1%	0.1%	0.2%	Animal By-Products	62	0.2%	0.0%	0.5%
Other Paper	31	0.1%	0.0%	0.3%	Rubber Products	218	0.8%	0.1%	1.4%
Plastic	1,310	4.6%			Tires	27	0.1%	0.0%	0.3%
PET Pop and Liquor	9	0.0%	0.0%	0.1%	Ash	14	0.0%	0.0%	0.1%
Other PET Bottles	8	0.0%	0.0%	0.0%	Furniture	1,924	6.7%	3.0%	10.5%
HDPE Milk and Juice	20	0.1%	0.0%	0.1%	Mattresses	336	1.2%	0.0%	2.4%
Other HDPE Bottles	218	0.8%	0.0%	1.6%	Small Appliances	124	0.4%	0.1%	0.7%
Other Plastic Bottles	13	0.0%	0.0%	0.1%	A/V Equipment	89	0.3%	0.0%	0.7%
Jars and Tubs	9	0.0%	0.0%	0.1%	Monitors and TVs	193	0.7%	0.0%	1.5%
Expanded Polystyrene	59	0.2%	0.0%	0.4%	Other Computer Components	0	0.0%	0.0%	0.0%
Other Rigid Packaging	22	0.1%	0.0%	0.1%	Ceramics/Porcelain	227	0.8%	0.0%	1.7%
Grocery/Bread Bags	9	0.0%	0.0%	0.0%	Non-distinct Fines	16	0.1%	0.0%	0.1%
Garbage Bags	25	0.1%	0.0%	0.1%	Misc. Organics	7	0.0%	0.0%	0.0%
Other Film	113	0.4%	0.1%	0.7%	Misc. Inorganics	13	0.0%	0.0%	0.1%
Plastic Products	549	1.9%	0.9%	3.0%	CDL Wastes	13,368	46.9%		
Plastic/Other Materials	256	0.9%	0.3%	1.5%	Dimension Lumber	2,213	7.8%	3.4%	12.1%
Glass	731	2.6%			Other Untreated Wood	81	0.3%	0.0%	0.7%
Clear Beverage	64	0.2%	0.0%	0.5%	Treated Wood	1,012	3.5%	1.7%	5.4%
Green Beverage	24	0.1%	0.0%	0.2%	Contaminated Wood	1,317	4.6%	1.6%	7.6%
Brown Beverage	16	0.1%	0.0%	0.1%	New Gypsum Scrap	567	2.0%	0.0%	4.2%
Container Glass	30	0.1%	0.0%	0.2%	Demo Gypsum Scrap	1,231	4.3%	0.4%	8.2%
Fluorescent Tubes	3	0.0%	0.0%	0.0%	Fiberglass Insulation	79	0.3%	0.0%	0.6%
Other Glass	594	2.1%	0.1%	4.1%	Rock/Concrete/Brick	1,709	6.0%	0.0%	12.0%
Metal	2,367	8.3%			Asphaltic Roofing	1,522	5.3%	0.8%	9.9%
Aluminum Cans	23	0.1%	0.0%	0.2%	Other Construction Debris	2,761	9.7%	2.8%	16.6%
Alum. Foil/Containers	2	0.0%	0.0%	0.0%	Sand/Soil/Dirt	877	3.1%	0.0%	6.6%
Other Aluminum	32	0.1%	0.0%	0.2%	Hazardous	168	0.6%		
Other Nonferrous	5	0.0%	0.0%	0.0%	Latex Paints	49	0.2%	0.0%	0.3%
Tin Food Cans	10	0.0%	0.0%	0.1%	Hazardous Adhesives/Glues	44	0.2%	0.0%	0.4%
Empty Aerosol Cans	2	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0	0.0%	0.0%	0.0%
Other Ferrous	1,178	4.1%	1.2%	7.1%	Oil-based Paints/Solvents	1	0.0%	0.0%	0.0%
Mixed Metals/Materials	1,114	3.9%	1.7%	6.1%	Cleaners	2	0.0%	0.0%	0.0%
Motor Oil Filters	0	0.0%	0.0%	0.0%	Pesticides/Herbicides	1	0.0%	0.0%	0.0%
					Dry-Cell Batteries	0	0.0%	0.0%	0.0%
					Wet-Cell Batteries	3	0.0%	0.0%	0.0%
					Gasoline/Kerosene	8	0.0%	0.0%	0.1%
					Motor Oil/Diesel Oil	1	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	28,532				Other Hazardous Chemicals	2	0.0%	0.0%	0.0%
Sample Count	60				Other NonHazardous Chemicals	59	0.2%	0.0%	0.5%

**Table 6-16 Composition by Weight: Self-Haul in Autumn
(September – November 2000)**

Calculated at a 90% confidence interval

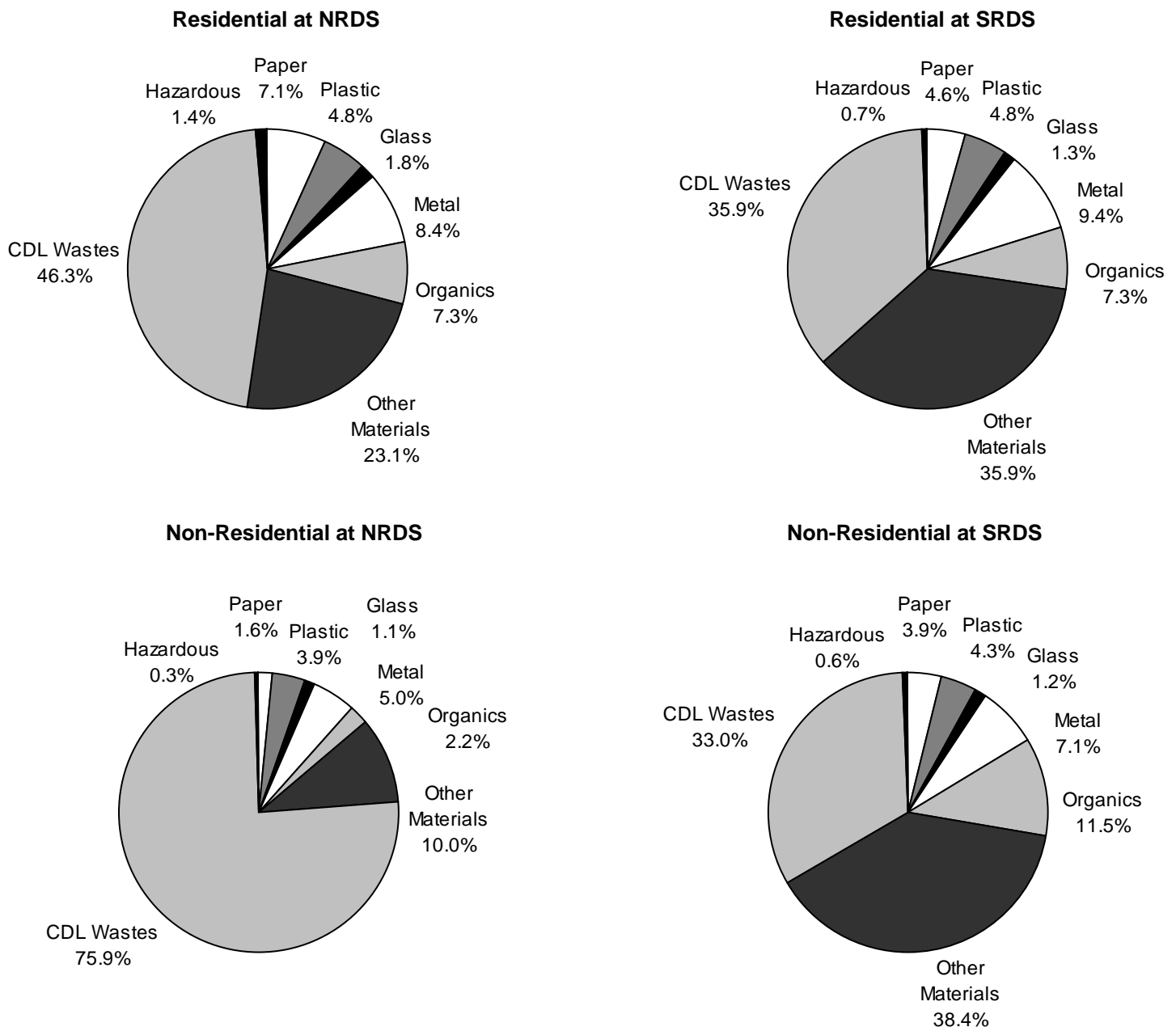
	Tons	Mean	Low	High		Tons	Mean	Low	High
Paper	1,230	4.8%			Organics	1,692	6.6%		
Newspaper	102	0.4%	0.1%	0.7%	Pallets	85	0.3%	0.0%	0.7%
OCC/Kraft, unwaxed	363	1.4%	0.9%	1.9%	Crates/Boxes	6	0.0%	0.0%	0.1%
OCC/Kraft, waxed	1	0.0%	0.0%	0.0%	Leaves and Grass	1,120	4.4%	0.0%	9.3%
Office Paper	79	0.3%	0.0%	0.6%	Prunings	212	0.8%	0.2%	1.5%
Computer Paper	0	0.0%	0.0%	0.0%	Food	270	1.0%	0.3%	1.8%
Mixed Low Grade	293	1.1%	0.3%	1.9%	Other Materials	6,698	26.0%		
Phone Books	35	0.1%	0.0%	0.4%	Textiles/Clothing	367	1.4%	0.4%	2.4%
Milk/Juice Polycoats	0	0.0%	0.0%	0.0%	Carpet/Upholstery	2,330	9.1%	3.7%	14.4%
Frozen Food Polycoats	0	0.0%	0.0%	0.0%	Leather	18	0.1%	0.0%	0.2%
Compostable/Soiled	27	0.1%	0.0%	0.2%	Disposable Diapers	6	0.0%	0.0%	0.0%
Paper/Other Materials	294	1.1%	0.3%	2.0%	Animal By-Products	102	0.4%	0.0%	0.9%
Other Paper	35	0.1%	0.0%	0.3%	Rubber Products	135	0.5%	0.0%	1.0%
Plastic	1,588	6.2%			Tires	92	0.4%	0.0%	0.9%
PET Pop and Liquor	6	0.0%	0.0%	0.0%	Ash	5	0.0%	0.0%	0.1%
Other PET Bottles	2	0.0%	0.0%	0.0%	Furniture	1,953	7.6%	4.0%	11.2%
HDPE Milk and Juice	1	0.0%	0.0%	0.0%	Mattresses	107	0.4%	0.1%	0.7%
Other HDPE Bottles	7	0.0%	0.0%	0.0%	Small Appliances	355	1.4%	0.4%	2.4%
Other Plastic Bottles	0	0.0%	0.0%	0.0%	A/V Equipment	290	1.1%	0.4%	1.8%
Jars and Tubs	42	0.2%	0.0%	0.3%	Monitors and TVs	258	1.0%	0.0%	2.1%
Expanded Polystyrene	32	0.1%	0.0%	0.2%	Other Computer Components	269	1.0%	0.0%	2.1%
Other Rigid Packaging	20	0.1%	0.0%	0.1%	Ceramics/Porcelain	387	1.5%	0.0%	3.7%
Grocery/Bread Bags	7	0.0%	0.0%	0.0%	Non-distinct Fines	5	0.0%	0.0%	0.1%
Garbage Bags	8	0.0%	0.0%	0.0%	Misc. Organics	16	0.1%	0.0%	0.1%
Other Film	93	0.4%	0.0%	0.7%	Misc. Inorganics	1	0.0%	0.0%	0.0%
Plastic Products	695	2.7%	1.0%	4.4%	CDL Wastes	12,501	48.6%		
Plastic/Other Materials	675	2.6%	1.2%	4.0%	Dimension Lumber	2,724	10.6%	4.6%	16.6%
Glass	134	0.5%			Other Untreated Wood	180	0.7%	0.2%	1.2%
Clear Beverage	19	0.1%	0.0%	0.2%	Treated Wood	1,580	6.1%	2.2%	10.0%
Green Beverage	0	0.0%	0.0%	0.0%	Contaminated Wood	2,636	10.2%	5.3%	15.2%
Brown Beverage	0	0.0%	0.0%	0.0%	New Gypsum Scrap	559	2.2%	0.0%	4.6%
Container Glass	3	0.0%	0.0%	0.0%	Demo Gypsum Scrap	1,331	5.2%	1.7%	8.6%
Fluorescent Tubes	22	0.1%	0.0%	0.2%	Fiberglass Insulation	25	0.1%	0.0%	0.2%
Other Glass	90	0.3%	0.1%	0.6%	Rock/Concrete/Brick	1,998	7.8%	3.5%	12.1%
Metal	1,687	6.6%			Asphaltic Roofing	29	0.1%	0.0%	0.2%
Aluminum Cans	3	0.0%	0.0%	0.0%	Other Construction Debris	1,040	4.0%	1.1%	7.0%
Alum. Foil/Containers	0	0.0%	0.0%	0.0%	Sand/Soil/Dirt	401	1.6%	0.5%	2.7%
Other Aluminum	252	1.0%	0.0%	2.4%	Hazardous	200	0.8%		
Other Nonferrous	61	0.2%	0.0%	0.5%	Latex Paints	36	0.1%	0.0%	0.3%
Tin Food Cans	3	0.0%	0.0%	0.0%	Hazardous Adhesives/Glues	15	0.1%	0.0%	0.1%
Empty Aerosol Cans	4	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	71	0.3%	0.0%	0.6%
Other Ferrous	913	3.5%	1.5%	5.6%	Oil-based Paints/Solvents	13	0.1%	0.0%	0.1%
Mixed Metals/Materials	449	1.7%	0.9%	2.6%	Cleaners	0	0.0%	0.0%	0.0%
Motor Oil Filters	0	0.0%	0.0%	0.0%	Pesticides/Herbicides	26	0.1%	0.0%	0.2%
					Dry-Cell Batteries	28	0.1%	0.0%	0.3%
					Wet-Cell Batteries	0	0.0%	0.0%	0.0%
					Gasoline/Kerosene	0	0.0%	0.0%	0.0%
					Motor Oil/Diesel Oil	0	0.0%	0.0%	0.0%
					Asbestos	0	0.0%	0.0%	0.0%
					Explosives	0	0.0%	0.0%	0.0%
Total Tons	25,729				Other Hazardous Chemicals	10	0.0%	0.0%	0.1%
Sample Count	60				Other NonHazardous Chemicals	0	0.0%	0.0%	0.0%

6.4 Composition by Generator Type, by Site

This section provides a brief overview of the wastes self-hauled by residential and non-residential generators to the NRDS and SRDS. One of the purposes of this study was to determine the ratio of residential to non-residential self-haul waste. To accomplish this, self-haul samples were not stratified by vehicle type as they were for the 1996 study.

As shown in Figure 6-4, *CDL wastes* accounted for over 30% of the total for residential and non-residential waste at both the NRDS and the SRDS. *CDL wastes* includes such components as *dimension lumber, sand/soil/dirt, and gypsum scrap*.

**Figure 6-4 Self-Haul Composition Summary: by Generator Type, by Site
(January – December 2000)**



6.4.1 Residential Generators, by Site

6.4.1.1 North Recycling and Disposal Station (NRDS)

A total of 79 samples were taken from residential loads at the NRDS. As shown in Table 6-18, the top ten components accounted for a combined total of 65% of the tonnage. Table 6-22 lists detailed composition results for the residential waste disposed at the NRDS.

**Table 6-18 Top Ten Components: Self-Haul Residential at NRDS
(January – December 2000)**

Component	Mean	Cum. %
Dimension Lumber	11.8%	11.8%
Contaminated Wood	9.6%	21.5%
Carpet/Upholstery	7.6%	29.1%
Furniture	7.5%	36.6%
Rock/Concrete/Brick	5.9%	42.4%
Demo Gypsum Scrap	5.5%	47.9%
Other Construction Debris	5.2%	53.2%
Mixed Metals/Materials	4.5%	57.7%
Treated Wood	4.0%	61.7%
Other Ferrous Metal	3.4%	65.1%
Total	65.1%	

6.4.1.2 South Recycling and Disposal Station (SRDS)

A total of 62 samples were taken from residential loads at the SRDS. As shown in Table 6-19, the top ten components accounted for a combined total of 66% of the tonnage. Table 6-23 lists detailed composition results for the residential waste disposed at the SRDS.

**Table 6-19 Top Ten Components: Self-Haul Residential at SRDS
(January – December 2000)**

Component	Mean	Cum. %
Furniture	13.8%	13.8%
Carpet/Upholstery	10.7%	24.6%
Dimension Lumber	7.2%	31.7%
Treated Wood	6.8%	38.6%
Contaminated Wood	6.5%	45.1%
Demo Gypsum Scrap	4.5%	49.6%
Other Ferrous Metal	4.5%	54.2%
Mixed Metals/Materials	4.5%	58.6%
Leaves and Grass	4.0%	62.6%
Mattresses	3.1%	65.7%
Total	65.7%	

6.4.2 Non-Residential Generators, by Site

6.4.2.1 North Recycling and Disposal Station (NRDS)

A total of 16 samples were taken from non-residential loads at the NRDS. As shown in Table 6-20, the top ten components accounted for a combined total of 82% of the tonnage. Table 6-24 lists detailed composition results for the non-residential waste disposed at the NRDS.

**Table 6-20 Top Ten Components: Self-Haul Non-Residential at NRDS
(January – December 2000)**

Component	Mean	Cum. %
Dimension Lumber	17.7%	17.7%
Other Construction Debris	11.3%	29.0%
Demo Gypsum Scrap	11.1%	40.1%
Rock/Concrete/Brick	10.6%	50.7%
Contaminated Wood	6.7%	57.4%
Sand/Soil/Dirt	6.6%	64.0%
Carpet/Upholstery	5.9%	69.9%
New Gypsum Scrap	4.9%	74.8%
Asphaltic Roofing	3.8%	78.6%
Other Ferrous Metal	3.2%	81.8%
Total	81.8%	

6.4.2.2 South Recycling and Disposal Station (SRDS)

A total of 34 samples were taken from non-residential loads at the SRDS. As shown in Table 6-21, the top ten components accounted for a combined total of 65% of the tonnage. Table 6-25 lists detailed composition results for the non-residential waste disposed at the SRDS.

**Table 6-21 Top Ten Components: Self-Haul Non-Residential at SRDS
(January – December 2000)**

Component	Mean	Cum. %
Furniture	14.1%	14.1%
Carpet/Upholstery	10.8%	25.0%
Leaves and Grass	8.0%	33.0%
Dimension Lumber	7.8%	40.8%
New Gypsum Scrap	6.2%	46.9%
Contaminated Wood	4.9%	51.8%
Rock/Concrete/Brick	3.8%	55.6%
Other Ferrous Metal	3.5%	59.1%
Demo Gypsum Scrap	3.1%	62.2%
Other Untreated Wood	2.7%	64.9%
Total	64.9%	

**Table 6-22 Composition by Weight: Self-Haul Residential at NRDS
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	7.1%			Organics	7.3%		
Newspaper	0.5%	0.2%	0.8%	Pallets	0.2%	0.0%	0.4%
OCC/Kraft, unwaxed	2.5%	1.5%	3.6%	Crates/Boxes	0.2%	0.0%	0.4%
OCC/Kraft, waxed	0.1%	0.0%	0.4%	Leaves and Grass	2.0%	0.5%	3.6%
Office Paper	0.3%	0.1%	0.5%	Prunings	3.2%	1.0%	5.3%
Computer Paper	0.0%	0.0%	0.0%	Food	1.7%	0.9%	2.5%
Mixed Low Grade	1.5%	0.8%	2.3%	Other Materials	23.1%		
Phone Books	0.5%	0.1%	1.0%	Textiles/Clothing	1.9%	1.0%	2.7%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	7.6%	3.9%	11.3%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.1%	0.0%	0.3%
Compostable/Soiled	0.2%	0.1%	0.3%	Disposable Diapers	0.2%	0.0%	0.3%
Paper/Other Materials	1.1%	0.2%	2.0%	Animal By-Products	0.0%	0.0%	0.0%
Other Paper	0.2%	0.0%	0.4%	Rubber Products	0.3%	0.1%	0.5%
Plastic	4.8%			Tires	0.4%	0.0%	0.8%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.1%
Other PET Bottles	0.0%	0.0%	0.0%	Furniture	7.5%	4.3%	10.7%
HDPE Milk and Juice	0.0%	0.0%	0.1%	Mattresses	1.0%	0.2%	1.9%
Other HDPE Bottles	0.1%	0.0%	0.1%	Small Appliances	1.1%	0.3%	2.0%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.6%	0.1%	1.2%
Jars and Tubs	0.1%	0.0%	0.1%	Monitors and TVs	0.1%	0.0%	0.3%
Expanded Polystyrene	0.5%	0.2%	0.8%	Other Computer Components	0.6%	0.0%	1.1%
Other Rigid Packaging	0.1%	0.1%	0.2%	Ceramics/Porcelain	0.7%	0.2%	1.1%
Grocery/Bread Bags	0.0%	0.0%	0.0%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	0.1%	0.0%	0.1%	Misc. Organics	0.9%	0.0%	1.8%
Other Film	0.4%	0.2%	0.5%	Misc. Inorganics	0.1%	0.0%	0.2%
Plastic Products	2.6%	1.3%	3.8%	CDL Wastes	46.3%		
Plastic/Other Materials	0.9%	0.4%	1.5%	Dimension Lumber	11.8%	7.4%	16.3%
Glass	1.8%			Other Untreated Wood	0.9%	0.4%	1.5%
Clear Beverage	0.0%	0.0%	0.1%	Treated Wood	4.0%	1.3%	6.6%
Green Beverage	0.0%	0.0%	0.1%	Contaminated Wood	9.6%	6.3%	13.0%
Brown Beverage	0.1%	0.0%	0.1%	New Gypsum Scrap	0.3%	0.0%	0.7%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	5.5%	2.4%	8.7%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.2%	0.0%	0.3%
Other Glass	1.6%	0.5%	2.7%	Rock/Concrete/Brick	5.9%	2.1%	9.6%
Metal	8.4%			Asphaltic Roofing	2.2%	0.1%	4.2%
Aluminum Cans	0.0%	0.0%	0.0%	Other Construction Debris	5.2%	1.8%	8.7%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.7%	0.1%	1.2%
Other Aluminum	0.1%	0.0%	0.2%	Hazardous	1.4%		
Other Nonferrous	0.2%	0.0%	0.4%	Latex Paints	0.5%	0.1%	1.0%
Tin Food Cans	0.1%	0.0%	0.1%	Hazardous Adhesives/Glues	0.2%	0.0%	0.4%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.1%	0.0%	0.4%
Other Ferrous	3.4%	1.7%	5.1%	Oil-based Paints/Solvents	0.0%	0.0%	0.1%
Mixed Metals/Materials	4.5%	2.5%	6.5%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.1%	0.0%	0.2%
				Dry-Cell Batteries	0.2%	0.0%	0.3%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.1%	0.0%	0.4%
				Other NonHazardous Chemicals	0.1%	0.0%	0.2%
Sample Count	79						

**Table 6-23 Composition by Weight: Self-Haul Residential at SRDS
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	4.6%			Organics	7.3%		
Newspaper	0.5%	0.0%	1.0%	Pallets	0.9%	0.0%	2.1%
OCC/Kraft, unwaxed	2.1%	0.9%	3.4%	Crates/Boxes	0.1%	0.0%	0.4%
OCC/Kraft, waxed	0.0%	0.0%	0.0%	Leaves and Grass	4.0%	1.7%	6.3%
Office Paper	0.1%	0.0%	0.1%	Prunings	1.3%	0.0%	3.2%
Computer Paper	0.0%	0.0%	0.0%	Food	0.9%	0.4%	1.4%
Mixed Low Grade	1.2%	0.5%	1.9%	Other Materials	35.9%		
Phone Books	0.1%	0.0%	0.1%	Textiles/Clothing	1.5%	0.5%	2.5%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	10.7%	6.4%	15.0%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.1%	0.0%	0.3%
Compostable/Soiled	0.2%	0.1%	0.2%	Disposable Diapers	0.1%	0.0%	0.1%
Paper/Other Materials	0.4%	0.1%	0.7%	Animal By-Products	0.4%	0.0%	0.8%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.5%	0.0%	1.1%
Plastic	4.8%			Tires	0.1%	0.0%	0.2%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.1%
Other PET Bottles	0.0%	0.0%	0.0%	Furniture	13.8%	8.9%	18.7%
HDPE Milk and Juice	0.0%	0.0%	0.0%	Mattresses	3.1%	0.6%	5.6%
Other HDPE Bottles	0.1%	0.0%	0.2%	Small Appliances	1.0%	0.2%	1.8%
Other Plastic Bottles	0.0%	0.0%	0.1%	A/V Equipment	1.5%	0.0%	2.9%
Jars and Tubs	0.4%	0.0%	1.0%	Monitors and TVs	1.7%	0.1%	3.3%
Expanded Polystyrene	0.1%	0.0%	0.1%	Other Computer Components	0.1%	0.0%	0.3%
Other Rigid Packaging	0.1%	0.0%	0.1%	Ceramics/Porcelain	1.0%	0.0%	2.0%
Grocery/Bread Bags	0.0%	0.0%	0.1%	Non-distinct Fines	0.0%	0.0%	0.0%
Garbage Bags	0.1%	0.0%	0.1%	Misc. Organics	0.1%	0.0%	0.2%
Other Film	0.2%	0.1%	0.4%	Misc. Inorganics	0.1%	0.0%	0.1%
Plastic Products	2.0%	1.1%	3.0%	CDL Wastes	35.9%		
Plastic/Other Materials	1.7%	0.8%	2.5%	Dimension Lumber	7.2%	4.2%	10.1%
Glass	1.3%			Other Untreated Wood	0.7%	0.0%	1.8%
Clear Beverage	0.3%	0.0%	0.6%	Treated Wood	6.8%	3.7%	10.0%
Green Beverage	0.2%	0.0%	0.5%	Contaminated Wood	6.5%	3.6%	9.5%
Brown Beverage	0.1%	0.0%	0.1%	New Gypsum Scrap	1.4%	0.3%	2.4%
Container Glass	0.1%	0.0%	0.2%	Demo Gypsum Scrap	4.5%	1.1%	7.9%
Fluorescent Tubes	0.0%	0.0%	0.1%	Fiberglass Insulation	0.3%	0.0%	0.6%
Other Glass	0.6%	0.2%	1.0%	Rock/Concrete/Brick	2.4%	0.8%	3.9%
Metal	9.4%			Asphaltic Roofing	1.8%	0.0%	4.4%
Aluminum Cans	0.1%	0.0%	0.2%	Other Construction Debris	1.8%	0.7%	2.9%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	2.5%	0.0%	5.5%
Other Aluminum	0.1%	0.0%	0.3%	Hazardous	0.7%		
Other Nonferrous	0.1%	0.0%	0.2%	Latex Paints	0.1%	0.0%	0.1%
Tin Food Cans	0.0%	0.0%	0.1%	Hazardous Adhesives/Glues	0.1%	0.0%	0.3%
Empty Aerosol Cans	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	0.2%	0.0%	0.5%
Other Ferrous	4.5%	2.7%	6.4%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	4.5%	2.4%	6.6%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.2%	0.0%	0.4%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count							

Table 6-24 Composition by Weight: Self-Haul Non-Residential at NRDS¹⁵
(January – December 2000)

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	1.6%			Organics	2.2%		
Newspaper	0.2%	0.0%	0.4%	Pallets	0.0%	0.0%	0.0%
OCC/Kraft, unwaxed	0.9%	0.1%	1.7%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.0%	0.0%	0.0%	Leaves and Grass	0.0%	0.0%	0.0%
Office Paper	0.2%	0.0%	0.4%	Prunings	1.9%	0.0%	4.2%
Computer Paper	0.0%	0.0%	0.0%	Food	0.2%	0.0%	0.6%
Mixed Low Grade	0.1%	0.0%	0.3%	Other Materials	10.0%		
Phone Books	0.1%	0.0%	0.3%	Textiles/Clothing	5.7%	0.0%	1.5%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	0.9%	0.0%	14.6%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.0%	0.0%	0.0%
Compostable/Soiled	0.0%	0.0%	0.1%	Disposable Diapers	0.0%	0.0%	0.0%
Paper/Other Materials	0.1%	0.0%	0.1%	Animal By-Products	0.1%	0.0%	0.1%
Other Paper	0.0%	0.0%	0.0%	Rubber Products	0.0%	0.0%	0.0%
Plastic	3.9%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.0%	0.0%	0.0%	Furniture	1.2%	0.0%	2.8%
HDPE Milk and Juice	0.0%	0.0%	0.0%	Mattresses	1.8%	0.0%	4.8%
Other HDPE Bottles	0.0%	0.0%	0.1%	Small Appliances	0.0%	0.0%	0.0%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.3%	0.0%	0.8%
Jars and Tubs	0.1%	0.0%	0.2%	Monitors and TVs	0.0%	0.0%	0.0%
Expanded Polystyrene	0.3%	0.0%	0.7%	Other Computer Components	0.0%	0.0%	0.0%
Other Rigid Packaging	0.0%	0.0%	0.0%	Ceramics/Porcelain	0.0%	0.0%	0.0%
Grocery/Bread Bags	0.0%	0.0%	0.0%	Non-distinct Fines	0.0%	0.0%	0.1%
Garbage Bags	0.0%	0.0%	0.0%	Misc. Organics	0.0%	0.0%	0.0%
Other Film	1.2%	0.0%	2.5%	Misc. Inorganics	0.0%	0.0%	0.0%
Plastic Products	1.4%	0.0%	3.6%	CDL Wastes	75.9%		
Plastic/Other Materials	0.9%	0.0%	2.2%	Dimension Lumber	17.7%	0.0%	36.6%
Glass	1.1%			Other Untreated Wood	0.3%	0.0%	0.7%
Clear Beverage	0.0%	0.0%	0.0%	Treated Wood	2.8%	0.0%	5.9%
Green Beverage	0.0%	0.0%	0.0%	Contaminated Wood	6.7%	0.0%	13.8%
Brown Beverage	0.1%	0.0%	0.2%	New Gypsum Scrap	4.9%	0.0%	13.1%
Container Glass	0.0%	0.0%	0.0%	Demo Gypsum Scrap	11.1%	0.0%	22.3%
Fluorescent Tubes	0.3%	0.0%	0.8%	Fiberglass Insulation	0.1%	0.0%	0.2%
Other Glass	0.8%	0.0%	2.0%	Rock/Concrete/Brick	10.6%	1.2%	20.0%
Metal	5.0%			Asphaltic Roofing	3.8%	0.0%	8.4%
Aluminum Cans	0.0%	0.0%	0.0%	Other Construction Debris	11.3%	2.6%	20.0%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	6.6%	0.0%	13.9%
Other Aluminum	0.1%	0.0%	0.2%	Hazardous	0.3%		
Other Nonferrous	0.7%	0.0%	1.6%	Latex Paints	0.1%	0.0%	0.3%
Tin Food Cans	0.0%	0.0%	0.0%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.1%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	3.2%	0.1%	6.4%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	1.0%	0.0%	2.2%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.0%	0.0%	0.0%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.1%
				Gasoline/Kerosene	0.1%	0.0%	0.2%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.1%
Sample Count	16						

¹⁵ The error rates for this subpopulation are relatively large. This is because the number of non-residential self-haul samples captured at the NRDS is relatively small.

**Table 6-25 Composition by Weight: Self-Haul Non-Residential at SRDS
(January – December 2000)**

Calculated at a 90% confidence interval

	Mean	Low	High		Mean	Low	High
Paper	3.9%			Organics	11.5%		
Newspaper	0.0%	0.0%	0.1%	Pallets	2.0%	0.0%	4.2%
OCC/Kraft, unwaxed	1.1%	0.6%	1.7%	Crates/Boxes	0.0%	0.0%	0.0%
OCC/Kraft, waxed	0.0%	0.0%	0.0%	Leaves and Grass	8.0%	1.1%	14.8%
Office Paper	0.1%	0.0%	0.1%	Prunings	1.3%	0.1%	2.6%
Computer Paper	0.0%	0.0%	0.0%	Food	0.2%	0.0%	0.3%
Mixed Low Grade	0.7%	0.2%	1.3%	Other Materials	38.4%		
Phone Books	0.3%	0.0%	0.5%	Textiles/Clothing	2.3%	0.8%	3.7%
Milk/Juice Polycoats	0.0%	0.0%	0.0%	Carpet/Upholstery	10.8%	2.6%	19.1%
Frozen Food Polycoats	0.0%	0.0%	0.0%	Leather	0.9%	0.0%	2.1%
Compostable/Soiled	0.1%	0.0%	0.2%	Disposable Diapers	0.0%	0.0%	0.0%
Paper/Other Materials	1.5%	0.0%	3.3%	Animal By-Products	0.2%	0.0%	0.5%
Other Paper	0.1%	0.0%	0.2%	Rubber Products	2.2%	0.4%	4.0%
Plastic	4.3%			Tires	0.0%	0.0%	0.0%
PET Pop and Liquor	0.0%	0.0%	0.0%	Ash	0.0%	0.0%	0.0%
Other PET Bottles	0.0%	0.0%	0.0%	Furniture	14.1%	2.8%	25.5%
HDPE Milk and Juice	0.0%	0.0%	0.0%	Mattresses	1.5%	0.0%	3.9%
Other HDPE Bottles	1.1%	0.0%	2.4%	Small Appliances	0.7%	0.1%	1.4%
Other Plastic Bottles	0.0%	0.0%	0.0%	A/V Equipment	0.8%	0.0%	1.9%
Jars and Tubs	0.2%	0.0%	0.3%	Monitors and TVs	0.7%	0.0%	1.9%
Expanded Polystyrene	0.0%	0.0%	0.0%	Other Computer Components	0.6%	0.0%	1.5%
Other Rigid Packaging	0.1%	0.0%	0.1%	Ceramics/Porcelain	2.3%	0.0%	5.0%
Grocery/Bread Bags	0.0%	0.0%	0.0%	Non-distinct Fines	0.1%	0.0%	0.2%
Garbage Bags	0.1%	0.0%	0.2%	Misc. Organics	0.3%	0.0%	0.8%
Other Film	0.1%	0.0%	0.2%	Misc. Inorganics	1.0%	0.0%	2.7%
Plastic Products	1.3%	0.3%	2.3%	CDL Wastes	33.0%		
Plastic/Other Materials	1.3%	0.2%	2.5%	Dimension Lumber	7.8%	3.4%	12.2%
Glass	1.2%			Other Untreated Wood	2.7%	0.0%	5.9%
Clear Beverage	0.0%	0.0%	0.0%	Treated Wood	2.1%	0.7%	3.4%
Green Beverage	0.0%	0.0%	0.0%	Contaminated Wood	4.9%	0.0%	9.9%
Brown Beverage	0.0%	0.0%	0.0%	New Gypsum Scrap	6.2%	0.2%	12.1%
Container Glass	0.2%	0.0%	0.4%	Demo Gypsum Scrap	3.1%	0.2%	5.9%
Fluorescent Tubes	0.0%	0.0%	0.0%	Fiberglass Insulation	0.2%	0.0%	0.5%
Other Glass	1.0%	0.0%	2.4%	Rock/Concrete/Brick	3.8%	0.0%	7.9%
Metal	7.1%			Asphaltic Roofing	0.1%	0.0%	0.3%
Aluminum Cans	0.0%	0.0%	0.0%	Other Construction Debris	1.3%	0.0%	2.6%
Alum. Foil/Containers	0.0%	0.0%	0.0%	Sand/Soil/Dirt	0.9%	0.0%	2.0%
Other Aluminum	1.0%	0.0%	2.7%	Hazardous	0.6%		
Other Nonferrous	0.0%	0.0%	0.1%	Latex Paints	0.0%	0.0%	0.0%
Tin Food Cans	0.0%	0.0%	0.0%	Hazardous Adhesives/Glues	0.0%	0.0%	0.0%
Empty Aerosol Cans	0.0%	0.0%	0.0%	NonHazardous Adhesives/Glues	0.0%	0.0%	0.0%
Other Ferrous	3.5%	1.2%	5.8%	Oil-based Paints/Solvents	0.0%	0.0%	0.0%
Mixed Metals/Materials	2.5%	0.4%	4.5%	Cleaners	0.0%	0.0%	0.0%
Motor Oil Filters	0.0%	0.0%	0.0%	Pesticides/Herbicides	0.6%	0.0%	1.5%
				Dry-Cell Batteries	0.0%	0.0%	0.0%
				Wet-Cell Batteries	0.0%	0.0%	0.0%
				Gasoline/Kerosene	0.0%	0.0%	0.0%
				Motor Oil/Diesel Oil	0.0%	0.0%	0.0%
				Asbestos	0.0%	0.0%	0.0%
				Explosives	0.0%	0.0%	0.0%
				Other Hazardous Chemicals	0.0%	0.0%	0.0%
				Other NonHazardous Chemicals	0.0%	0.0%	0.0%
Sample Count	34						

Appendix A Waste Component Categories

Waste samples were sorted by hand into 88 waste component categories. The waste categories in the Year 2000 study were nearly identical to those used in Seattle's last waste composition study (the 1998/99 residential waste study.) The two exceptions were that items containing cathode ray tubes (such as computer monitors and television sets) were sorted separately from "other computer equipment" (e.g. mice, mousepads, and keyboards).

Medical wastes were not sorted; virtually all other waste was weighed and recorded. A list of component categories and definitions follows:

Paper

NEWSPAPER: Printed newsprint (Advertising "slicks" (glossy paper) were included in this category if found mixed with newspaper; otherwise, ad slicks are included with mixed low grade paper.).

PLAIN OCC/KRAFT PAPER: Old unwaxed/uncoated corrugated container boxes and Kraft paper, and brown paper bags.

WAXED OCC/KRAFT PAPER: Old waxed/coated corrugated container boxes and Kraft paper, and brown paper bags.

OFFICE PAPER: White or lightly colored sulfite/sulfate bond, copy papers, and envelopes.

COMPUTER PAPER: Continuous-feed sulfite/sulfate/ground wood computer printouts and forms of all types, excluding carbonless paper.

MIXED LOW GRADE: Low-grade, potentially recyclable papers, including junk mail, magazines, colored papers, bleached Kraft, boxboard, mailing tubes, and paperback books.

PHONE BOOKS: Telephone directories.

MILK/JUICE POLYCOAT: Bleached polycoated milk, ice cream, and aseptic juice containers.

FROZEN FOOD POLYCOATS: Bleached and unbleached polycoated frozen/refrigerator packaging, and excluding polycoated milk/ice cream/aseptic containers.

COMPOSTABLE/SOILED PAPER: Paper towels, paper plates, waxed paper, and tissues.

PAPER/OTHER MATERIALS: Predominantly paper with other materials attached (e.g. orange juice cans and spiral notebooks).

OTHER PAPERS: Carbon/carbonless copy paper, hardcover books, and photographs.

Plastic

PET POP & LIQUOR: Polyethylene terephthalate translucent 2-liter and 16-ounce pop bottles, with base: PET liquor bottles, beverage bottles.

OTHER PET BOTTLES: All other PET bottles not included above.

HDPE MILK & JUICE: High-density translucent polyethylene milk, juice, and beverage containers.

OTHER HDPE BOTTLES: All other HDPE bottles not included above.

OTHER PLASTIC BOTTLES: Plastic bottles not classified in the above-defined PET or HDPE categories; includes #3-#7, unknown bottles, petroleum bottles, and other dark colored bottles.

JARS & TUBS. Wide mouth jars and tubs #1-#7 such as yogurt, cottage cheese, margarine.

EXPANDED POLYSTYRENE: Includes packaging and finished products made of expanded polystyrene.

OTHER RIGID PACKAGING: Rigid plastic packaging #1-#7 and unknown (excluding expanded polystyrene). Includes clamshells, salad trays, lids, cookie tray inserts, plastic spoons, toothpaste tubes.

GROCERY/BREAD BAGS: Bread, grocery, and dry cleaner plastic film bags.

GARBAGE BAGS: Plastic garbage bags.

OTHER FILM: Includes film packaging, excluding grocery/bread and garbage bags. Also includes plastic sheeting and shower curtains

PLASTIC PRODUCTS: Finished plastic products such as toys, toothbrushes, vinyl hose and photographic negatives. Includes fiberglass resin products and materials.

PLASTIC/OTHER MATERIALS: Predominately plastic with other materials attached such as disposable razors, pens, lighters, toys, 3-ring binders.

Glass

CLEAR BEVERAGE: Includes clear pop, liquor, wine, juice, beer, and vinegar bottles.

GREEN BEVERAGE: Includes green pop, liquor, wine, beer, and lemon juice bottles.

BROWN BEVERAGE: Includes brown pop, beer, liquor, juice, and vanilla extract bottles.

CONTAINER GLASS: All glass containers, all colors, holding solid materials such as mayonnaise, non-dairy creamer, and facial cream containers.

FLUORESCENT TUBES. Fluorescent light tubes.

OTHER GLASS: Window glass, light bulbs (except fluorescent tubes), glassware, etc.

Metal

ALUMINUM CANS: Aluminum beverage cans (UBC) and bi-metal cans made mostly of aluminum.

ALUMINUM FOIL/CONTAINERS: Aluminum food containers, trays, and foil.

OTHER ALUMINUM: Aluminum products and scrap such as window frames, cookware.

OTHER NONFERROUS: Metals not derived from iron, to which a magnet will not adhere, and which are not significantly contaminated with other metals or materials.

TIN FOOD CANS: Tinned steel food containers, including bi-metal cans mostly of steel.

EMPTY AEROSOL CANS: Empty, mixed material/metal aerosol cans. (Aerosols that still contain product are sorted according to that material—for instance, solvent-based paint.)

OTHER FERROUS: Ferrous and alloyed ferrous scrap metals to which a magnet adheres and which are not significantly contaminated with other metals or materials.

OIL FILTERS: Metal oil filters used in cars and other automobiles.

MIXED METALS/MATERIALS: Motors, insulated wire, and finished products containing a mixture of metals, or metals and other materials, whose weight is derived significantly from the metal portion of its construction. White goods are banned from Seattle's disposal. However, segments of large appliances are occasionally found; they are included in this category.

Organic

PALLETS: Wood pallets.

CRATES: Crates, and other packaging lumber/panelboard.

LEAVES AND GRASS: Grass clippings, leaves, and weeds.

PRUNINGS: Cut prunings, 6" or less in diameter, from bushes, shrubs, and trees.

FOOD: Food wastes and scraps, including bone, rinds, etc. Excludes the weight of food containers, except when container weight is not appreciable compared to the food inside.

Other Materials

TEXTILES: Fabric materials including natural and synthetic textiles such as cotton, wool, silk, woven nylon, rayon, polyester, and other materials.

CARPET/UPHOLSTERY: General category of flooring applications consisting of various natural or synthetic fibers bonded to some type of backing material.

LEATHER: Finished products or scraps of leather.

DISPOSABLE DIAPERS: Disposable baby diapers and adult protective undergarments.

ANIMAL BY-PRODUCTS: Animal carcasses and wastes, and kitty litter.

RUBBER PRODUCTS: Finished products and scrap materials made of rubber, such as bath mats, inner tubes, rubber hoses, and foam rubber.

TIRES: Vehicle tires of all types.

ASH: Fireplace, burn barrel, or fire pit ash.

FURNITURE: Mixed-material furniture such as upholstered chairs.

MATTRESSES: Mattresses and box springs.

SMALL APPLIANCES: Small electric appliances such as toasters, microwave ovens, power tools, curling irons, and light fixtures.

AUDIO/VISUAL EQUIPMENT: Stereos, radios, tape decks, VCRs, etc.

COMPUTER MONITORS AND TELEVISION: Computer monitors, television sets, laptops and other items containing a cathode ray tube (CRT)

OTHER COMPUTER EQUIPMENT: Computer items such as processors, mice and mouse pads, keyboards, and disk drives that do not contain cathode ray tubes.

CERAMICS/PORCELAIN: Finished ceramic or porcelain products such as dishware, toilets, etc.

NONDISTINCT FINES: Nondistinct organics.

MISCELLANEOUS ORGANICS: Wax, modeling clay, bar soap, cigarette butts, etc.

MISCELLANEOUS INORGANICS: Vacuum cleaner bags, and other inorganics not classified elsewhere.

CDL Wastes

DIMENSION LUMBER: Milled lumber.

OTHER UNTREATED WOOD: Compostable prunings or stumps 6" or greater in diameter.

TREATED WOOD: Lumber and wood products that have been painted or treated so as to render them difficult to compost.

CONTAMINATED WOOD: Lumber and wood products, often with adhering concrete or other contaminants that would not compost easily.

NEW GYPSUM SCRAP: New gypsum wallboard scrap.

DEMO GYPSUM SCRAP: Used or demolition gypsum wallboard scrap.

FIBERGLASS INSULATION: Fiberglass building and mechanical insulation, batt or rigid.

ROCK/CONCRETE/BRICKS: Includes rock gravel larger than 2" diameter, Portland cement mixtures (set or unset), and fired-clay bricks.

ASPHALTIC ROOFING: Asphalt shingles, tarpaper of built-up roofing.

CONSTRUCTION DEBRIS: Construction debris (other than wood), which can not be classified into other component categories, and mixed fine building material scraps.

SAND/SOIL/DIRT: Contains mixed fines smaller than 2" in diameter.

Household Hazardous

LATEX PAINTS: Water-based paints and similar products.

HAZARDOUS ADHESIVES/GLUES: Oil/resin/volatile solvent-based glues and adhesives, including epoxy, rubber cement, two-part glues and sealers, and auto body fillers.

NON-HAZARDOUS ADHESIVES/GLUES: Water-based glues, caulking compounds, grouts, and spackle.

OIL-BASED PAINT/SOLVENT: Solvent-based paints, varnishes, and similar products. Various solvents, including chlorinated and flammable solvents, paint strippers, solvents contaminated with other products such as paints, degreasers and some other cleaners if the primary ingredient is (or was) a solvent, or alcohol such as methanol and isopropanol.

HAZARDOUS CLEANERS: Various acids and bases whose primary purpose is to clean surfaces, unclog drains, or perform other actions.

PESTICIDES/HERBICIDES: Variety of poisons whose purpose is to discourage or kill pests, weeds, or microorganisms. Fungicides and wood preservatives, such as pentachlorophenol, are also included.

DRY-CELL BATTERIES: Dry-cell batteries of various sizes and types as commonly used in households.

WET-CELL BATTERIES: Wet-cell batteries of various sizes and types as commonly used in automobiles.

GASOLINE/KEROSENE: Gasoline, diesel fuel, and fuel oils.

MOTOR OIL/DIESEL OIL: Lubricating oils, primarily used in vehicles but including other types with similar characteristics.

ASBESTOS: Asbestos and asbestos-containing wastes (if this is the primary hazard associated with these wastes).

EXPLOSIVES: Gunpowder, unspent ammunition, picric acid and other potentially explosive chemicals.

OTHER HAZARDOUS CHEMICALS: Other hazardous wastes that do not fit into the above categories, including unidentifiable materials and medical wastes such as I.V. tubing and patient drapes (Medical wastes that could be considered a bio-hazard were excluded from the sorts.).

OTHER NON-HAZARDOUS CHEMICALS: Non-hazardous soaps, cleaners, medicines, cosmetics, and other household chemicals.

Changes to Waste Component Categories

The material types used to categorize Seattle's waste stream have been refined over the years. Table A-1 tracks these changes. (An "X" signifies that the component remains the same from the previous study period; an outline border reflects how components were split apart or grouped together.)

Table A-1 Changes to Waste Component Categories, 1988 to present

1988-89	1990	1992	1994	1996	1998/99	2000	
PAPER							
Newspaper	x	x	x	x	x	x	
Corrugated Paper	x	x	OCC/Kraft	OCC/Kraft, Unwaxed	x	x	
Office Paper	x	x	x	x	x	x	
Computer Paper	x	x	x	x	x	x	
Mixed Scrap Paper	x	x	Mixed Low Grade	x	x	x	
			Phone Books	x	x	x	
Other Paper	x	x	Milk/Juice Polycoats	x	x	x	
			Frozen Food Polycoats	x	x	x	
			Compostable/Soiled	x	x	x	
			Paper/Other Materials	OCC/Kraft, Waxed	x	x	x
			Other Paper	x	x	x	x
PLASTIC							
PET Bottles	x	x	PET Pop & Liquor	x	x	x	
			Other PET Bottles	x	x	x	
HDPE Bottles	x	x	HDPE Milk & Juice	x	x	x	
			Other HDPE Bottles	x	x	x	
Expanded Polystyrene	x	x	x	x	x	x	
Plastic Packaging	x	x	Other Plastic Bottles	x	x	x	
			Other Rigid Containers	Jars & Tubs	x	x	
			Other Rigid Packaging	x	x	x	
			Grocery/Bread Bags	x	x	x	
			Other Film	Garbage Bags	x	x	
Other Plastic Products	x	x	Plastic Products	x	x	x	
			Plastic/Other Materials	x	x	x	
GLASS							
Nonrefillable Pop	x	x	Clear Beverage	x	x	x	
Refillable Pop	x	x	Green Beverage	x	x	x	
Nonrefillable Beer	x	x	Brown Beverage	x	x	x	
Refillable Beer	x	x	<i>(After 1994, characterized according to color)</i>				
Container Glass	x	x	x	x	x	x	
Nonrecyclable Glass	x	x	x	Other Glass	x	x	
				Fluorescent Tubes	x	x	
METAL							
Aluminum Cans	x	x	x	x	x	x	
Aluminum Foil/Containers	x	x	x	x	x	x	
Tinned Cans	x	x	x	x	x	x	
Bi-metal Cans	x	x	<i>(After 1994, characterized according to predominant metal)</i>				
Ferrous	x	x	x	x	x	x	
Nonferrous	x	x	x	Other Nonferrous	x	x	
			Other Aluminum	x	x	x	
Mixed Metals/Materials	x	x	x	Empty Aerosol Cans	x	x	
White Goods	x	x	<i>(After 1994, banned from disposal. Parts show up in "Mixed Metals")</i>				

Table A-1 Continued Changes to Waste Component Categories, 1988 to present

1988-89	1990	1992	1994	1996	1998/99	2000
RUBBER						
Rubber Products	x	x	<i>moved to "Other Materials"</i>	x	x	x
Tires	x	x	<i>moved to "Other Materials"</i>	x	x	x
ORGANICS						
Wood	x	Untreated Wood	x	Dimension Lumber; <i>new category CDL Wastes</i>	x	x
			Crates/Pallets	Other Untreated Wood; <i>new category CDL Wastes</i>	x	x
		Treated Wood		Pallets	Crates/Boxes	x
			Moved to <i>new category CDL Wastes</i>	Contaminated Wood; <i>new category CDL Wastes</i>	x	x
Leaves and Grass	x	x	x	x	x	
Prunings	x	x	x	x	x	
Food	x	x	x	x	x	
OTHER MATERIALS						
Textiles	x	x	x	Textiles/Clothing	x	x
			Carpet/Upholstery	x	x	
Leather	x	x	x	x	x	
Disposable Diapers	x	x	x	x	x	
<i>(Discarded from samples prior to 1994)</i>			Animal By-Products	x	x	
Ash	x	x	x	x	x	
<i>(Prior to 1994, split among various materials; Mixed Metal, Textiles, Other Plastics, etc.)</i>			Furniture	x	x	
<i>(Prior to 1994, split among various materials; Mixed Metal, Textiles, Other Plastics, etc.)</i>			Mattresses	x	x	
<i>(Prior to 1994, split among various materials; Mixed Metal, Textiles, Other Plastics, etc.)</i>			Small Appliances	x	x	
<i>(Prior to 1994, split among various materials; Mixed Metal, Textiles, Other Plastics, etc.)</i>			A/V Equipment	x	x	
					Televisions & Computer Monitors	
					Other Computer Equipment	
Ceramics, Porcelain, China	x	x	x	x	x	
Gypsum Drywall	x	x	x	New Gypsum Scrap; <i>new category CDL Wastes</i>	x	x
				Demo Gypsum Scrap; <i>new category CDL Wastes</i>	x	x
Fiberglass Insulation	x	x	x	<i>Moved to new category CDL Wastes</i>	x	x
Rock/Concrete/Brick	x	x	x	<i>Moved to new category CDL Wastes</i>	x	x
Other Construction Debris	x	x	x	<i>Moved to new category CDL Wastes</i>	x	x
				Asphaltic Roofing; <i>new category CDL Wastes</i>	x	x
Sand, Dirt, Non-distinct Fines	x	x	Sand/Soil/Dirt	<i>Moved to new category CDL Wastes</i>	x	x
			Non-distinct Fines	x	x	
<i>(Prior to 1994, mostly in "Sand, Dirt, Non-distinct Fines; also in various "Mixed" and "Other" categories)</i>			Misc. Organics		x	x
<i>(Prior to 1994, mostly in "Sand, Dirt, Non-distinct Fines; also in various "Mixed" and "Other" categories)</i>			Misc. Inorganics		x	x

Table A-1 Continued Changes to Waste Component Categories, 1988 to present

1988-89	1990	1992	1994	1996	1998/99	2000
HOUSEHOLD HAZARDOUS						
Latex Paints	x	x	x	x	x	x
Adhesives/Glues	x	x	x	Hazardous Glue/Adhesives	x	x
				NonHazardous Glue/Adhesives	x	x
Oil-based Paints/Solvents	x	x	x	x	x	x
Cleaners	x	x	x	x	x	x
Pesticides/Herbicides	x	x	x	x	x	x
Batteries	x	x	Dry-Cell Batteries	x	x	x
			Wet-Cell Batteries	x	x	x
Gasoline/Kerosene	x	x	x	x	x	x
Motor Oil/Diesel Oil	x	x	x	x	x	x
Asbestos	x	x	x	x	x	x
Explosives	x	x	x	x	x	x
Other Chemicals	x	x	x	Other Hazardous Chemicals	x	x
				Other NonHazardous Chemicals	x	x

Appendix B Sampling Methodology

Overview

In the year 2000, waste from both the commercial and self-haul substreams was sampled. The objective of the waste sampling was to provide statistically significant data on the composition of Seattle's commercial and self-haul waste substreams.

These substreams were last sampled in 1996. The current project follows the same basic methodology, except that waste reduction indicators were not sampled in 2000. Also, the component categories were revised since the 1996 study. These category changes are tracked in Appendix A.

Substream Definition

For any specific geographic area, the total *waste stream* is composed of various *substreams*. The particular generation, collection, or composition characteristics that make it a unique portion of the total waste stream determine a *substream*. The 1996 phase of this study targeted two main substreams.¹

- The **commercial** substream is composed of wastes a) generated at businesses and institutions, and b) collected by contracted hauling companies.
- The **self-haul** substream is composed of wastes a) generated at residences as well as businesses and institutions, and b) hauled by the household or business that generated the waste.

The commercial substream consists of *municipal solid waste (MSW)* and construction, demolition, and landclearing waste (*CDL*). Most *CDL* waste generated in Seattle is disposed separately from the municipal solid waste. Since this study measured the composition of MSW only, pure CDL loads were excluded.

Hauler and Transfer Station Participation

During the 2000 study, commercial wastes were hauled to three private facilities: Third & Lander (owned by Rabanco), Eastmont (Waste Management), and Black River (Rabanco). No samples were taken from Black River (a dedicated CDL site) and none of the CDL-only loads delivered to Third & Lander or Eastmont were included. Occasionally, however, some CDL is disposed in the MSW stream and therefore was included in this study.

¹ The residential substream was not included in this phase of the study. For the most recent analysis of Seattle's residential waste stream, please see the *1998/99 Residential Waste Composition Study Final Report* prepared for the Seattle Public Utilities by the Cascadia Consulting Group, Inc. View the document electronically at <http://www.cityofseattle.net/util/solidwaste/reports.htm>.

During this study Emerald City Disposal and Waste Management hauled commercial waste to the Third & Lander and Eastmont facilities, respectively. Collecting detailed data from these two contracted haulers and Seattle Public Utilities was the first step in selecting sample loads for this study. This data included the total tonnage of commercial waste disposed at each facility, average load weights for each vehicle type, and the number of loads hauled during both the day and the night shifts by each vehicle type.

After the commercial sampling schedule was determined, an annual schedule was given to each franchised hauler. Prior to each month's sampling event, the affected companies were faxed a notice that listed each route to be included in the upcoming sort. (A copy of the notice is included in Appendix F.). The haulers were then asked to notify the appropriate drivers, and write in the estimated time of arrival for each selected load (to assist the Field Supervisor in identifying the sample truck).

All self-haul wastes included in this study were disposed at either the North or South Recycling and Disposal Station — NRDS and SRDS. The City owns both the NRDS and the SRDS.

Transfer station managers at both the private and city-owned facilities were given the sampling schedule and other pertinent information about each sampling event. The field manager arranged the details of truck diversion, sample extraction, sorting, and disposal of sorted waste with each transfer station manager.

Sampling Calendar

Due to the expense of moving the sampling crew from site to site, sampling occurred at only one facility per sampling day. At least 360 commercial and 200 self-haul samples were selected for sorting over the course of this study.² Because the field crew is able to sort approximately 15 commercial loads and 20 self-haul loads per day, 24 days of commercial sampling and 10 days of self-haul sampling were required. In order to capture seasonal variations, the sampling events were distributed across the 12-month study period.³ Typically two commercial sampling days were scheduled each month. The self-haul loads were sampled at a rate of one day per month; thus, 10 months were required. No self-haul samples were scheduled for January or April.

Tonnage estimates were used to allocate sorting dates among the two commercial haulers and the two shifts (commercial trucks arrive both during the day and night shifts). About 64% of Seattle's commercial waste is hauled by Emerald City, so approximately 64% of the sampling events (16 of 26) were scheduled at Third & Lander. The remaining commercial sampling events (10 of 26) were scheduled at Eastmont.

Self-haul loads arrive during the day shift only. Since the proportion of self-haul tonnage transported to the NRDS and SRDS was nearly equal in 2000 (55% and 45%, respectively), half of the self-haul sampling days were scheduled at the NRDS, and half at the SRDS.

² Of the 360 commercial samples selected during this study period, 13 were omitted from the analysis because they contained greater than 90% *CDL wastes*, and therefore, would have been processed at Eastmont's construction and demolition recovery facility.

³ A commercial sampling day was added on January 10, 2001. This day was scheduled to makeup for missed loads during past sampling days.

Working around major holidays and the sorting crew's availability, sampling dates within each month were selected using a random number generator. Then, the dates were refined so that the distribution across the weeks of the month and days of the week was roughly even. Whenever possible, the sampling dates for both the commercial and self-haul waste sorts were scheduled consecutively.

The sampling calendar is shown in Table B-1. The resulting allocation of waste sampling days for the commercial and self-haul substreams is shown in Table B-2 and Table B-3, respectively.

Table B-1 Sampling Calendar

Date	Substream	Shift	Facility
1/25/00	Commercial	Day	3rd & Lander
1/26/00	Commercial	Day	Eastmont
2/28/00	Commercial	Day	3rd & Lander
2/29/00	Self-haul	Day	NRDS
3/6/00	Commercial	Night	Eastmont
3/7/00	Commercial	Night	3rd & Lander
3/30/00	Self-haul	Day	SRDS
4/13/00	Commercial	Day	3rd & Lander
4/27/00	Commercial	Day	Eastmont
5/1/00	Commercial	Day	3rd & Lander
5/2/00	Self-haul	Day	NRDS
5/3/00	Commercial	Night	3rd & Lander
6/22/00	Self-haul	Day	SRDS
6/27/00	Commercial	Night	Eastmont
6/28/00	Commercial	Night	3rd & Lander
7/16/00	Self-haul	Day	NRDS
7/27/00	Commercial	Day	3rd & Lander
8/20/00	Commercial	Night	Eastmont
8/24/00	Commercial	Day	Eastmont
8/25/00	Commercial	Day	3rd & Lander
8/26/00	Self-haul	Day	SRDS
9/6/00	Commercial	Day	3rd & Lander
9/14/00	Self-haul	Day	NRDS
9/15/00	Commercial	Day	3rd & Lander
10/9/00	Self-haul	Day	SRDS
10/10/00	Commercial	Day	Eastmont
10/16/00	Commercial	Night	3rd & Lander
11/10/00	Commercial	Day	3rd & Lander
11/11/00	Self-haul	Day	NRDS
11/14/00	Commercial	Day	Eastmont
11/17/00	Commercial	Night	Eastmont
12/7/00	Commercial	Day	3rd & Lander
12/8/00	Self-haul	Day	SRDS
12/13/00	Commercial	Night	Eastmont
12/14/00	Commercial	Night	3rd & Lander
1/10/01	Commercial	Day	3rd & Lander

Table B-2 Distribution of Commercial Waste Sampling Days

<i>Number of Commercial Waste Sampling Days: Emerald City</i>								
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Overall
	4	2	4	4	2	0	0	16
Winter	1	1	1	2	0	0	0	5
Week 1	0	0	0	1	0	0	0	1
Week 2	0	0	1	1	0	0	0	2
Week 3	0	0	0	0	0	0	0	0
Week 4	1	1	0	0	0	0	0	2
Week 5	0	0	0	0	0	0	0	0
Spring	1	1	1	1	0	0	0	4
Week 1	1	1	1	0	0	0	0	3
Week 2	0	0	0	1	0	0	0	1
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	0	0	0	0	0	0
Week 5	0	0	0	0	0	0	0	0
Summer	0	0	1	1	1	0	0	3
Week 1	0	0	0	0	0	0	0	0
Week 2	0	0	0	0	0	0	0	0
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	1	1	1	0	0	3
Week 5	0	0	0	0	0	0	0	0
Fall	2	0	1	0	1	0	0	4
Week 1	0	0	1	0	0	0	0	1
Week 2	1	0	0	0	1	0	0	2
Week 3	1	0	0	0	0	0	0	1
Week 4	0	0	0	0	0	0	0	0
Week 5	0	0	0	0	0	0	0	0
<i>Number of Commercial Waste Sampling Days: Waste Management</i>								
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Overall
	1	3	2	2	1	0	1	10
Winter	0	0	2	0	0	0	0	2
Week 1	0	0	0	0	0	0	0	0
Week 2	0	0	1	0	0	0	0	1
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	1	0	0	0	0	1
Week 5	0	0	0	0	0	0	0	0
Spring	1	0	0	1	0	0	0	2
Week 1	1	0	0	0	0	0	0	1
Week 2	0	0	0	0	0	0	0	0
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	0	1	0	0	0	1
Week 5	0	0	0	0	0	0	0	0
Summer	0	1	0	1	0	0	1	3
Week 1	0	0	0	0	0	0	0	0
Week 2	0	0	0	0	0	0	0	0
Week 3	0	0	0	0	0	0	1	1
Week 4	0	1	0	1	0	0	0	2
Week 5	0	0	0	0	0	0	0	0
Fall	0	2	0	0	1	0	0	3
Week 1	0	0	0	0	0	0	0	0
Week 2	0	2	0	0	0	0	0	2
Week 3	0	0	0	0	1	0	0	1
Week 4	0	0	0	0	0	0	0	0
Week 5	0	0	0	0	0	0	0	0

Table B-3 Distribution of Self-Haul Sampling Days

	<i>Number of Self-haul Waste Sampling Days</i>							Overall
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
	1	2	0	3	1	2	1	10
Winter	0	1	0	0	1	0	0	2
Week 1	0	0	0	0	0	0	0	0
Week 2	0	0	0	0	1	0	0	1
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	0	0	0	0	0	0
Week 5	0	1	0	0	0	0	0	1
Spring	0	1	0	1	0	0	0	2
Week 1	0	1	0	0	0	0	0	1
Week 2	0	0	0	0	0	0	0	0
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	0	0	0	0	0	0
Week 5	0	0	0	1	0	0	0	1
Summer	0	0	0	1	0	1	1	3
Week 1	0	0	0	0	0	0	0	0
Week 2	0	0	0	0	0	0	0	0
Week 3	0	0	0	0	0	0	1	1
Week 4	0	0	0	1	0	1	0	2
Week 5	0	0	0	0	0	0	0	0
Fall	1	0	0	1	0	1	0	3
Week 1	0	0	0	0	0	0	0	0
Week 2	1	0	0	1	0	1	0	3
Week 3	0	0	0	0	0	0	0	0
Week 4	0	0	0	0	0	0	0	0
Week 5	0	0	0	0	0	0	0	0

Sample Selection

Commercial loads were selected using the following procedure:

1. For each hauler, samples were allocated to the day and night shifts, based on the proportion of tonnage collected per shift. For example, if one of the companies hauls 67% of its commercial tonnage during the daytime, then 67% of its sampling days would be assigned to the day shift.
2. Next, for each shift samples were allocated to packer trucks and roll-offs based on the proportion of tonnage collected by each. The total number of samples for each vehicle type was then evenly distributed among the sampling days. If samples could not be evenly distributed by vehicle type, then the sampling day(s) with more or less than the average number of samples per vehicle type was selected at random.
3. Because many of the vehicles transport more than one load per shift, and since there are more vehicles per shift than the quota to be sampled, it was necessary to designate which specific loads were to be sampled. For each hauler and shift, a random number was assigned to every load expected to arrive at the selected facility. The random numbers were sorted and the loads with the lowest random number were selected in sequence until the quota for each vehicle type was met for the sampling day.⁴ For subsequent sampling days, a new random number was assigned to each load number and the process was repeated.

⁴ Waste Management hauled a small number of loads that could not be selected for sampling during this study period. These loads were generated by a local business that prohibited their waste from being sampled. In the year 2000, a total of 2,982 such tons were hauled by Waste Management. These tons were excluded from the study's analysis.

Self-haul loads were systematically selected at each facility. Systematic selection consists of taking every “nth” vehicle that enters the facility at a randomly selected start time. The sampling intervals were determined by dividing the day’s expected number of arriving vehicles by the number of samples needed on that day. The expected traffic count was either the average weekday or weekend vehicle count from the same month in 1999.

In the 1996 study, self-haul vehicles were stratified by vehicle type (passenger and trucks) during the vehicle selection process in order to ensure that enough samples were obtained from passenger vehicles. In the Year 2000 study, self-haul vehicles were not stratified by vehicle type. The reason is that the City was more interested in estimating the proportion of self-hauled waste generated from residential versus non-residential sources, than by characterizing the self-haul passenger vehicle subpopulation. Another change from the 1996 study is that minivans were classified as passenger vehicles, but now are considered trucks.

As the study progressed, key planning assumptions were monitored. When necessary, the sampling plan was modified to meet the objectives of the study design.

Field Procedures

The field supervisor conducted a brief interview with the driver of each selected vehicle. As part of the interview, both commercial and self-haul drivers were asked to identify from which type of business or residence the sample load was from. Table B-4 lists the possible generator types and corresponding Standard Industry Codes (SIC). Information obtained from each driver was recorded on the load’s corresponding tally sheet (see Appendix E for a copy of this sheet).

Table B-4 SIC Codes, by Generator Type

Generator Category	SIC Codes
Construction, Demolition, and Landclearing	15-17
Education	82
Health Care	80
Hotel/Motel	70
Manufacturing	20, 22-26, 28-36, 38-39, 372, 373, 376
Office	01-02, 08-09, 10, 14, 27, 48, 49, 60-67, 73, 81
Other Non-Residential	
Other Services	7, 55, 72, 75, 76, 78-79, 84, 86, 89
Restaurant	58
Retail	52-54, 56-57, 59
Transportation	40-47, 371, 374, 375, 379
Wholesale	50, 51
Mixed Commercial Generators	

For the commercial samples, the entire truckload of waste was dumped into the pit at the transfer station. Wherever possible, an imaginary 8-section, 2-layer grid (16 cells total) was superimposed on the load, and a randomly selected cell was identified for sampling. In order to prevent the commingling of garbage to be sampled with that in the pit, the loader would frequently nose in the stream of material falling from the selected truck, capturing a 5-cubic yard slice of garbage. Approximately 250 pounds of waste was dumped from the loader onto a tarp for sorting. As the truck departed from the transfer station, the Field Manager recorded the vehicle’s net weight.

Samples from large (greater than 500 pounds) self-hauled loads were selected in much the same manner as commercially collected loads. If the self-hauled load weighed less, then the entire load was sorted as a sample.

Each sample was sorted by hand into the defined component groups (please see Appendix A for component definitions). For example, food containers were separated from the food and classified according to the containers' material. Each sample was sorted to the greatest reasonable detail. Rarely, a *supermix* of material (a residue composed of mixed material, each piece smaller than one-half inch) remained after sorting a sample. In these cases, the field supervisor weighed the combined *supermix* (never totaling more than 10 pounds) and visually estimated the percentage of each component material in the *supermix*. The weights of all materials were recorded on the tally sheets shown in Appendix E.

Appendix C Comments on Monthly Sampling Events

January

The commercial waste stream sampling began on January 25th at Third & Lander. Samples from six roll-offs, eight front loaders, and one rear loader were obtained as planned. One roll-off sample was pushed, which was replaced with an alternate sample.

On January 26th, a total of two rear loader, four front loader, and nine roll-off samples were sorted. The sorting crew was only able to catch two of the five pre-selected front loader loads. Therefore, multiple samples were taken from the rear loader and one front loader. The resulting allocation included one extra rear loader and one less front loader sample than was planned.

February

On February 28th, samples from one rear loader, eight front loaders, and five roll-offs were sorted at Third & Lander. The sorting crew was unable to sort one of the pre-selected roll-offs.

Twenty self-haul samples were sorted as planned on February 29th at the NRDS.

March

The sorting crew had particular difficulty capturing the scheduled night loads on March 6th at Eastmont. One of the pre-selected front loaders did not show (scheduled to be sampled twice), and two of the pre-selected roll-off loads were not sorted. No extra samples were obtained, resulting in five front loader and six roll-off samples.

On March 7th, one rear loader, six front loader, and eight roll-off samples were sorted as planned. Two of the pre-selected roll-offs did not show, but alternates were obtained.

Fewer self-haul vehicles arrived than anticipated on March 30th and therefore only 16 samples were obtained. Four additional samples were captured and sorted the following day, for a total of 20 samples.

April

On April 13th, two pre-selected front loaders and one roll-off did not arrive. As a result, the three contingency samples (one of each vehicle type) were captured. The resulting allocation included two rear loaders, eight front loaders, and five roll-offs.

On April 27th, four front loader samples were sorted, but only nine roll-offs were sampled. The truck number of one of the roll-offs was switched and consequently the sorting crew missed its first two loads.

May

On May 1st, nine front loader, one rear loader, and three of the five roll-off samples were sorted as planned.

On May 2nd, 20 self-haul samples were sorted as planned.

On May 3rd, six front loader, two rear loader, and six of the seven roll-off loads were sampled as planned. One roll-off sample was not captured.

June

On June 22nd, all 20 self-haul samples were sorted as planned at SRDS.

On June 27th, one commercial rear loader, four front loaders, and ten roll-offs were also sampled as planned.

On June 28th, one rear loader, four front loaders and eight roll-offs were sampled as planned. One front loader, whose first and second loads were to be sampled, did not show. An extra rear loader sample was obtained for a total of 14 samples.

July

On July 16th, all 20 self-haul samples were sorted as planned at NRDS.

On July 27th, one rear loader, nine front loaders, and four roll-offs were sampled as planned at Third & Lander. One roll-off scheduled for sampling did not arrive, and therefore only 14 samples were obtained.

The sorting date originally scheduled for July 26th at Eastmont was postponed until August. The afternoon before the sorting was to occur, the compactor broke at Eastmont. In addition, one of the gates was broken. Unfortunately, when the sorting crew arrived at Eastmont, the problems had not been fixed, and the Eastmont staff did not allow us to sample as planned.

August

On August 20th, samples were sorted during the night shift at Eastmont. We obtained the five samples from front loaders as planned, but were only able to collect six samples from roll-offs due to the limited number of vehicles operating that night.

The August 24th sorting day was scheduled to make up for the day missed at Eastmont in July. In July, operational problems at the transfer station forced us to reschedule for this month instead. As planned, we were able to secure four front loader and 11 roll-off samples.

On Friday, August 25th, samples were sorted from one rear loader, nine front loaders, and five roll-offs as planned. Since the last sorting event at Third & Lander, some of Emerald City's truck numbers have changed. We were not aware of these changes, and therefore there was some confusion at the sorting location. Consequently, six of the loads we obtained were from the original sampling plan.

September

On September 6th, sorting occurred during the day shift at Third & Lander. The sorting crew obtained eight samples from front loaders (one less than planned), and five samples from roll-offs. The sorting crew was unable to capture the planned rear loader sample.

During the September 14th sorting day at the North Recycling and Disposal Station, 20 vehicles were sampled as planned.

On Friday, September 15th, samples were sorted from nine front loaders, one rear loader, and five roll-offs at Third & Lander during the day shift. All samples were obtained as planned.

October

On October 9th, 20 vehicles were sampled at the South Recycling and Disposal Station as planned.

During the October 10th day shift sampling at Eastmont, 11 samples were sorted: three front loaders and eight roll-offs. The sorting crew was unable to capture the three extra front loaders and one roll-off as planned.

On Monday, October 16th, samples were sorted from five front loaders and nine roll-offs at Third & Lander during the night shift. The crew missed samples from one front loader and one rear loader, but was able to capture an additional roll-off sample.

November

On November 10th, sorting occurred during the day shift at Third & Lander. The sorting crew obtained ten samples from front loaders and five samples from roll-offs as planned. They also captured two rear loaders (one more than planned).

During the November 11th sorting day at the North Recycling and Disposal Station, 20 vehicles were sampled as planned.

On Tuesday, November 14th, samples were sorted from five front loaders (two less than planned) and eight roll-offs at Eastmont during the day shift. This sampling day was scheduled in order to make up for missed loads.

On November 17th, the crew sorted samples at Eastmont during the night shift. They captured six samples from front loaders and 14 from roll-offs (six roll-offs were double-sampled since a fewer number have been arriving at the transfer station than anticipated). The rear loader that was to be sampled did not arrive at Eastmont as planned.

December

On December 7th, sorting occurred during the day shift at Third & Lander. The sorting crew obtained three samples from front loaders and nine samples from roll-offs. They also captured two rear loaders.

During the December 8th sorting day at the South Recycling and Disposal Station, 20 vehicles were sampled as planned.

On Wednesday, December 13th we sorted samples from four front loaders and 11 roll-offs at Eastmont during the night shift.

On December 14th our crew sorted samples at Third & Lander during the night shift. They captured three samples from front loaders and eight from roll-offs. Because of strong wind gusts, the crew had to discontinue sorting mid-way through the shift; therefore they did not capture the four remaining loads.

January

In January, we sorted a total of six commercial samples. All of these samples were captured on Wednesday, January 10th, during the day shift at Third & Lander. The sorting crew obtained all of these samples from front loaders. This day was scheduled to makeup for missed loads during past sampling days.

Appendix D Waste Composition Calculations

Composition Calculations

The composition estimates represent the **ratio of the components' weight to the total waste** for each noted substream. They are 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 is derived in two steps. First, the variance around the estimate is 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:

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

where:

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

Second, **precision levels** at the 90% confidence interval are 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).

Weighted Averages

The overall commercial and overall self-haul waste composition estimates were calculated by performing a weighted average across the relevant substreams. For the commercial substream, the overall estimate was calculated by performing a weighted average based on the tonnage carried by each hauler, vehicle type and shift. For the self-haul substream, the overall estimate was calculated by performing a weighted average based on the tonnage hauled each season to each site, by vehicle type.

Seattle provided the estimate of tonnage disposed by the commercial and self-haul substreams during the year 2000. In addition, the two authorized commercial haulers provided tonnage estimates for waste hauled by each vehicle type for the day and night shifts. The composition estimates for each substream and subpopulation were applied to the relevant tonnages to estimate the amount of waste disposed for each component category.

The **weighted average for an overall composition estimate** is performed as follows:

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

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** is calculated:

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

The weighting percentages that were used to perform the composition calculations are listed below. Table D-1 through Table D-9 pertain to the commercial substream and its respective subpopulations, and Table D-10 through Table D-18 correspond to the self-haul substream and its respective subpopulations. Again, weighting percentages were not used to perform composition calculations on commercial or self-haul sampling data by generator type.

Table D-1 Weighting Percentages: Overall Commercial

Hauler Shift Vehicle Type	Tons Disposed	Percent of Total
Waste Management		
Day		
Front Loader	16,899	7.50%
Rear Loader	2,975	1.32%
Compactor Roll-off	6,520	2.89%
Loose Roll-off	14,717	6.53%
Night		
Front Loader	16,233	7.20%
Rear Loader	3,101	1.38%
Compactor Roll-off	20,854	9.25%
Loose Roll-off	7,442	3.30%
Emerald City Disposal		
Day		
Front Loader	62,242	27.61%
Rear Loader	4,103	1.82%
Compactor Roll-off	18,588	8.25%
Loose Roll-off	14,904	6.61%
Night		
Front Loader	20,747	9.20%
Rear Loader	1,758	0.78%
Compactor Roll-off	10,291	4.57%
Loose Roll-off	4,062	1.80%
Overall	225,435	100%

Table D-2 Weighting Percentages: Commercial Front Loaders

Hauler Shift	Tons Disposed	Percent of Total
Waste Management		
Day	16,899.5	14.55%
Night	16,233	13.98%
Emerald City Disposal		
Day	62,242	53.60%
Night	20,747	17.87%
Overall	116,122	100%

Table D-3 Weighting Percentages: Commercial Rear Loaders

Hauler		Percent
Shift	Tons Disposed	of Total
Waste Management		
Day	2,975	24.92%
Night	3,101	25.98%
Emerald City Disposal		
Day	4,103	34.37%
Night	1,758	14.73%
Overall	11,936	100%

Table D-4 Weighting Percentages: Commercial Compactor Roll-offs

Hauler		Percent
Shift	Tons Disposed	of Total
Waste Management		
Day	6,520	11.59%
Night	20,854	37.07%
Emerald City Disposal		
Day	18,588	33.04%
Night	10,291	18.29%
Overall	56,253	100%

Table D-5 Weighting Percentages: Commercial Loose Roll-offs

Hauler		Percent
Shift	Tons Disposed	of Total
Waste Management		
Day	14,717	35.79%
Night	7,442	18.10%
Emerald City Disposal		
Day	14,904	36.24%
Night	4,062	9.88%
Overall	41,124	100%

Table D-6 Weighting Percentages: Commercial in Spring

Hauler	Tons Disposed	Percent of Total
Waste Management	21,217	38.02%
Emerald City	34,586	61.98%
Overall	55,803	100%

Table D-7 Weighting Percentages: Commercial in Summer

Hauler	Tons Disposed	Percent of Total
Waste Management	22,790	39.13%
Emerald City	35,459	60.87%
Overall	58,249	100%

Table D-8 Weighting Percentages: Commercial in Autumn

Hauler	Tons Disposed	Percent of Total
Waste Management	23,222	40.41%
Emerald City	34,245	59.59%
Overall	57,467	100%

Table D-9 Weighting Percentages: Commercial in Winter

Hauler	Tons Disposed	Percent of Total
Waste Management	21,511	39.90%
Emerald City	32,405	60.10%
Overall	53,916	100%

Table D-10 Weighting Percentages: Overall Self Haul

Site Vehicle Type Season	Tons Disposed	Percent of Total
NRDS		
Passenger Car		
Spring	1,150	1.13%
Summer	1,286	1.26%
Autumn	989	0.97%
Winter	958	0.94%
Truck		
Spring	13,646	13.39%
Summer	13,989	13.73%
Autumn	12,738	12.50%
Winter	10,816	10.62%
SRDS		
Passenger Car		
Spring	483	0.47%
Summer	555	0.54%
Autumn	462	0.45%
Winter	440	0.43%
Truck		
Spring	10,883	10.68%
Summer	12,702	12.47%
Autumn	11,540	11.33%
Winter	9,244	9.07%
Overall	101,882	100%

Table D-11 Weighting Percentages: Self-Haul at the NRDS

Vehicle Type Season	Tons Disposed	Percent of Total
Passenger Car		
Spring	1,150	2.07%
Summer	1,286	2.31%
Autumn	989	1.78%
Winter	958	1.72%
Truck		
Spring	13,646	24.56%
Summer	13,989	25.17%
Autumn	12,738	22.92%
Winter	10,816	19.46%
Overall	55,572	100%

Table D-12 Weighting Percentages: Self-Haul at the SRDS

Vehicle Type Season	Tons Disposed	Percent of Total
Passenger Car		
Spring	483	1.04%
Summer	555	1.20%
Autumn	462	1.00%
Winter	440	0.95%
Truck		
Spring	10,883	23.50%
Summer	12,702	27.43%
Autumn	11,540	24.92%
Winter	9,244	19.96%
Overall	46,310	100%

Table D-13 Weighting Percentages: Self-Haul Passenger Vehicles

Site Season	Tons Disposed	Percent of Total
NRDS		
Spring	1,150	18.19%
Summer	1,286	20.34%
Autumn	989	15.64%
Winter	958	15.15%
SRDS		
Spring	483	7.63%
Summer	555	8.78%
Autumn	462	7.31%
Winter	440	6.96%
Overall	6,323	100%

Table D-14 Weighting Percentages: Self-Haul Trucks

Site Season	Tons Disposed	Percent of Total
NRDS		
Spring	13,646	14.28%
Summer	13,989	14.64%
Autumn	12,738	13.33%
Winter	10,816	11.32%
SRDS		
Spring	10,883	11.39%
Summer	12,702	13.29%
Autumn	11,540	12.08%
Winter	9,244	9.67%
Overall	95,559	100%

Table D-15 Weighting Percentages: Self-Haul in Spring

Site Vehicle Type	Tons Disposed	Percent of Total
NRDS		
Passenger Car	1,150	4.40%
Truck	13,646	52.16%
SRDS		
Passenger Car	483	1.84%
Truck	10,883	41.60%
Overall	26,162	100%

Table D-16 Weighting Percentages: Self-Haul in Summer

Site Vehicle Type	Tons Disposed	Percent of Total
NRDS		
Passenger Car	1,286	4.51%
Truck	13,989	49.03%
SRDS		
Passenger Car	555	1.95%
Truck	12,702	44.52%
Overall	28,532	100%

Table D-17 Weighting Percentages: Self-Haul in Autumn

Site Vehicle Type	Tons Disposed	Percent of Total
NRDS		
Passenger Car	989	3.84%
Truck	12,738	49.51%
SRDS		
Passenger Car	462	1.80%
Truck	11,540	44.85%
Overall	25,729	100%

Table D-18 Weighting Percentages: Self-Haul in Winter

Site Vehicle Type	Tons Disposed	Percent of Total
NRDS		
Passenger Car	958	4.47%
Truck	10,816	50.41%
SRDS		
Passenger Car	440	2.05%
Truck	9,244	43.08%
Overall	21,459	100%

○ **Comparison Calculations**

Identifying statistically significant differences requires a two-step calculation. First, assuming that the two groups to be compared have the same variance, a **pooled sample variance** is calculated:

$$S_{pool}^2 = \frac{[(n1 - 1) \cdot (n1 \cdot \hat{V}_{r,1})] + [(n2 - 1) \cdot (n2 \cdot \hat{V}_{r,2})]}{n1 + n2 - 2}$$

Next, the **t-statistic** is constructed:

$$t = \frac{(r1 - r2)}{\sqrt{\frac{S_{pool}^2}{n1} + \frac{S_{pool}^2}{n2}}}$$

The **p-value** of the t-statistic is calculated based on (n1+n2 -2) degrees of freedom.

Appendix E Year-to-Year Comparison Calculations

This section outlines the technical issues involved with the year-to-year comparison calculations. The calculation formulae are outlined in Appendix D.

Background

In an ongoing effort to monitor the types and amounts of materials disposed locally, Seattle has performed several waste composition studies. Differences are often apparent between study periods. In this appendix, selected results from the year 2000 study are compared to 1988/89, 1990, 1992, and 1996 findings.⁵ The purpose of this comparison is simply to determine whether the changes are statistically significant. The reasons *why* or *how* these changes occurred were not investigated.

For the purposes of this study, composition variations in the percentage of each broad material category disposed were measured within the following substreams:

- Commercial Substream
1988/89, 1992, and 1996 vs. 2000
- Self-Haul Substream
1988/89, 1990, 1992, and 1996 vs. 2000

In order to control for population changes and other factors that may influence the total amount of waste disposed from year to year, the tests described in this appendix measure waste proportions, and not actual tonnage. For example, if newspaper accounts for 5% of a particular substream's disposed waste each year, and that substream disposed a total of 1,000 tons of waste in one year and 2,000 tons of waste in the next, while the amount of newspaper increased from 50 to 100 tons, the percentage remained the same. Therefore, the tests would indicate that there had been no change.

The purpose of conducting these comparison tests is to identify statistically significant changes in the percentage of broad material categories of waste disposed in each substream over time. One specific example is stated as follows:

Hypothesis: "There is no statistically significant difference, between the 1996 and 2000 study periods, in the percentage of paper disposed in the commercial substream."

Statistics are then employed to look for evidence disproving the hypothesis. A "significant" result means that there is enough evidence to disprove the hypothesis, and it can be concluded that there is a true difference across years. "Insignificant" results indicate that either a) there is no true difference, or b) even though there may be a difference, there is not enough evidence to prove it.⁶

⁵ The 1996 study was also conducted by Cascadia Consulting Group, and followed the same basic methodology as the 2000 project.

⁶ Please see the "Power Analysis" discussion on page E-3.

The purpose of these tests is to identify changes across years. However, the study did not attempt to investigate *why* or *how* these changes occurred. The changes may be due to a variety of factors. For example, a decrease in paper disposed in the commercial substream could be due to any combination of the following:

- Consumer Preferences—electronic media might have captured some of the market previously held by paper;
- Technology—manufacturers might use thinner paper than in the past, which would decrease the weight of paper, even if the same number of paper was disposed; or
- Recycling—more businesses may participate in paper recycling programs.

Future studies could be designed to test the influence of various potential sources of the increase/decrease in broad categories of waste disposed.

Statistical Considerations

The analyses are based on the component percentages, by weight, for each selected substream. As described in Appendix D, these percentages are calculated by dividing the sum of the selected component weights by the sum of the corresponding sample weights. T-tests (modified for ratio estimation) were used to examine the year-to-year variation.

Normality

The distribution of some of the broad waste categories (particularly the hazardous materials) is skewed and may not follow a normal distribution. Although t-tests assume a normal distribution, they are very robust to departures from this assumption, particularly with large sample sizes. In addition, most of the selected broad waste categories are sums of several individual waste components, which improves our ability to meet the assumptions of normality.

Dependence

There may be dependence between waste components (if a person disposes of component A, they always dispose of component B at the same time).

There is certainly a degree of dependence between the calculated percentages. (Since the percentages sum to 100, if the percentage of component A increases, the percentage of some other component must decrease). This type of dependence is somewhat controlled by choosing only a portion of the waste categories for the analyses.

Future studies might be merited to examine these two types of dependence explicitly.

Multiple T-Tests

In all statistical tests, there is a chance of incorrectly concluding that a result is significant. The year-to-year comparison required conducting several t-tests, (one for each waste category within each set of substreams) **each** of which carries that risk. However, we were willing to accept only a 10% chance, **overall**, of making an incorrect conclusion. Therefore, each test was

adjusted by setting the significance threshold to $\frac{0.10}{w}$ (w = the number of t-tests).

The adjustment can be explained as follows:

For each test, we set a $1 - \frac{0.10}{w}$ chance of not making a mistake, which results in a

$\left(1 - \frac{0.10}{w}\right)^w$ chance of not making a mistake during all w tests.

Since one minus the chance of not making a mistake equals the chance of making a mistake, by making this adjustment, we have set the overall risk of making a wrong conclusion during

any one of the tests at $\left(1 - \left(1 - \frac{0.10}{w}\right)^w\right) = 0.10$.

The chance of a “false positive” for this study is restricted to 10% overall, or 1.25% for each test (10% divided by the eight tests within each substream equals 1.25%).

For more detail regarding this issue, please refer to Section 11.2 “The Multiplicity Problem and the Bonferroni Inequality” of *An Introduction to Contemporary Statistics* by L.H. Koopmans (Duxbury Press, 1981).

Power Analysis

The greater the number of samples, the greater the ability to detect differences. In the future, an *a priori* power analysis might benefit this research by determining how many samples would be required to detect a particular minimum difference of interest.

Interpreting the Calculation Results

The following tables include detailed calculation results for the commercial and self-haul substreams. The comparisons are shown for all eight tests; an asterisk denotes the statistically significant differences.

For the purposes of this study, only those calculation results with a p-value of less than 1.25% are considered to be statistically significant. As described above, the threshold for determining statistically significant results (the “alpha-level”) is conservative, accounting for the fact that so many individual tests were calculated.

The t-statistic is calculated from the data; according to statistical theory, the larger the absolute value of the t-statistic, the less likely that the two populations have the same mean. The p-value describes the probability of observing the calculated t-statistic if there were no true difference between the population means.

For example, in Table E-3 the proportion of paper in the disposed commercial substream dropped from 34.1% to 24.8% across the study periods. The t-statistic is relatively large (6.4045) and the probability (p-value) of observing that t-statistic if there had been no true difference between years is approximately 0.0%. This value is less than the study’s pre-determined threshold for statistically significant results (alpha-level of 1.25%); thus the decrease in paper is considered to be a true difference. On the other hand, the p-value corresponding to the increase in CDL waste is very large. The chance of observing the 14.1% to 14.5% increase when the actual proportion had not changed is nearly 82% - much too high to be considered a true difference.

In Table E-1, *paper*, *other materials*, and *hazardous* broad material categories showed a significant change across study periods. The proportions of the other five broad material categories did not experience a significant increase or decrease.

Table E-1 Changes in Commercial Waste Composition: 1988/89 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1988/89	2000		
Paper	31.9%	24.8%	3.1727	0.0016 *
Plastic	7.0%	10.4%	2.6117	0.0093 *
Glass	2.7%	3.1%	0.4800	0.6315
Metal	7.9%	8.2%	0.2329	0.8159
Organics	11.3%	26.1%	5.6652	0.0000 *
Other Materials	3.1%	11.2%	4.5789	0.0000 *
CDL Wastes	35.5%	14.5%	7.2608	0.0000 *
Hazardous	0.6%	1.7%	1.5251	0.1279
<i>Number of Samples</i>	<i>121</i>	<i>347</i>		

As shown in Table E-2, the proportion of *paper*, *organics*, *other materials*, *CDL wastes*, and *hazardous* waste displayed significant changes. The seven other broad material categories showed no evidence of a significant increase or decrease.

Table E-2 Changes in Commercial Waste Composition: 1992 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1992	2000		
Paper	35.1%	24.8%	6.7670	0.0000 *
Plastic	11.4%	10.4%	0.8783	0.3802
Glass	2.7%	3.1%	0.6303	0.5287
Metal	8.1%	8.2%	0.0582	0.9536
Organics	15.9%	26.1%	5.2576	0.0000 *
Other Materials	6.7%	11.2%	3.2774	0.0011 *
CDL Wastes	19.8%	14.5%	2.9263	0.0036 *
Hazardous	0.3%	1.7%	2.8940	0.0039 *
<i>Number of Samples</i>	<i>251</i>	<i>347</i>		

Table E-3 illustrates changes in commercial waste composition from 1996 to 2000. *Paper*, *other materials*, and *hazardous* broad material categories exhibited significant changes across the two study periods.

Table E-3 Changes in Commercial Waste Composition: 1996 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1996	2000		
Paper	34.1%	24.8%	6.4045	0.0000 *
Plastic	11.8%	10.4%	1.3441	0.1793
Glass	2.4%	3.1%	1.4129	0.1581
Metal	6.3%	8.2%	2.2017	0.0280
Organics	23.4%	26.1%	1.5258	0.1275
Other Materials	7.5%	11.2%	2.9512	0.0033 *
CDL Wastes	14.1%	14.5%	0.2334	0.8155
Hazardous	0.5%	1.7%	2.7378	0.0063 *
<i>Number of Samples</i>	<i>348</i>	<i>347</i>		

As illustrated in Table E-4, the *organics* and *other materials* broad material categories experienced a significant change in proportion from the 1988/89 study period and the 2000 study period. The proportion of *organics* decreased, while *other materials* increased.

Table E-4 Changes in Self-Haul Waste Composition: 1988/89 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1988/89	2000		
Paper	7.9%	5.0%	2.3594	0.0188
Plastic	3.2%	4.6%	1.7638	0.0785
Glass	1.8%	1.5%	0.5468	0.5848
Metal	10.4%	8.1%	1.2877	0.1986
Organics	27.9%	6.9%	6.4717	0.0000 *
Other Materials	7.7%	28.7%	7.8538	0.0000 *
CDL Wastes	39.6%	44.4%	1.1835	0.2373
Hazardous	1.6%	0.9%	1.6979	0.0903
<i>Number of Samples</i>	<i>217</i>	<i>200</i>		

Paper and *other materials* both exhibited a significant change in proportion from 1990 to 2000 (see Table E-5). The proportion of paper decreased, while *other materials* increased in proportion. The remaining six broad material categories did not show significant change across the two study periods.

Table E-5 Changes in Self-Haul Waste Composition: 1990 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1990	2000		
Paper	13.0%	5.0%	4.9269	0.0000 *
Plastic	4.2%	4.6%	0.5631	0.5737
Glass	3.1%	1.5%	1.8503	0.0650
Metal	10.9%	8.1%	1.7248	0.0854
Organics	5.8%	6.9%	0.5966	0.5511
Other Materials	10.9%	28.7%	6.1940	0.0000 *
CDL Wastes	51.3%	44.4%	1.7568	0.0797
Hazardous	1.0%	0.9%	0.2761	0.7826
<i>Number of Samples</i>	<i>192</i>	<i>200</i>		

In Table E-6, *paper* and *other materials* are listed as broad material categories that displayed a significant change between the 1992 and 2000 study periods. As experienced across the 1990 and 2000 study periods, *paper* decreased in proportion while *other materials* increased. The additional broad material categories did not show significant change.

Table E-6 Changes in Self-Haul Waste Composition: 1992 to 2000

	Mean Ratio (Material Wt/Total Wt)		t-Statistic	p-Value (Cut-off for statistically valid difference = 0.0125)
	1992	2000		
Paper	9.5%	5.0%	3.5273	0.0005 *
Plastic	6.8%	4.6%	2.3240	0.0206
Glass	2.4%	1.5%	1.7368	0.0832
Metal	11.5%	8.1%	2.1251	0.0342
Organics	4.9%	6.9%	1.1551	0.2487
Other Materials	15.3%	28.7%	4.5167	0.0000 *
CDL Wastes	48.6%	44.4%	1.0943	0.2745
Hazardous	0.9%	0.9%	0.0379	0.9698
<i>Number of Samples</i>	<i>197</i>	<i>200</i>		

From 1996 to 2000, *paper* was the only broad material category to change significantly. The proportion of *paper* decreased from the 1996 study period to the 2000 study period. As displayed in Table E-7, none of the remaining broad material categories experienced significant change between the two study periods.

Table E-7 Changes in Self-Haul Waste Composition: 1996 to 2000

	Mean Ratio <i>(Material Wt/Total Wt)</i>		t-Statistic	p-Value <i>(Cut-off for statistically valid difference = 0.0125)</i>
	<i>1996</i>	<i>2000</i>		
Paper	9.7%	5.0%	3.6400	0.0003 *
Plastic	5.4%	4.6%	1.0624	0.2887
Glass	1.3%	1.5%	0.4833	0.6291
Metal	5.4%	8.1%	0.1194	0.9050
Organics	7.1%	6.9%	1.3600	0.1746
Other Materials	24.2%	28.7%	0.2792	0.7803
CDL Wastes	45.5%	44.4%	1.3263	0.1855
Hazardous	1.3%	0.9%	2.1685	0.0307
<i>Number of Samples</i>	<i>199</i>	<i>200</i>		

Appendix F Field Forms

The field forms are included in the following order:

- Commercial vehicle selection sheet
- Self-haul vehicle selection sheet
- Waste tally sheet

Vehicle Selection Sheet
Seattle Commercial Waste Composition Study

Sampling Date: April 13, 2000 (DAY)

Sampling Location: Third & Lander

Hauler: Emerald City

Sample ID	Vehicle Type	Truck #	Route #	Load #	Cell #	E. T. A.	Net Weight
	FL	417	296b	2	13	11:30 AM	
	FL	427	298a	1	1	7:15 AM	
	FL	427	298b	2	6	11:15 AM	
	FL	428	302a	1	10	8:30 AM	
	FL	428	302b	2	7	11:00 AM	
	FL	432	300b	2	7	11:00 AM	
	FL	433	301b	2	12	2:00 PM	
	FL	443	292a	1	3	4:00 AM	
	FL	450	293a	1	15	4:15 AM	
	RL	442	19	1	4	12:30 PM	
	RO	205	D-205	7	2	8:30 AM	
	RO	325	D-325	6	9	Noon	
	RO	429	D-429	3	16	10:00 AM	
	RO	452	D-452	7	5	1:00 PM	
	RO	454	D-454	5	13	11:00 AM	
Cont. 1	RL	D-14	2	1	9	10:30 AM	
Cont. 2	FL	417	296a	1	1	8:00 AM	
Cont. 3	RO	448	D-448	3	16	11:30 AM	
Cont. 4	RO	452	D-452	1	4	9:00 AM	

**SEATTLE WASTE COMPOSITION STUDY
Vehicle Selection Form**

Site:	<u>SRDS</u>
Date:	<u>JUNE 22, 2000</u>

Cross off one number for each vehicle entering the station (**both trucks and passenger vehicles**).

When you reach the number circled, this vehicle should be asked to go to the sorting area to dump its load for sampling.

Continue for each block, beginning at #1, on the next line until the required number of vehicles is sampled.

SELF-HAUL GARBAGE ONLY NEED 20 VEHICLES - PLS. SAMPLE EVERY 9TH VEHICLE

1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)
1	2	3	4	5	6	7	8	(9)

PAPER

Newspaper				
Plain OCC/Kraft				
Waxed OCC/Kraft				
Mixed Low Grade				
Phone Books				
Office Paper				
Computer Paper				
Milk/Ice Cream/Juice				
Frozen Food Polycoats				
Compostable Soiled				
Paper/Other Materials				
Other Paper				

GLASS

Clear Beverage/Liquid				
Green Beverage/Liquid				
Brown Beverage/Liquid				
Container Glass				
Other Glass				
Fluorescent Tubes				

PLASTICS

#1 Pop & Liquor				
#1 Other Bottles				
#2 Milk & Juice				
#2 Other				
Other Bottles				
Jars & Tubs				
Expanded Polystyrene				
Other Rigid Packaging				
Grocery/Store/Bread Bags				
Garbage Bags				
Other Plastic Film				
Plastic Products				
Plastic/Other Materials				

WOOD & YARD WASTES

Dimension Lumber				
Other Untreated Wood				
Pallets				
Crates/Boxes				
Treated Wood				
Contaminated Wood				
Leaves & Grass				
Prunings				

METALS

Alum. Beverage Cans				
Alum. Foil/Containers				
Other Aluminum				
Tinned Food Cans				
Other Ferrous				
Other Nonferrous				
Mixed Metals/Material				
Empty Aerosol Cans				
Motor Oil filters				Oil Filters (count):

ORGANICS

Food Wastes				
Textiles/Clothing				
Carpet/Upholstery				
Leather				
Disposable Diapers				
Animal By-products				
Rubber Products				
Tires				
Ash				
Misc. Organics				

Sample Number:

Date:

Location:

OTHER WASTES

Furniture		
Mattresses		
Small Appliances		
Audio/Visual Equipment		
Monitors/TVs		
Other Computer Equipment		
Ceramics/China		
New Gypsum Scrap		
Demo Gypsum Scrap		
Fiberglass Insulation		
Rock/Concrete/Bricks		
Other Construction Debris		
Asphaltic Roofing		
Sand/Soil/Dirt		
Non-distinct Fines		
Misc. Inorganics		

HAZARDOUS WASTES

Latex Paint		
Hazardous Glue/Adhesives		
Non-hazardous Glues		
Oil-based Paint/Thinners		
Hazardous Cleaners		
Pesticides/Herbicides		
Dry-cell Batteries		
Wet-cell Batteries		
Gasoline/Kerosene		
Motor Oil/Diesel Oil		
Asbestos		
Explosives		
Other Hazardous		
Other Non-hazardous		

SUPERMIX:

--

COMMERCIAL VEHICLES

HAULE/E - Emerald City
W - Waste Management

TRUCK #:

ROUTE #:

LOAD #:

DEST.: E - Eastmont (WMI)
T - 3rd & Lander (ECD)

VEHICLE'S
NET WEIGHT:

SELF-HAUL VEHICLES

DEST.: N - NRDS
S - SRDS

WAS THE WHOLE LOAD SORTED?
Y - Yes
N - No

IF NOT, RECORD VEHICLE'S
NET WEIGHT:

BOTH COMMERCIAL & SELF-HAUL

VEHICLE TYPE:

- A - Passenger Auto (Car or SUV)
- P - Pickup Trucks
- V - Van
- T - Other Truck
- RL - Rear Loader
- FL - Front Loader
- SL - Side Loader
- ROD - Loose Roll-Off
- ROC - Compactor Roll-Off

GENERATOR TYPE:

(Non-Residential)

- A - Manufacturing
- B - Wholesale
- C - Retail
- D - Restaurant
- E - Hotel/Motel
- F - Office
- G - Health Care
- H - Education
- I - Transportation
- J - Other Services
- K - Various Businesses
- L - CDL
- M - Other Non-residential

(Residential)

- SF - Single-family
- MF - Multi-family
- BO - Both Single- and Multi- family

MX - Mixed Res and Non-Res

NR - No Response