

Chapter 21: Mooresville

COMMUNITY PROFILE

The City of Mooresville is located in Livingston County and is part of the Northern Missouri Solid Waste Management District (District B). It is approximately 7 miles west of Chillicothe, MO on Highway 36. Mooresville is relatively small, and Chillicothe is the central industrial location for this area and is also the county seat . Farmer's Landfill is located on the eastern side of Mooresville near Highway 36. Mooresville is approximately 238 miles northwest of St. Louis, 369 miles north of Springfield, and 91 miles northeast of Kansas City.

Demographics:

	Mooresville	Livingston County
Area (sq. miles)	.18	534.55
Population (1990)	113	14,592
Density (per sq. mile)	622.81	27.30
Pop. Change since 1980	-9.6%	-7.3%
Number of households	37	5,652
Persons per household	3.10	2.44
High school graduates	36.8%	40.9%
Median Family Income	\$20,938	\$27,647
Percent below poverty level	0%	15.1%

Solid Waste Collection

Farmer's Landfill has contracted with the Chillicothe and Bethany transfer stations to receive their solid waste. Most other towns are open to competition among individual haulers. Chillicothe and Grant city have curbside recycling. There are no solid waste zones or territories.

Solid Waste Disposal

The Longview Company owns and operates Farmer's Landfill in Mooresville and the transfer station in Bethany. Farmer's Landfill accepts waste from Livingston, Carroll, and Harrison Counties and from other surrounding areas. The landfill receives approximately 19,000 tons of waste per year and the current gate tipping fee is \$25.00 per ton.

Waste Reduction and Recycling Programs

Chillicothe is very aggressive with their recycling programs. In 1990, Chillicothe switched from a flat-rate pricing system to a unit-based pricing system for solid waste services (pay-per-bag). Recycling is mandatory in the city. The City contracts with Hope Have, a sheltered workshop, which accepts tin, aluminum, glass, plastics #1 and #2, and mixed paper (the workshop owns a pelletizer). The City delivers approximately 1503 tons of paper and 181 tons of other recyclables per year. Chillicothe has curbside recycling and drop-off locations. A few other towns also have curbside and/or drop-off recycling centers.

Mooresville Results

Information about sample size and composition are listed in tables 21-1 to 21-8.

All weights are listed in pounds and all volumes are in cubic feet.

SORT #1

Sort Conditions

The first sort was conducted March 17-18, 1997. A site towards the front of the landfill was selected as site location. The weather was windy and rainy.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	515,015
Total Sample Weight (lbs)	2560.8
Significance Test Results	.000
Number of Samples Collected	11

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	1	Beauty/Hygiene Aerosol Products	1
Prescription Medication (Rx)	0	Household Cleaning Aerosol Products	0
Beauty/Hygiene Products	1	Gardening/Yard Care Products	0
Household Cleaning Products	0	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	8
Syringes	11	Alkaline Batteries	11
Hardware/Shop Products	0	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 bag of biohazards.			
Total Weight (lb): 10.0			
Total Volume (cubic ft.): 1.2			

FARMER'S LANDFILL (MOORESVILLE)

SORT # 1

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	244.9	46.7	50%	50%	None	Bethany (roll-off)
2	198.9	40.1	50%	50%	None	Bethany (roll-off)
3	224.9	45	50%	50%	None	Bethany (roll-off)
4	210.9	42.8	50%	50%	None	Bethany (roll-off)
5	276.4	47	80%	20%	Curbside	Chillicothe
6	195.3	48.2	80%	20%	Curbside	Chillicothe
7	278.9	45	50%	50%	None	Carrollton
8	201	34.7	50%	50%	None	Carrollton
9	240.6	44	50%	50%	None	Carrollton
10	194	44.1	50%	50%	None	Carrollton
11	294.9	68.2	50%	50%	None	Cameron
TOTALS	2560.8	505.8				
AVERAGE	232.8	46.0	55%	45%		

TABLE 21-1

FARMER'S LANDFILL (MOORESVILLE)

SORT # 1

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	152.9	49.0	13.9	4.5	5.97%	9.66%
Newsprint	225.1	33.5	20.5	3.0	8.79%	6.60%
Magazines	99.4	11.9	9.0	1.1	3.88%	2.35%
High Grade	184.7	30.0	16.8	2.7	7.21%	5.91%
Mixed	451.2	92.0	41.0	8.4	17.62%	18.13%
PAPER TOTALS	1113.3	216.4	101.2	19.7	43.47%	42.65%
Clear	34.1	3.5	3.1	0.3	1.33%	0.69%
Brown	10.0	1.0	0.9	0.1	0.39%	0.20%
Green	5.0	0.2	0.5	0.0	0.20%	0.04%
Other	3.0	0.2	0.3	0.0	0.12%	0.04%
GLASS TOTALS	52.1	4.9	4.7	0.4	2.03%	0.97%
Alum. Cans	44.4	12.5	4.0	1.1	1.73%	2.46%
Other Alum	20.7	3.8	1.9	0.3	0.81%	0.75%
Non ferrous	9.5	0.9	0.9	0.1	0.37%	0.18%
Food Cans	79.2	23.2	7.2	2.1	3.09%	4.57%
Ferrous	14.6	1.2	1.3	0.1	0.57%	0.24%
Oil Filters	3.0	0.1	0.3	0.0	0.12%	0.02%
METAL TOTALS	171.4	41.7	15.6	3.8	6.69%	8.22%
PET # 1	40.9	18.5	3.7	1.7	1.60%	3.65%
HDPE # 2	44.6	17.5	4.1	1.6	1.74%	3.45%
Film	122.1	58.5	11.1	5.3	4.77%	11.53%
Other Plastic	175.8	47.5	16.0	4.3	6.87%	9.36%
PLASTIC TOTALS	383.4	142.0	34.9	12.9	14.97%	27.99%
Food Waste	405.1	40.5	36.8	3.7	15.82%	7.98%
Wood Waste	54.7	4.6	5.0	0.4	2.14%	0.91%
Textiles	67.6	14.1	6.1	1.3	2.64%	2.78%
Diapers	177.5	22.8	16.1	2.1	6.93%	4.49%
Other Organics	46.9	9.9	4.3	0.9	1.83%	1.95%
ORGANIC TOTALS	751.8	91.9	68.3	8.4	29.36%	18.12%
Fines	63.3	7.8	5.8	0.7	2.47%	1.54%
Other Inorganics	15.5	1.4	1.4	0.1	0.61%	0.28%
INORGANIC TOTALS	78.8	9.2	7.2	0.8	3.08%	1.81%
OTHER WASTE	10.0	1.2	0.9	0.1	0.39%	0.24%
GRAND TOTAL	2560.8	507.2	232.8	46.1	100.00%	100.00%

TABLE 21-2

SORT #2

Sort Conditions

The second sort was conducted June 11-12, 1997. An area near the composting site was selected for the site location. The weather was hot and humid.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	515,015
Total Sample Weight (lbs)	3380.1
Significance Test Results	.000
Number of Samples Collected	12

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	12	Beauty/Hygiene Aerosol Products	1
Prescription Medication (Rx)	1	Household Cleaning Aerosol Products	3
Beauty/Hygiene Products	8	Gardening/Yard Care Products	2
Household Cleaning Products	2	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	20
Syringes	0	Alkaline Batteries	31
Hardware/Shop Products	2	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 package of liquid ice, 1 IV with needle, 3 bottles of acrylic paint, 1 package of firecrackers, 1 set of water paints, 1 bottle of shoe polish, 1 set of markers.			
Total Weight (lb): 13.2			
Total Volume (cubic ft.): 1.0			

FARMER'S LANDFILL (MOORESVILLE)
SORT # 2

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	326.1	60.8	50%	50%	Curbside/Drop-off	Chillicothe
2	271.7	43.1	50%	50%	Curbside/Drop-off	Chillicothe
3	402.5	50.4	50%	50%	Curbside/Drop-off	Chillicothe
4	250.2	57.8	50%	50%	Drop-off	Carrollton
5	294.3	51	50%	50%	Curbside/Drop-off	Chillicothe
6	254	48.5	50%	50%	Curbside/Drop-off	Chillicothe
7	298.9	53	50%	50%	Curbside/Drop-off	Chillicothe
8	292.9	57	50%	50%	Drop-off	Bethany (transfer station)
9	221.6	51.1	50%	50%	Drop-off	Bethany (transfer station)
10	294.4	59	50%	50%	Drop-off	Bethany (transfer station)
11	248	52.5	50%	50%	Curbside/Drop-off	Chillicothe
12	225.5	51.3	50%	50%	Curbside/Drop-off	Chillicothe
TOTALS	3380.1	632.2				
AVERAGE	281.675	52.7	50%	50%		

TABLE 21-3

FARMER'S LANDFILL (MOORESVILLE)

SORT # 2

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	247.6	69.8	20.6	5.8	7.33%	11.04%
Newsprint	315.3	41.0	26.3	3.4	9.33%	6.49%
Magazines	155.3	17.0	12.9	1.4	4.59%	2.69%
High Grade	137.6	25.7	11.5	2.1	4.07%	4.07%
Mixed	445.0	102.5	37.1	8.5	13.17%	16.21%
PAPER TOTALS	1300.8	256.0	108.4	21.3	38.48%	40.49%
Clear	78.3	5.9	6.5	0.5	2.32%	0.93%
Brown	17.8	1.6	1.5	0.1	0.53%	0.25%
Green	10.0	0.5	0.8	0.0	0.30%	0.08%
Other	19.2	1.9	1.6	0.2	0.57%	0.30%
GLASS TOTALS	125.3	9.9	10.4	0.8	3.71%	1.57%
Alum. Cans	42.5	14.9	3.5	1.2	1.26%	2.36%
Other Alum	21.5	9.5	1.8	0.8	0.64%	1.50%
Non ferrous	13.8	1.3	1.2	0.1	0.41%	0.21%
Food Cans	80.0	13.9	6.7	1.2	2.37%	2.20%
Ferrous	61.2	4.2	5.1	0.4	1.81%	0.66%
Oil Filters	5.7	0.4	0.5	0.0	0.17%	0.06%
METAL TOTALS	224.7	44.2	18.7	3.7	6.65%	6.99%
PET # 1	50.9	25.0	4.2	2.1	1.51%	3.95%
HDPE # 2	76.2	32.0	6.4	2.7	2.25%	5.06%
Film	150.7	55.5	12.6	4.6	4.46%	8.78%
Other Plastic	207.4	83.0	17.3	6.9	6.14%	13.13%
PLASTIC TOTALS	485.2	195.5	40.4	16.3	14.35%	30.92%
Food Waste	633.7	43.5	52.8	3.6	18.75%	6.88%
Wood Waste	36.2	7.6	3.0	0.6	1.07%	1.20%
Textiles	165.4	30.7	13.8	2.6	4.89%	4.86%
Diapers	94.4	10.5	7.9	0.9	2.79%	1.66%
Other Organics	164.1	19.4	13.7	1.6	4.85%	3.07%
ORGANIC TOTALS	1093.8	111.7	91.2	9.3	32.36%	17.67%
Fines	110.6	11.8	9.2	1.0	3.27%	1.87%
Other Inorganics	26.5	2.1	2.2	0.2	0.78%	0.33%
INORGANIC TOTALS	137.1	13.9	11.4	1.2	4.06%	2.20%
OTHER WASTE	13.2	1.0	1.1	0.1	0.39%	0.16%
GRAND TOTAL	3380.1	632.2	281.7	52.7	100.00%	100.00%

SORT #3

Sort Conditions

The third sort was conducted September 15-17, 1997. The same location was used for sort activities as the previous sort. The weather was sunny and mild. The maximum number of samples were not gathered due to slow hauler traffic.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	515,015
Total Sample Weight (lbs)	2238.4
Significance Test Results	.000
Number of Samples Collected	9

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	1	Beauty/Hygiene Aerosol Products	0
Prescription Medication (Rx)	0	Household Cleaning Aerosol Products	0
Beauty/Hygiene Products	1	Gardening/Yard Care Products	0
Household Cleaning Products	1	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	0
Syringes	36	Alkaline Batteries	3
Hardware/Shop Products	1	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 butane lighter.			
Total Weight (lb): .2			
Total Volume (cubic ft.): 0.2			

TABLE 21-5

FARMER'S LANDFILL (MOORESVILLE)
SORT # 3

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	266.2	43.4	50%	50%	Both	Chillicothe
2	299.6	49.7	50%	50%	Both	Chillicothe
3	255.9	37.3	75%	25%	Both	Wheeling, Chula, Chillicothe
4	248.7	51.3	60%	40%	Drop-off	Bethany and surrounding area
5	257.5	45.1	60%	40%	Drop-off	Bethany and surrounding area
6	250.3	45.4	60%	40%	Drop-off	Bethany and surrounding area
7	179.1	45.5	60%	40%	None	Pattonsburg, Gentry
8	231.1	40.4	60%	40%	None	Pattonsburg, Gentry
9	250.1	39	60%	40%	Drop-off	Carrollton, Hale, Tina
TOTALS	2238.5	397.1				
AVERAGE	248.7222	44.1	59%	41%		

TABLE 21-5

FARMER'S LANDFILL (MOORESVILLE)

SORT # 3

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	135.0	33.0	15.0	3.7	6.03%	8.31%
Newsprint	222.4	23.0	24.7	2.6	9.94%	5.79%
Magazines	109.7	12.3	12.2	1.4	4.90%	3.10%
High Grade	39.6	13.0	4.4	1.4	1.77%	3.27%
Mixed	305.2	55.0	33.9	6.1	13.63%	13.84%
PAPER TOTALS	811.9	136.3	90.2	15.1	36.27%	34.31%
Clear	37.4	4.6	4.2	0.5	1.67%	1.16%
Brown	11.0	1.6	1.2	0.2	0.49%	0.40%
Green	1.5	0.1	0.2	0.0	0.07%	0.03%
Other	10.5	2.1	1.2	0.2	0.47%	0.53%
GLASS TOTALS	60.4	8.4	6.7	0.9	2.70%	2.11%
Alum. Cans	21.0	8.8	2.3	1.0	0.94%	2.21%
Other Alum	17.7	6.6	2.0	0.7	0.79%	1.66%
Non ferrous	3.9	1.4	0.4	0.2	0.17%	0.35%
Food Cans	60.3	10.2	6.7	1.1	2.69%	2.57%
Ferrous	38.3	5.0	4.3	0.6	1.71%	1.26%
Oil Filters	2.0	0.7	0.2	0.1	0.09%	0.18%
METAL TOTALS	143.2	32.7	15.9	3.6	6.40%	8.23%
PET # 1	27.6	13.2	3.1	1.5	1.23%	3.32%
HDPE # 2	62.7	28.4	7.0	3.2	2.80%	7.15%
Film	101.7	31.0	11.3	3.4	4.54%	7.80%
Other Plastic	148.8	47.8	16.5	5.3	6.65%	12.03%
PLASTIC TOTALS	340.8	120.4	37.9	13.4	15.22%	30.30%
Food Waste	331.5	29.5	36.8	3.3	14.81%	7.43%
Wood Waste	61.7	8.4	6.9	0.9	2.76%	2.11%
Textiles	109.4	18.2	12.2	2.0	4.89%	4.58%
Diapers	130.2	13.8	14.5	1.5	5.81%	3.47%
Other Organics	66.6	12.5	7.4	1.4	2.98%	3.15%
ORGANIC TOTALS	699.4	82.4	77.7	9.2	31.24%	20.74%
Fines	133.0	11.8	14.8	1.3	5.94%	2.97%
Other Inorganics	47.9	5.1	5.3	0.6	2.14%	1.28%
INORGANIC TOTALS	180.9	16.9	20.1	1.9	8.08%	4.25%
OTHER WASTE	2.0	0.2	0.2	0.02	0.09%	0.05%
GRAND TOTAL	2238.4	397.3	248.7	44.1	100.00%	100.00%

SORT SUMMARY

Seasonal variations

- Paper totals were high for all sorts at this site. Even though Chillicothe has a pelletizer for their paper products, many communities around the area do not have curbside recycling.
- Glass and Plastics totals are lower than average, probably due to the curbside recycling and unit-based pricing for solid waste disposal in Chillicothe.
- Food waste increased in the second sort due to “picnic” foods (watermelon rinds, corn shucks, etc.).

Sort results

- Chart 21-1 graphically compares the three seasonal sort results and shows the average waste composition, by major category, for Mooresville.
- The sample data for all Mooresville waste sorts are listed on Table 21-7.
- The sort results for Mooresville are listed on Table 21-8.
- The summary of statistical relevance for the Mooresville sorts is located on page 340.
- The total for all “other wastes” found during the Mooresville sorts is on page 340.

All weights are in pounds and volumes are listed in cubic feet.

Comparisons of the Mooresville’s waste stream to previous studies and other communities can be found in Chapter 24.

MOORESVILLE RESULTS BY WEIGHT

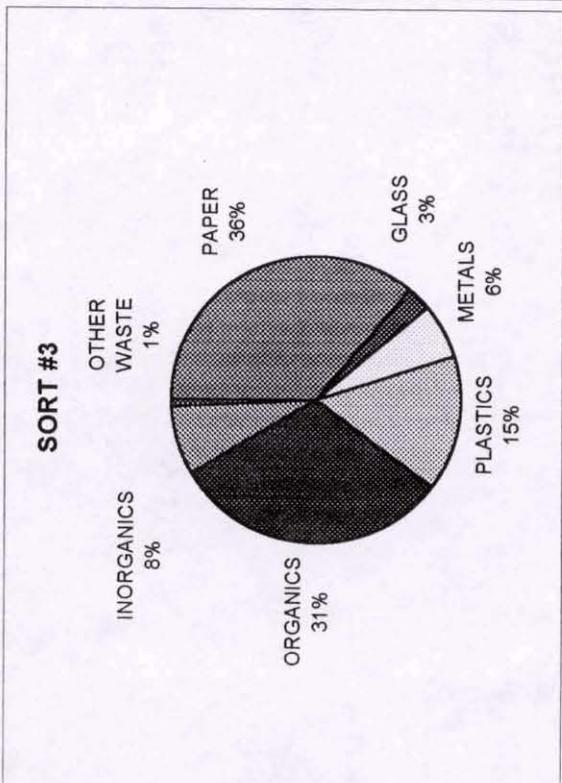
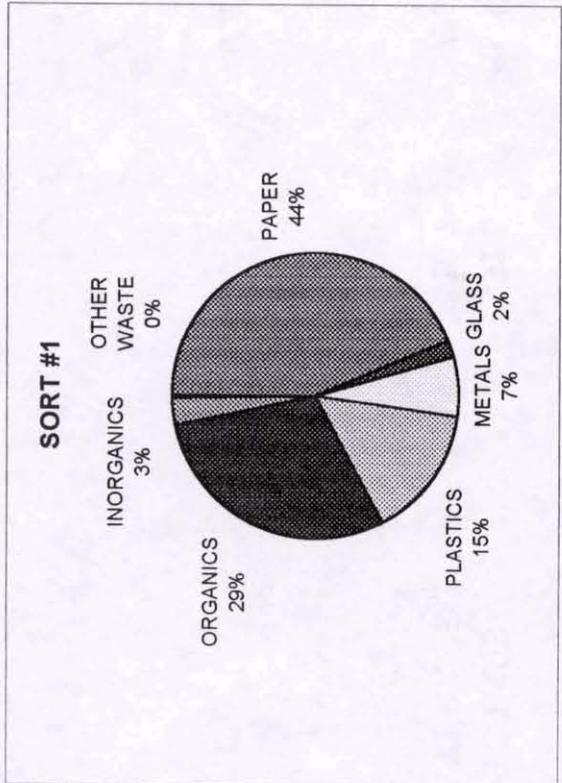
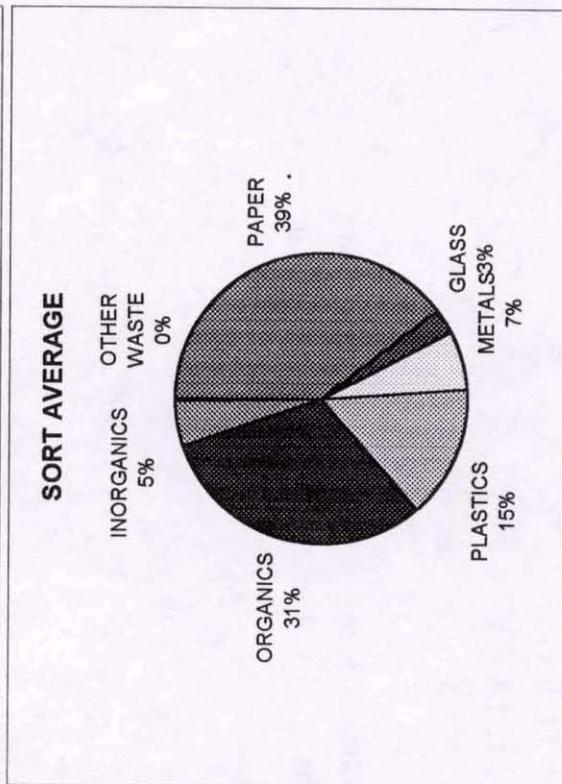
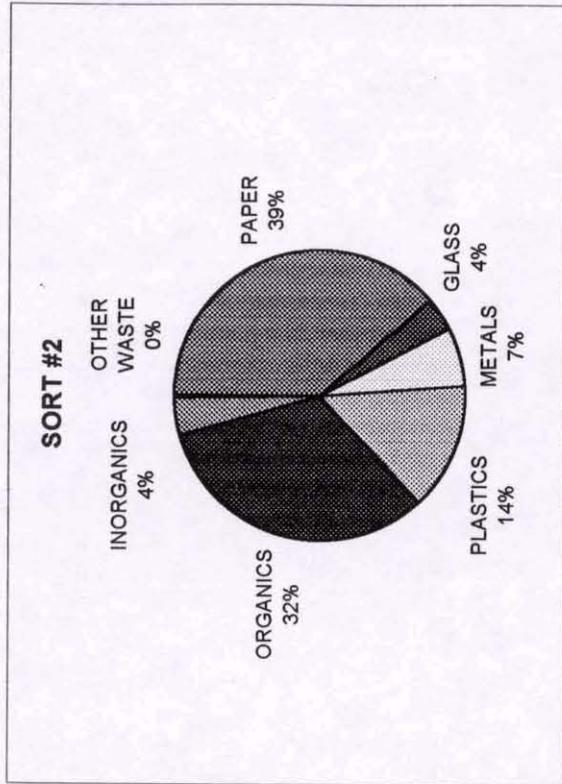


CHART 21-1

**MOORESVILLE
SAMPLE SUMMARY**

Sort #	Dates	Number of Samples	Sample Size		Composition	
			Weight	Volume	Residential	Commercial
1	3/17-3/18	11	2560.8	505.8	55%	45%
2	6/11-6/12	12	3380.1	632.2	50%	50%
3	9/15-9/17	9	2238.5	397.1	59%	41%
TOTALS		32.0	8179.4	1535.1		
AVERAGE		10.7	2726.5	511.7	55%	45%

TABLE 21-7

CATEGORY	MOORESVILLE						SUMMARY	
	SORT # 1		SORT # 2		SORT # 3		AVERAGE	
	WT.	VOL.	WT.	VOL.	WT.	VOL.	WT.	VOL.
Cardboard	6.0%	9.7%	7.3%	11.0%	6.0%	8.3%	6.5%	9.9%
Newsprint	8.8%	6.6%	9.3%	6.5%	9.9%	5.8%	9.3%	6.3%
Magazines	3.9%	2.3%	4.6%	2.7%	4.9%	3.1%	4.5%	2.7%
High Grade	7.2%	5.9%	4.1%	4.1%	1.8%	3.3%	4.4%	4.5%
Mixed	17.6%	18.1%	13.2%	16.2%	13.6%	13.8%	14.7%	16.2%
PAPER TOTALS	43.5%	42.7%	38.5%	40.5%	36.3%	34.3%	39.4%	39.6%
Clear	1.3%	0.7%	2.3%	0.9%	1.7%	1.2%	1.8%	0.9%
Brown	0.4%	0.2%	0.5%	0.3%	0.5%	0.4%	0.5%	0.3%
Green	0.2%	0.0%	0.3%	0.1%	0.1%	0.0%	0.2%	0.1%
Other	0.1%	0.0%	0.6%	0.3%	0.5%	0.5%	0.4%	0.3%
GLASS TOTALS	2.0%	1.0%	3.7%	1.6%	2.7%	2.1%	2.9%	1.5%
Alum. Cans	1.7%	2.5%	1.3%	2.4%	0.9%	2.2%	1.3%	2.4%
Other Alum	0.8%	0.7%	0.6%	1.5%	0.8%	1.7%	0.7%	1.3%
Non ferrous	0.4%	0.2%	0.4%	0.2%	0.2%	0.4%	0.3%	0.2%
Food Cans	3.1%	4.6%	2.4%	2.2%	2.7%	2.6%	2.7%	3.1%
Ferrous	0.6%	0.2%	1.8%	0.7%	1.7%	1.3%	1.4%	0.7%
Oil Filters	0.1%	0.0%	0.2%	0.1%	0.1%	0.2%	0.1%	0.1%
METAL TOTALS	6.7%	8.2%	6.6%	7.0%	6.4%	8.2%	6.6%	7.7%
PET # 1	1.6%	3.6%	1.5%	4.0%	1.2%	3.3%	1.5%	3.7%
HDPE # 2	1.7%	3.5%	2.3%	5.1%	2.8%	7.1%	2.2%	5.1%
Film	4.8%	11.5%	4.5%	8.8%	4.5%	7.8%	4.6%	9.4%
Other Plastic	6.9%	9.4%	6.1%	13.1%	6.6%	12.0%	6.5%	11.6%
PLASTIC TOTALS	15.0%	28.0%	14.4%	30.9%	15.2%	30.3%	14.8%	29.8%
Food Waste	15.8%	8.0%	18.7%	6.9%	14.8%	7.4%	16.8%	7.4%
Wood Waste	2.1%	0.9%	1.1%	1.2%	2.8%	2.1%	1.9%	1.3%
Textiles	2.6%	2.8%	4.9%	4.9%	4.9%	4.6%	4.2%	4.1%
Diapers	6.9%	4.5%	2.8%	1.7%	5.8%	3.5%	4.9%	3.1%
Other Organics	1.8%	2.0%	4.9%	3.1%	3.0%	3.1%	3.4%	2.7%
ORGANIC TOTALS	29.4%	18.1%	32.4%	17.7%	31.2%	20.7%	31.1%	18.6%
Fines	2.5%	1.5%	3.3%	1.9%	5.9%	3.0%	3.8%	2.0%
Other Inorganics	0.6%	0.3%	0.8%	0.3%	2.1%	1.3%	1.1%	0.6%
INORGANIC TOTALS	3.1%	1.8%	4.1%	2.2%	8.1%	4.3%	4.9%	2.6%
OTHER WASTE	0.4%	0.2%	0.4%	0.2%	0.7%	0.4%	0.3%	0.2%
SORT TOTALS	100%							

TABLE 21-8

Mooreville Statistical Summary	
Estimated MSW (lbs) Collected by Site During Sampling Period	1,545,046
Total Sample Weight (lbs)	8179.3
Significance Test Results	.000
Number of Samples Collected	32
Mean Sample (lbs) and Confidence Interval (95%)	254.82 (+/-) 16.27

Mooreville "Other Waste" Summary			
Over-the-counter Medication (OTC)	14	Beauty/Hygiene Aerosol Products	2
Prescription Medication (Rx)	1	Household Cleaning Aerosol Products	3
Beauty/Hygiene Products	10	Gardening/Yard Care Products	2
Household Cleaning Products	3	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	28
Syringes	47	Alkaline Batteries	45
Hardware/Shop Products	3	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 bag of biohazards, 1 package of liquid ice, 1 IV with needle, 3 bottles of acrylic paint, 1 package of firecrackers, 1 set of water paints, 1 bottle of shoe polish, 1 set of markers, 1 butane lighter.			
Total Weight (1b): 23.4			
Total Volume (cubic ft.): 2.4			