

Chapter 10: Lee's Summit

COMMUNITY PROFILE

The City of Lee's Summit is in Jackson County and is part of the Kansas City Metropolitan area.

Lee's Summit was the most prosperous, best educated, and fastest growing community examined during phase I of the study. Lee Summit has a strong industrial base and is the home of many service and retail businesses. The City is a member of the Mid-America Regional Council Solid Waste Management District (District E).

Lee's Summit is 15 miles southeast of downtown Kansas City, 160 miles north of Springfield and 250 miles west of St. Louis.

Demographics:

	Lee's Summit	Jackson County
Area (sq. miles)	59.1	605
Population (1992)	51,327	634,057
Density (per sq. mile)	868	19
Pop. Change since 1980	78.6%	13.1%
Number of households	17,632	252,582
Persons per household	2.60	2.46
High school graduates	89.9%	79.5%
Median Family Income	\$45,101	\$34,300
Percent below poverty level	4.8%	13.0%

Solid waste collection

Solid waste is collected by several private waste haulers in Lee's Summit. The city licenses the haulers but does not franchise or set up collection zones. Waste haulers are required to offer curbside recycling to their customers.

Solid waste disposal

The City of Lee's Summit owns and operates the landfill. The landfill accepts waste from Lee's Summit and the surrounding communities. The current tipping fee for solid waste is \$6.50 per cubic yard. The landfill receives approximately 110,000 tons of solid waste per year.

Waste reduction and recycling programs

The Lee's Summit recycling drop-off center began as a project operated by a local not-for profit organization. In 1992, the center was acquired by the City and became part of an integrated municipal solid waste management plan. Many recyclables and some banned items are accepted at this center. In addition to these efforts, the City has mandated that all trash haulers operating within the City limits must offer curbside recycling, and a group of rotating recycling centers was formed for residents use. Lee's Summit also operates a yard waste composting facility at the landfill.

Lee's Summit Results

Information about sample size and composition are listed in tables 10-1 through 10-8

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

SORT # 1

Sort Conditions

The first sort was conducted March 25th through the 29th. The sort facility was set up in the landfill adjacent to the unloading area. Weather conditions were sunny and cold.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	400,000
Total Sample Weight (lbs)	3,471.6
Significance Test Results	.000
Number of Samples	14

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	6	Beauty/Hygiene Aerosol Products	0
Prescription Medication (Rx)	4	Household Cleaning Aerosol Products	0
Beauty/Hygiene Products	6	Gardening/Yard Care Products	3
Household Cleaning Products	1	Pet Groom Products	0
Sharps/Blades	2	Disposable Razors	20
Syringes	8	Alkaline Batteries	32
Hardware/Shop Products	2	Automobile Maintenance/Cleaning Products	5
Aerosol Cans	0		
Miscellaneous items: 1 container of shoe polish, 1 printer cartridge, 1 container with boric acid, 1 fluorescent tube.			

**LEE'S SUMMIT
SORT #1**

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	274	60.6	100%	0%	Curb side/ Drop-off	City of Lee's Summit
2	202	48.7	100%	0%	Curb side/ Drop-off	City of Lee's Summit
3	287	63.4	100%	0%	Curb side/ Drop-off	City of Lee's Summit
4	213.9	40.5	100%	0%	Curb side/ Drop-off	City of Lee's Summit
5	287.5	63.8	100%	0%	Curb side/ Drop-off	Raytown and Lee's Summit
6	222.5	58.3	100%	0%	Curb side/ Drop-off	City of Lee's Summit
7	274	59.2	100%	0%	Curb side/ Drop-off	City of Lee's Summit
8	178	33.1	100%	0%	Curb side/ Drop-off	City of Lee's Summit
9	229	56.2	90%	10%	Curb side/ Drop-off	City of Lee's Summit
10	303	63.7	100%	0%	Curb side/ Drop-off	City of Lee's Summit
11	292	54.5	100%	0%	Curb side/ Drop-off	City of Lee's Summit
12	290.9	40.2	30%	70%	Curb side/ Drop-off	City of Lee's Summit
13	217.5	43.5	100%	0%	Curb side/ Drop-off	City of Lee's Summit
14	200.3	39.5	100%	0%	Curb side/ Drop-off	City of Lee's Summit
TOTALS	3471.6	725.2				
AVERAGE	248.0	51.8	94%	6%		

TABLE 10-1

CATEGORY	LEE'S SUMMIT				SORT # 1	
	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	246.7	93.0	17.6	6.6	7.11%	12.83%
Newsprint	514.6	72.5	36.8	5.2	14.83%	9.99%
Magazines	143.9	15.2	10.3	1.1	4.15%	2.09%
High Grade	94.9	15.5	6.8	1.1	2.73%	2.13%
Mixed	530.3	130.5	37.9	9.3	15.28%	18.00%
PAPER TOTALS	1530.4	326.6	109.3	23.3	44.10%	45.04%
Clear	109.2	17.1	7.8	1.2	3.15%	2.35%
Brown	42.2	11.1	3.0	0.8	1.22%	1.52%
Green	20.2	5.3	1.4	0.4	0.58%	0.73%
Other	25.2	2.3	1.8	0.2	0.72%	0.31%
GLASS TOTALS	196.8	35.7	14.1	2.5	5.67%	4.92%
Alum. Cans	51.5	22.6	3.7	1.6	1.48%	3.12%
Other Alum	16.6	7.2	1.2	0.5	0.48%	0.99%
Non ferrous	7.5	0.7	0.5	0.1	0.22%	0.10%
Food Cans	83.7	18.0	6.0	1.3	2.41%	2.48%
Ferrous	19.1	3.9	1.4	0.3	0.55%	0.54%
Oil Filters	2.5	0.1	0.2	0.0	0.07%	0.01%
METAL TOTALS	180.9	52.5	12.9	3.8	5.21%	7.24%
PET # 1	41.7	21.5	3.0	1.5	1.20%	2.96%
HDPE # 2	55.4	33.0	4.0	2.4	1.60%	4.55%
Film	108.4	58.0	7.7	4.1	3.12%	8.00%
Other Plastic	157.0	71.0	11.2	5.1	4.52%	9.79%
PLASTIC TOTALS	362.5	183.5	25.9	13.1	10.45%	25.31%
Food Waste	486.0	41.7	34.7	3.0	14.00%	5.75%
Wood Waste	20.3	4.2	1.5	0.3	0.58%	0.58%
Textiles	118.0	23.7	8.4	1.7	3.40%	3.27%
Diapers	207.2	14.7	14.8	1.1	5.97%	2.03%
Other Organics	114.0	22.0	8.1	1.6	3.28%	3.03%
ORGANIC TOTALS	945.5	106.3	67.5	7.6	27.24%	14.66%
Fines	172.0	14.0	12.3	1.0	4.96%	1.93%
Other Inorganics	82.2	6.6	5.9	0.5	2.37%	0.90%
INORGANIC TOTALS	254.2	20.6	18.2	1.5	7.33%	2.83%
GRAND TOTAL	3470.2	725.0	247.9	51.8	100.00%	100.00%

TABLE 10-2

SORT # 2

Sort Conditions

The second sort was conducted July 1st through the 3rd. The sort facility was set up near the maintenance facility, approximately ¼ mile from the tipping area. The samples were transported to and from the facility by trailer. Weather conditions were sunny, humid, and very hot.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	400,000
Total Sample Weight (lbs)	2,648
Significance Test Results	.000
Number of Samples	12

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	3	Beauty/Hygiene Aerosol Products	1
Prescription Medication (Rx)	3	Household Cleaning Aerosol Products	1
Beauty/Hygiene Products	31	Gardening/Yard Care Products	1
Household Cleaning Products	5	Pet Groom Products	3
Sharps/Blades	2	Disposable Razors	3
Syringes	2	Alkaline Batteries	13
Hardware/Shop Products	7	Automobile Maintenance/Cleaning Products	2
Aerosol Cans	4		
Miscellaneous items: 1 container of lamp oil, 1 thermometer.			

**LEE'S SUMMIT
SORT # 2**

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	264	45.3	95%	5%	Drop-off	Lee's Summit
2	346	59	100%	0%	Drop-off	Grandview
3	270	47	100%	0%	Drop-off	Lee's Summit
4	249	47.8	100%	0%	Drop-off	Lee's Summit
5	209.5	29.5	100%	0%	Drop-off	Lee's Summit
6	251.5	40.7	80%	20%	Drop-off	Lee's Summit
7	231	51.3	90%	10%	Drop-off	Lee's Summit
8	135	31.2	90%	10%	Drop-off	Lee's Summit
9	183	35.8	60%	40%	Drop-off	Lee's Summit
10	212	37.1	80%	20%	Drop-off	Lee's Summit
11	118	24.2	60%	40%	Drop-off	Independence
12	179	29.3	70%	30%	Drop-off	Lee's Summit
TOTALS	2648	478.2				
AVERAGE	220.7	39.9	85%	15%		

TABLE 10-3

LEE'S SUMMIT**SORT # 2**

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	174.0	57.5	14.5	4.8	6.57%	12.04%
Newsprint	291.0	44.0	24.3	3.7	10.99%	9.21%
Magazines	132.0	14.0	11.0	1.2	4.99%	2.93%
High Grade	79.0	9.3	6.6	0.8	2.98%	1.95%
Mixed	319.0	71.2	26.6	5.9	12.05%	14.91%
PAPER TOTALS	995.0	196.0	82.9	16.3	37.58%	41.05%
Clear	74.0	8.4	6.2	0.7	2.80%	1.76%
Brown	27.0	2.4	2.3	0.2	1.02%	0.50%
Green	12.0	1.4	1.0	0.1	0.45%	0.29%
Other	20.0	1.7	1.7	0.1	0.76%	0.36%
GLASS TOTALS	133.0	13.9	11.1	1.2	5.02%	2.91%
Alum. Cans	48.5	11.8	4.0	1.0	1.83%	2.47%
Other Alum	26.0	2.6	2.2	0.2	0.98%	0.54%
Non ferrous	9.0	0.8	0.8	0.1	0.34%	0.17%
Food Cans	78.0	10.8	6.5	0.9	2.95%	2.26%
Ferrous	41.0	3.6	3.4	0.3	1.55%	0.75%
Oil Filters	0.0	0.0	0.0	0.0	0.00%	0.00%
METAL TOTALS	202.5	29.6	16.9	2.5	7.65%	6.20%
PET # 1	51.0	24.5	4.3	2.0	1.93%	5.13%
HDPE # 2	62.0	29.5	5.2	2.5	2.34%	6.18%
Film	90.0	33.0	7.5	2.8	3.40%	6.91%
Other Plastic	189.0	50.2	15.8	4.2	7.14%	10.51%
PLASTIC TOTALS	392.0	137.2	32.7	11.4	14.81%	28.73%
Food Waste	367.0	34.6	30.6	2.9	13.86%	7.25%
Wood Waste	49.0	5.6	4.1	0.5	1.85%	1.17%
Textiles	109.0	15.2	9.1	1.3	4.12%	3.18%
Diapers	100.0	10.7	8.3	0.9	3.78%	2.24%
Other Organics	182.0	23.2	15.2	1.9	6.87%	4.86%
ORGANIC TOTALS	807.0	89.3	67.3	7.4	30.48%	18.70%
Fines	50.0	5.6	4.2	0.5	1.89%	1.17%
Other Inorganics	68.0	5.9	5.7	0.5	2.57%	1.24%
INORGANIC TOTALS	118.0	11.5	9.8	1.0	4.46%	2.41%
GRAND TOTAL	2647.5	477.5	220.6	39.8	100.00%	100.00%

TABLE 10-4

SORT #3

Sort Conditions

The third sort was conducted on October 28th and 29th. The sort facility was set up near the maintenance facility, approximately ¼ mile from the tipping area. The samples were transported to and from the facility by trailer. Weather conditions were sunny, and mild the first day. Rain and high winds on the second day caused difficulty in obtaining samples and therefore the sort was ended after only 9 samples.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	400,000
Total Sample Weight (lbs)	2,366.1
Significance Test Results	.000
Number of Samples	9

OTHER WASTE CATEGORIES			
Over-the-Counter Medication (OTC)	0	Beauty/Hygiene Aerosol Products	0
Prescription Medication (Rx)	1	Household Cleaning Aerosol Products	0
Beauty/Hygiene Products	3	Gardening/Yard Care Products	0
Household Cleaning Products	0	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	8
Syringes	0	Alkaline Batteries	8
Hardware/Shop Products	0	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 container fly abatement for houses.			

**LEE'S SUMMIT
SORT # 3**

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	280	41.8	0%	100%	Curbside/Drop-off	Lee's Summit
2	232	34.8	90%	10%	Curbside/Drop-off	Lee's Summit (John Knox Village)
3	290	43	100%	0%	Curbside/Drop-off	Lee's Summit (John Knox Village)
4	288.6	51.9	100%	0%	Curbside/Drop-off	Lee's Summit
5	259.5	51.4	100%	0%	Curbside/Drop-off	Lee's Summit
6	209	46.2	100%	0%	Curbside/Drop-off	Lee's Summit
7	267	57.5	70%	30%	Curbside/Drop-off	Lee's Summit
8	302	59.6	100%	0%	Curbside/Drop-off	Blue Springs
9	238	50.7	50%	50%	Curbside/Drop-off	Unity Village
TOTALS	2366.1	436.9				
AVERAGE	262.9	48.5	79%	21%		

TABLE 10-5

LEE'S SUMMIT

SORT # 3

CATEGORY	TOTALS		AVERAGE		PERCENTAGES	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	121.9	41.0	13.5	4.6	5.15%	9.39%
Newsprint	305.5	32.0	33.9	3.6	12.92%	7.33%
Magazines	99.0	12.1	11.0	1.3	4.19%	2.77%
High Grade	148.0	22.7	16.4	2.5	6.26%	5.20%
Mixed	314.0	72.5	34.9	8.1	13.28%	16.60%
PAPER TOTALS	988.4	180.3	109.8	20.0	41.79%	41.28%
Clear	67.5	5.5	7.5	0.6	2.85%	1.26%
Brown	62.5	6.3	6.9	0.7	2.64%	1.44%
Green	9.5	1.9	1.1	0.2	0.40%	0.43%
Other	23.0	2.3	2.6	0.3	0.97%	0.53%
GLASS TOTALS	162.5	16.0	18.1	1.8	6.87%	3.66%
Alum. Cans	43.0	13.0	4.8	1.4	1.82%	2.98%
Other Alum	23.0	4.1	2.6	0.5	0.97%	0.94%
Non ferrous	2.1	0.2	0.2	0.0	0.09%	0.05%
Food Cans	71.0	12.3	7.9	1.4	3.00%	2.82%
Ferrous	19.0	2.3	2.1	0.3	0.80%	0.53%
Oil Filters	0.0	0.0	0.0	0.0	0.00%	0.00%
METAL TOTALS	158.1	31.9	17.6	3.5	6.68%	7.30%
PET # 1	32.5	12.3	3.6	1.4	1.37%	2.80%
HDPE # 2	48.5	21.7	5.4	2.4	2.05%	4.97%
Film	75.5	35.8	8.4	4.0	3.19%	8.18%
Other Plastic	145.0	55.3	16.1	6.1	6.13%	12.66%
PLASTIC TOTALS	301.5	125.0	33.5	13.9	12.75%	28.62%
Food Waste	432.5	39.0	48.1	4.3	18.29%	8.93%
Wood Waste	16.1	1.8	1.8	0.2	0.68%	0.41%
Textiles	84.5	13.3	9.4	1.5	3.57%	3.04%
Diapers	100.0	10.6	11.1	1.2	4.23%	2.43%
Other Organics	55.6	9.7	6.2	1.1	2.35%	2.22%
ORGANIC TOTALS	688.7	74.4	76.5	8.3	29.12%	17.03%
Fines	32.0	5.0	3.6	0.6	1.35%	1.14%
Other Inorganics	34.0	4.2	3.8	0.5	1.44%	0.96%
INORGANIC TOTALS	66.0	9.2	7.3	1.0	2.79%	2.11%
GRAND TOTAL	2365.2	436.8	262.8	48.5	100.00%	100.00%

TABLE 10-6

SORT SUMMARY

Seasonal variations

- High grade paper was higher during the third sort. A larger percentage of commercial waste was sorted during the third round. Most of that commercial waste seemed to come from doctors offices.
- Brown glass containers were higher during the third round. No obvious cause.
- Other plastics were higher during the second sort. No obvious cause.
- Other organics were higher during the second sort. Several bags of yard waste were found.
- Fines were higher during the first sort. Modification in the sorting procedure caused more of the fines to be sorted into the appropriate categories in the second and third round.

Sort results

- Chart 10-1 graphically compares the three seasonal waste sort results and shows the average waste composition, by major category, for Lee's Summit.
- The sample data for all Lee's Summit sorts is listed on table 10-7.
- The sort results for all Lee's Summit sorts are listed on table 10-8.
- The summary of statistical relevance for the Lee's Summit sorts is located on page 158.
- The total for all "other wastes" found during the Lee's Summit sorts is on page 158.

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

Comparisons of the Lee's Summit waste stream to previous studies and other communities can be found in chapter 13.

LEE'S SUMMIT RESULTS BY WEIGHT

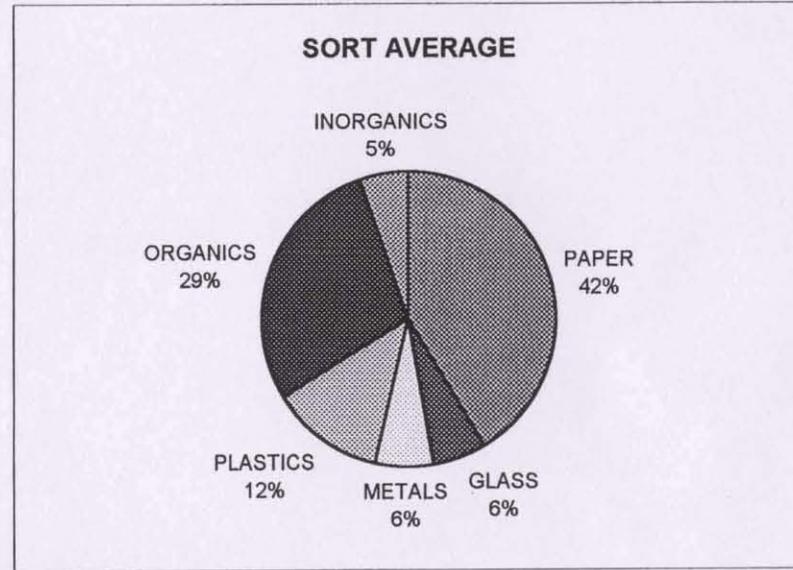
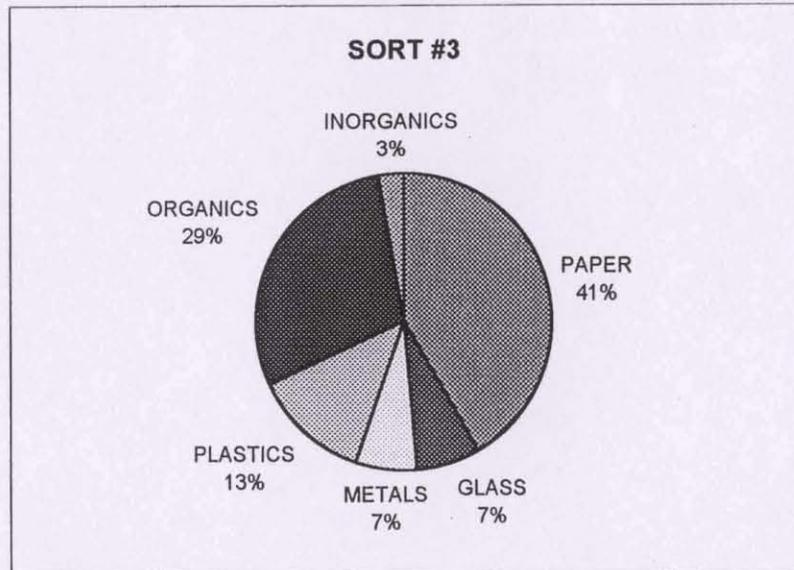
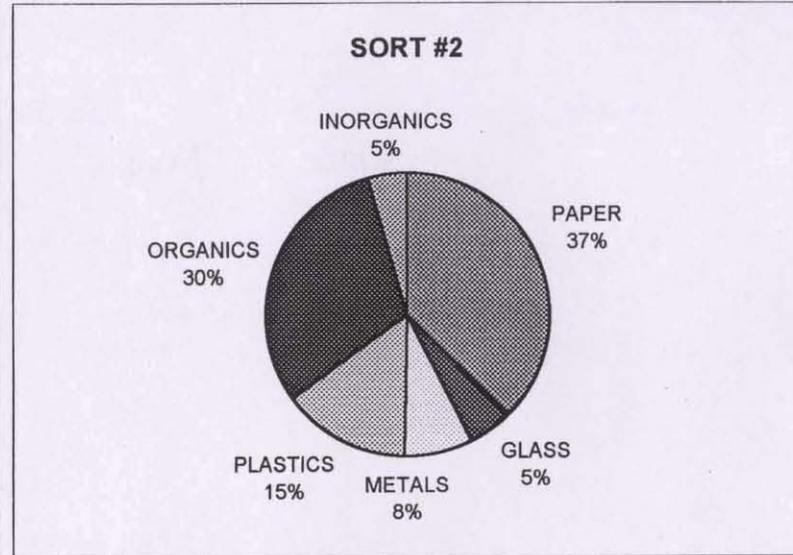
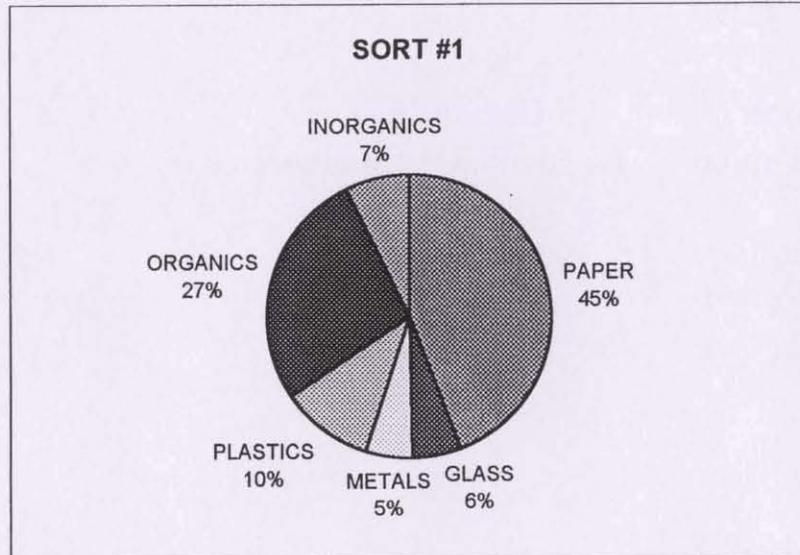


CHART 10-1

**LEE'S SUMMIT
SAMPLE SUMMARY**

Sort #	Dates	Number of Samples	Sample Size		Composition	
			Weight	Volume	Residential	Commercial
1	3/25-3/27	14	3471.6	725.2	94%	6%
2	7/1-7/3	12	2648.0	478.2	85%	15%
3	10/28-10/30	9	2366.1	436.9	79%	21%
TOTALS		35.0	8485.7	1640.3		
AVERAGE		11.7	2828.6	546.8	86%	14%

TABLE 10-7

CATEGORY	LEE'S SUMMIT						SUMMARY	
	SORT # 1		SORT # 2		SORT #3		AVERAGE	
	WT.	VOL.	WT.	VOL.	WT.	VOL.	WT.	VOL.
Cardboard	7.1%	12.8%	6.6%	12.0%	5.2%	9.4%	6.4%	11.7%
Newsprint	14.8%	10.0%	11.0%	9.2%	12.9%	7.3%	13.1%	9.1%
Magazines	4.1%	2.1%	5.0%	2.9%	4.2%	2.8%	4.4%	2.5%
High Grade	2.7%	2.1%	3.0%	1.9%	6.3%	5.2%	3.8%	2.9%
Mixed	15.3%	18.0%	12.0%	14.9%	13.3%	16.6%	13.7%	16.7%
PAPER TOTALS	44.1%	45.0%	37.6%	41.0%	41.8%	41.3%	41.4%	42.9%
Clear	3.1%	2.4%	2.8%	1.8%	2.9%	1.3%	3.0%	1.9%
Brown	1.2%	1.5%	1.0%	0.5%	2.6%	1.4%	1.6%	1.2%
Green	0.6%	0.7%	0.5%	0.3%	0.4%	0.4%	0.5%	0.5%
Other	0.7%	0.3%	0.8%	0.4%	1.0%	0.5%	0.8%	0.4%
GLASS TOTALS	5.7%	4.9%	5.0%	2.9%	6.9%	3.7%	5.8%	4.0%
Alum. Cans	1.5%	3.1%	1.8%	2.5%	1.8%	3.0%	1.7%	2.9%
Other Alum	0.5%	1.0%	1.0%	0.5%	1.0%	0.9%	0.8%	0.8%
Non ferrous	0.2%	0.1%	0.3%	0.2%	0.1%	0.0%	0.2%	0.1%
Food Cans	2.4%	2.5%	2.9%	2.3%	3.0%	2.8%	2.7%	2.5%
Ferrous	0.6%	0.5%	1.5%	0.8%	0.8%	0.5%	0.9%	0.6%
Oil Filters	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
METAL TOTALS	5.2%	7.2%	7.6%	6.2%	6.7%	7.3%	6.4%	7.0%
PET # 1	1.2%	3.0%	1.9%	5.1%	1.4%	2.8%	1.5%	3.6%
HDPE # 2	1.6%	4.5%	2.3%	6.2%	2.1%	5.0%	2.0%	5.1%
Film	3.1%	8.0%	3.4%	6.9%	3.2%	8.2%	3.2%	7.7%
Other Plastic	4.5%	9.8%	7.1%	10.5%	6.1%	12.7%	5.8%	10.8%
PLASTIC TOTALS	10.4%	25.3%	14.8%	28.7%	12.7%	28.6%	12.4%	27.2%
Food Waste	14.0%	5.7%	13.9%	7.2%	18.3%	8.9%	15.2%	7.0%
Wood Waste	0.6%	0.6%	1.9%	1.2%	0.7%	0.4%	1.0%	0.7%
Textiles	3.4%	3.3%	4.1%	3.2%	3.6%	3.0%	3.7%	3.2%
Diapers	6.0%	2.0%	3.8%	2.2%	4.2%	2.4%	4.8%	2.2%
Other Organics	3.3%	3.0%	6.9%	4.9%	2.4%	2.2%	4.1%	3.3%
ORGANIC TOTALS	27.2%	14.7%	30.5%	18.7%	29.1%	17.0%	28.8%	16.5%
Fines	5.0%	1.9%	1.9%	1.2%	1.4%	1.1%	3.0%	1.5%
Other Inorganics	2.4%	0.9%	2.6%	1.2%	1.4%	1.0%	2.2%	1.0%
INORGANIC TOTALS	7.3%	2.8%	4.5%	2.4%	2.8%	2.1%	5.2%	2.5%
SORT TOTALS	100%							

TABLE 10-8

Lee's Summit Statistical Summary	
Estimated MSW (lbs) Collected by Site During Sampling Period	400,000
Total Sample Weight (lbs)	8,485.7
Total Number of Samples Collected	34
Significance Test Results	.000
Mean Sample (lbs) and Confidence Interval (95%)	241.04 (+/-) 17.40

City of Lee's Summit "Other Waste" Summary			
Over-the-Counter Medication (OTC)	9	Beauty/Hygiene aerosol Products	1
Prescription Medication (Rx)	8	Household Cleaning Aerosol Products	1
Beauty/Hygiene Products	40	Gardening/Yard Care Products	4
Household Cleaning Products	6	Pet Groom Products	3
Sharps/Blades	4	Disposable Razors	31
Syringes	10	Alkaline Batteries	53
Hardware/Shop Products	9	Automobile Maintenance/Cleaning Products	7
Aerosol Cans	4		
Miscellaneous items: 1 container shoe polish, 1 printer cartridge, 1 container of boric acid, 1 fluorescent tube, 1 container of lamp oil, 1 thermometer, 1 container fly protectant for houses.			