

Chapter 7: St. Louis

COMMUNITY PROFILE

St. Louis is the largest city in Missouri. It is very urban and is surrounded by St. Louis County which is made up of almost 100 suburbs and unincorporated areas. There are approximately 165,000 occupied households in St. Louis. Slightly more than half of these units are single-family dwellings, and the rest multi-family dwellings. The City of St. Louis Refuse Division collects approximately 177,000 tons of trash from residents each year.

The City of St. Louis owns two Transfer stations. Both are operated by Allied Waste System (formerly Laidlaw). The sampling for all three waste sorts was conducted at the South transfer station. The samples taken at the south St. Louis station represent a wide variety of areas and a wide range of demographics within the city. The City of St. Louis is a member of the St. Louis-Jefferson Solid Waste Management District (District L).

The City of St. Louis is 215 miles Northwest of Springfield and 252 miles east of Kansas City.

Demographics:

	St. Louis
Area (sq. miles)	62
Population (1992)	383,733
Density (per sq. mile)	6199
Pop. Change since 1980	-15.3%
Number of households	164,931
Persons per household	2.34
High school graduates	62.8%
Median Family Income	\$24,274
Percent below poverty level	24.6%

Solid waste collection

All residential trash in St. Louis is collected by the City of St. Louis. Collection and disposal are financed by the general revenue fund and there are no direct user fees to the residents. All residents are provided with a 90 gallon container, or have access to a 2 cubic yard container in an alley. The containers are emptied twice a week by the City with automated trucks.

Solid waste disposal

Solid waste is shipped to the Allied Waste landfill in Illinois. St. Louis refuse trucks and Allied trucks serving commercial accounts are the only waste using the transfer station therefore tipping fees are not applicable. All samples were taken from City of St. Louis refuse trucks.

Waste reduction and recycling programs

The City of St. Louis operates twenty-four neighborhood drop-off recycling sites which are available to residents 24 hours a day, seven days a week.. The City currently has no city-wide curbside recycling programs. However, a curbside pilot program is being tried in the Central West End. Private recyclers provide some curbside recycling to a small percentage of homes throughout the City. An estimated 4% of the residential waste stream is being recycled

The City operates a composting program for yard waste. Yard wastes are collected once a week.

St. Louis Results

Information about sample size and composition are listed in tables 7-1 through 7-8

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

SORT #1

Sort Conditions

The first sort was conducted March 11th through the 15th. The sort facility was set up in a grassy, shaded area across from the main administrative building. Weather conditions were sunny and mild for all scheduled days.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	372,000
Total Sample Weight (lbs)	2,348.35
Significance Test Results	.000
Number of Samples	16

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	2	Beauty/Hygiene Aerosol Products	5
Prescription Medication (Rx)	4	Household Cleaning Aerosol Products	2
Beauty/Hygiene Products	15	Gardening/Yard Care Products	1
Household Cleaning Products	2	Pet Groom Products	1
Sharps/Blades	4	Disposable Razors	14
Syringes	7	Alkaline Batteries	19
Hardware/Shop Products	7	Automobile Maintenance/Cleaning Products	3
Aerosol Cans	3		
Miscellaneous items: 1 full disposable lighter, 1 bottle of hair dye.			

**ST. LOUIS
SORT #1**

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	177	42.2	100%	0%	Drop-off	South St. Louis
2	153	55.3	100%	0%	Drop-off	South St. Louis
3	143	36.8	100%	0%	Drop-off	South St. Louis
4	150.7	32.4	100%	0%	Drop-off	South St. Louis
5	103.9	30.79	100%	0%	Drop-off	South St. Louis
6	134.6	33.4	100%	0%	Drop-off	South St. Louis
7	102	30.1	100%	0%	Drop-off	South St. Louis
8	140	33.1	100%	0%	Drop-off	South St. Louis
9	110	32.1	100%	0%	Drop-off	South St. Louis
10	144	40.2	100%	0%	Drop-off	South St. Louis
11	149	33.8	100%	0%	Drop-off	South St. Louis
12	133.5	42	100%	0%	Drop-off	South St. Louis
13	162.3	33	100%	0%	Drop-off	South St. Louis
14	202.2	42.3	100%	0%	Drop-off	South St. Louis
15	165.9	33.6	100%	0%	Drop-off	South St. Louis
16	177.25	34.8	100%	0%	Drop-off	South St. Louis
TOTALS	2348.4	585.9				
AVERAGE	146.8	36.6	100%	0%		

TABLE 7-1

ST. LOUIS

SORT #1

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	102.5	53.8	6.4	3.4	4.34%	9.14%
Newsprint	269.0	41.3	16.8	2.6	11.39%	7.01%
Magazines	77.3	10.2	4.8	0.6	3.27%	1.73%
High Grade	36.7	12.7	2.3	0.8	1.56%	2.15%
Mixed	319.3	85.3	20.0	5.3	13.52%	14.49%
PAPER TOTALS	804.8	203.1	50.3	12.7	34.08%	34.53%
Clear	100.5	10.7	6.3	0.7	4.26%	1.81%
Brown	69.6	8.8	4.4	0.6	2.95%	1.50%
Green	23.1	2.6	1.4	0.2	0.98%	0.44%
Other	11.2	0.9	0.7	0.1	0.47%	0.14%
GLASS TOTALS	204.4	22.9	12.8	1.4	8.65%	3.89%
Alum. Cans	34.7	22.2	2.2	1.4	1.47%	3.77%
Other Alum	10.6	10.6	0.7	0.7	0.45%	1.79%
Non ferrous	9.1	1.2	0.6	0.1	0.38%	0.20%
Food Cans	72.3	18.0	4.5	1.1	3.06%	3.06%
Ferrous	18.0	5.2	1.1	0.3	0.76%	0.88%
Oil Filters	0.0	0.0	0.0	0.0	0.00%	0.00%
METAL TOTALS	144.7	57.1	9.0	3.6	6.13%	9.70%
PET # 1	27.2	37.5	1.7	2.3	1.15%	6.37%
HDPE # 2	43.3	39.1	2.7	2.4	1.83%	6.65%
Film	76.5	50.1	4.8	3.1	3.24%	8.52%
Other Plastic	132.0	65.7	8.2	4.1	5.59%	11.17%
PLASTIC TOTALS	279.0	192.4	17.4	12.0	11.81%	32.71%
Food Waste	396.3	35.5	24.8	2.2	16.78%	6.03%
Wood Waste	8.6	1.6	0.5	0.1	0.37%	0.26%
Textiles	82.5	22.8	5.2	1.4	3.49%	3.87%
Diapers	119.0	12.8	7.4	0.8	5.04%	2.18%
Other Organics	61.8	9.6	3.9	0.6	2.62%	1.64%
ORGANIC TOTALS	668.3	82.2	41.8	5.1	28.30%	13.98%
Fines	221.3	28.3	13.8	1.8	9.37%	4.80%
Other Inorganics	39.3	2.3	2.5	0.1	1.66%	0.39%
INORGANIC TOTALS	260.5	30.6	16.3	1.9	11.03%	5.20%
TOTAL SORT	2361.6	588.3	147.6	36.8	100.00%	100.00%

TABLE 7-2

SORT # 2

Sort Conditions

The second sort was conducted June 17th through the 19th. The sort facility was set up in the same location as Sort # 1. Weather conditions were sunny and very warm.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	372,000
Total Sample Weight (lbs)	2,542.7
Significance Test Results	.000
Number of Samples	12

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	2	Beauty/Hygiene Aerosol Products	1
Prescription Medication (Rx)	1	Household Cleaning Aerosol Products	0
Beauty/Hygiene Products	9	Gardening/Yard Care Products	1
Household Cleaning Products	1	Pet Groom Products	0
Sharps/Blades	2	Disposable Razors	8
Syringes	3	Alkaline Batteries	3
Hardware/Shop Products	0	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	1		
Miscellaneous items: None.			

ST. LOUIS
SORT # 2

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	221	45	100%	0%	Drop-off	South St. Louis
2	205	39.2	100%	0%	Drop-off	South St. Louis
3	232	49.5	100%	0%	Drop-off	South St. Louis
4	199	41.8	100%	0%	Drop-off	South St. Louis
5	256.5	58.2	100%	0%	Drop-off	South St. Louis
6	213.2	46.8	100%	0%	Drop-off	South St. Louis
7	199	38.6	100%	0%	Drop-off	South St. Louis
8	191	47.9	100%	0%	Drop-off	South St. Louis
9	184	42.4	100%	0%	Drop-off	South St. Louis
10	188	39	100%	0%	Drop-off	South St. Louis
11	238	53.8	100%	0%	Drop-off	South St. Louis
12	216	38.5	100%	0%	Drop-off	South St. Louis
TOTALS	2542.7	540.7				
AVERAGE	211.9	45.1	100%	0%		

TABLE 7-3

ST. LOUIS

SORT # 2

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	115.0	52.0	9.6	4.3	4.52%	9.62%
Newsprint	285.5	42.5	23.8	3.5	11.23%	7.86%
Magazines	53.5	6.6	4.5	0.6	2.10%	1.22%
High Grade	96.5	18.9	8.0	1.6	3.80%	3.50%
Mixed	393.0	105.5	32.8	8.8	15.46%	19.52%
PAPER TOTALS	943.5	225.5	78.6	18.8	37.12%	41.72%
Clear	98.0	7.9	8.2	0.7	3.86%	1.45%
Brown	56.4	4.3	4.7	0.4	2.22%	0.80%
Green	10.0	0.7	0.8	0.1	0.39%	0.13%
Other	26.5	2.6	2.2	0.2	1.04%	0.48%
GLASS TOTALS	190.9	15.5	15.9	1.3	7.51%	2.86%
Alum. Cans	39.5	18.3	3.3	1.5	1.55%	3.39%
Other Alum	22.5	5.2	1.9	0.4	0.89%	0.96%
Non ferrous	6.5	0.6	0.5	0.1	0.26%	0.11%
Food Cans	66.9	12.5	5.6	1.0	2.63%	2.31%
Ferrous	34.5	2.7	2.9	0.2	1.36%	0.50%
Oil Filters	0.0	0.0	0.0	0.0	0.00%	0.00%
METAL TOTALS	169.9	39.3	14.2	3.3	6.68%	7.27%
PET # 1	38.5	15.2	3.2	1.3	1.51%	2.81%
HDPE # 2	42.5	21.5	3.5	1.8	1.67%	3.98%
Film	81.5	49.0	6.8	4.1	3.21%	9.06%
Other Plastic	171.0	66.8	14.3	5.6	6.73%	12.35%
PLASTIC TOTALS	333.5	152.5	27.8	12.7	13.12%	28.20%
Food Waste	501.0	49.5	41.8	4.1	19.71%	9.16%
Wood Waste	7.0	0.8	0.6	0.1	0.28%	0.15%
Textiles	96.0	18.9	8.0	1.6	3.78%	3.50%
Diapers	91.5	10.3	7.6	0.9	3.60%	1.90%
Other Organics	82.5	11.4	6.9	1.0	3.25%	2.11%
ORGANIC TOTALS	778.0	90.9	64.8	7.6	30.61%	16.81%
Fines	53.8	10.0	4.5	0.8	2.12%	1.85%
Other Inorganics	72.0	7.0	6.0	0.6	2.83%	1.29%
INORGANIC TOTALS	125.8	17.0	10.5	1.4	4.95%	3.14%
TOTAL SORT	2541.6	540.6	211.8	45.0	100.00%	100.00%

TABLE 7-4

SORT # 3

Sort Conditions

The third sort was conducted on September 30th through October 2nd. The sort facility was set up in the same location as Sort # 1 and 2. Weather conditions were sunny and mild.

Statistics	
Estimated MSW (lbs) Collected by Site During Sampling Period	372,000
Total Sample Weight (lbs)	2,257.5
Significance Test Results	.000
Number of Samples	

OTHER WASTE CATEGORIES			
Over-the-counter Medication (OTC)	8	Beauty/Hygiene Aerosol Products	0
Prescription Medication (Rx)	5	Household Cleaning Aerosol Products	4
Beauty/Hygiene Products	52	Gardening/Yard Care Products	0
Household Cleaning Products	1	Pet Groom Products	0
Sharps/Blades	0	Disposable Razors	5
Syringes	1	Alkaline Batteries	9
Hardware/Shop Products	0	Automobile Maintenance/Cleaning Products	0
Aerosol Cans	0		
Miscellaneous items: 1 lighter.			

**ST. LOUIS
SORT # 3**

Sample #	Sample Size		Composition		Recycling Activities	Collection Location
	Weight	Volume	Res.	Comm.		
1	232	46.6	100%	0%	Drop-off	South St. Louis
2	124	37.4	100%	0%	Drop-off	South St. Louis
3	134	36.6	100%	0%	Drop-off	South St. Louis
4	205	42.6	100%	0%	Drop-off	South St. Louis
5	183	37.8	100%	0%	Drop-off	South St. Louis
6	193	48.4	100%	0%	Drop-off	South St. Louis
7	198	48.1	100%	0%	Drop-off	South St. Louis
8	229	50.4	100%	0%	Drop-off	South St. Louis
9	200	36.1	100%	0%	Drop-off	South St. Louis
10	173	46.7	100%	0%	Drop-off	South St. Louis
11	222	42.6	100%	0%	Drop-off	South St. Louis
12	164.5	42.3	100%	0%	Drop-off	South St. Louis
TOTALS	2257.5	515.6				
AVERAGE	188.1	43.0	100%	0%		

TABLE 7-5

ST. LOUIS

SORT # 3

CATEGORY	TOTALS		AVERAGE		PERCENTAGE	
	wt.	vol.	wt.	vol.	Pct. by wt.	Pct. by vol.
Cardboard	96.0	52.5	8.0	4.4	4.26%	10.40%
Newsprint	398.0	47.1	33.2	3.9	17.65%	9.33%
Magazines	80.9	11.2	6.7	0.9	3.59%	2.22%
High Grade	64.5	12.9	5.4	1.1	2.86%	2.55%
Mixed	226.0	76.2	18.8	6.4	10.02%	15.09%
PAPER TOTALS	865.4	199.9	72.1	16.7	38.38%	39.59%
Clear	73.0	6.6	6.1	0.6	3.24%	1.31%
Brown	31.2	3.4	2.6	0.3	1.38%	0.67%
Green	14.5	1.8	1.2	0.2	0.64%	0.36%
Other	11.6	1.6	1.0	0.1	0.51%	0.32%
GLASS TOTALS	130.3	13.4	10.9	1.1	5.78%	2.65%
Alum. Cans	30.0	13.1	2.5	1.1	1.33%	2.59%
Other Alum	17.1	4.6	1.4	0.4	0.76%	0.91%
Non ferrous	2.5	1.2	0.2	0.1	0.11%	0.24%
Food Cans	46.5	8.5	3.9	0.7	2.06%	1.68%
Ferrous	35.5	4.9	3.0	0.4	1.57%	0.97%
Oil Filters	0.0	0.0	0.0	0.0	0.00%	0.00%
METAL TOTALS	131.6	32.3	11.0	2.7	5.84%	6.40%
PET # 1	30.5	13.4	2.5	1.1	1.35%	2.65%
HDPE # 2	36.3	22.1	3.0	1.8	1.61%	4.38%
Film	51.0	40.0	4.3	3.3	2.26%	7.92%
Other Plastic	160.5	70.0	13.4	5.8	7.12%	13.86%
PLASTIC TOTALS	278.3	145.5	23.2	12.1	12.34%	28.82%
Food Waste	389.5	45.0	32.5	3.8	17.27%	8.91%
Wood Waste	24.5	3.4	2.0	0.3	1.09%	0.67%
Textiles	113.5	21.8	9.5	1.8	5.03%	4.32%
Diapers	61.0	8.7	5.1	0.7	2.70%	1.72%
Other Organics	211.5	25.4	17.6	2.1	9.38%	5.03%
ORGANIC TOTALS	800.0	104.3	66.7	8.7	35.48%	20.66%
Fines	33.5	7.5	2.8	0.6	1.49%	1.49%
Other Inorganics	16.0	2.0	1.3	0.2	0.71%	0.40%
INORGANIC TOTALS	49.5	9.5	4.1	0.8	2.20%	1.88%
TOTAL SORT	2255.1	504.9	187.9	42.1	100.00%	100.00%

TABLE 7-6

SORT SUMMARY

Seasonal variations

- Newspapers were higher in the third sort. No obvious cause.
- Other organics were considerably higher during the third sort. Several bags of yard waste were found.
- Fines were higher in the first round. 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 7-1 graphically compares the three seasonal waste sort results and shows the average waste composition, by major category, for St. Louis.
- The sample data for all St. Louis sorts is listed on table 7-7.
- The sort results for all St. Louis sorts are listed on table 7-8.
- The summary of statistical relevance for the St. Louis sorts is located on page 108.
- The total for all “other wastes” found during the St. Louis sorts is on page 108.

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

Comparisons of the St. Louis waste stream to previous studies and other communities can be found in chapter 13.

ST. LOUIS RESULTS BY WEIGHT

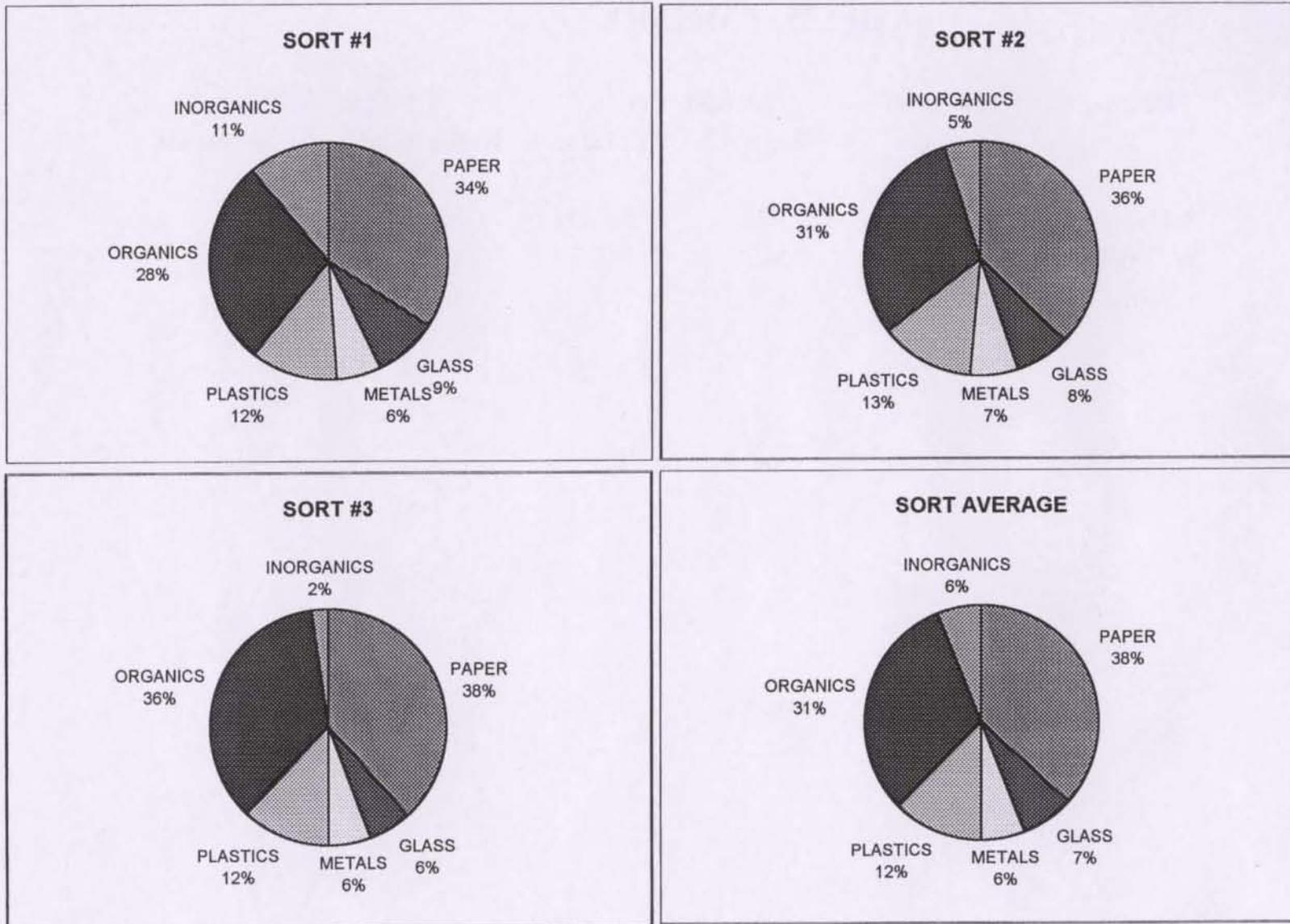


CHART 7-1

**ST. LOUIS
SAMPLE SUMMARY**

Sort #	Dates	Number of Samples	Sample Size		Composition	
			Weight	Volume	Residential	Commercial
1	3/11-3/13	16	2348.4	585.9	100%	0%
2	6/17-6/19	12	2542.7	540.7	100%	0%
3	9/30-10/2	12	2257.5	515.6	100%	0%
TOTALS		40.0	7148.6	1642.2		

TABLE 7-7

ST. LOUIS

SUMMARY

CATEGORY	SORT # 1		SORT # 2		SORT # 3		AVERAGE	
	WT.	VOL.	WT.	VOL.	WT.	VOL.	WT.	VOL.
Cardboard	4.3%	9.1%	4.5%	9.6%	4.3%	10.4%	4.4%	9.7%
Newsprint	11.4%	7.0%	11.2%	7.9%	17.6%	9.3%	13.3%	8.0%
Magazines	3.3%	1.7%	2.1%	1.2%	3.6%	2.2%	3.0%	1.7%
High Grade	1.6%	2.2%	3.8%	3.5%	2.9%	2.6%	2.8%	2.7%
Mixed	13.5%	14.5%	15.5%	19.5%	10.0%	15.1%	13.1%	16.3%
PAPER TOTALS	34.1%	34.5%	37.1%	41.7%	38.4%	39.6%	36.5%	38.5%
Clear	4.3%	1.8%	3.9%	1.5%	3.2%	1.3%	3.8%	1.5%
Brown	2.9%	1.5%	2.2%	0.8%	1.4%	0.7%	2.2%	1.0%
Green	1.0%	0.4%	0.4%	0.1%	0.6%	0.4%	0.7%	0.3%
Other	0.5%	0.2%	1.0%	0.5%	0.5%	0.3%	0.7%	0.3%
GLASS TOTALS	8.7%	3.9%	7.5%	2.9%	5.8%	2.7%	7.3%	3.2%
Alum. Cans	1.5%	3.8%	1.6%	3.4%	1.3%	2.6%	1.5%	3.3%
Other Alum	0.4%	1.8%	0.9%	1.0%	0.8%	0.9%	0.7%	1.2%
Non ferrous	0.4%	0.2%	0.3%	0.1%	0.1%	0.2%	0.3%	0.2%
Food Cans	3.1%	3.1%	2.6%	2.3%	2.1%	1.7%	2.6%	2.4%
Ferrous	0.8%	0.9%	1.4%	0.5%	1.6%	1.0%	1.2%	0.8%
Oil Filters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
METAL TOTALS	6.1%	9.7%	6.7%	7.3%	5.8%	6.4%	6.2%	7.9%
PET # 1	1.2%	6.4%	1.5%	2.8%	1.4%	2.7%	1.3%	4.0%
HDPE # 2	1.8%	6.6%	1.7%	4.0%	1.6%	4.4%	1.7%	5.1%
Film	3.2%	8.5%	3.2%	9.1%	2.3%	7.9%	2.9%	8.5%
Other Plastic	5.6%	11.2%	6.7%	12.4%	7.1%	13.9%	6.5%	12.4%
PLASTIC TOTALS	11.8%	32.7%	13.1%	28.2%	12.3%	28.8%	12.4%	30.0%
Food Waste	16.8%	6.0%	19.7%	9.2%	17.3%	8.9%	18.0%	8.0%
Wood Waste	0.4%	0.3%	0.3%	0.1%	1.1%	0.7%	0.6%	0.4%
Textiles	3.5%	3.9%	3.8%	3.5%	5.0%	4.3%	4.1%	3.9%
Diapers	5.0%	2.2%	3.6%	1.9%	2.7%	1.7%	3.8%	1.9%
Other Organics	2.6%	1.6%	3.2%	2.1%	9.4%	5.0%	5.0%	2.8%
ORGANIC TOTALS	28.3%	14.0%	30.6%	16.8%	35.5%	20.7%	31.4%	17.0%
Fines	9.4%	4.8%	2.1%	1.8%	1.5%	1.5%	4.3%	2.8%
Other Inorganics	1.7%	0.4%	2.8%	1.3%	0.7%	0.4%	1.8%	0.7%
INORGANIC TOTALS	11.0%	5.2%	4.9%	3.1%	2.2%	1.9%	6.1%	3.5%
SORT TOTALS	100%							

TABLE 7-8

City of St. Louis Statistical Summary	
Estimated MSW (lbs) Collected by Site During Sampling Period	372,000
Total Sample Weight (lbs)	7,148.55
Total Number of Samples Collected	40
Significance Test Results	.000
Mean Sample (lbs) and Confidence Interval (95%)	178.71 (+/-) 12.57

City of St. Louis "Other Waste" Summary			
Over-the-Counter Medication (OTC)	12	Beauty/Hygiene Aerosol Products	6
Prescription Medication (Rx)	10	Household Cleaning Aerosol Products	6
Beauty/Hygiene Products	76	Gardening/Yard Care Products	2
Household Cleaning Products	4	Pet Groom Products	1
Sharps/Blades	6	Disposable Razors	27
Syringes	11	Alkaline Batteries	31
Hardware/Shop Products	7	Automobile Maintenance/Cleaning Products	3
Aerosol Cans	4		
Miscellaneous items: 2 disposable lighter, 1 bottle of hair dye.			