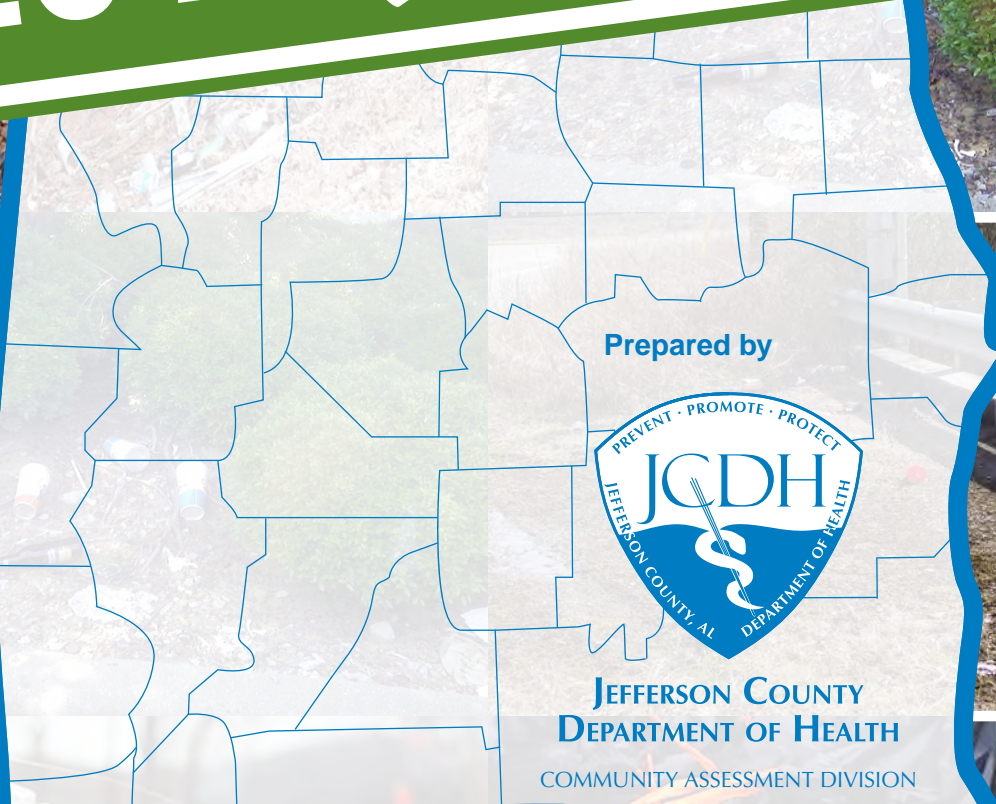




2011



Litter Survey Report



Prepared by



**JEFFERSON COUNTY
DEPARTMENT OF HEALTH**
COMMUNITY ASSESSMENT DIVISION



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INTRODUCTION

In response to the problem of roadside litter in Jefferson County, the Environmental Quality Committee formed under the Jefferson County Health Action Partnership has been working to promote environmental stewardship.

One of the Committee's endeavors has been bringing awareness to the blight of litter in the County. The Committee has chosen to address this environmental concern through removal efforts, education, and promotion of recycling. The Community Assessment Division of Environmental Health Services at the Jefferson County Department of Health with assistance from Action Environmental Services resurveyed the roadways in the original 2006 Litter Survey to evaluate the progress of litter removal since the 2006 survey. The results of the Jefferson County 2011 Litter Survey are included in this report.

CONCEPTS AND METHODOLOGY

- Research methodology adapted from other studies, specifically the 2004 Ohio Statewide Litter Study conducted by Davey Resource Group for the State of Ohio Conservation and Resource Department.
- Evaluate possible sites for collection
- Select sites and map
- Devise strategy for collection
- Research equipment and purchase
- Enlist personnel
- Collect litter samples
- Evaluate composition
- Record data
- Prepare detailed report
- Evaluate results
- Provide recommendations

CONCEPTS & METHODOLOGY

SITE EVALUATION

- Twenty-seven Sites were selected on roads maintained by the Jefferson County Roads and Transportation Division. These were dispersed throughout the County. As much as possible, sites were representative of different municipalities and commission districts. Two sites were located within the City of Birmingham. Sites were evaluated for accessibility and safety prior to collection.
- Site Information Folders were created for each site. These contained the site location, a street map for the site and data recording sheets.
- As much as possible, sample sites were marked 500 feet along both sides of the roadway. The sampling depth was 10 feet if possible. Site sketches were drawn for each site.
- GPS longitude and latitude readings were recorded using a handheld device for each site surveyed. This facilitated plotting locations on a map using geographic information systems technology software (GIS).

COLLECTION

- Litter was collected by Jefferson County Department of Health (JCDH) and Action Environmental Services employees.
- Bags were tagged with pre-printed labels and returned to Jefferson County Department of Health for weighing, sorting, and counting.
- Each bag was weighed and the weight recorded on labels and data recording sheets.
- Items were sorted into nine (9) main categories and then further sorted into sub-categories.
- The weight of each category was recorded.
- The number of items in each sub-category was recorded.
- Cigarette butts were counted on site with hand-held counters, but were not collected.
- Glass, plastic, and metal cans were delivered to the Alabama Environmental Council Recycling Center after the weighing and counting process.

DATA

- Data were compiled and input on Excel spreadsheets
- GPS readings were input and a map of site locations was created by Scott Hofer in the Watershed Protection Division of the Jefferson County Department of Health.

RESULTS

See Appendix A

HIGHLIGHTS

- A total of 351,225 square feet of roadway was sampled
- A total of 6.14 linear miles of roadway was sampled
- The total weight of the litter collected was 766 pounds
- The calculated average weight of the litter collected was 125 pounds per linear mile
- The total number of items collected was 6,116
- The total number of cigarette butts counted was 8,648
- For individual category results see Appendix A

CONCLUSIONS AND RECCOMENDATIONS

In order to address the ongoing litter problem within Jefferson County, cooperative efforts must be initiated by both governmental and private agencies. Analysis of the results reveals that most of the litter collected was related to fast food consumption or convenience store purchases (78%). Citizens must become aware of the detrimental effects of litter on the environment and the economy. Individual responsibility would be an effective deterrent to the accumulation of roadside litter. If citizens do not exercise this type of responsibility, other means of deterrence must be implemented. These measures may include:

- Public service announcements for litter prevention using various media outlets
- Public education efforts
- More stringent enforcement of existing ordinances
- Increased public work time used for clean-up efforts
- Legislation regarding fees for food purchased at fast food restaurants or convenience stores
- Bottle deposit legislation

JEFFERSON COUNTY 2006 LITTER SURVEY DATA & SUMMARY

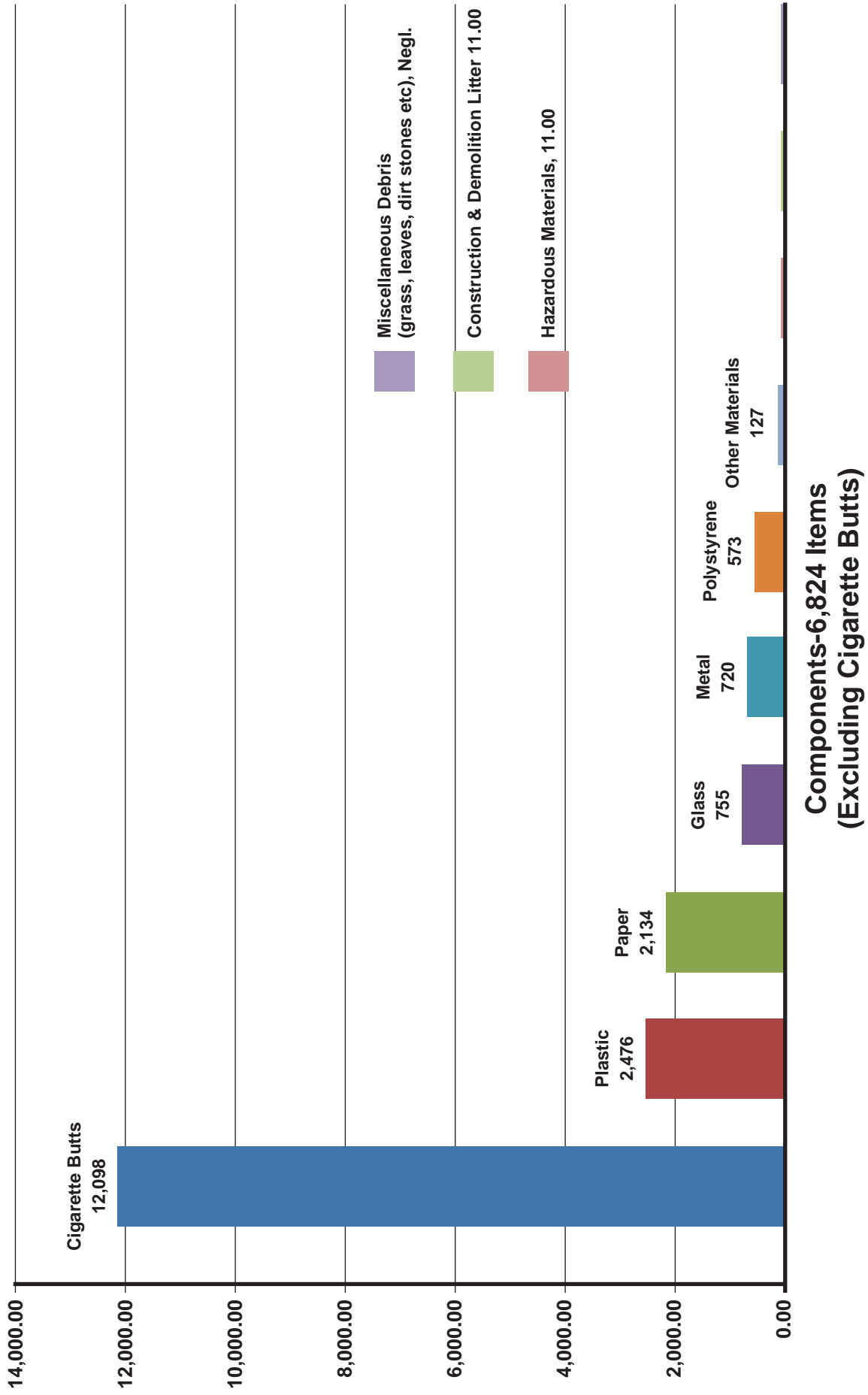
Collection

- Twenty-nine (29) sites along roads in Jefferson County were sampled
- Litter from each site was bagged and labeled
- Litter was sorted into 9 main categories, each category was weighed
- The items were then sorted into sub-categories and then counted and the number recorded
- Aluminum cans, plastic bottles, and glass items were delivered to the Alabama Environmental Council for recycling

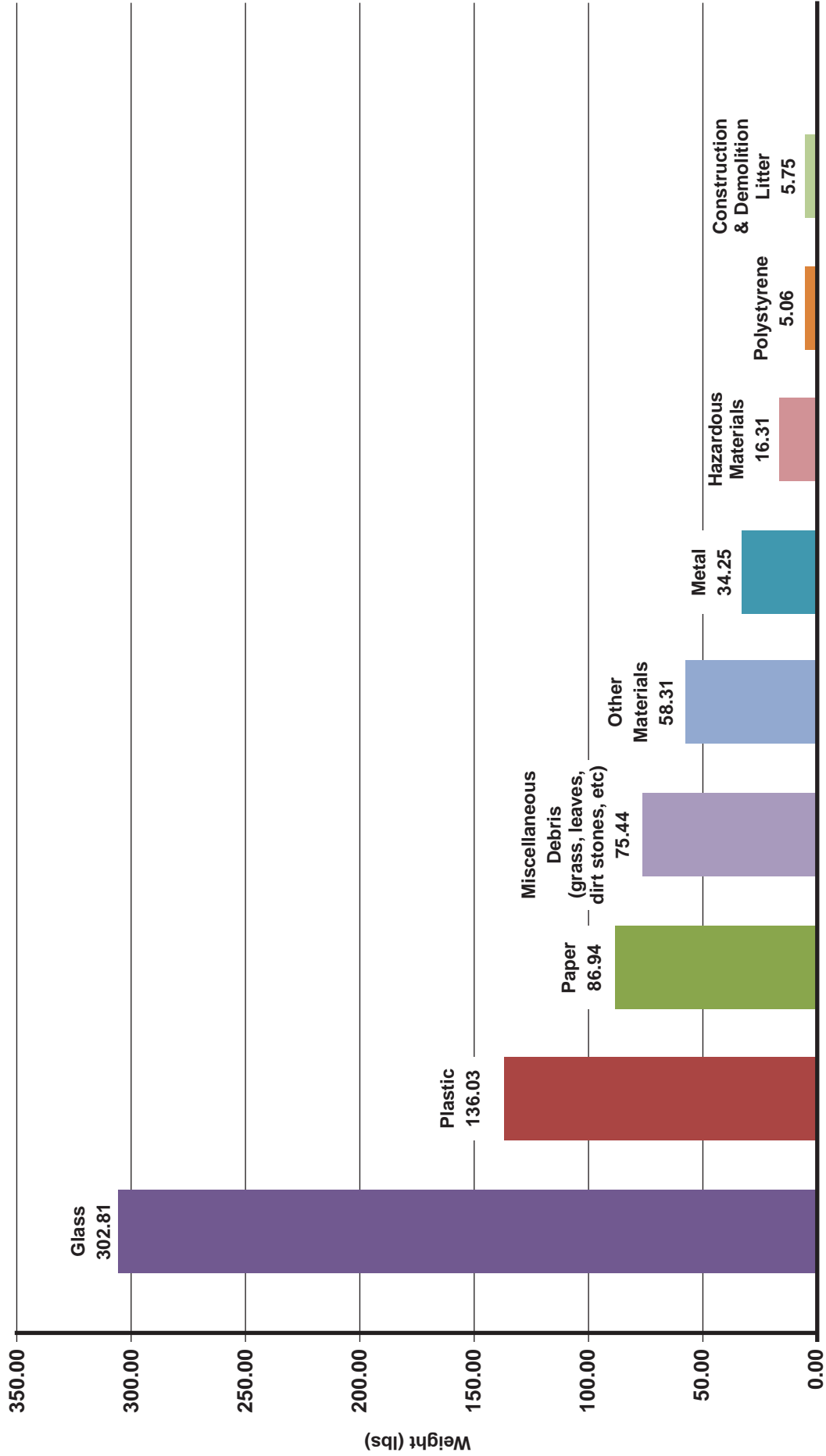
Data and Results

- A total of 351,225 square feet of roadway was sampled
- A total of 6.14 linear miles were sampled
- Total weight of collected litter was approximately 720 pounds
- On average this is approximately 117 pounds of litter per linear mile
- The total number of items collected in the survey were 6,824
- On average this is approximately 1,137 items per linear mile
- Using the survey data, 2,501,400 items would be collected from county maintained roadways in a single visit
- The total number of cigarette butts counted were 12,098
- On average this is 2016 butts per linear mile
- Seventy-eight percent (78%) of the litter collected was food or beverage packaging

Jefferson County 2006 Litter Survey Results



Jefferson County 2006 Litter Survey Results



Litter Sampling Results by Weight
720 Pounds Collected

JEFFERSON COUNTY 2007 LITTER SURVEY FOLLOW-UP REPORT DATA & SUMMARY

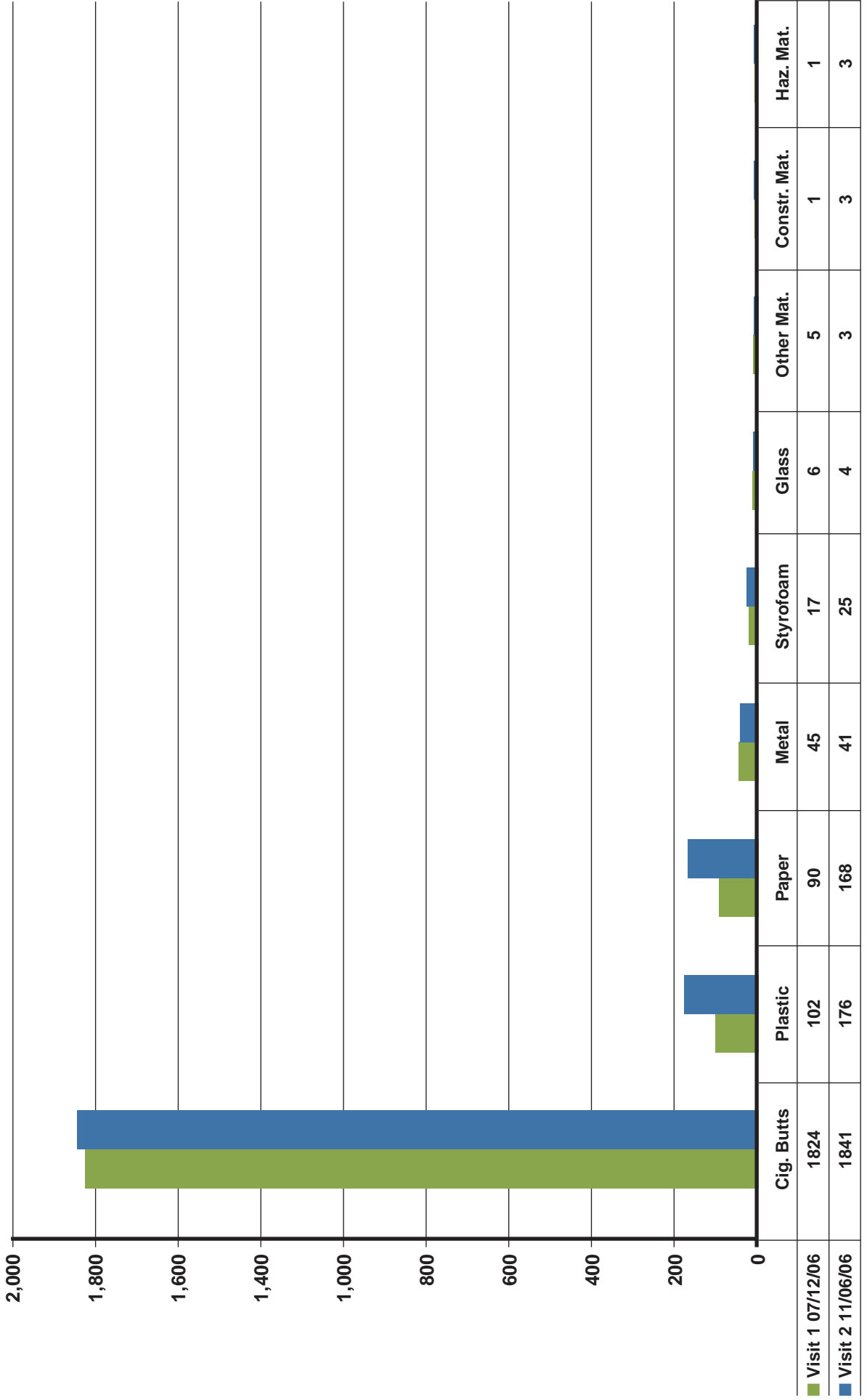
Collection

- Three follow up visits to 3 sites along roads in Jefferson County were sampled
- Litter from each site was bagged and labeled
- Litter was sorted into 9 main categories, each category was weighed
- The items were then sorted into sub-categories and then counted and the number recorded
- Aluminum cans, plastic bottles, and glass items were delivered to the Alabama Environmental Council for recycling

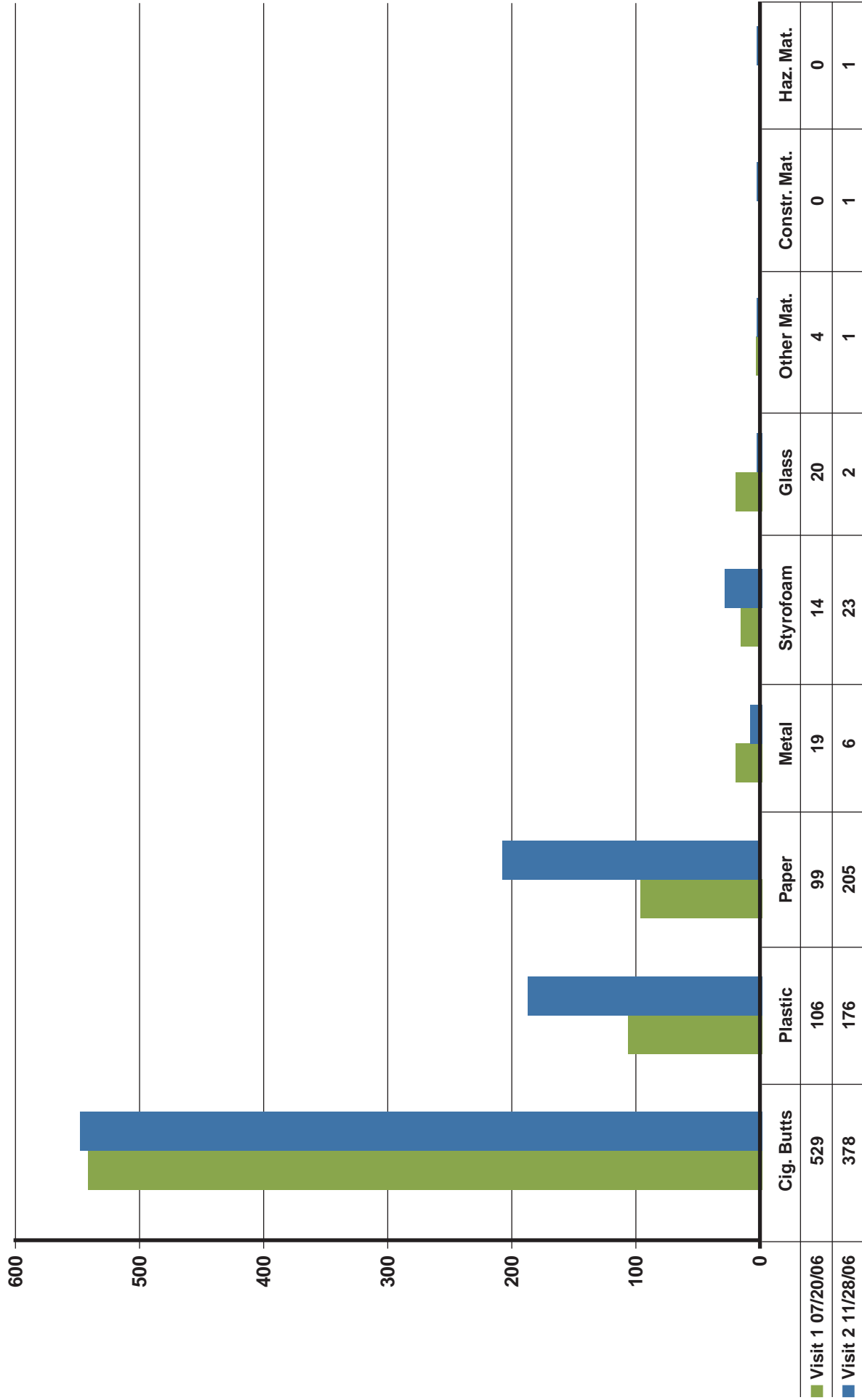
Data and Results

- Total weight of collected litter was approximately 98.44 pounds
- The total number of items collected in the survey were 1,399
- The total number of cigarette butts counted were 2,693
- Analysis of these results revealed that the litter problem on Jefferson County roadways has not improved and litter problem in Jefferson County must be addressed.

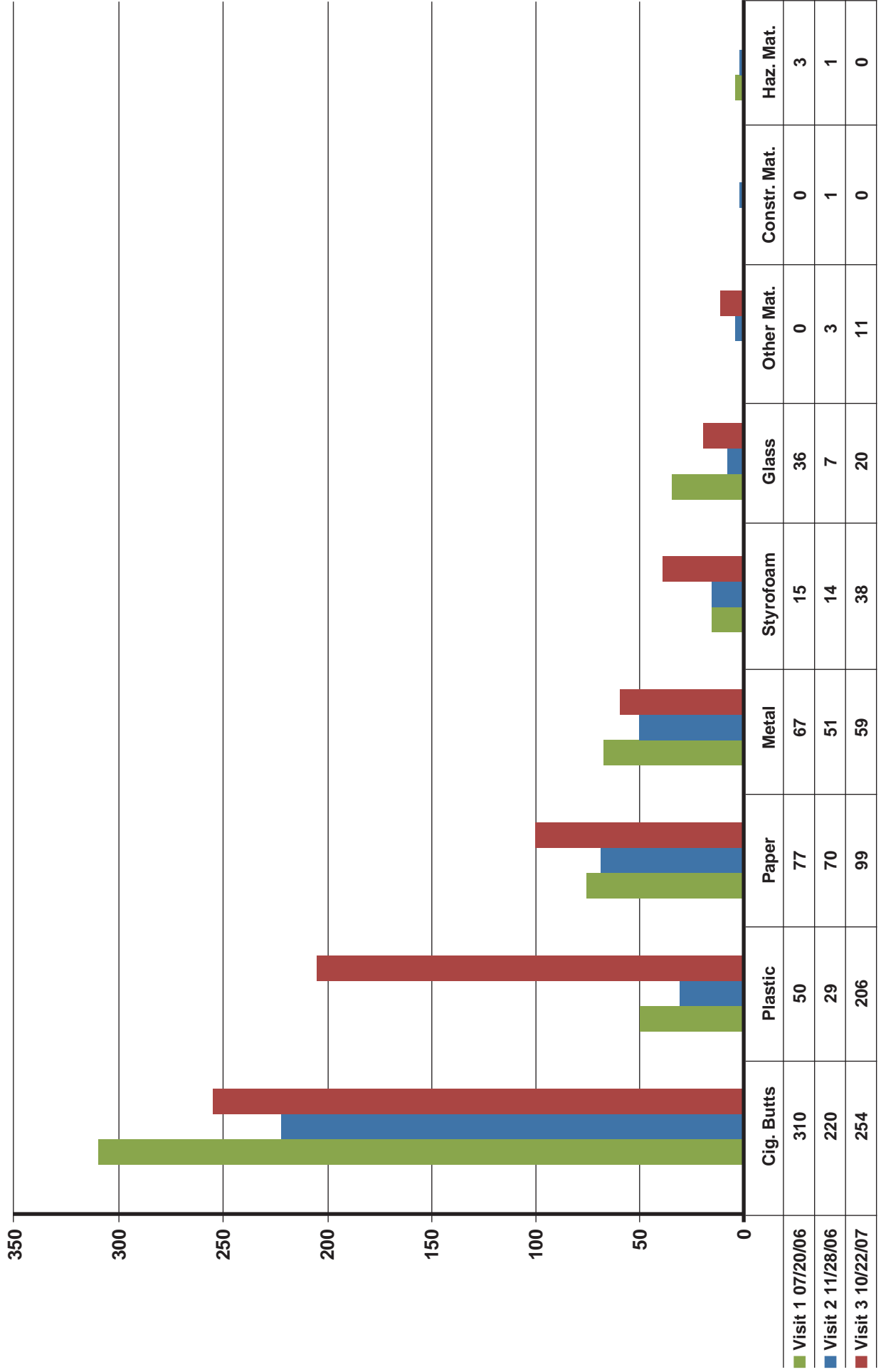
Site 12- Edwards Lake Road Components Comparison



Site 15-Tin Mill Road Components Site Comparison



Site 23-Shannon-Oxmoor Rd. Components Comparison



APPENDIX A

LITTER SURVEY SITES/WEIGHT AND ITEM TOTALS	TABLE 1
LITTER COLLECTION SITE MAP	FIGURE 1
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Litter Survey Sites Weight and Item Totals

Site #	Sec	Distr	Area	Approx. Location	Main Road	Cross Road	Wt (lb)	Items	Cig. Butts
1	1	3	NW	Mount Olive	New Found Rd	Mount Olive Rd	38.47	337	206
2	1	3	NW	Graysville	Republic Road	Cherry Ave	23.98	248	370
3	1	3	NW	Maytown	Shady Grove Rd	Lively Martin Rd	13.99	80	123
4	1	3	NW	Mulga	Mulga Loop Rd	5th Ave Bridge	94.02	609	325
5	1	3	NW	Adamsville	Minor Pkwy	High School Athletic Park	62.09	683	450
6	1	1	NW	B'ham/County	Coalburg Rd	Shady Grove Rd	37.72	273	204
7	2	4	NE	Clay	Doug Hollow Rd	Old Springville Rd	22.36	227	735
8	2	4	NE	Tarrant	Lawson Rd	Hwy 79	64.03	314	300
9	2	3	NE	Johns	15th St.	Warrior River Rd	30.39	185	191
10	2	5	NE	Leeds	Rex Lake Rd	Bailey Ziegler Rd	6.86	91	315
11	2	4	NE	Irondale	Alton Rd	Alton Way/Alton Dr	7.9	70	311
12	2	4	NE	Birmingham	Edwards Lake Rd	Edwards Lake Pkwy	8.18	76	191
13	2	4	NE	Center Point	Sweeny Hollow Rd	Old Springville Rd	11.13	148	932
14	3	3	SW	Hueytown	Warrior River Rd	Church	14.41	116	422
15	3	1	SW	Fairfield	Tin Mill Rd	Valley Rd	74.31	336	215
16	3	1	SW	Wylam	Ensley/Pleasant Grove Rd	Fritz Enterprises	18.7	175	293
17	3	3	SW	Mulga	Pleasant Grove Rd	Ball Field	19.21	181	329
18	3	3	SW	Johns	Johns Rd	Power Station	6.63	57	27
19	3	3	SW	Bessemer	Greenmoor Rd	Morgan Rd	6.75	98	85
20	3	5	SW	Birmingham	Ishkooda Wenonah	Wenonah Rd/Dr	44.51	177	240
21	4	5	SE	County	Grants Mill Rd	Rex Lake Rd	22.5	208	322
22	4	5	SE	Vestavia/County	Rocky Ridge Rd	Indian Creek Dr.	7.12	144	515
23	4	2	SE	County	Shannon Oxmoor Road	Railroad Tracks	38.7	212	499
24	5	4	NE	County	Narrows Road	Hwy 79	6	45	113
25	5	3	NE	County	Warrior Jasper Rd	Sloan Manufacturing	35.3	323	239
26	5	3	SW	County	Lock 17 Rd	Oak Grove Highland Rd	7.35	102	100
27	6	2	SW	Birmingham	Coalburg Rd	Daniel Payne Dr.	24.47	268	120
28	6	2	SW	Birmingham	58th St.	Ave O	12.47	135	216
29	6	2	SW	Birmingham	Park Rd	Fulton Ave.	8.95	200	260
					Total	Total	768.5	6118	8648

Table 1

2011 Jefferson County Litter Survey

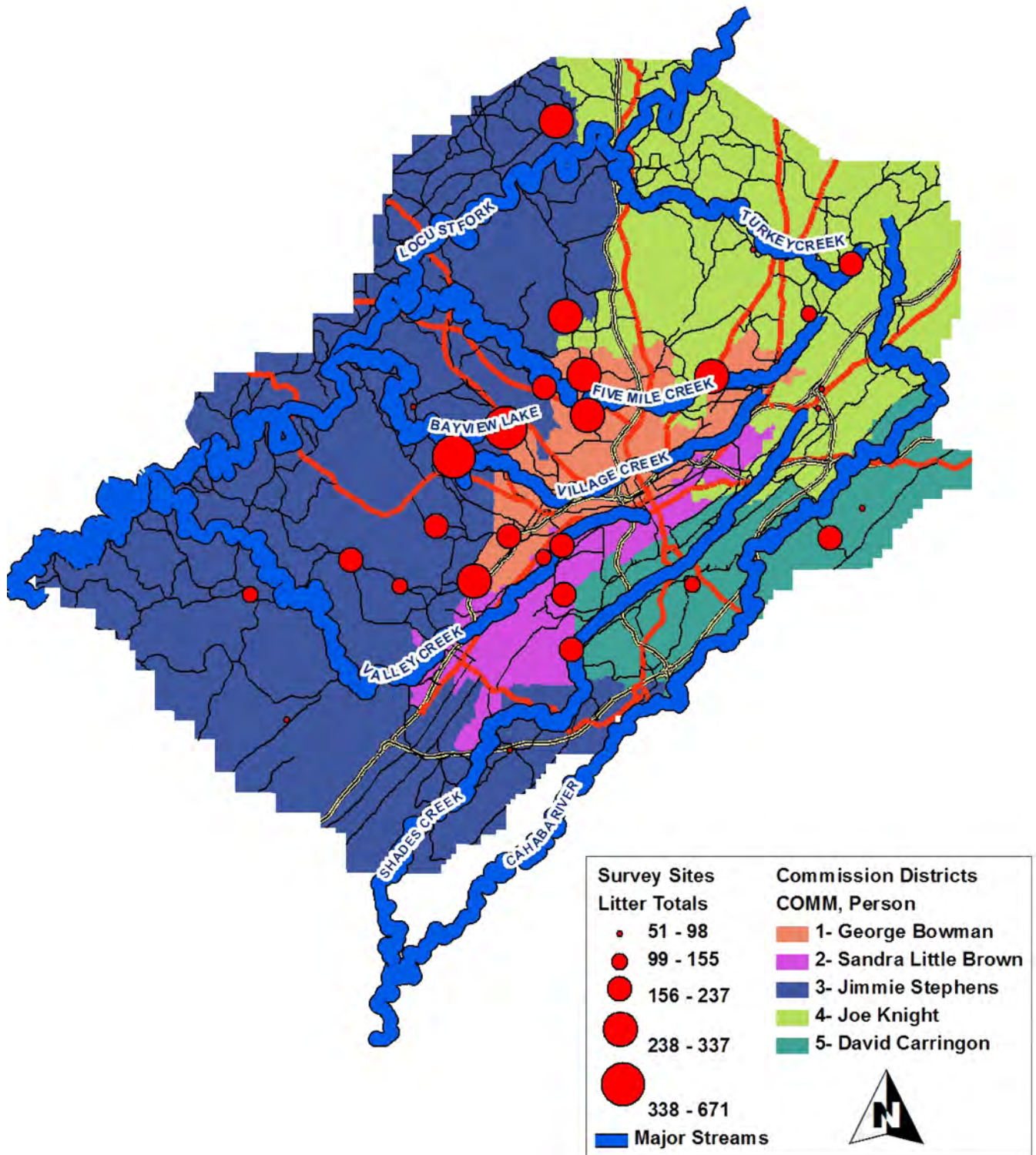


Figure 1

Jefferson County 2011 Total Weight Per Site

Site #	1	2	3	4	5	6	7	8	9	10
Category Weights (Ounces)										
1. Paper	188.8	35.2	7.68	94.56	62.72	69.12	49.6	25.6	28.16	16
2. Plastic	214.4	214.4	60.48	770.4	322.4	112.64	40	134.08	91.2	53.92
3. Glass	81.6	109.44	95.68	457.12	398.4	405.44	214.4	798.4	206.4	33.76
4. Metal	9.12	10.56	16.8	7.68	59.36	9.76	38.4	7.68	14.72	5.92
5. Styrofoam	16	14.08	13.28	44.96	16.16	6.56	2.08	9.12	2.72	0.16
6. Construction & Demolition Litter	35.2			81.6	83.2				58.72	
7. Hazardous Materials										
8. Other Materials							13.28			
9. Miscellaneous Debris (grass, leaves, dirt, stones, etc)	70.4		29.92	48	51.2			49.6	84.32	
Weight Totals (Ounces)	615.52	383.68	223.84	1504.32	993.44	603.52	357.76	1024.48	486.24	109.76
Weight Totals (Pounds)	38.47	23.98	13.99	94.02	62.09	37.72	22.36	64.03	30.39	6.86
Site Area (Sq. Ft.)	10,000	10,000	12,000	10,000	15,000	7,500	10,000	15,000	15,000	11,250
Cigarette Butts (# per site)	206	370	123	325	450	204	735	300	191	315

Site #	11	12	13	14	15	16	17	18	19	20
Category Weights (Ounces)										
1. Paper	13.92	14.72	12.16	16	43.36	32	74.4	16	2.88	18.88
2. Plastic	35.84	18.56	68.16	88	180.8	92.8	133.44	48	35.84	33.44
3. Glass	49.28	50.24	68.32	80	944	123.84	74.24	4.8	56.32	610.08
4. Metal		10.56	15.2	6.4	5.92	7.68	9.44	2.08	10.88	6.24
5. Styrofoam	0.64	5.28	1.76	3.2	15.04	7.68	3.52		2.08	0.64
6. Construction & Demolition Litter										
7. Hazardous Materials				12.48			12.48			
8. Other Materials				24.64		35.2		35.2		42.88
9. Miscellaneous Debris (grass, leaves, dirt, stones, etc)	26.72	31.52	12.64							
Weight Totals (Ounces)	126.4	130.88	178.24	230.72	1189.12	299.2	307.52	106.08	108	712.16
Weight Totals (Pounds)	7.90	8.18	11.13	14.41	74.31	18.70	19.21	6.63	6.75	44.51
Site Area (Sq. Ft.)	10,000	13,000	5,000	10,130	10,000	10,000	10,000	20,000	10,000	12,000
Cigarette Butts (# per site)	311	191	932	422	215	293	329	27	85	240

Table 2

Jefferson County 2011 Total Weight Per Site

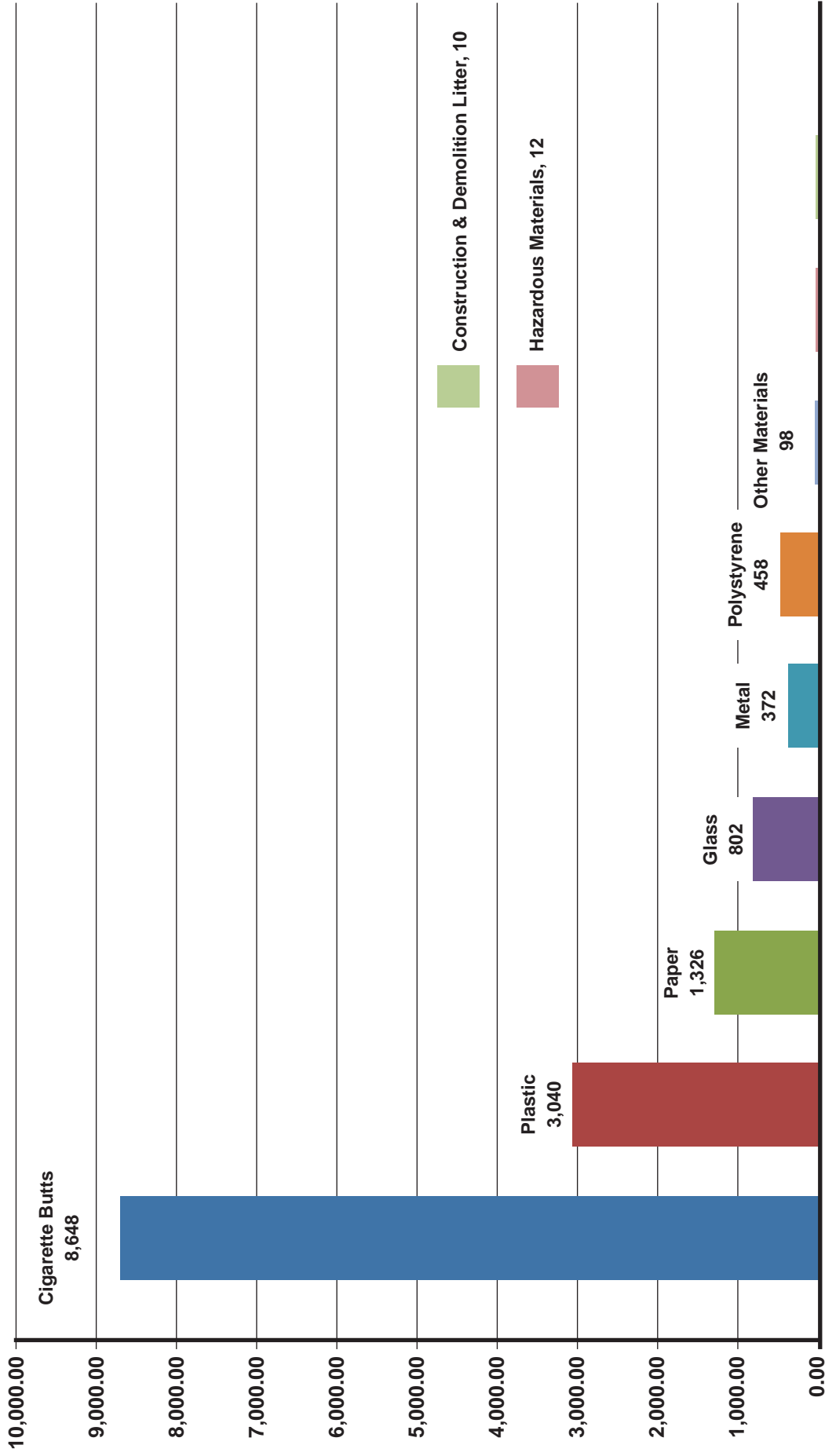
Site #	21	22	23	24	25	26	27	28	29	Totals
Category Weights (Ounces)										
1. Paper	25.28	23.52	67.2	4.8	24	9.44	35.2	8.32	24.96	1044.48
2. Plastic	129.28	28.48	88	8.32	402.56	79.2	240	144.32	81.92	3950.88
3. Glass	175.36	34.88	422.4	14.08	82.24	7.04	59.2	40	24.16	5721.12
4. Metal	1.76	23.52	38.4		16	3.52	4.32	6.24	10.08	358.24
5. Styrofoam	7.52	3.52	3.2		16	3.84	4.8	0.64	2.08	206.56
6. Construction & Demolition Litter										258.72
7. Hazardous Materials						12.48				37.44
8. Other Materials						2.08				153.28
9. Miscellaneous Debris (grass, leaves, dirt, stones, etc)	20.8			68.8	24		48			565.92
Weight Totals (Ounces)	360	113.92	619.2	96	564.8	117.6	391.52	199.52	143.2	12296.64
Weight Totals (Pounds)	22.50	7.12	38.70	6.00	35.30	7.35	24.47	12.47	8.95	768.50
Site Area (Sq. Ft.)	7,000	10,000	19,200	10,000	9,425	10,000	21,120	22,920	15,680	351,225
Cigarette Butts (# per site)	322	515	499	113	239	100	120	260	216	8648

Jefferson County 2011 Litter Survey Component Totals

Category Totals	Weight (oz.)	Weight (lb.)	# of Items
1. Paper	1,044.48	65.28	1,326.00
2. Plastic	3,950.88	246.93	3,040.00
3. Glass	5,721.12	357.57	802.00
4. Metal	358.24	22.39	372.00
5. Styrofoam	206.56	12.91	458.00
6. Construction & Demolition Litter	258.72	16.17	10.00
7. Hazardous Materials	37.44	2.34	12.00
8. Other Materials	153.28	9.58	98.00
9. Miscellaneous Debris (grass, leaves, dirt, stones, etc)	565.92	35.37	
Total Items Collected	6,118.00	768.54	6,118.00
Cigarette Butts	8,648.00		8,648.00
Weight and Area Totals			
Weight Totals (Ounces)	12,296.00		
Weight Totals (Pounds)	768.50	125.16	lb/Mile
Site Areas Linear Total (Ft.)	32,438.00	6.14	Miles
Site Areas Total (Sq. Ft.)	351,225.00		

Table 4

Jefferson County 2011 Litter Survey Results



Litter Sampling Results by Component #s - 6,118 Items Collected (Excluding Cigarette Butts)

Figure 2

Jefferson County 2011 Litter Survey Results

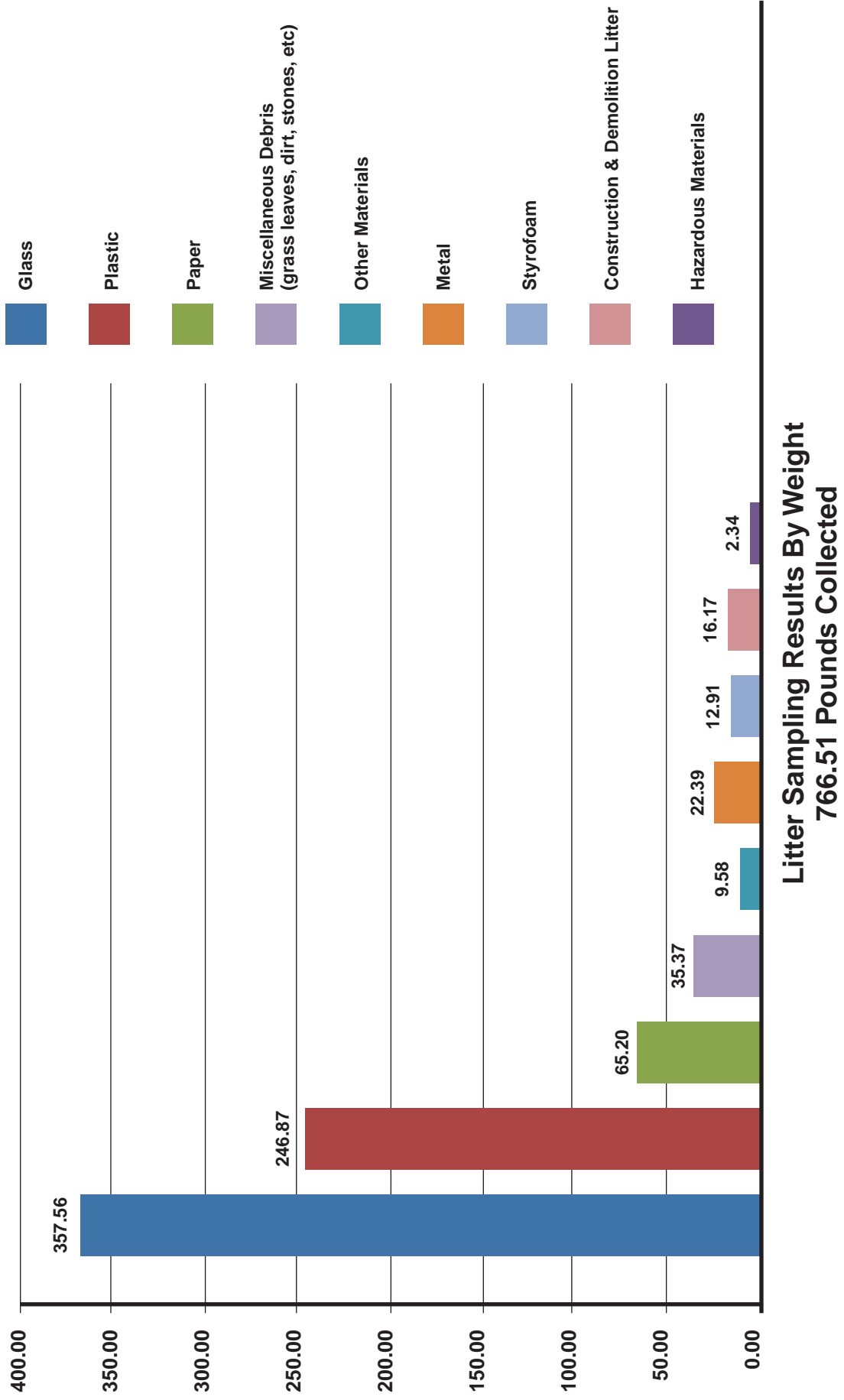
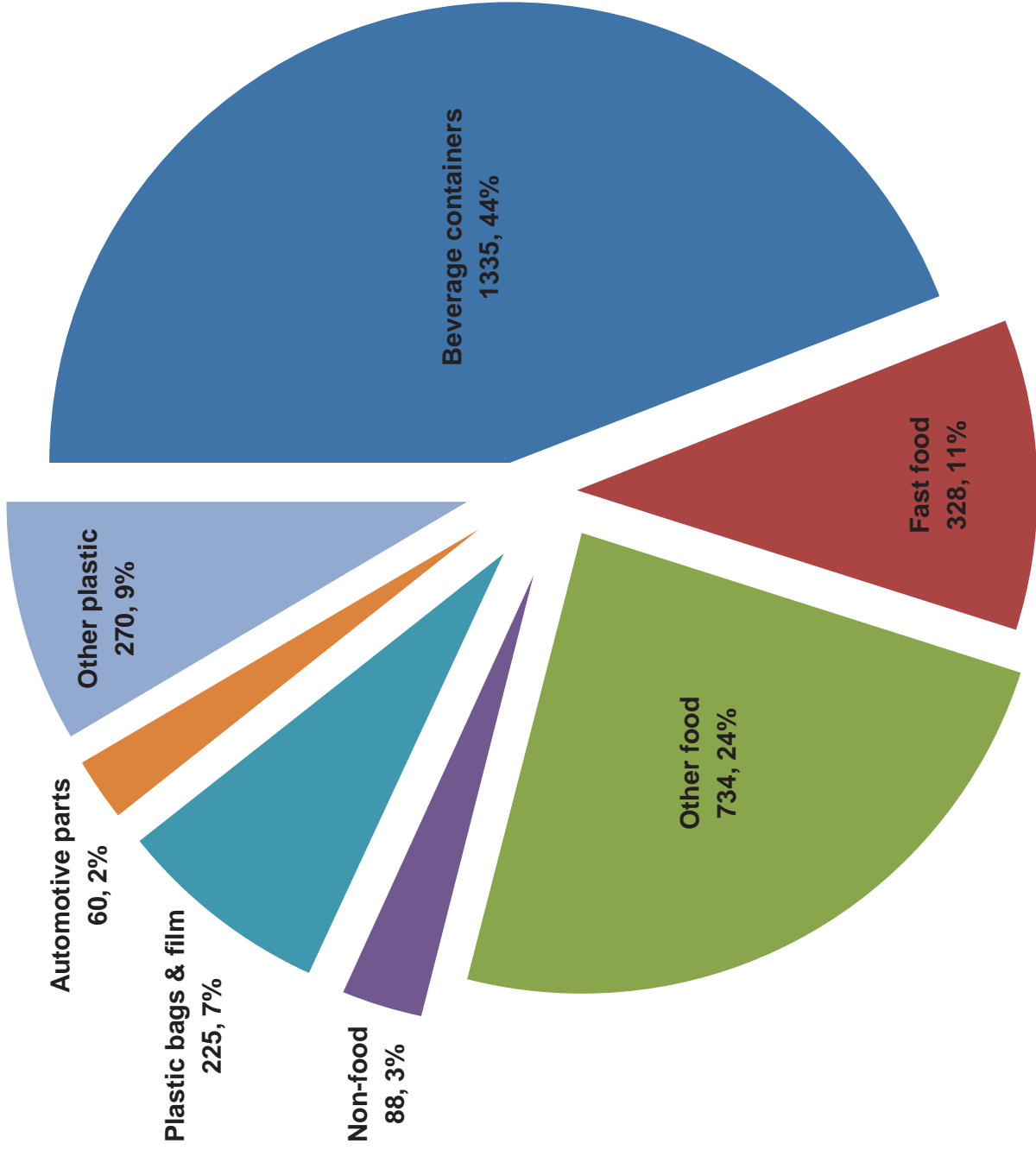


Figure 3

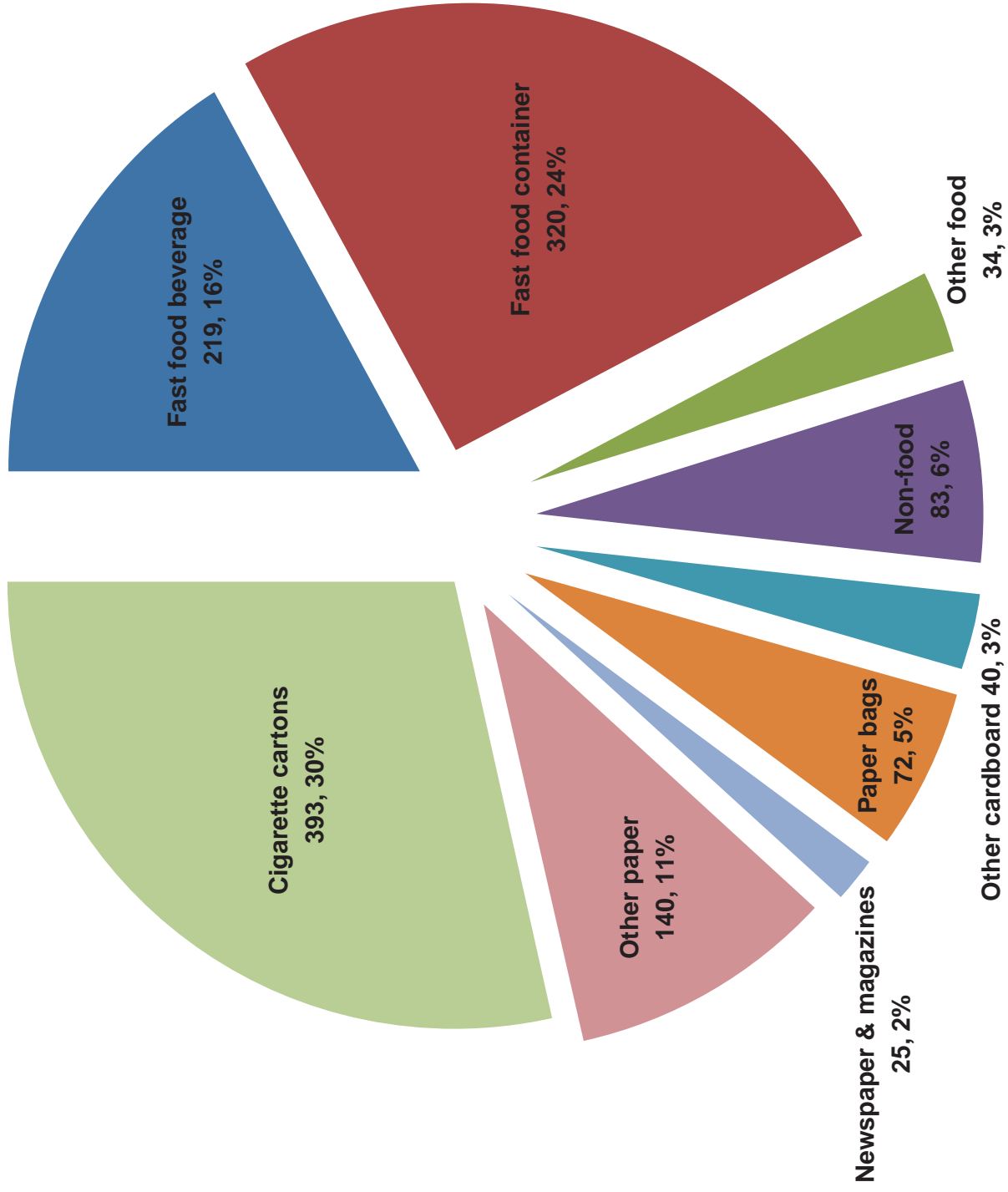
Jefferson County 2011 Litter Survey Results



Plastic components by # of items - 3,040 total

Figure 4

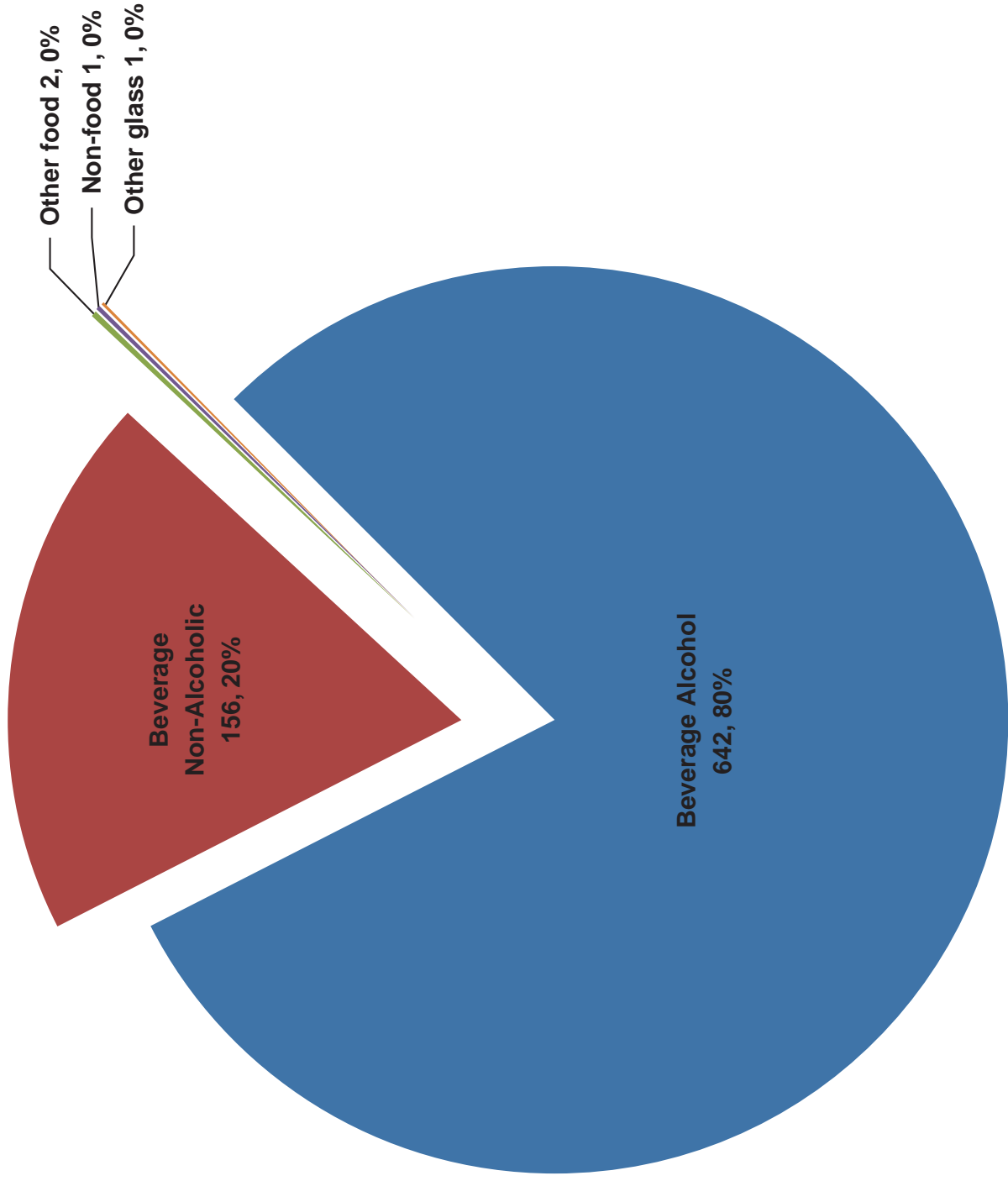
Jefferson County 2011 Litter Survey Results



Paper components by # of items - 1,326 total

Figure 5

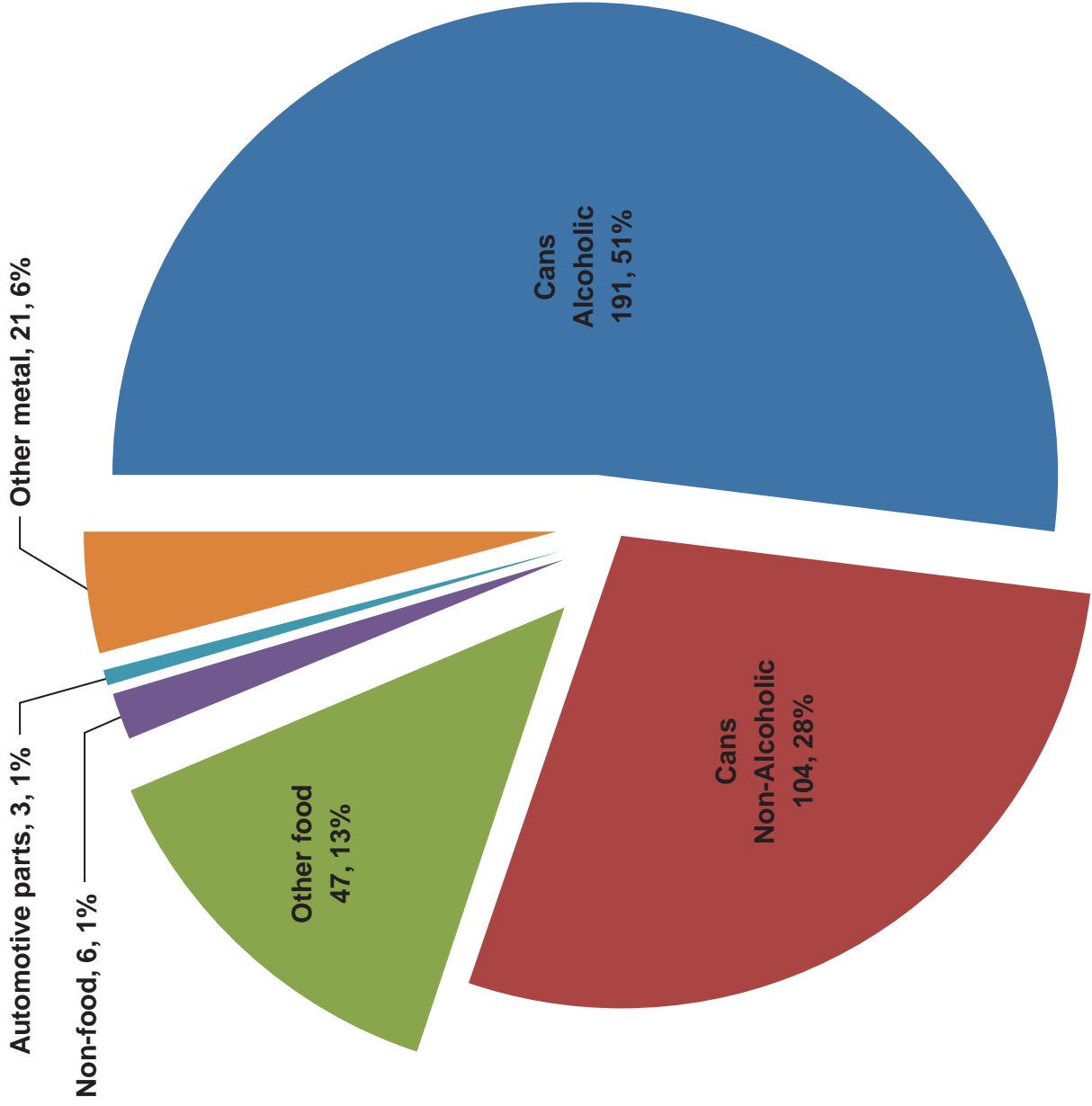
Jefferson County 2011 Litter Survey Results



Glass components by # of items - 802 total

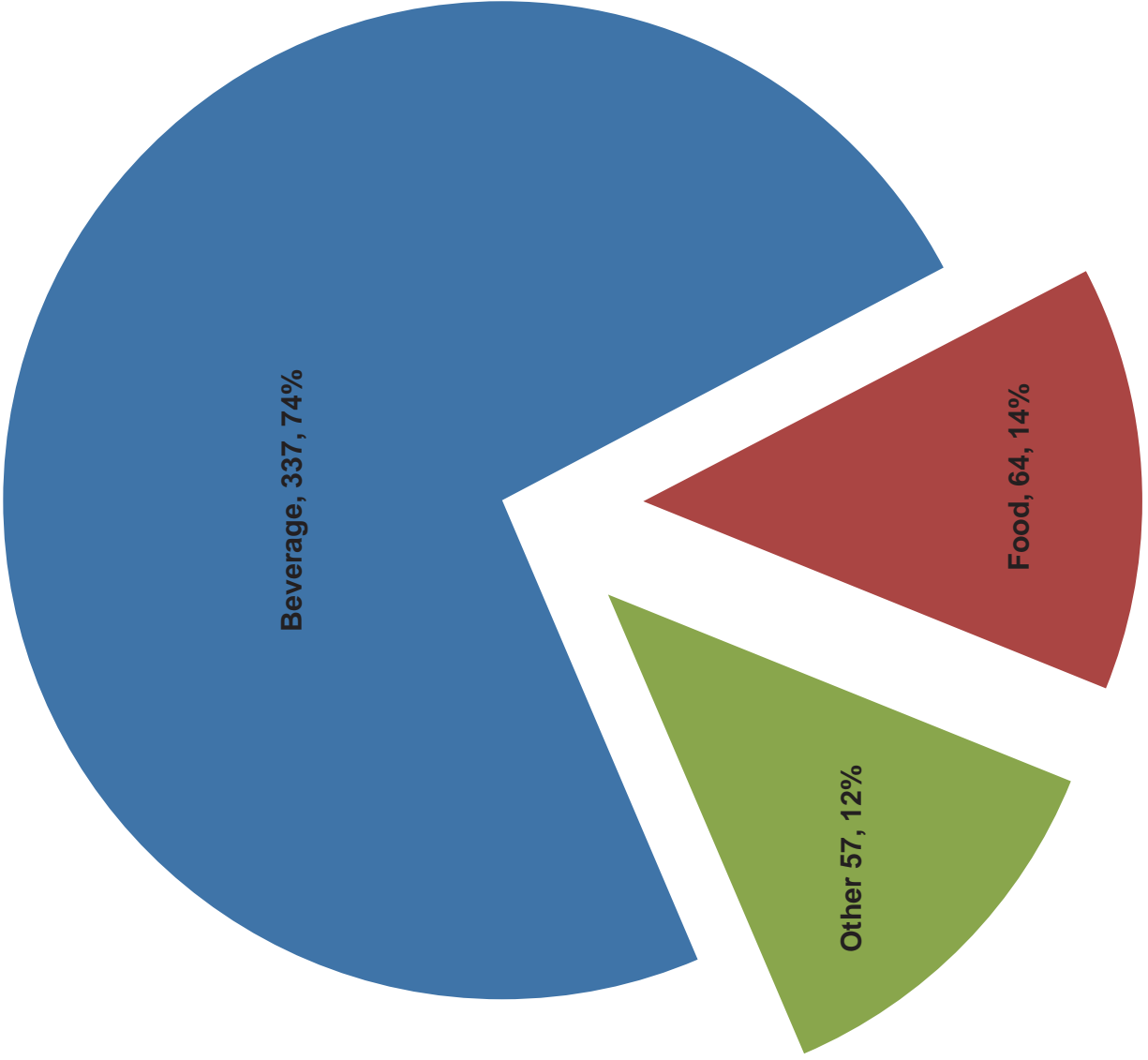
Figure 6

Jefferson County 2011 Litter Survey Results



Metal components by # of items - 372 total

Figure 7



Polystyrene components by # of items - 458 total

Figure 8

