Iowa State Park Recycling Research Study

2012

Land Quality Bureau
Financial and
Business Assistance
Section

ACKNOWLEDGEMENTS

The Department of Natural Resources' Land Quality Bureau, Financial and Business Assistance Section and the State Parks Bureau would like to thank those persons providing assistance in making this study possible.

Shelley Codner, Iowa Waste Exchange (IWE) representative for developing waste sort protocols, coordinating and leading the waste sorts at participating State Park campgrounds;

Staff at Iowa State Parks for their participation in the study and providing critical waste management and guest camping information;

- Backbone State Park
- Clear Lake State Park
- George Wyth State Park
- Gull Point State Park
- Lake Anita State Park
- Lake Manawa State Park
- Ledges State Park
- Rock Creek State Park

Staff and members of the Iowa Green Veterans – AmeriCorps Program for providing coordination and waste sort assistance;

Fred Kesten and Ben Kvigne also of the Iowa Waste Exchange for providing waste sort assistance;

Friends of Iowa State Parks volunteers and other volunteers for their interest and for providing waste sort assistance; and

Margo Underwood of Underwood Consulting for conducting interviews with State Park staff, solid waste haulers and recycling centers, and for collecting and compiling waste management and waste sort data. The study concluded with Underwood Consulting providing recommendations on the economic and operational viability of offering recycling services to campground guests and visitors to Iowa's State Parks.

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Executive Summary

Background

The Department of Natural Resources' mission of "Leading Iowans in caring for our natural resources" provides the framework within which the Iowa State Park Recycling Research Study was conducted. Recycling at home and in places of business is becoming common for most Iowans but recycling is not available in any form at most Iowa State Parks. The Iowa State Park Recycling Research Study was undertaken to determine the amount of solid waste generated, primarily by campground guests, and how much of this waste is locally recyclable. The study also looked at existing solid waste hauling contracts and the location of area recycling centers. Based on data collected, recommendations are made regarding the economic and operational viability of implementing recycling in the eight (8) state parks participating in the study.

The Financial and Business Assistance (FABA) Section of the Land Quality Bureau took the lead on this study to determine the amount of solid waste generated in select Iowa State Parks, focusing on campground areas. It is hoped the information contained in this report will also assist County Parks, private campgrounds and resorts and other park providers in looking at implementing recycling programs.

Through meetings with Parks Bureau staff, the following state parks were selected to participate in the study:

Backbone State Park
Clear Lake State Park
George Wyth State Park
Gull Point State Park
Lake Anita State Park
Lake Manawa State Park
Ledges State Park
Rock Creek State Park

FABA Section staff, Shelly Codner (IWE) and Iowa Green Veterans - AmeriCorps staff developed the methodology, coordinating volunteers and other logistics necessary for conducting eight solid waste sorts. A Request for Proposals was issued resulting in a contract with Underwood Consulting to research current park solid waste management methods, existing solid waste hauling contracts, recycling opportunities in the area surrounding each park, and to compile the data resulting from the solid waste sorts. Underwood Consulting has provided the recommendations contained herein regarding initiating recycling in those State Parks participating in the Iowa State Park Recycling Research Study.

Conclusions and Recommendations

Based on results of the solid waste sorts, guest camping days report figures, and interviews with parks staff, solid waste haulers and recycling center managers, Underwood Consulting provides the following:

1. **Recommended changes to existing solid waste hauling contracts:**
    - Develop an introductory paragraph to include in all state parks' solid waste hauling contracts which spotlights the IDNR's mission of conserving natural resources through the establishment of sustainable waste reduction and recycling programs in Iowa's state parks. Include recycling goals/expectations in the contract.
    - Develop and include recycling container, type, size, rental (if any) and hauling rates in the specified state parks solid waste and recycling contracts.
    - Include quarterly trash and recycling tonnage and quality report requirements from the waste and recycling hauler (if other than park staff) to the State Park Ranger/Manager in the contracts.
    - Include in-kind contributions of selected hauler in the contract. This may include such things as no recycling processing fees and donated or discounted recycling container delivery or rental fees.
    - In order to leverage the resources available for solid waste and recycling programs available in Iowa's state parks, it is recommended that the Park Rangers/ Managers seek competitive bids for these service contracts.

2. **Specific contract language to include recycling services in existing or new solid waste hauling contracts.**
   - This language will vary based upon the specific campground recycling services provided by the solid waste and recycling hauler. The contract language should include the list of recyclables collected, recycling container rental and pull fees, frequency of collection, recycling processing fees (if any), revenue sharing program (if any) and hauler's recycling transportation fees during campground season and off-season for park office if applicable. In addition, include the donated services by the waste/recycling hauler and recycling processor described in #1.
3. **Estimated costs of implementing recycling collection and processing services**
   - The Ledges State Park's Recycling Pilot Project was very successful in establishing strong public/private partnerships to begin their campground recycling program. The Friends of the Ledges helped raise $10,000 for the recycling trailer; Boone County Recycling Center processed the recyclables at no charge and Park Manager Andy Bartlett transported the recyclables about seven miles to the Recycling Center. State Park costs included Andy's time and gas for three round-trips to the Boone County Recycling Center this summer.
   - Managing costs and building strong public/private partnerships are vital in establishing sustainable recycling programs in the selected state park campgrounds. All recycling processors Underwood Consulting met with indicated they would not charge a recycling processing fee for recyclables collected at these state parks.
   - Recycling container costs, transportation costs to the recycling center/processor and education of the campers are the fixed costs to implement a successful and sustainable recycling program. Is it possible to offset these recycling costs with a decrease in the number/size of trash dumpsters in the campgrounds? It is very possible if the recycling center is located within 10-15 miles of the state park and if the recycling container is donated to the recycling program by a Friends Group, discounted by a waste hauler or received through a grant program. Service costs for a recycling roll-off container are approximately $200-250 per pull.
   - Five of the eight state parks are located within 10-15 miles of the nearest recycling center. These state parks are: Clear Lake, George Wyth, Lake Anita, Lake Manawa and Ledges. Lake Anita and Lake Manawa have active Friends Groups.
4. **Estimated Cost Savings of Implementing Recycling Collection and Processing Services Compared to Existing Disposal Services:**
   - The goal during the first year of the state park recycling programs would be to establish strong recycling public/private partnerships and break even on the recycling program costs. Then in subsequent years the expectation would be to increase the cost savings through increased recycling participation and tonnage collected while decreasing the number of trash dumpsters needed and serviced in the campgrounds. Estimated cost savings will vary by state park and the degree of success of each recycling program.
5. **Recyclables Targeted for Collection:**
   - Which recyclable materials to collect and how they should be collected is dependent on the requirements of the local recycling center. Certain materials can be combined while others must be separated. This will impact signage placed on and around the selected recycling container. Non-redeemable plastic bottles and containers, corrugated cardboard, chipboard, paper, glass bottles and food jars, and tin/metal cans are the most common materials collected.
   - Redeemable beverage cans and bottles can be collected separately and taken to a Redemption Center. Each 5-cent deposit is essentially a donation to the Park.
6. **Recommended Recycling Container Styles and Sizes to Best Meet Needs for State Park Staff, Campers and** Recycling Service Providers:
   - Recycling trailer with six - 1 cubic yard recycling bins for sorted recyclables Serviced on-call.
   - 20-yd roll-off recycling container with compartments for sorted recyclables or commingled recyclables. Serviced on-call.
   - The recycling trailer or roll-off container should be conveniently located in the campground area and have clear signage on the recycling compartments. An informational kiosk with educational information about the recycling program could be placed next to the recycling container or trailer. Campground hosts and naturalists can also provide information to campers about the recycling program. The IDNR's website could list the state parks that have recycling available in the campground areas and reminders could be shared on the Facebook page.
7. **Recommended Trash Disposal Dumpster Size and Frequency of Service with a Recycling Program in Place:**
   - The recommended trash disposal dumpsters are 4 or 6 cubic yard containers serviced once/week during the

summer months. Food waste and compostable materials make up a large part of the waste stream and during the warm summer months will require weekly collection.

Summary Comments

The State Park Recycling Research Study indicates that it is practical and economically feasible to implement successful recycling programs in selected state park campgrounds, especially where strong public/private partnerships have been established. Recycling programs in the state park campgrounds conserves Iowa' s natural resources and reinforces the public's recycling habits away from home. It's a win-win for the environment and for all Iowans.

General Recommendations

The following steps should be considered when beginning a Campgrounds Recycling Program:

1. Review the Waste Sort Data with the park ranger/park manager, current waste hauler, landfill director, recycling center manager, county conservation naturalist, and Friends of the Park Representatives. Form a Recycling Green Team with these partners and invite a couple of students to participate in developing the new program. Establish recycling goals and benchmarks to include and to help evaluate the program.
2. Review the recyclable materials targeted for recycling collection and determine where the recyclable materials will be processed.
3. Identify the specific recycling container or trailer that will be used to collect the recyclables in the campground area. Used containers and trailers may be available.
4. Review program costs and identify potential in-kind contributions and donations to secure the recycling container or trailer to collect the recyclables, discuss transportation costs to the recycling processor with the waste/recycling hauler. Is it possible to off-set recycling program costs by downsizing number/size of current trash dumpsters in the campgrounds? Seek local sponsorships to support the new recycling program.
5. Identify clear signage for the recycling container. Develop a recycling information station or kiosk next to the recycling container to educate campers about the program.
6. Continue to educate campers throughout the camping season using the IDNR's website, campgrounds reservation system, campground hosts, and Facebook.
7. Share the results with the Recycling Green Team Members, campers and the public.

Appendices

Waste Sort Summary Table

January Through September 2012

Estimated Total Pounds and Total Cubic Yard Generation All Sorted Material

	Total Jan - Sept 2012 Camping Guest Days	Pounds of Trash	Estimated Average Yards^3 of Trash	Pounds of Recyclables	Estimated Average Yards^3 of Recyclables	Pounds of Redeemable Containers	Estimated Average Yards^3 of Redeemable Containers
Backbone	22,821	22,273.3	262.2	9,161.0	196.5	3,502.6	37.9
Clear Lake	28,018	6,918.3	81.4	5,058.1	108.5	319.8	46.5
George Wyth	17,391	14,782.4	174.0	6,327.4	135.7	1,091.6	28.9
Gull Point Complex	19,290	6,759.4	79.6	6,976.8	149.7	3,103.0	32.0
Lake Anita	26,592	12,671.5	149.2	7,846.7	168.3	1,020.6	44.2
Lake Manawa	21,260	12,169.9	143.3	8,246.9	176.9	6,621.6	35.3
Ledges	24,268	12,011.5	141.4	4,523.1	97.0	445.2	40.3
Rock Creek	32,481	13,996.7	164.8	4,359.5	93.5	310.6	53.9

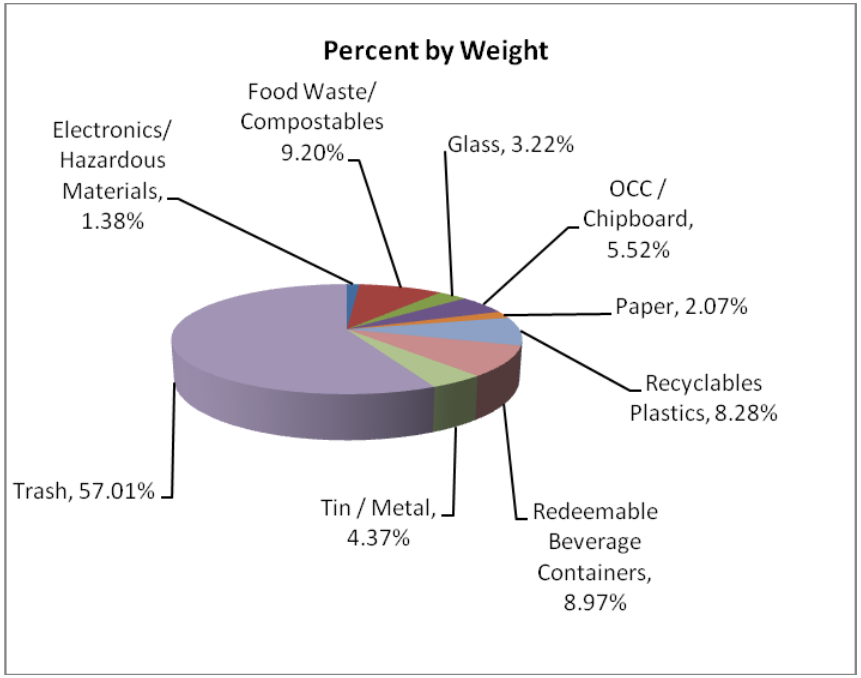
	Total Jan - Sept 2012 Camping Guest Days	Pounds of Food Waste/ Compostables	Estimated Average Yards^3 of Food Waste/ Compostables	Pounds of Ewaste/ Hazardous Waste	Estimated Average Yards^3 of Ewaste/ Hazardous Waste
Backbone	22,821	3,592.7	40.2	538.8	4.6
Clear Lake	28,018	9870.5	49.3	375.7	5.7
George Wyth	17,391	4,643.8	30.6	518.0	3.5
Gull Point Complex	19,290	6,403.6	33.9	434.8	3.9
Lake Anita	26,592	5,764.9	46.8	1081.2	5.4
Lake Manawa	21,260	5,011.2	37.4	238.7	4.3
Ledges	24,268	6,555.3	42.7	459.7	4.9
Rock Creek	32,481	4,733.2	57.2	635.0	6.6

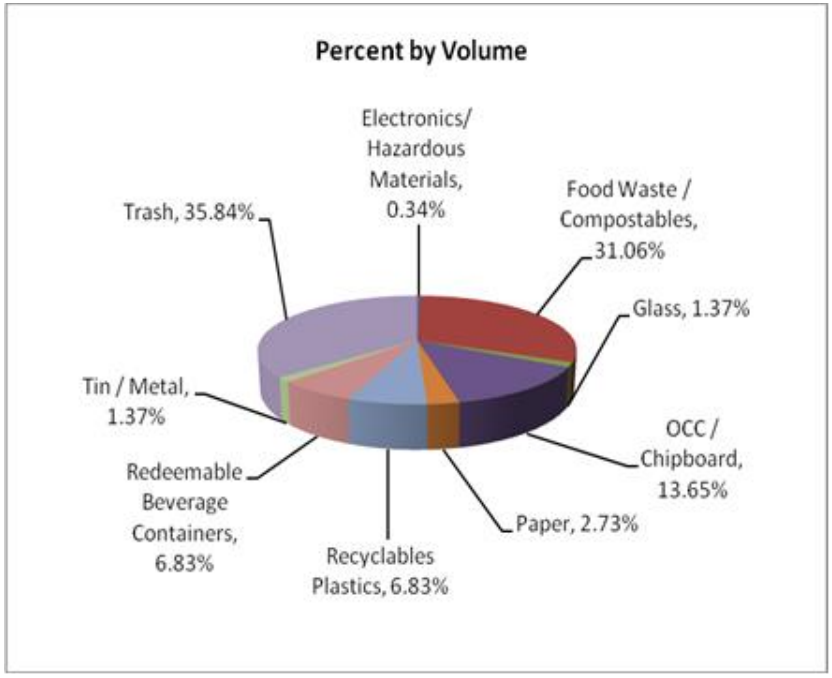
Waste Sort Data Tables and Charts

Backbone State Park

July 23, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume (yd^3)	Percent by Volume
Electronics/Hazardous Materials	9.09	1.38%	0.04	0.34%
Food Waste/Compostable Organics	60.61	9.20%	3.72	31.06%
Glass	21.21	3.22%	0.16	1.37%
OCC/Chipboard	36.36	5.52%	1.64	13.65%
Other	n/a	n/a	n/a	n/a
Paper	13.64	2.07%	0.33	2.73%
Recyclables Plastics	54.55	8.28%	0.82	6.83%
Redeemable Beverage Containers	59.09	8.97%	0.82	6.83%
Tin/Metal	28.79	4.37%	0.16	1.37%
Trash	375.76	57.01%	4.30	35.84%
TOTAL	659.09	100.00%	11.99	100.00%

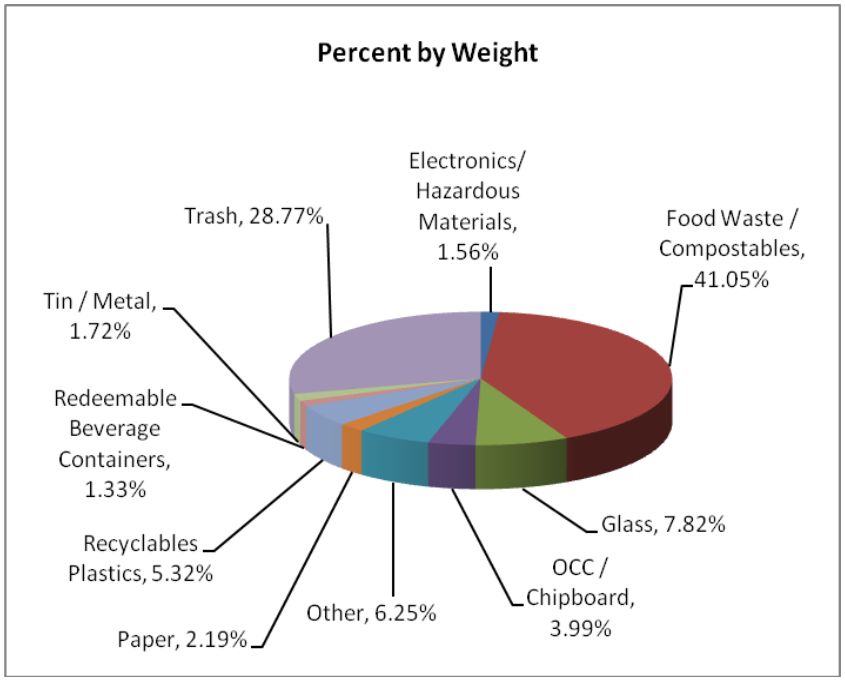


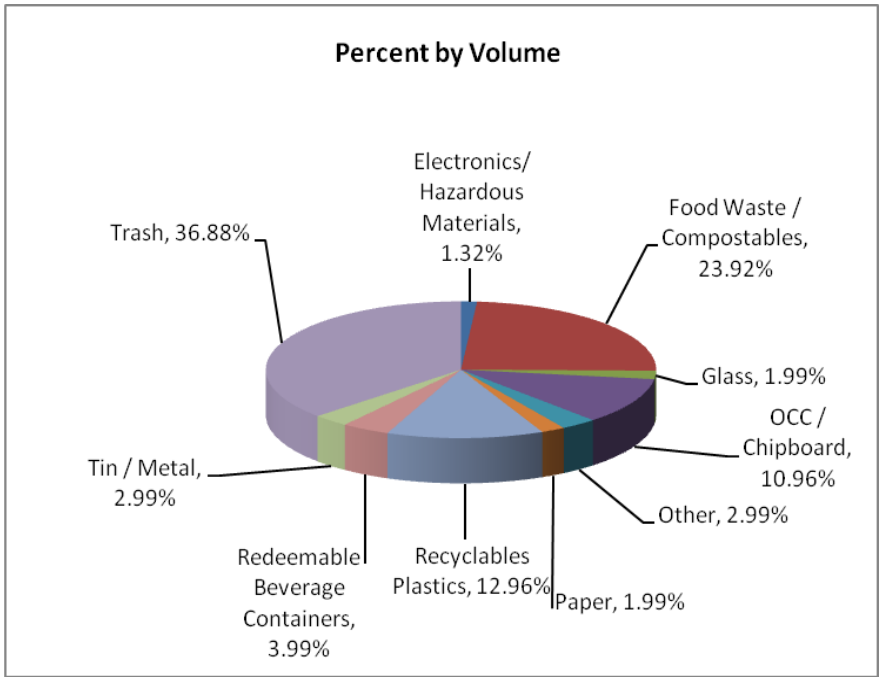


Clear Lake State Park

July 16, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume (yd^3)	Percent by Volume
Electronics/ Hazardous Materials	17.74	1.56%	0.16	1.32%
Food Waste / Compostable Organics	466.08	41.05%	2.88	23.92%
Glass	88.78	7.82%	0.24	1.99%
OCC / Chipboard	45.29	3.99%	1.32	10.96%
Other	71.00	6.25%	0.36	2.99%
Paper	24.86	2.19%	0.24	1.99%
Recyclables Plastics	60.38	5.32%	1.56	12.96%
Redeemable Beverage Containers	15.10	1.33%	0.48	3.99%
Tin / Metal	19.53	1.72%	0.36	2.99%
Trash	326.68	28.77%	4.43	36.88%
TOTAL	1135.44	100.00%	12.03	100.00%

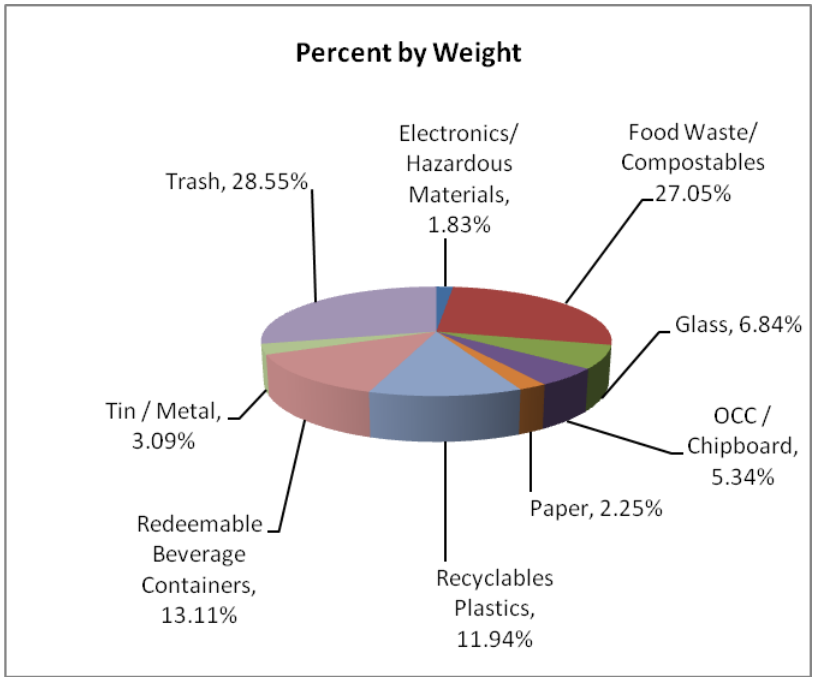


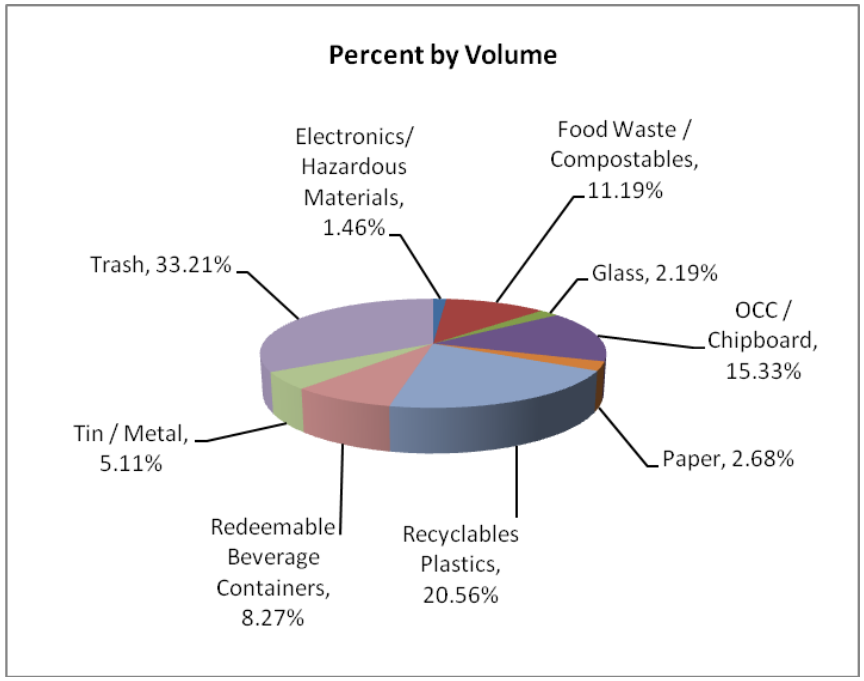


George Wyth State Park

September 6, 2011

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/Hazardous Materials	14	2%	0.13	2%
Food Waste/Compostable Organics	125.5	17%	1.00	13%
Glass	60	8%	0.25	3%
OCC/Chipboard	39	5%	1.38	17%
Paper	16	2%	0.13	2%
Plastic bottles/containers	40	5%	1.00	13%
Redeemable Beverage Containers	29.5	4%	1.00	13%
Tin/Metal	16	2%	0.13	2%
Trash	399.5	54%	3.00	38%
TOTAL	739.50	100.00%	8.00	100.00%

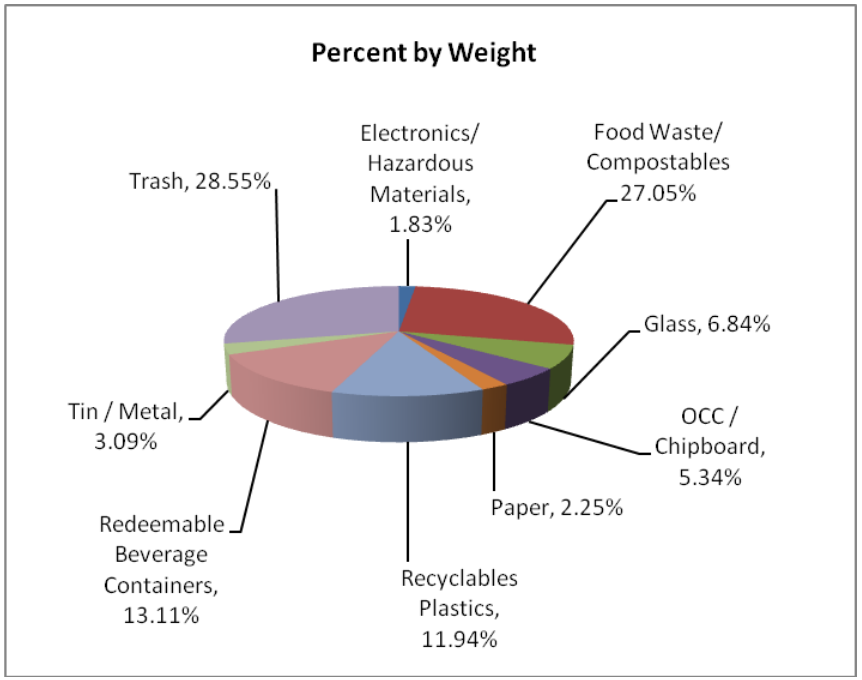


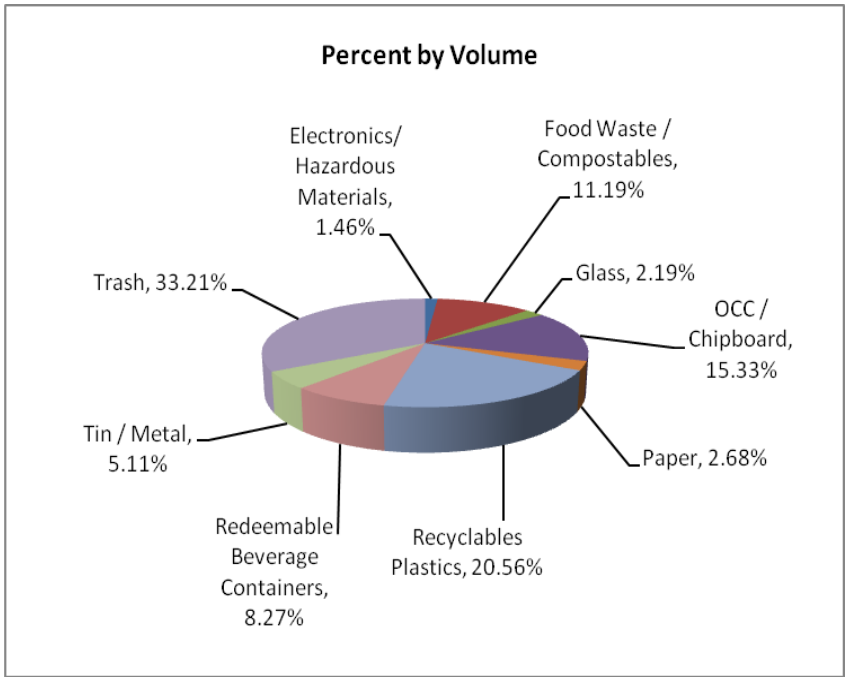


Gull Point State Park

July 9, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/Hazardous Materials	11.00	1.83%	0.12	1.46%
Food Waste/Compostable Organics	162.00	27.05%	0.92	11.19%
Glass	41.00	6.84%	0.18	2.19%
OCC/Chipboard	32.00	5.34%	1.26	15.33%
Other	n/a	n/a	n/a	n/a
Paper	13.50	2.25%	0.22	2.68%
Recyclables Plastics	71.50	11.94%	1.69	20.56%
Redeemable Beverage Containers	78.50	13.11%	0.68	8.27%
Tin/Metal	18.50	3.09%	0.42	5.11%
Trash	171.00	28.55%	2.73	33.21%
TOTAL	599.00	100.00%	8.22	100.00%

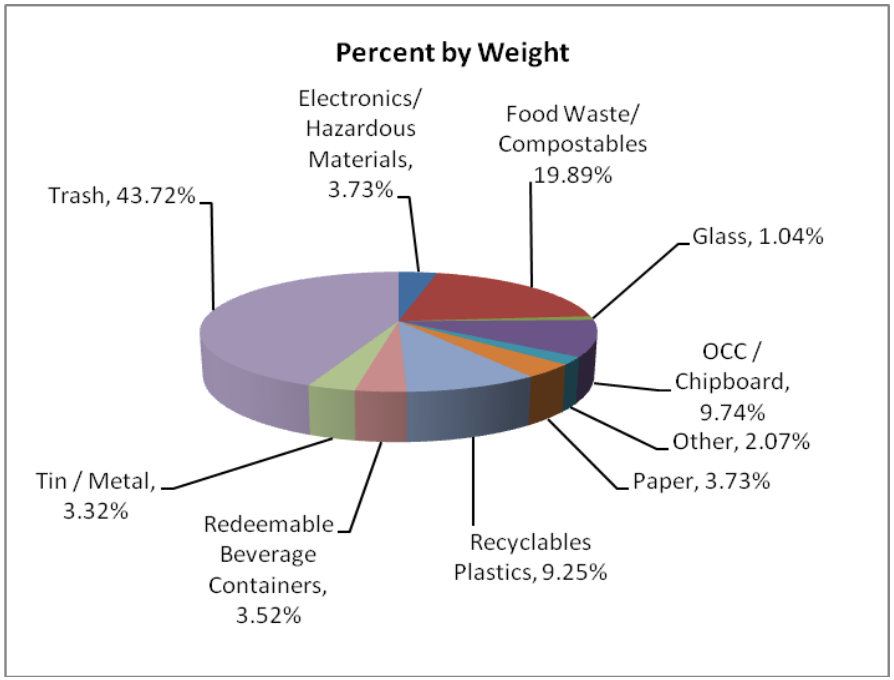


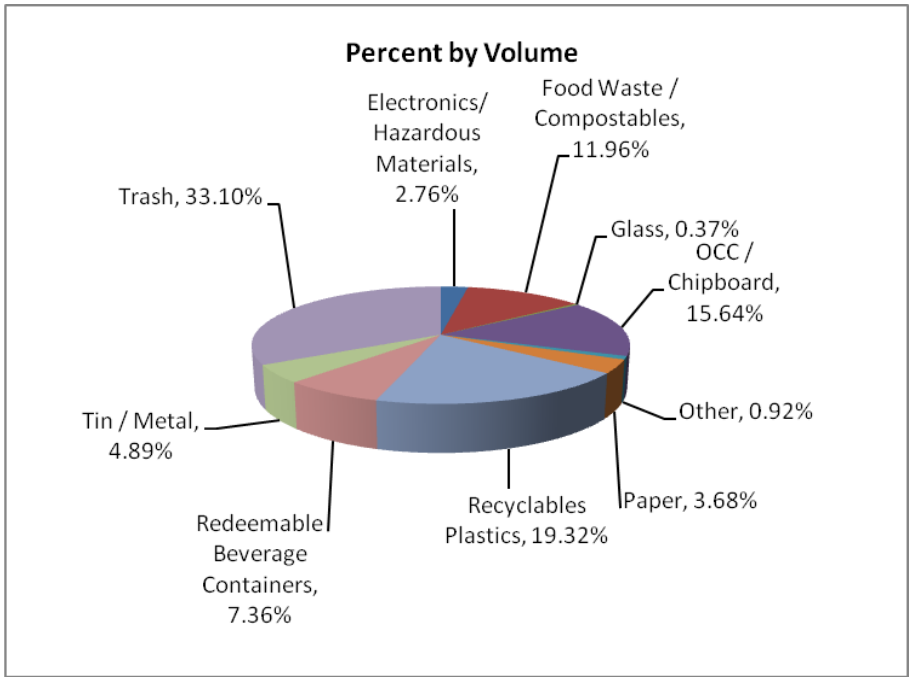


Lake Anita State Park

July 2, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/ Hazardous Materials	26.59	3.73%	0.30	2.76%
Food Waste/ Compostable Organics	141.78	19.89%	1.30	11.96%
Glass	7.39	1.04%	0.04	0.37%
OCC/Chipboard	69.42	9.74%	1.69	15.64%
Other	14.76	2.07%	0.10	0.92%
Paper	26.59	3.73%	0.40	3.68%
Recyclables Plastics	65.94	9.25%	2.09	19.32%
Redeemable Beverage Containers	25.10	3.52%	0.80	7.36%
Tin/Metal	23.64	3.32%	0.53	4.89%
Trash	311.64	43.72%	3.59	33.10%
TOTAL	712.85	100.00%	10.84	100.00%

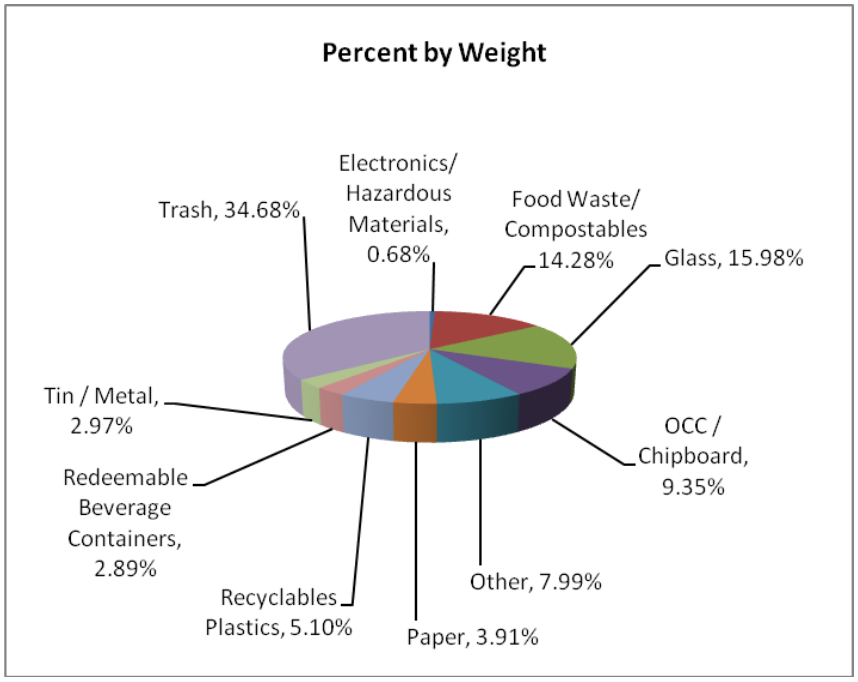


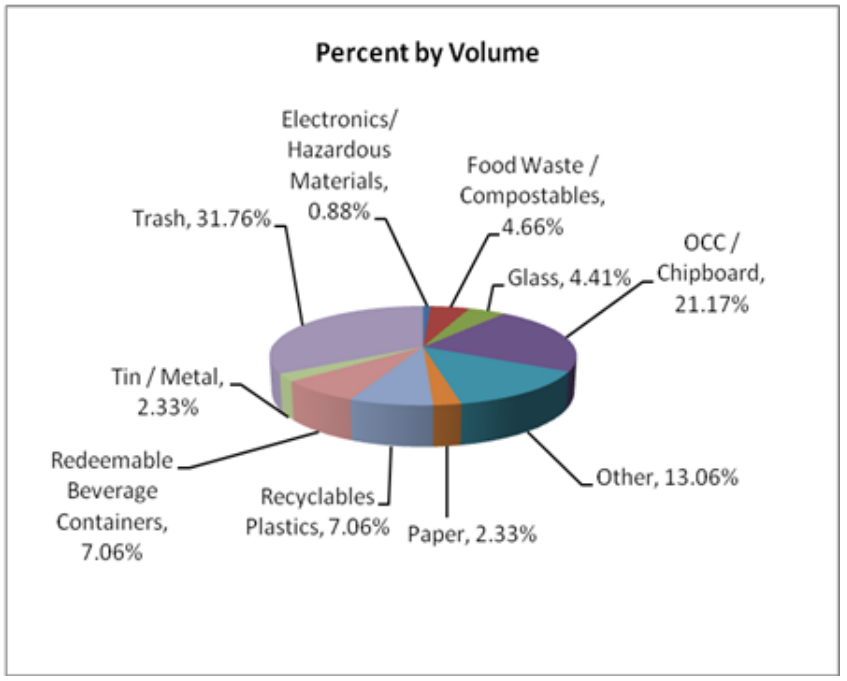


Lake Manawa State Park

June 18, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/Hazardous Materials	5.31	0.68%	0.09	0.88%
Food Waste/Compostable Organics	111.49	14.28%	0.47	4.66%
Redeemable Glass Bottles	124.76	15.98%	0.45	4.41%
OCC/Chipboard	73.00	9.35%	2.15	21.17%
Other	62.38	7.99%	1.33	13.06%
Paper	30.53	3.91%	0.24	2.33%
Recyclables Plastics (1-7)	39.82	5.10%	0.72	7.06%
Redeemable Beverage Containers	22.56	2.89%	0.72	7.06%
Tin/Metal	23.20	2.97%	0.24	2.33%
Trash	270.76	34.68%	3.23	31.76%
Non-Redeemable Beverage Containers	16.93	2.17%	0.54	5.28%
TOTAL	780.74	100.00%	10.18	100.00%

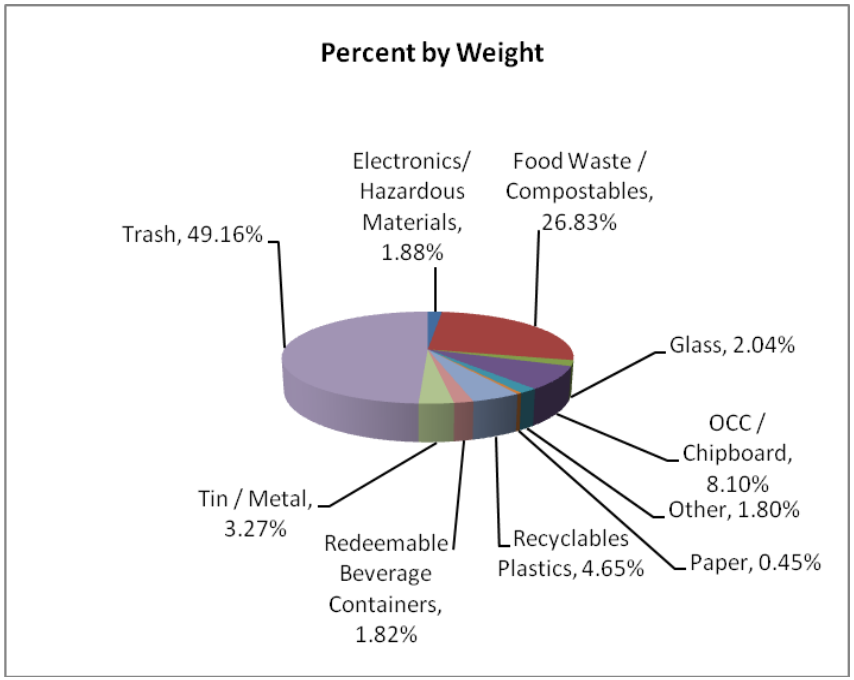


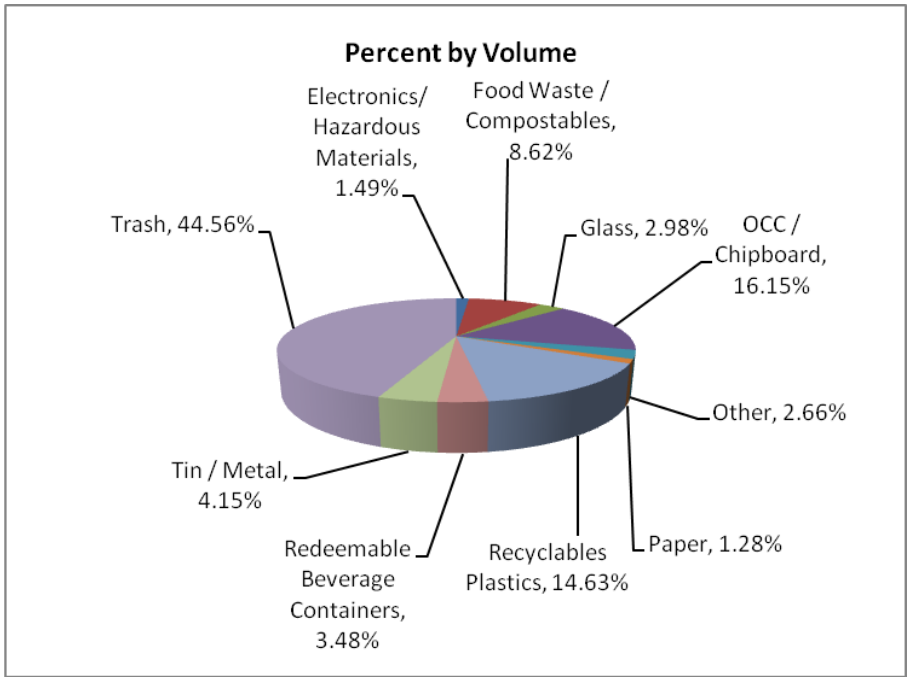


Ledges State Park

June 25, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/Hazardous Materials	12.35	1.88%	0.16	1.49%
Food Waste/Compostable Organics	176.12	26.83%	0.94	8.62%
Redeemable Glass Bottles	13.42	2.04%	0.32	2.98%
OCC/Chipboard	53.16	8.10%	1.76	16.15%
Other	11.81	1.80%	0.29	2.66%
Paper	2.95	0.45%	0.14	1.28%
Recyclables Plastics (1-7)	30.51	4.65%	1.59	14.63%
Redeemable Beverage Containers	11.96	1.82%	0.38	3.48%
Tin/Metal	21.48	3.27%	0.45	4.15%
Trash	322.71	49.16%	4.86	44.56%
TOTAL	656.47	100.00%	10.89	100.00%





Rock Creek State Park

June 26, 2012

Waste Stream	Weight (lbs)	Percent by Weight	Volume(yd^3)	Percent by Volume
Electronics/Hazardous Materials/Universal	29.11	2.62%	0.24	1.49%
Food Waste/Compostable	216.98	19.53%	1.97	12.38%
Glass	35.76	3.22%	0.23	1.44%
OCC/Chipboard	54.23	4.88%	1.49	9.36%
Other	9.24	0.83%	0.11	0.72%
Paper	34.43	3.10%	0.54	3.38%
Recyclables Plastics	34.43	3.10%	2.68	16.88%
Redeemable Beverage Containers	14.24	1.28%	0.59	3.74%
Tin/Metal	41.00	3.69%	0.54	3.38%
Trash	641.64	57.75%	7.50	47.25%
TOTAL	1111.06	100.00%	15.89	100.00%