Alachua County Schools Waste Audits 2013

Prepared by the Alachua County Office of Waste Alternatives

Overview:

Starting in Feburary of 2013, the Alachua County Office of Waste Alternatives (ACOWA), the Alachua County School Board and the Southeast Rural Community Assistance Project (SERCAP) began conducting comprehensive waste audits on various Alachua County public schools. These audits were conducted to gain a better understanding of the waste stream of the various schools, and to discover their recycling potential.

Methodology:

Prior to each waste audit, a representative from the ACOWA contacts the school to be audited and talks with the administrative and custodial staff. The custodial staff is instructed to tag each garbage bag using colored tape to indicate where it came from on the school grounds. The color-coded bags are then placed in a trailer left on site by ACOWA staff one day prior to the audit. The morning of the audit, ACOWA staff collects the trailer and brings the waste to the Alachua County Public Works compound for sorting.

A Group of Bags Ready for Sorting

The various bags are grouped together according to their tape colors and the sorting begins. The bags from each group are weighed individually prior to sorting and then transferred to the sorting table. The waste is then sorted into four different categories:

- Co-mingled Recyclables: These are items such as metal, plastic, and glass containers. Milk cartons are also included in this category as they are now included in the county's recycling program.
- Clean Paper: Paper, cardboard and pasteboard that have not been soiled are included in this category.
- Compostables: Food waste and other organic materials, including soiled paper, are put in this category.
- Municipal Solid Waste (MSW): Items that cannot be currently recycled or composted are placed into this category.

35 Gallon Carts are Used for Sorting the Categories

After sorting, the weight and volume of each category is taken and recorded according to the bags' color group. This process is repeated with all of the current school's color groups.

The data is then entered into a spreadsheet that will calculate the total weights of the groups and categories and the total recycling potential by weight and volume for the school.

The sorting table

Recyclable Milk Cartons in Lunchroom Trash

Lunchroom Food Waste

Waste Audit Results


The Sorting Begins

As noted in the methodology, this audit represents a single days worth of garbage at each of the schools participating. When the data collected from each school is combined the potential for waste reduction and diversion is significant.

When looking at the waste stream by weight, nearly 33% of all waste could be recycled if an effective recycling program for paper, cardboard, and commingled materials was put into place. For the schools audited this is equal to 1052.58 lbs of material each day. Another 34% of the overall waste stream could be diverted through a composting program. Such a composting program would include the food waste as well as the soiled paper disposed of in the schools. This would remove an additional 1,090.53 lbs of waste from the waste stream daily.

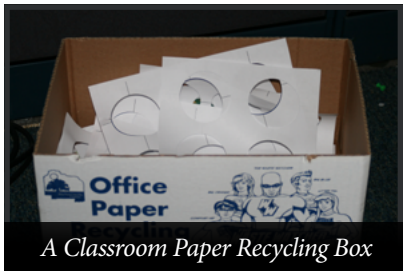

Each Bag was Weighed Before Sorting

By volume, the waste reduction/diversion numbers are similar. Roughly 32% of all waste by volume is recyclable and another 17% of all waste by volume is compostable. In actual numbers this would be 10.06 cubic yards of recyclables and an additional 5.38 cubic yards of compostables removed from the garbage dumpsters of those schools which participated in the audits daily. Cardboard is not included in the calculation of volume for commingled materials due to its nonconformance with the method of measurement utilized in the audits (35 gallon garbage carts).

A detailed breakdown for each school follows in the appendices.

Conclusions/Recommendations

Paper Recycling



A Classroom Paper Recycling Box

Recyclable paper represented 16% of all the waste collected during the school waste audits. Paper is one of the easiest and most cost-effective commodities to recycle.

Most of the paper we observed was classroom paper from assignments and other projects and could have been recovered by placing a paper collection bin in each classroom. Pasteboard (i.e. lunchables boxes) from the cafeteria and other sources were also found and paper containers should also be placed in lunchrooms and teachers lounges.

Large Bins for Centralized Collection

Larger paper bins are then placed in common areas for collection from classrooms. Custodial staff would then bring the larger bins to the paper container outside for commercial collection.

Most schools are already separating corrugated cardboard, but any that are not should seriously consider starting to recycle this commodity.

Commingled Recycling

Glass, metal, plastic and cartons represented 15% of the waste collected from the audited schools. A large amount of these materials came from lunchrooms and the kitchens. Commingled recycling bins with proper signage should be placed in the cafeterias, teachers lounges and kitchens to collect these items. Commingled bins should also be placed in conjunction with waste bins throughout the school to maximize the opportunity to recycle commingled containers.

Commingled Items From GHS

Placing recycling containers at sporting events and other gatherings where there are a large amount of commingled containers should also be considered when starting a comprehensive recycling program.

Milk cartons were especially prevalent in the waste from elementary school lunchrooms and are now part of the county's recycling program. Several milk cartons were found that had not been opened and many with some milk left inside. Emptying the containers before placing them in a recycling bin can help to reduce mess and odors. Placing signs (*pictured right*) can help students recycle cartons correctly.

Milk Carton Recycling Signage

Composting

Food waste and soiled paper products represented another 16% of the total waste collected. Composting these materials diverts them from landfills and reduces the volume of waste in commercially-collected containers thereby reducing the number of times the container is emptied per week or reducing the container size.

Currently no large-scale commercial option exists for composting post-consumer food waste, but there are other ways to divert food waste. Santa Fe High School is working with a local pig farmer who takes the kitchen organics for use as pig feed. Schools with space can also start a pilot composting program on site in conjunction with a school garden.

Two Examples of Composting Methods

Solid Waste Management

Implementing a comprehensive recycling program including paper, plastics, metal, glass and cartons can significantly reduce the amount of solid waste sent to the landfill from Alachua County schools. This reduction in waste can also reduce the size and tipping frequency of containers. In many cases an entire solid waste container can be replaced by containers for recycling. School waste audits also showed a significant amount of plastic foam trays used for lunched that are thrown away. Some schools are already recycling these trays using a "Whack and Stack" method of collection and then processed in a compactor that removes the air from the foam.

Lunch Trays Found in Lunchroom Trash

Appendix A: School Totals

Gainesville High School- Totals

Total Pounds collected	**772.1**	**% of total**
Total Commingled separated	131.5	17.03
Total Clean Paper separated	95.25	12.34
Total Compostables separated	212.5	27.52
Total MSW	332.85	43.11

Percent Diversion by Weight = 56.89%

Total Pounds Diversion= 439.25

Total Cubic Yards collected	**7.25**	**% of total**
Total Commingled separated	1.37	18.89
Total Clean Paper separated	1.14	15.73
Total Compostables separated	0.73	10.04
Total MSW	3.41	46.98

Percent Diversion by Volume = 44.66%

Total Diversion by Volume = 3.24 y^3

Santa Fe High School- Totals

Total Pounds collected	**372.78**	**% of total**
Total Commingled separated	69.28	18.58
Total Clean Paper separated	80.35	21.55
Total Compostables separated	97.1	26.05
Total MSW	126.05	33.81

Percent Diversion by Weight = 66.19%

Total Pounds Diversion = 246.73

Total Cubic Yards collected	**4.87**	**% of total**
Total Commingled separated	0.78	16.01
Total Clean Paper separated	0.82	16.90
Total Compostables separated	0.75	15.30
Total MSW	2.52	51.78

Percent Diversion by Volume = 48.22%

Total Diversion by Volume = 2.35 y^3

Westwood Middle School

Total Pounds collected	**588.23**	**% of total**
Total Commingled separated	70.85	12.04
Total Clean Paper separated	68.15	11.59
Total Compostables separated	300.88	51.15
Total MSW	148.35	25.22

Percent Diversion by Weight = 74.78%

Total Pounds Diversion = 439.88

Total Cubic Yards collected	**5.99**	**% of total**
Total Commingled separated	0.75	12.45
Total Clean Paper separated	0.88	14.62
Total Compostables separated	1.26	20.98
Total MSW	3.11	51.95

Percent Diversion by Volume = 48.05%

Total Diversion by Volume = 2.88 y^3

Oak View Middle School

Total Pounds collected	**407.5**	**% of total**
Total Commingled separated	61.05	14.98
Total Clean Paper separated	69.2	16.98
Total Compostables separated	170.5	41.84
Total MSW	106.75	26.20

Percent Diversion by Weight = 73.80%

Total Pounds Diversion = 300.75

Total Cubic Yards collected	**3.63**	**% of total**
Total Commingled separated	0.47	12.88
Total Clean Paper separated	0.59	16.22
Total Compostables separated	0.81	22.42
Total MSW	1.76	48.47

Percent Diversion by Volume= 51.53%

Total Diversion by Volume = 1.87 y^3

Glen Springs Elementary School

Total Pounds collected	**337.8**	**% of total**
Total Commingled separated	49.2	14.56
Total Clean Paper separated	39.5	11.69
Total Compostables separated	146.55	43.38
Total MSW	102.55	30.36

Percent Diversion by Weight = 69.64%

Total Pounds Diversion = 235.25

Total Cubic Yards collected	**2.38**	**% of total**
Total Commingled separated	0.36	15.27
Total Clean Paper separated	0.43	18.18
Total Compostables separated	0.53	22.18
Total MSW	1.06	44.36

Percent Diversion by Volume = 55.64%

Total Diversion by Volume = 1.33 y^3

W.W. Irby Elementary

Total Pounds collected	**339.75**	**% of total**
Total Commingled separated	80.25	23.62
Total Clean Paper separated	29.85	8.79
Total Compostables separated	153	45.03
Total MSW	76.65	22.56

Percent Diversion by Weight = 77.44%

Total Pounds Diversion = 263.1

Total Cubic Yards collected	**3.18**	**% of total**
Total Commingled separated	0.68	21.51
Total Clean Paper separated	0.49	15.52
Total Compostables separated	0.82	25.87
Total MSW	1.18	37.09

Percent Diversion by Volume= 62.91%

Total Diversion by Volume = 2.00 y^3

Archer Elementary School

Total Pounds collected	**305.7**	**% of total**
Total Commingled separated	28.7	9.39
Total Clean Paper separated	16.5	5.40
Total Compostables separated	99.25	32.47
Total MSW	161.25	52.75

Percent Diversion by Weight = 47.25%

Total Pounds Diversion = 144.45

Total Cubic Yards collected	**2.87**	**% of total**
Total Commingled separated	0.25	8.76
Total Clean Paper separated	0.42	14.80
Total Compostables separated	0.31	10.88
Total MSW	1.88	65.56

Percent Diversion by Volume = 34.44%

Total Diversion by Volume = 0.99y^3

Shell Elementary School

Total Pounds collected	**83.6**	**% of total**
Total Commingled separated	13.15	15.73
Total Clean Paper separated	16.1	19.26
Total Compostables separated	7.85	9.39
Total MSW	46.5	55.62

Percent Diversion by Weight = 44.38%

Total Pounds Diversion = 37.1

Total Cubic Yards collected	**1.53**	**% of total**
Total Commingled separated	0.32	20.89
Total Clean Paper separated	0.30	19.76
Total Compostables separated	0.09	5.70
Total MSW	0.82	53.64

Percent Diversion by Volume = 46.36%

Total Diversion by Volume = 0.71 y^3

Grand Totals

Total Pounds collected	**3,207.46**	**% of total**
Total Commingled separated	503.98	15.71
Total Clean Paper separated	414.9	12.94
Total Compostables separated	1090.53	34.00
Total MSW	1100.95	34.32

Percent Diversion by Weight = 62.65%

Total Pounds Diversion =2,009.41

Total Cubic Yards collected	**31.70**	**% of total**
Total Commingled separated	4.98	15.71
Total Clean Paper separated	5.08	16.03
Total Compostables separated	5.38	16.97
Total MSW	16.26	51.28

Percent Diversion by Volume = 48.72%

Total Diversion by Volume = 15.45 y^3