

Final Report 2014 Waste Characterization Study for Milwaukee County

**Submitted April 1, 2014 by
Keep Greater Milwaukee Beautiful**

Introduction

Although Milwaukee County offers and encourages recycling to staff, there may be opportunities to improve the effectiveness of the current program. At the request of the Office of Sustainability, Keep Greater Milwaukee Beautiful (KGMB) conducted a waste characterization study for the County Courthouse in February 2014. For each floor of the Courthouse, the study identified the types and amounts of waste, including recyclables, placed in trash receptacles during one day of business.

Procedure

To achieve a snapshot of waste in the Courthouse the procedure below was followed over a course of four days (two floors collected/day):

Prior to the day collected the Courthouse cleaning crew bagged and deposited in their office the trash from selected floors. Each bag from the selected floors was sealed with colored duct tape (a different color per day) and labeled with the date collected (see Appendix A). The bags were then picked up the next morning by KGMB and taken to their sorting facility located at 1331 W. Mt. Vernon Ave. Each bag was weighed prior to sorting. Contents of each bag were separated into trash and recyclable materials (aluminum, recyclable plastics, recyclable paper (cardboard and office paper separated), other recyclables) and all recyclable materials were weighed. Note that waste generated at the Courthouse café and coffee shop was excluded from the study.

The trash bags were collected from the Courthouse under the following schedule:

- | | |
|-------------------------------|---|
| • Thursday, February 20, 2014 | trash collected from floors 6 and 7 |
| • Friday, February 21, 2014 | trash collected from floors 4 and 5 |
| • Monday, February 24, 2014 | trash collected from floors 2 and 3 |
| • Tuesday, February 25, 2014 | trash collected from ground floor and 1 st floor |

Please see Appendix C - Trash Sort Form at the end of this report for an itemized listing of initial and final weights as well as a breakdown of recyclable materials found in each bag. Pictures are included at the end of the report as well.

Notes and Recommendations

- Evidence of adequate recycling participation at the Courthouse.
- Minimal trash being generated, further indication of adequate recycling.
- Minimal evidence of food being discarded.
- Several plastic items discarded were not recyclable due to non-acceptance of those commodities (such as plastic cups, coffee cups, food containers) for recycling. Acceptable recyclables at the Courthouse are #1, #2, #3, #4 and #5 per contract with Advanced Disposal.
- Discarded paper may be due to lack of recycling receptacles or disregard for recycling. Recommend increasing posters and recycling receptacles. Also consider marking trash bins with 'Goes to Landfill' stickers to emphasize the importance of recycling and reuse.
- Noted a significant amount of paper towels. At least half of all trash bags collected per floor contained a large amount of paper towel. Paper towels cannot be recycled, consume precious natural resources and use excessive landfill space. Consider eliminating paper towels by installation of electric hand dryers. A reduction in cost may be possible by adopting this action. Generally the initial cost of installation of a hand dryer and subsequent running costs are cheaper than the use of paper hand towels. The cost benefit of hand dryers vs. paper towels can be determined by using the following calculator tool:
http://www.americandryer.com/hand_dryers_vs_paper_towels.html.
- Highest percentage of recyclable material recovered on every floor was plastic bottles.
- Encourage use of combined recycling/trash receptacles in Courthouse offices (see Appendix B).



Recyclable Water Bottles Recovered from Trash

Results

After the end of collection, 354 lbs of trash was collected from the Courthouse. This represents one day's trash for the building. Of the 354 lbs collected, 105 lbs was recyclable material: aluminum, recyclable plastics, recyclable paper (cardboard and office paper separated) and other recyclables (29.7%).

While there wasn't an enormous amount of trash collected, there were a lot of misplaced items (recyclables) noted. The sample size was too small to extrapolate tonnage to cost savings and much of the recyclable material recovered from the trash was not a commodity that is marketable (i.e. water bottles), however there would be a significant reduction in the annual weight of trash collected which could result in fewer trash hauler pickups, and thus a potential cost savings, over the course of a year.

Below is a table with a breakdown of trash collected per floor along with an estimate of what would be collected per week, month and annually. The daily weight was multiplied by seven to estimate weekly rate, 30 to estimate monthly weight and 365 to estimate annual weight. The Courthouse generates an estimated 129,210 lbs. of trash annually.

Observed and Projected Trash – Milwaukee County Courthouse:

Floor	Daily Trash Collected (actual lbs)	Weekly Trash Collected (est lbs)	Monthly Trash Collected (est lbs)	Annual Trash Collected (est lbs)
Ground / 1st	111	777	3,330	40,515
2nd / 3rd	125	875	3750	45,625
4th / 5th	78	546	2,340	28,470
6th / 7th	40	280	1,200	14,600
TOTAL	354	2,478	10,620	129,210

Assuming the percentage of recyclables (29.7%) found in a day's worth of trash remains consistent, there would be an estimate of 38,375.4 lbs of recyclable material annually included in trash collection. Actual recyclables in the trash will reduce with education and easy access to recycle containers.

Appendix A

Trash bags collected from County Courthouse – sealed with duct tape and labeled with date and floor.





Initial Weight Determined

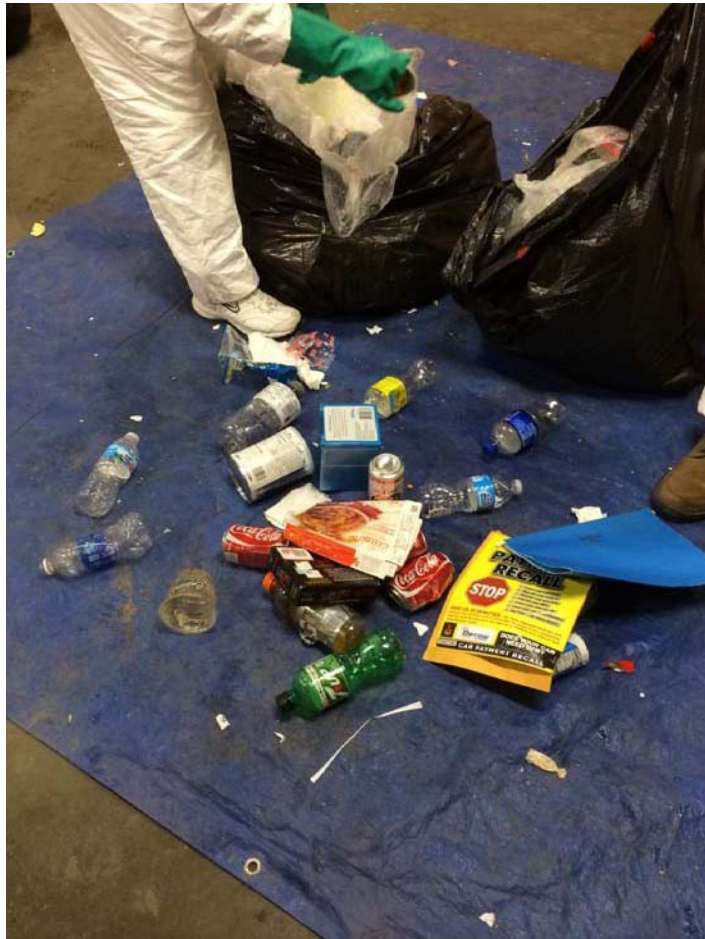


Sorting Through Trash



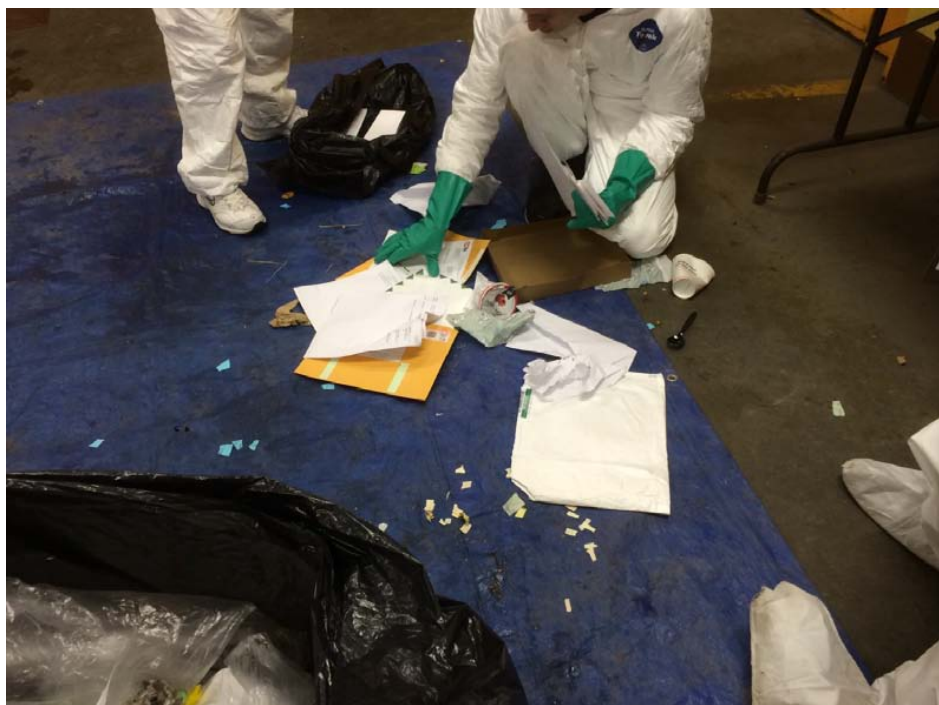






Sorting Recyclables







Odd Items Recovered



Appendix B



Receptacle with ample space for recycling (blue) and trash (black)

Appendix C - Trash Sort Form

Date	Location & Bag #	Initial Bag Weight (lbs)	Al (Soda Cans)	Plastic Containers (#1, #2, #4, #5)	Other Recyclables						Recycle Weight (lbs)/% of total
			Total Number	Total Number (bottle/cont ainer)	Office paper	News paper	Cardboard	Al Foil	Glass Bottle	Steel cans	
					Total Number	Total Number	Total Number	Total Number	Total Number	Total Number	
2/25/2014	G/1 - 1	9.0	3	1/4	21		5		1		1/11.1
2/25/2014	G/1 - 2	8.0	2	2/1	20		3	1	1		2.5/31.3
2/25/2014	G/1 - 3	1.5					5				0/0
2/25/2014	G/1 - 4	2.0		1/0	6		3				0.5/25.0
2/25/2014	G/1 - 5	5.5		3/1	19		8				1.5/27.3
2/25/2014	G/1 - 6	6.5	1	3/0	22		8			1	1/15.4
2/25/2014	G/1 - 7	5.0	2	1/6	10			3			1/20.0
2/25/2014	G/1 - 8	3.5	2	4/0							0.5/14.3
2/25/2014	G/1 - 9	11.0		6/6	4	2	4	2			1.5/13.6
2/25/2014	G/1 - 10	8.0									0/0
2/25/2014	G/1 - 11	10.5	1	4/0	10		6		1		2/19.0
2/25/2014	G/1 - 12	16.0	4	11/4	3		4				1.5/37.5
2/25/2014	G/1 - 13	7.0	1	2/1	10		7				0.5/7.1
2/25/2014	G/1 - 14	11.0	1	4/2	8		1				0.5/4.5
2/25/2014	G/1 - 15	6.5		1/1	25		1	1			1.5/23.1
Total		111.0	17	43/26	158	2	55	7	3	1	15.5/14.0

couple of bathroom bags - floors ground/1

lot of paper - floors 2/3

odd items: metal water bottle, xmas tree stand, bag of shredded paper, phone book, hard cover books - floors 2/3

Appendix C - Trash Sort Form

Date	Location & Bag #	Initial Bag Weight (lbs)	Al (Soda Cans)	Plastic Containers (#1, #2, #4, #5)	Other Recyclables						Recycle Weight (lbs)/% of total
			Total Number	Total Number (bottle/cont ainer)	Office paper	News paper	Cardboard	Al Foil	Glass Bottle	Steel cans	
					Total Number	Total Number	Total Number	Total Number	Total Number	Total Number	
2/24/2014	2/3 - 1	7.5	6	4/0	50		6				2/26.7
2/24/2014	2/3 - 2	2.0		1/1	22		1				0.5/25.0
2/24/2014	2/3 - 3	8.5	5	8/5	24		1			2	1/11.8
2/24/2014	2/3 - 4	3.5		1/0	49		1				1/28.6
2/24/2014	2/3 - 5	10.0	5	6/2	50		3				4/40.0
2/24/2014	2/3 - 6	8.0	2	4/1	8		6		1		1.5/18.8
2/24/2014	2/3 - 7	6.0		6/0	20		1				1.5/25.0
2/24/2014	2/3 - 8	6.0	3	5/0	80		5				2.5/41.7
2/24/2014	2/3 - 9	5.0	1	4/2	25	1	3	1			2/40.0
2/24/2014	2/3 - 10	19.0	2	4/1	180		10				14.5/76.3
2/24/2014	2/3 - 11	13.0			35	1	1				7.5/57.7
2/24/2014	2/3 - 12	2.0	1	0/1	10		3				1.5/75.0
2/24/2014	2/3 - 13	4.0		2/7	1		1				2/50.0
2/24/2014	2/3 - 14	9.5		4/2	18	1	1	1			5.5/57.9
2/24/2014	2/3 - 15	12.5	2	0/7	78		3		1	1	5/40.0
2/24/2014	2/3 - 16	8.5		0/2	14		3			6	0.5/5.9
Total		125.0	27	49/31	664	3	49	2	2	9	52.5/42.0

couple of bathroom bags - floors ground/1

lot of paper - floors 2/3

odd items: metal water bottle, xmas tree stand, bag of shredded paper, phone book, hard cover books - floors 2/3

Appendix C - Trash Sort Form

Date	Location & Bag #	Initial Bag Weight (lbs)	Al (Soda Cans)	Plastic Containers (#1, #2, #4, #5)	Other Recyclables						Recycle Weight (lbs)/% of total
			Total Number	Total Number (bottle/container)	Office paper	News paper	Cardboard	Al Foil	Glass Bottle	Steel cans	
					Total Number	Total Number	Total Number	Total Number	Total Number	Total Number	
2/21/2014	4/5 - 1	10.5	4	2/4	95	10	16	1	1		4/38.1
2/21/2014	4/5 - 2	9.0	3	1/1	3		4				3.5/38.9
2/21/2014	4/5 - 3	5.0	1	7/1	46		12		1		2/40.0
2/21/2014	4/5 - 4	5.0	1	0/1	14		2				3/60.0
2/21/2014	4/5 - 5	19.5		11/5	14		15				1/5.1
2/21/2014	4/5 - 6	19.0	3	10/5	6		4				11/57.9
2/21/2014	4/5 - 7	5.0	3	0/5	52		1				2.5/50.0
2/21/2014	4/5 - 8	5.0	7	38/0	32		2		1		1/20.0
Total		78.0	22	69/22	262	10	56	1	3	0	28.0/35.9
2/20/2014	6/7 - 1	7.5	5	6/0	8			1			1/7.7
2/20/2014	6/7 - 2	7.5	1	9/0	29		3				1.5/20.0
2/20/2014	6/7 - 3	2.0	1	3/2	8		1				0.5/25.0
2/20/2014	6/7 - 4	10.5	1	4/7	14		5	1	2	1	3.5/33.3
2/20/2014	6/7 - 5	8.0	1	2/0	29	2	11	1			1.5/18.8
2/20/2014	6/7 - 6	4.5		4/0	34						1/22.2
Total		40.0	9	28/9	122	2	20	3	2	1	9/22.5
Grand Total		354.0	75	189/88	1206	17	180	13	10	11	105/29.7
Recycle Wt Amt			2.5 lbs	4 lbs/unk	12 lbs	2 lbs	20 lbs	negl	2.5 lbs	0.5 lbs	

couple of bathroom bags - floors ground/1

lot of paper - floors 2/3

odd items: metal water bottle, xmas tree stand, bag of shredded paper, phone book, hard cover books - floors 2/3