

2006-2007 Missouri Waste Composition

MORA Conference

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Project Overview

- Missouri Department of Natural Resources Contract
- 15 locations sorted Fall 2006 and same 15 again in Spring 2007
- Summarize weights and volumes
- Compare results to 1996-1997 findings

Contracted Sorters



Keith & Janice Powell



Samples Collected

- MSW trucks, primarily residential packers

25 bags
from 8
loads at
each site
=
200 bags
sorted at
each event

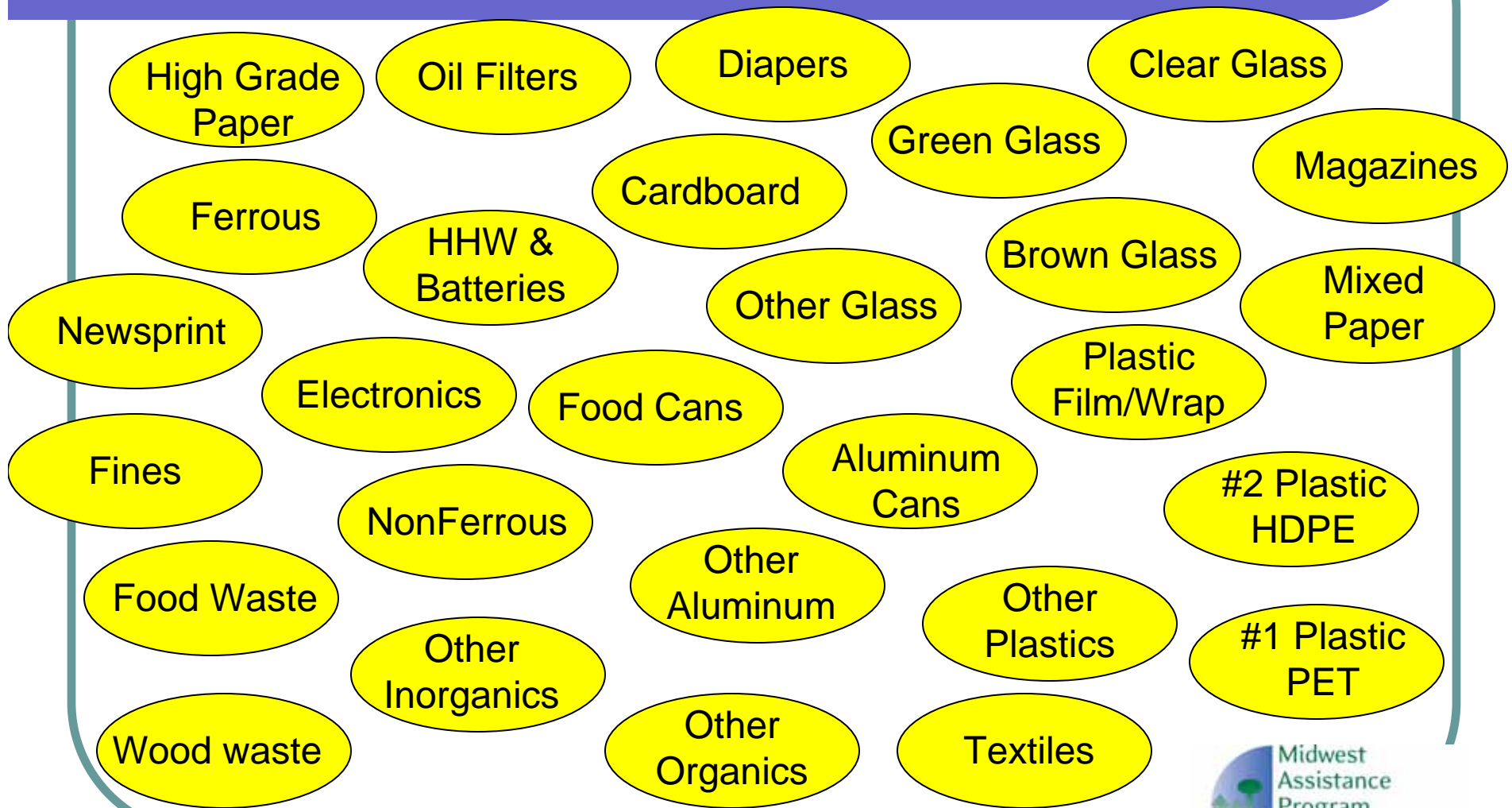




Sort conducted



28 Categories





04/04/2007

Location _____ Date _____ Sample # _____

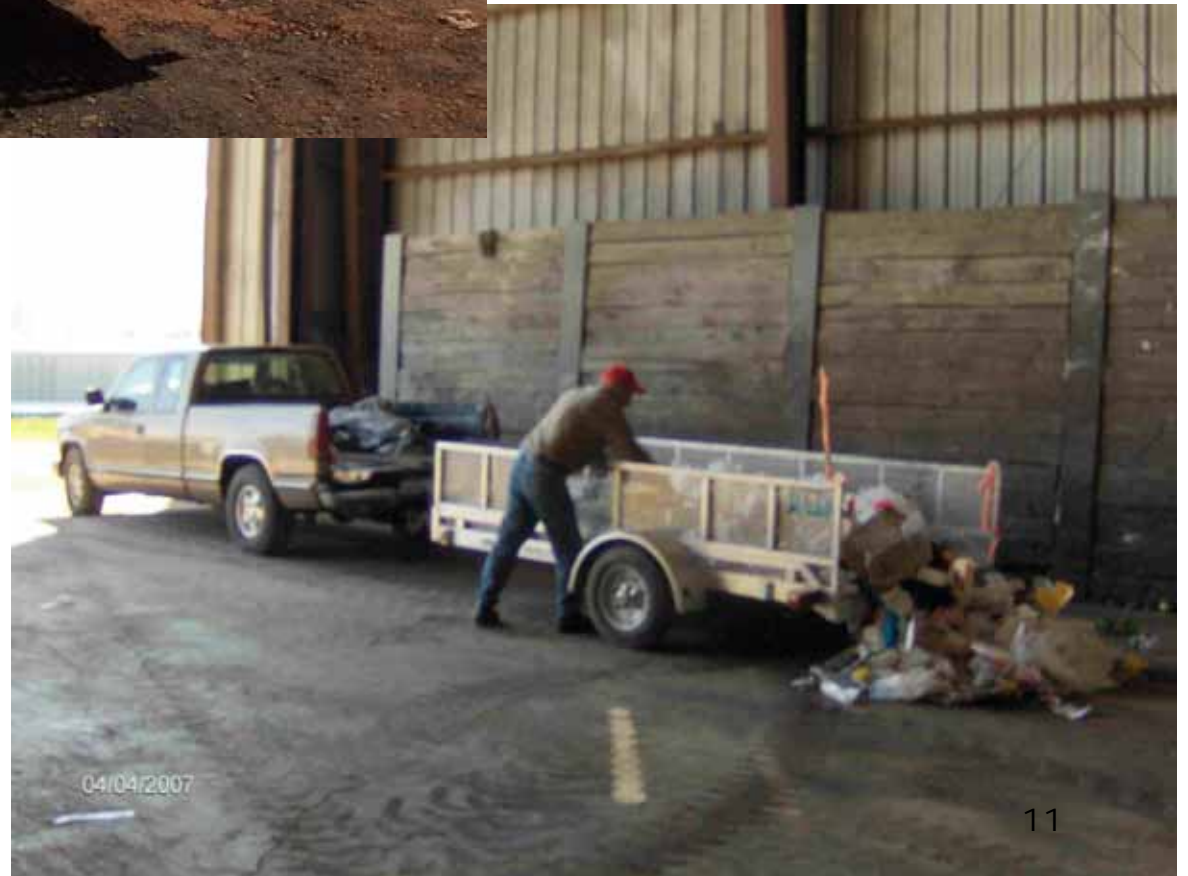
Truck # _____ Area Served _____ Comm.% _____ Res.% _____

	WT.	VOL.		WT.	VOL.		WT.	VOL.		WT.	VOL.		WT.	VOL.
Cardboard														
Newsprint														
Magazines														
High Grade Paper														
Mixed Paper														
Clear Glass														
Brown Glass														
Green Glass														
Other Glass														
Aluminum Cans														
Other Aluminum														
Non Ferrous														
Food Cans														
Ferrous														
Oil filters														
PET #1														
HPDE #2														
Plastic Film														
Other Plastic														
Food Waste														
Wood Waste														
Textiles														
Diapers														
Other Organics														
Fines														
Other Inorganics														
Household Haz. Waste														
Electronic Waste														

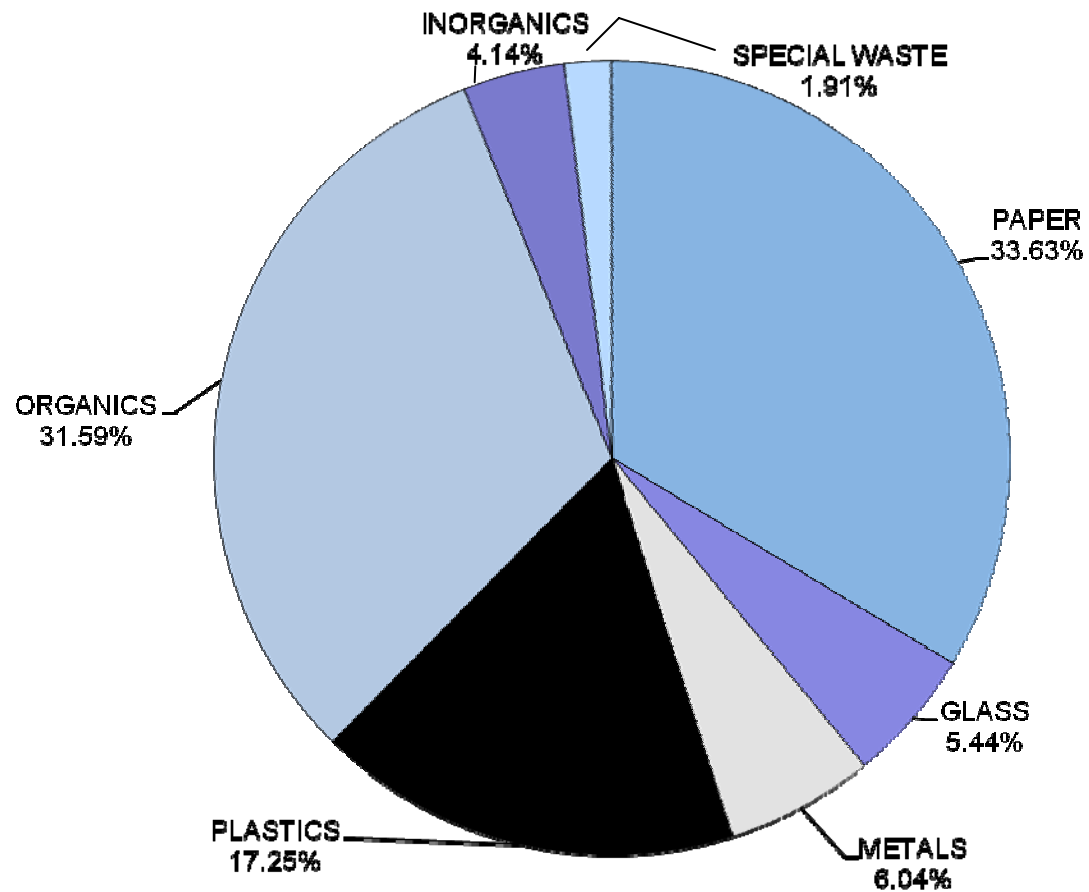


Return sorted material back to tipping floor or working face.

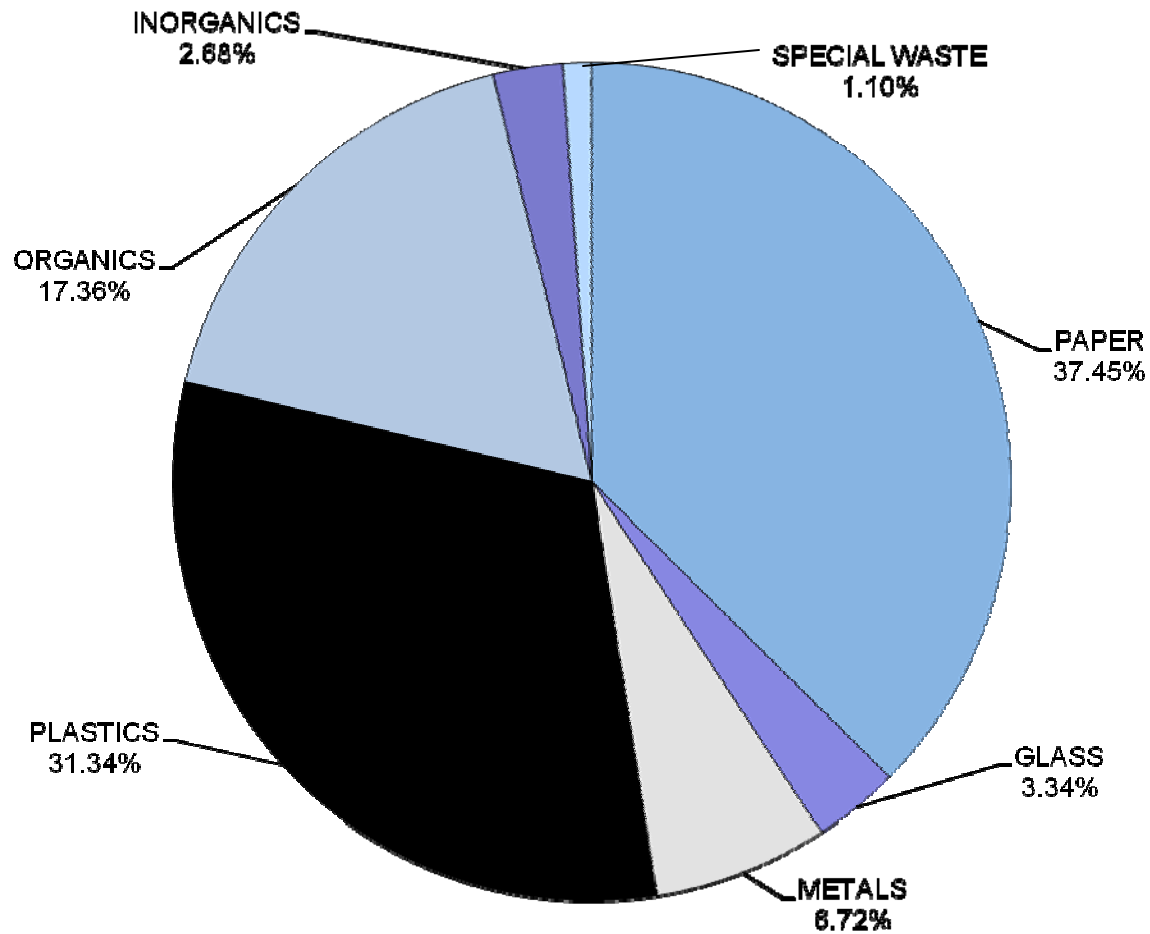
If recycling available at location, recycled materials clean enough, such as PET, HDPE, and Aluminum cans.



Results by Weight



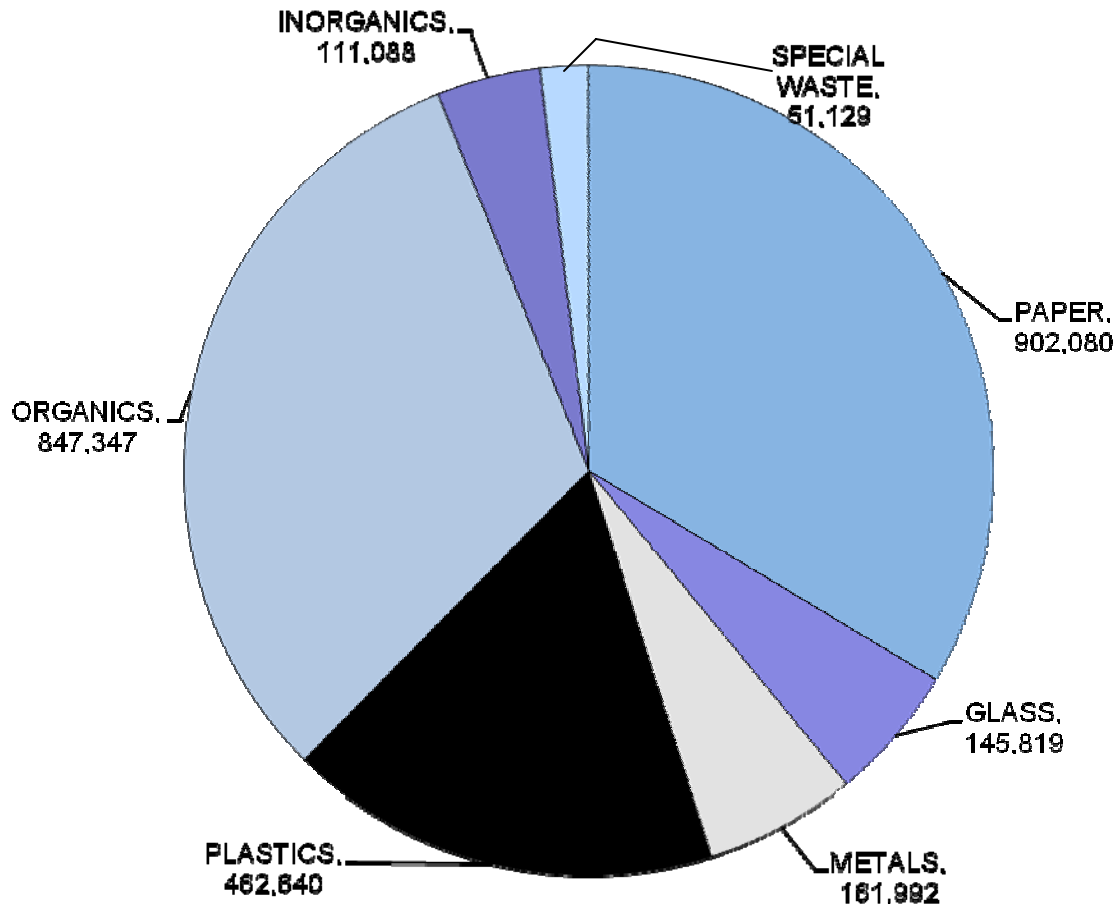
Results by Volume



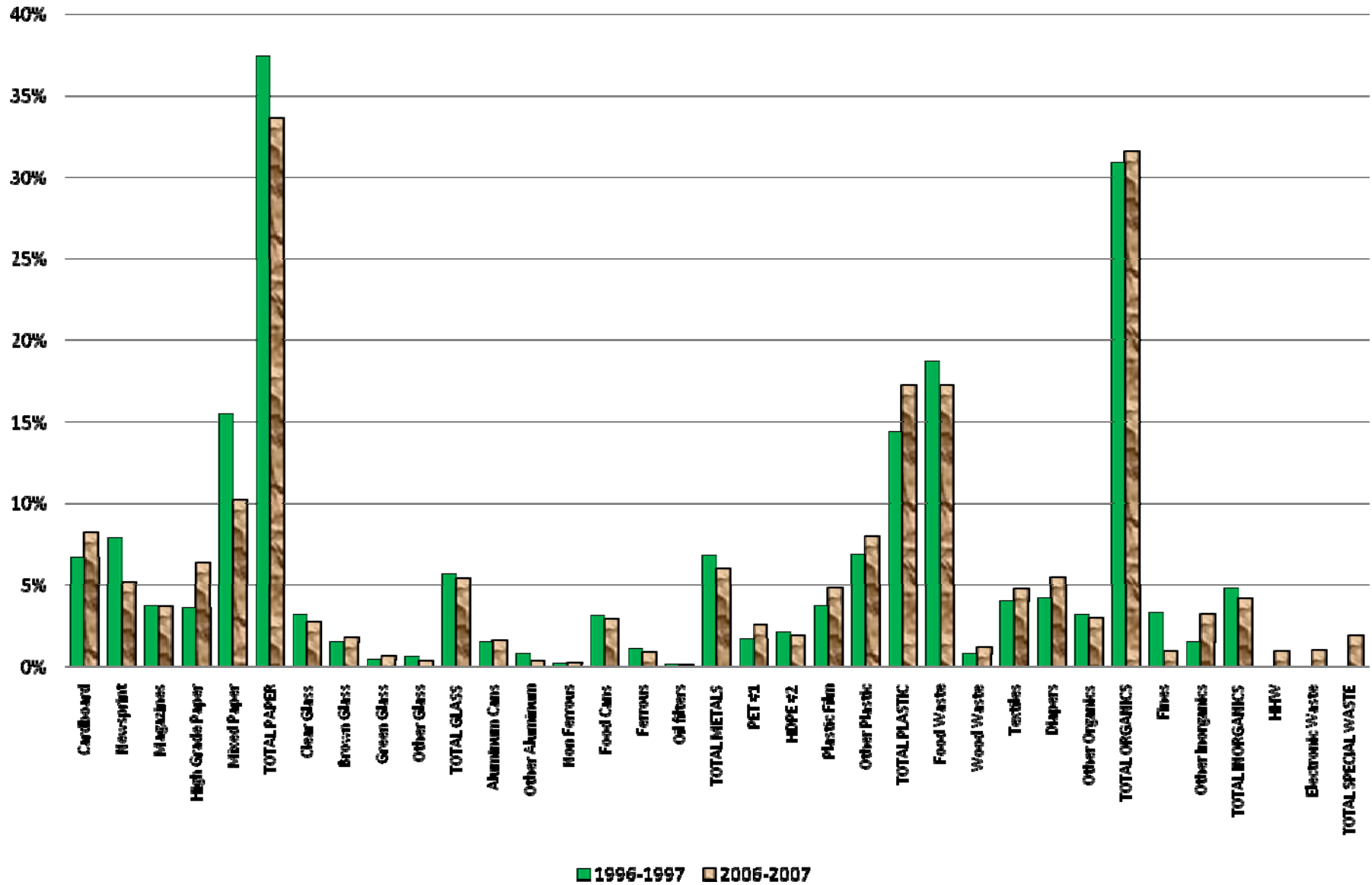
Waste Stream Data

- Tons of Waste Disposed in MO Landfills in 2006 = 4,500,160 (DNR)
- MSW % of Waste Stream as determined in 1999 Waste Composition Study = 59.6%
- Therefore, estimated MSW in 2006 = 2,682,095 tons

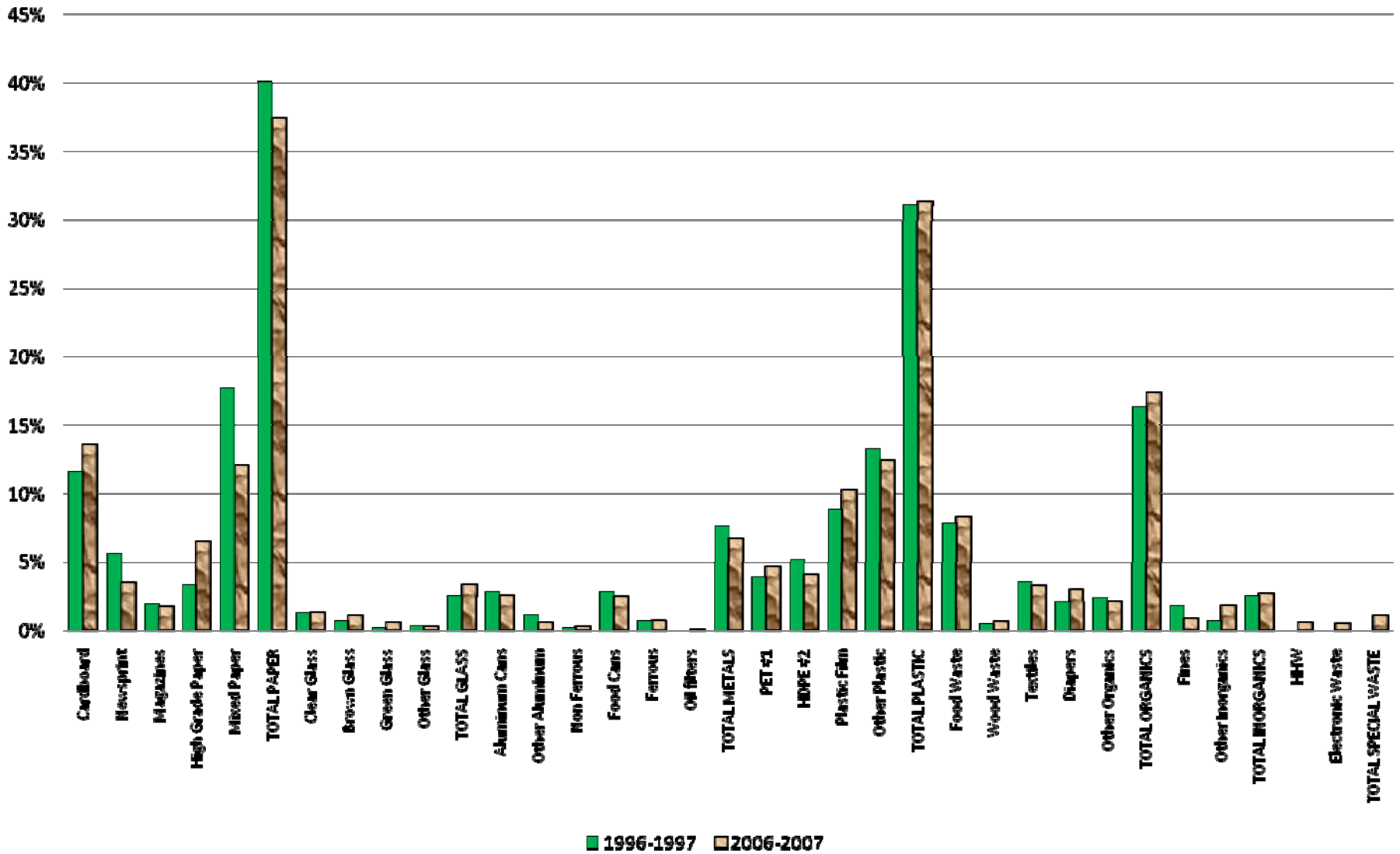
Results Applied to 2006 MSW Tonnage Disposed in MO Landfills



2006-2007 vs. 1996-1997 By Material as % of Weight (special waste not measured in 1996-1997)



**2006-2007 vs. 1996-1997 By Material as % of Volume
(special waste not measured in 1996-1997)**



Population Density Effect on Waste Composition

Large Metro

Courtney Ridge
(KC)

Lee's Summit

O'Fallon

St. Louis

Small Metro

Columbia

St. Joseph

Springfield

Rural

Macon

Maryville

Osage Beach

Pemiscot County

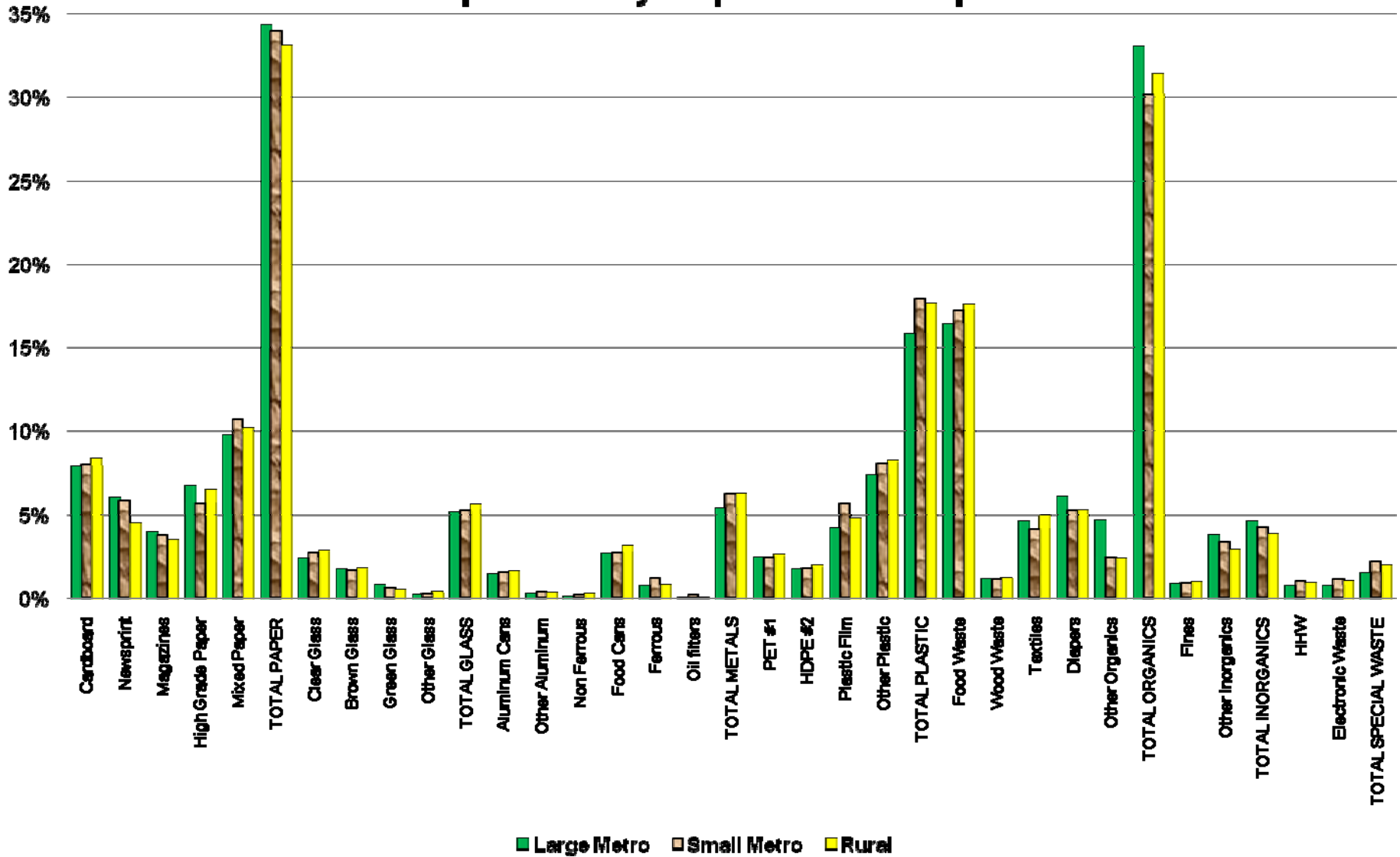
Phelps County

Reeds Spring

St. Francois
County

West Plains

Waste Composition by Population Groups



Overall Observations vs. 96-97

- Paper down – more recycling and...
 - More online reading
 - Smaller web width and lighter paper for production
- Electronics significant production & life cycle change
- Plastics – increase in society
 - On-the-go, single-serve
 - Bottled water and sports/energy drinks

Value of Recyclables in MSW

PAPER

	% of MSW by Wt.	Est. Tons/Yr.	Est. Value/Ton*	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
Cardboard	8.20%	220,013	\$ 82.00	\$ 18,041,066	\$ 8,917,127	\$ 26,958,192
Newsprint	5.17%	138,567				
Est. 50% Marketable as News#6		69,283	\$ 57.00	\$ 3,949,152	\$ 2,808,055	\$ 6,757,207
Est. 50% Marketable as News#8		69,283	\$ 83.50	\$ 5,785,162	\$ 2,808,055	\$ 8,593,217
Magazines (assume marketable as Mixed)	3.66%	98,249	\$ 59.50	\$ 5,845,818	\$ 3,982,034	\$ 9,827,852
High Grade Paper (assume marketable as SOP)	6.40%	171,587	\$ 137.00	\$ 23,507,379	\$ 6,954,409	\$ 30,461,789
Mixed Paper	10.20%	273,665				
Est. 70% Marketable		191,565	\$ 59.50	\$ 11,398,139	\$ 7,764,144	\$ 19,162,284
Est. 30% Compostable		82,099			\$ 3,327,490	\$ 3,327,490
TOTAL PAPER	33.63%	1,314,312		\$ 68,526,717	\$ 36,561,315	\$ 105,088,032

Value of Recyclables in MSW

GLASS

	% of MSW by Wt.	Est. Tons/Yr.	Est. Value/Ton*	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
Clear Glass	2.71%	72,797	\$ 27.50	\$ 2,001,920	\$ 2,950,466	\$ 4,952,386
Brown Glass	1.77%	47,480	\$ 16.00	\$ 759,685	\$ 1,924,376	\$ 2,684,060
Green Glass	0.63%	16,848	\$ 7.50	\$ 126,359	\$ 682,843	\$ 809,202
TOTAL GLASS	5.11%	137,125		\$ 2,887,963	\$ 5,557,685	\$ 8,445,648

Value of Recyclables in MSW

METAL FOOD & BEVERAGE CANS

	% of MSW by Wt.	Est. Tons/Yr.	Est. Value/Ton*	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
Aluminum Cans	1.59%	42,615	\$1,750.00	\$ 74,576,477	\$ 1,727,191	\$ 76,303,668
Food Cans	2.93%	78,698	\$ 194.50	\$ 15,306,828	\$ 3,189,644	\$ 18,496,471
TOTAL METALS	4.52%	121,313		\$ 89,883,305	\$ 4,916,835	\$ 94,800,140

Value of Recyclables in MSW

PLASTICS

	% of MSW by Wt.	Est. Tons/Yr.	Est. Value/Ton*	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
PET #1	2.55%	68,292	\$ 292.00	\$ 19,941,358	\$ 2,767,888	\$ 22,709,246
HDPE #2	1.90%	50,859				
Est. 70% Natural(Milk Jugs)		35,601	\$ 600.00	\$ 21,360,721	\$ 1,442,917	\$ 22,803,638
Est. 30% Color		15,258	\$ 348.00	\$ 5,309,665	\$ 618,393	\$ 5,928,058
Plastic Film	4.82%	129,242				
Est. can use 70% in extrusion market(no mkt \$)	3.37%	90,469			\$ 3,666,721	\$ 3,666,721
Other Plastics	7.99%	214,247				
Est. can use 70% in extrusion market(no mkt \$)	5.59%	149,973			\$ 6,078,398	\$ 6,078,398
TOTAL PLASTIC	13.41%	359,593		\$ 46,611,744	\$ 8,495,918	\$ 55,107,663

Value of Recyclables in MSW

ORGANICS

	% of MSW by Wt.	Est. Tons/Yr.	Est. Value/Ton*	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
Food Waste	17.22%	461,919			\$ 18,721,584	\$ 18,721,584
Other Organics	2.97%	79,554				
Est. 20% compostable(yard waste, plant trimmings)	0.59%	15,911			\$ 644,867	\$ 644,867
TOTAL ORGANICS	17.82%	477,830			\$ 19,366,451	\$ 19,366,451

Value of Recyclables in MSW

TOTAL – assuming diversion & marketed when applicable

	% of MSW by Wt.	Est. Tons/Yr.	Est. Marketed Value	Est. Avoided Landfill Fee**	Potential Savings/Year***
TOTAL	74.49%	2,410,174	\$ 207,909,729	\$ 74,898,204	\$ 282,807,933

Observations by Site

The results at each of the 15 sites was compared to 1996-1997 MSW sort data as well as compared to the 2006-2007 overall average.

The entire report including an Appendix for each site is available at

<http://www.dnr.mo.gov/env/swmp/rrr/rrr.htm>



What's Next?

2008 Missouri Waste Composition Study

Phase II - DNR contract Summer 2008

Study of ENTIRE waste stream to determine breakdown between MSW, Construction, Demolition, Industrial, Other & Special Wastes

Questions?



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