

Organic Waste Management Trends In The Northeast States

Nora Goldstein, Editor

BioCycle

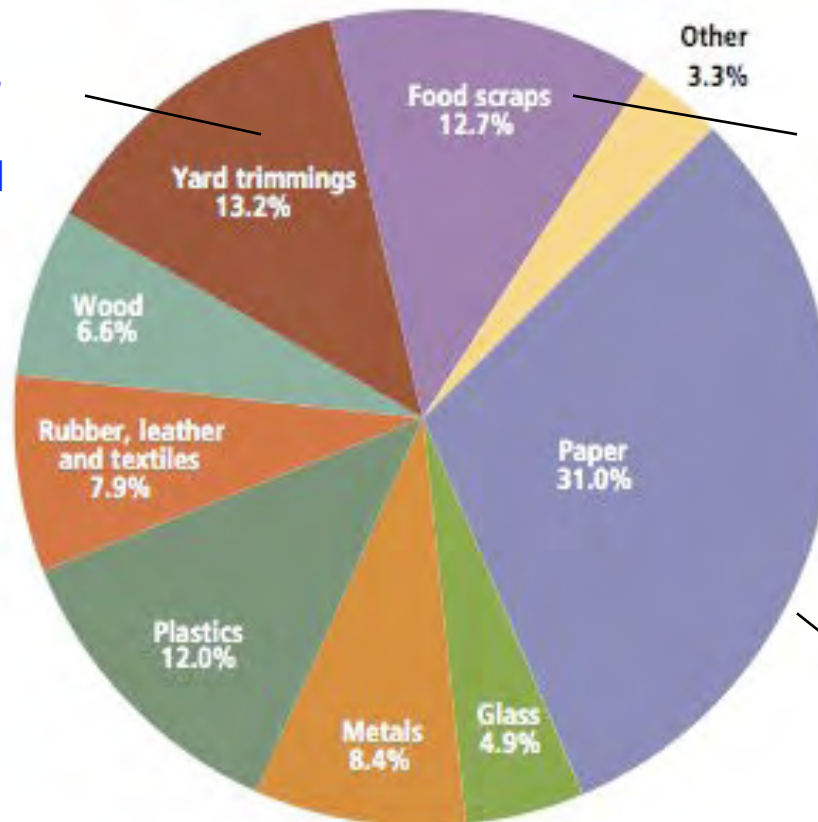
www.biocycle.net

Options For Organic Waste Management

- **Destiny of Organics, if not Disposal**
- **Current MSW Management In Northeast States**
- **Benefits Of Compost Use**
- **Processing Infrastructure — Is there a capacity shortage?**
- **MSW Management Realities**

Figure 5. Total MSW Generation (by material), 2008
250 Million Tons (before recycling)

•32.9 million tons generated:
•64.7% recovered

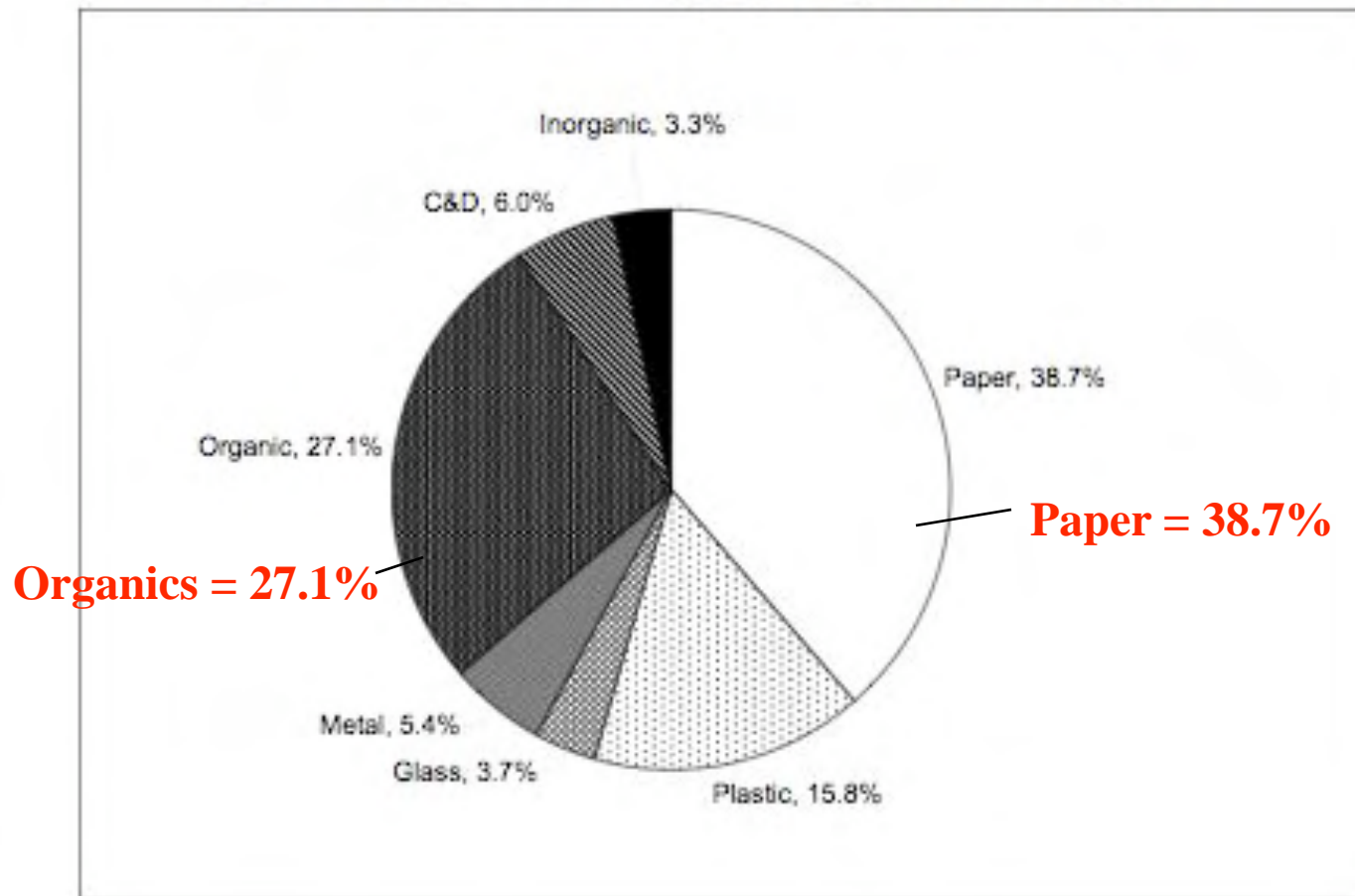


•31.8 million tons gen.
•2.5% recovered

•77.5 million tons gen.
•55.5% recovered

Source: USEPA 2008 MSW FACTS AND FIGURES REPORT

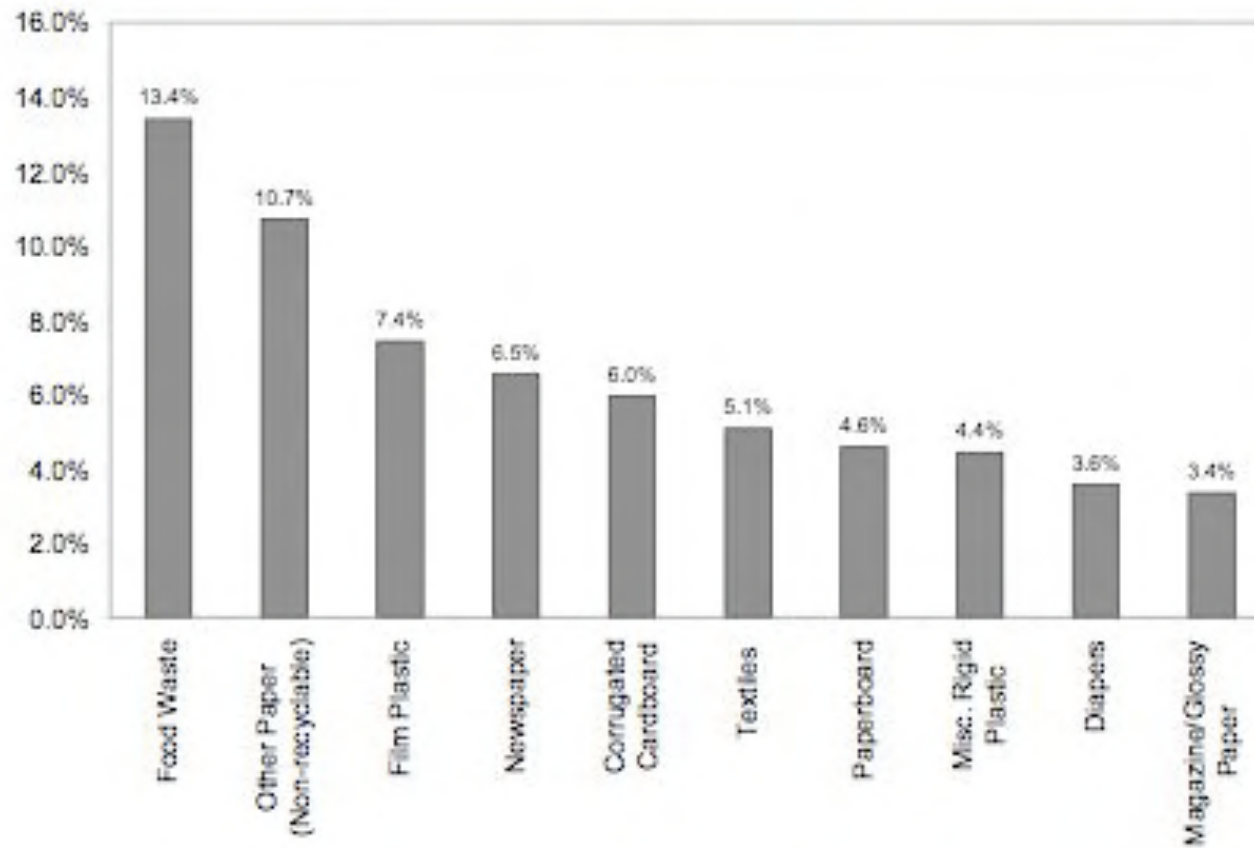
Figure 4-1 Georgia Statewide Aggregate Disposed MSW Composition



2005 State of Georgia Data

**2008 National:
Organics: 25.9%
Paper: 31%**

Figure 4-6 Top 10 Most Prevalent Materials in Georgia Residential Waste

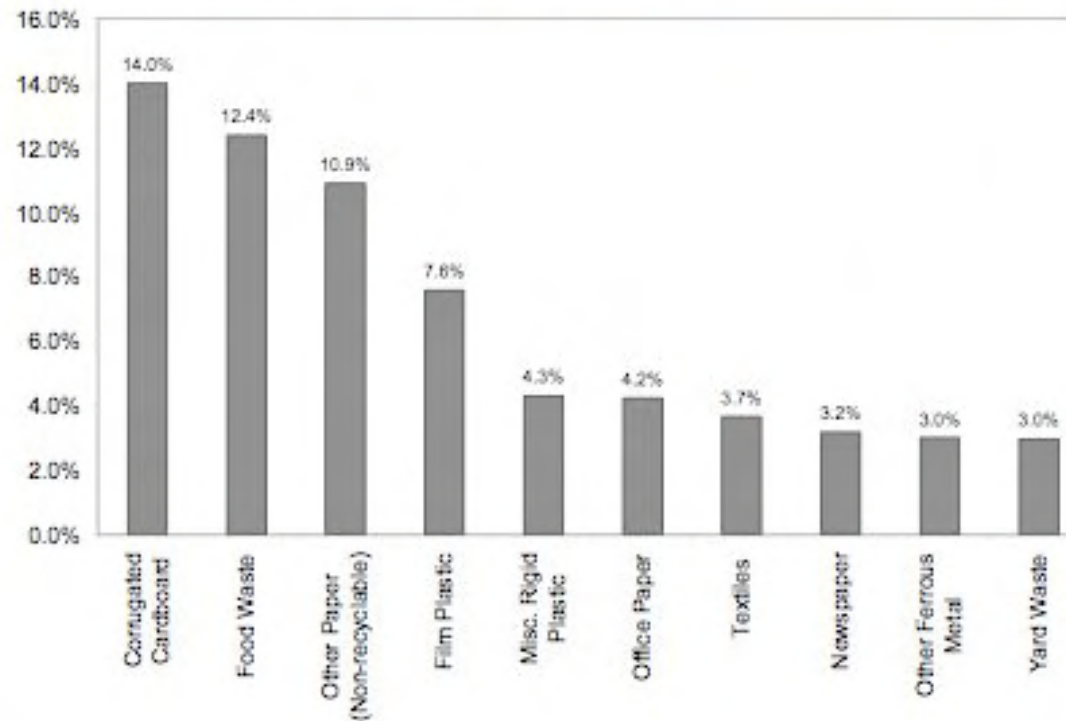


Residential Stream:

#1 = Food Waste = 13.4%

#2 = Other Paper = 10.7%

Figure 4-7 Top 10 Most Prevalent Materials in Georgia Commercial Waste



Commercial Stream:

#1 = Corrugated = 14%

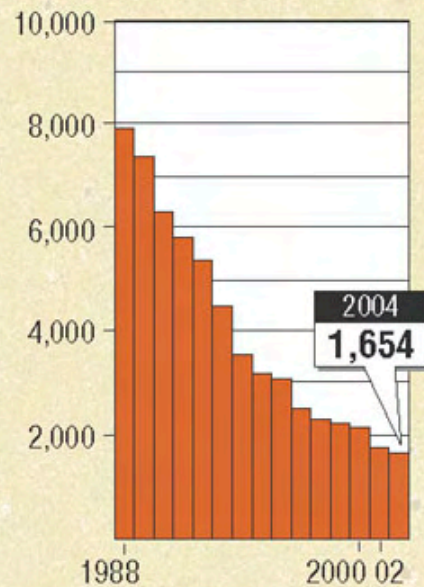
#2 = Food waste = 12.4%

Table 1. State of Garbage in America survey data 1989–2006: Reported and estimated MSW generation and rates of MSW recycling, waste-to-energy and landfilling¹

<i>Year Of Data</i>	<i>Reported MSW Generation² (tons/yr)</i>	<i>Estimated MSW Generated³ (tons/yr)</i>	<i>MSW Recycled⁴ (%)</i>	<i>MSW Waste-To-Energy (%)</i>	<i>MSW Landfilled (%)</i>
1989	269,000,000		8.0	8.0	84.0
1990	293,613,000		11.5	11.5	77.0
1991	280,675,000		14.0	10.0	76.0
1992	291,472,000		17.0	11.0	72.0
1993	306,866,000		19.0	10.0	71.0
1994	322,879,000		23.0	10.0	67.0
1995	326,709,000		27.0	10.0	63.0
1996	327,460,000		28.0	10.0	62.0
1997	340,466,000		30.0	9.0	61.0
1998	374,631,000		31.5	7.5	61.0
1999	382,594,000		33.0	7.0	60.0
2000	409,029,000		32.0	7.0	61.0
2002	—	369,381,411	26.7	7.7	65.6
2004	—	387,855,461	28.5	7.4	64.1
2006	—	413,014,732	28.6	6.9	64.5

¹2002, 2004 and 2006 estimated MSW Generated, MSW Recycled, WTE and Landfilled have been adjusted to exclude non-MSW. ²Reported MSW Generation is reported values calculated by BioCycle prior to collaboration with Columbia University and use of current methodology. ³Estimated MSW Generated is sum of MSW Recycled, WTE and Landfilled. ⁴ MSW Recycled includes composting and recycling.

Landfills



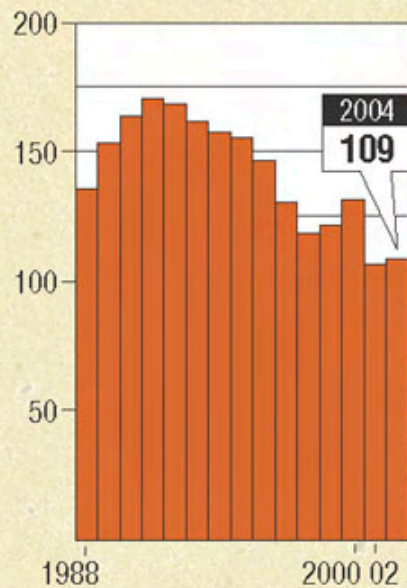
Landfills:

1988: 8,000

2004: 1,654

2006: 1,831

Waste-To-Energy



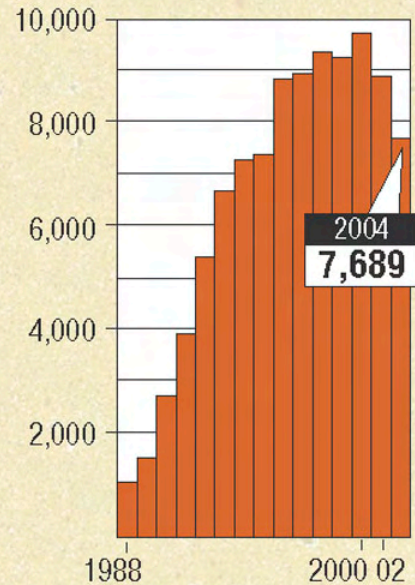
WTE:

2004:101

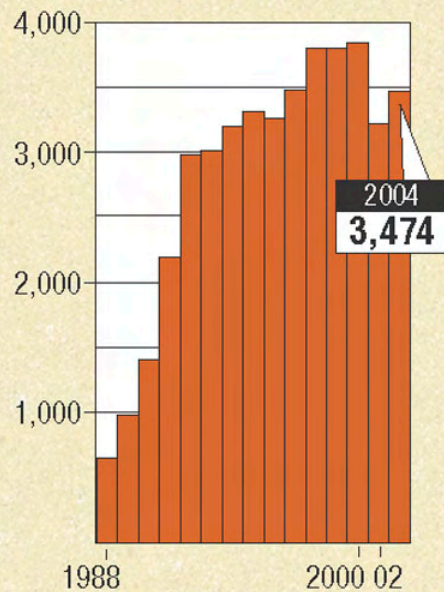
2006: 103

BioCycle, 2006, The State of Garbage In America

Curbside Programs



Yard Trimmings Facilities



Yard Trimmings Composting Sites:
3,474 in U.S. (2004)
2006: No national total available

BioCycle, 2006, The State of Garbage In America

2008 State of Garbage In America data for Northeast States (2006 data)

State	% Recyc/ Compost	% Landfilled	% WTE	# of landfills	Adding capacity?	Capacity left	# of WTE plants
Conn.	24.7	11.1	64.2	2	No	3 yrs	6
Maine	31.9	35.9	32.2	12	No	16.8 million cy	4
Mass.	37.2	29.0	33.8	18	No	2.5 million cy	7
New Hampshire	32.0	51.7	16.3	9	No	33.5 mill. tons	2
New Jersey	34.5	54.5	11.0	12	Yes	n/a	5
New York	35.5	48.4	16.1	27	Yes	153 mill. tons	10
Rhode Island	12.4	87.0	.5	2	Yes	n/a	0
Vermont	35.7	57.0	7.3	4	No	n/a	0
				5% of U.S. landfills	33% of WTE plants		





AUG 19 2004



Pythium root rot on creeping bentgrass



No compost



With 20% compost

THE SUSTAINABLE SITES INITIATIVE™



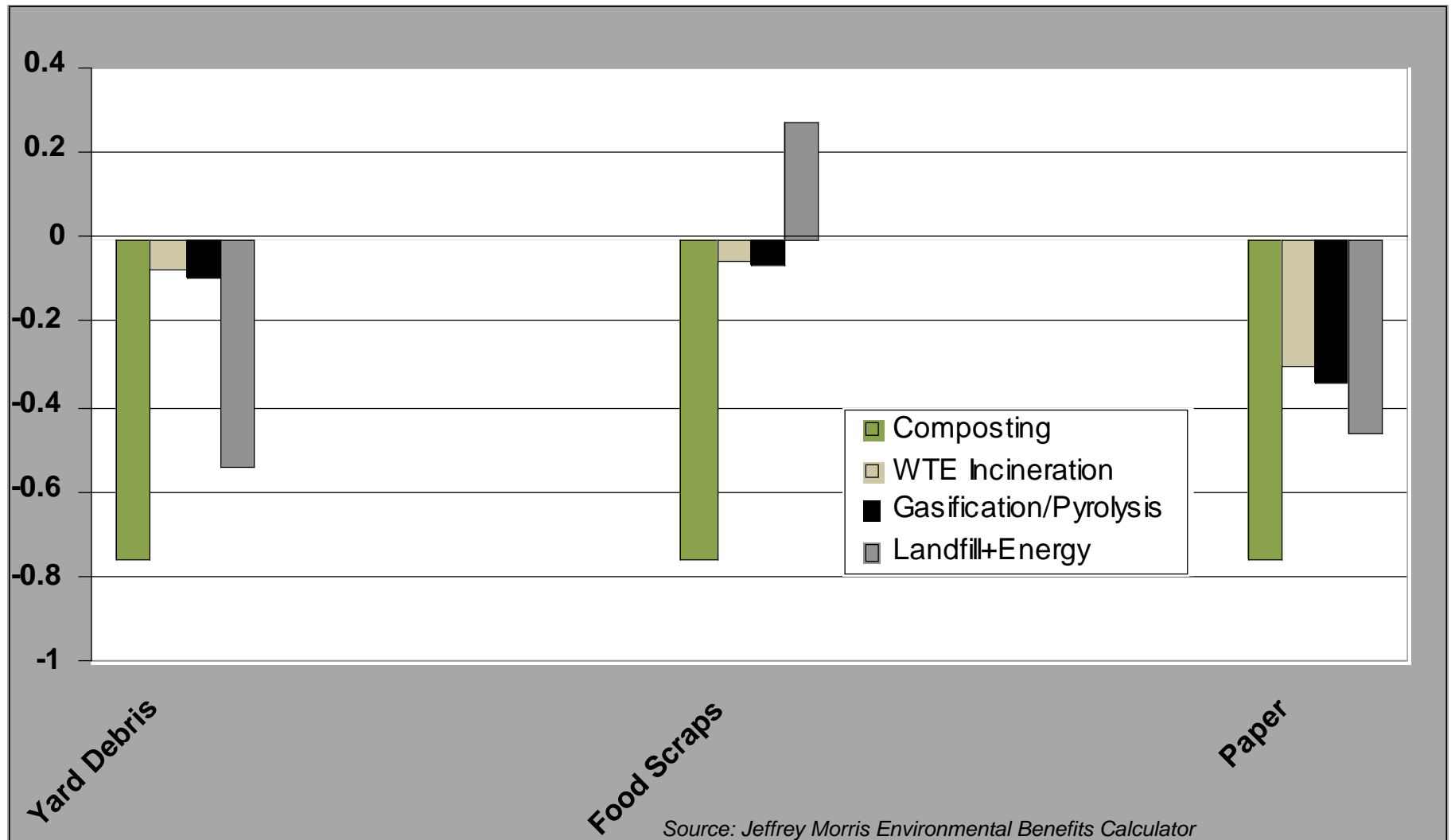
www.sustainablesites.org



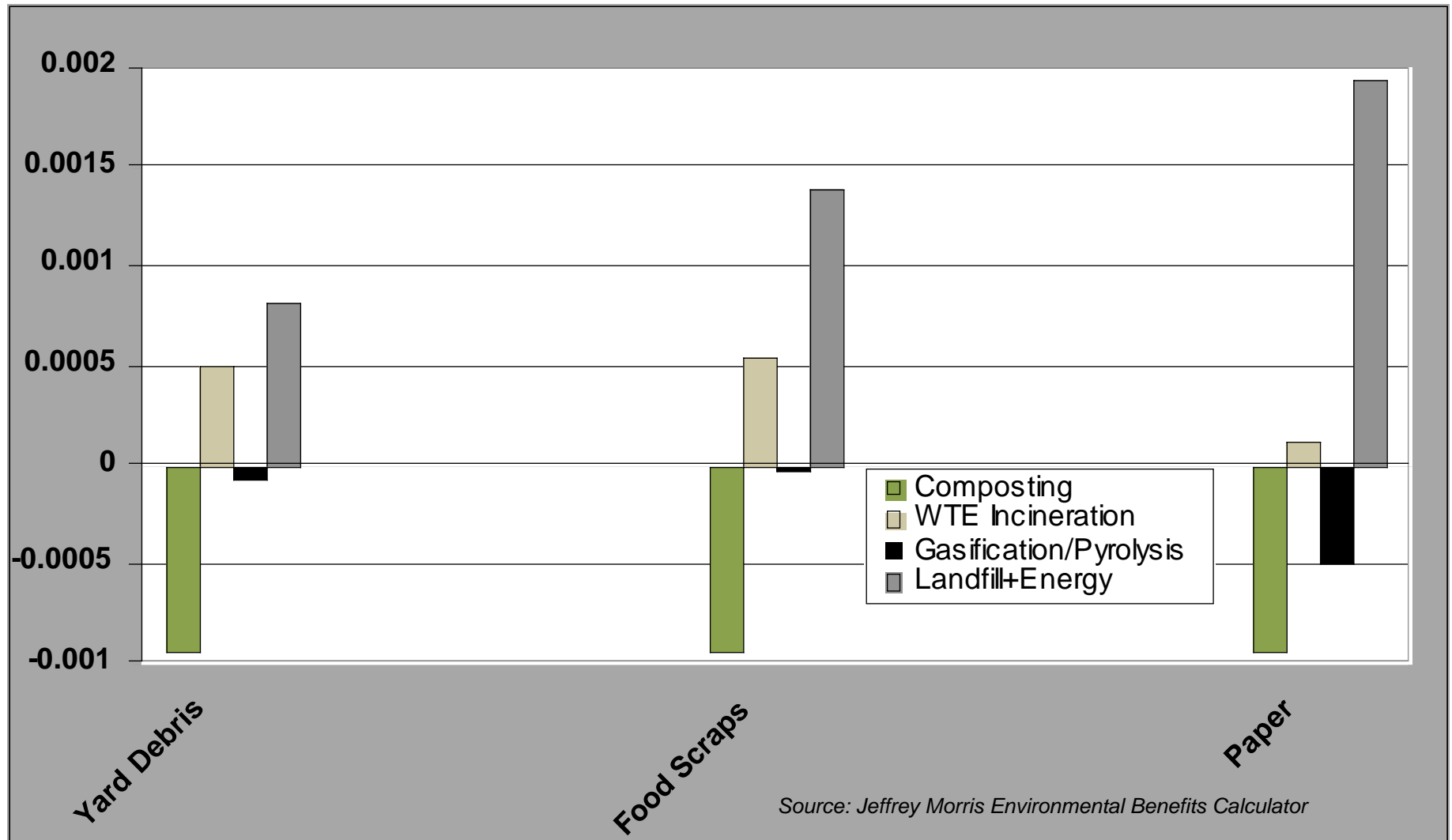
Combined Sewer Overflows



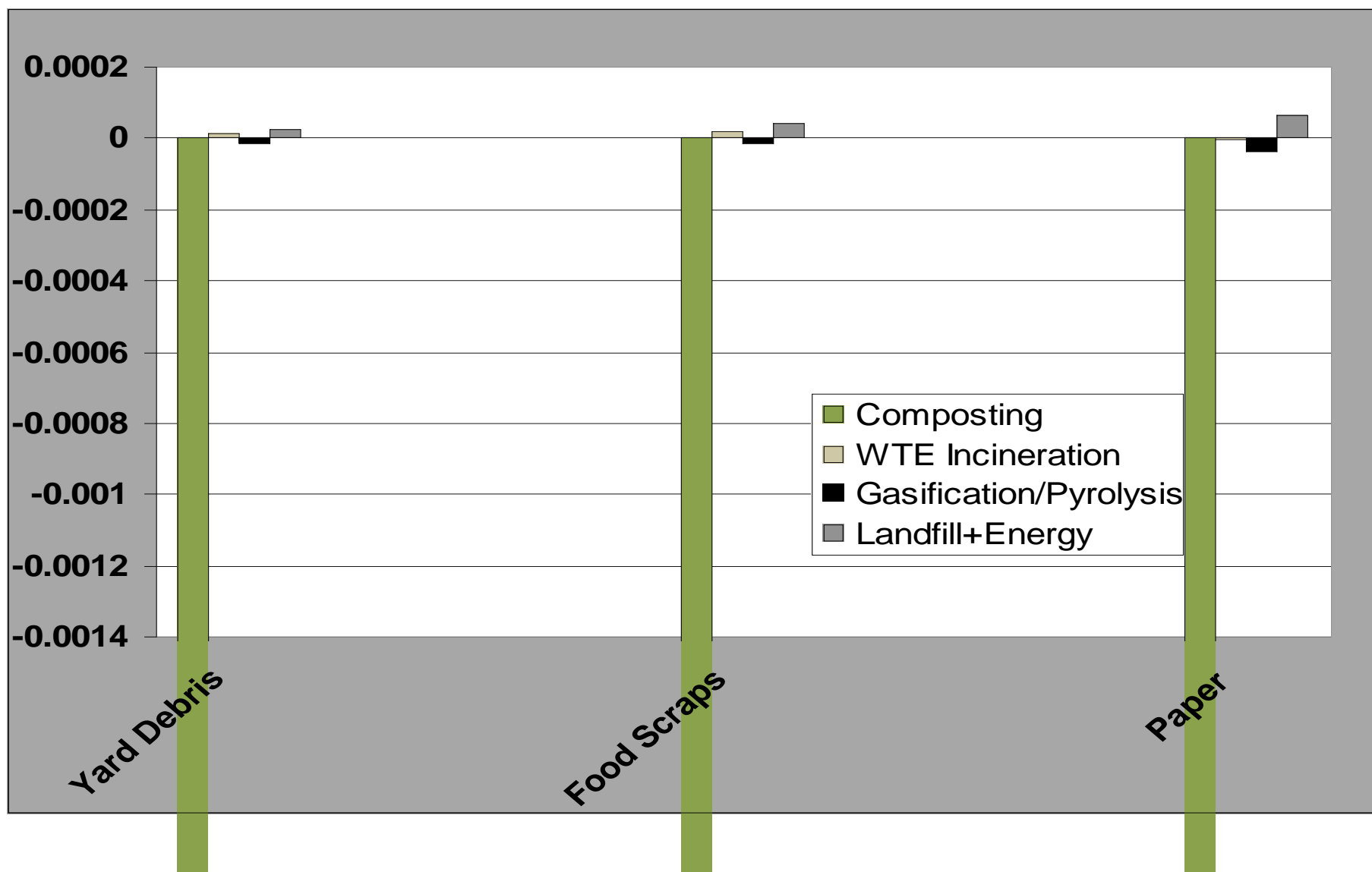
CO2 Emissions: Composting vs. Disposal (tons eCO2/ton)



Acidifying Emissions: Composting vs. Disposal (tons eSO₂/ton)

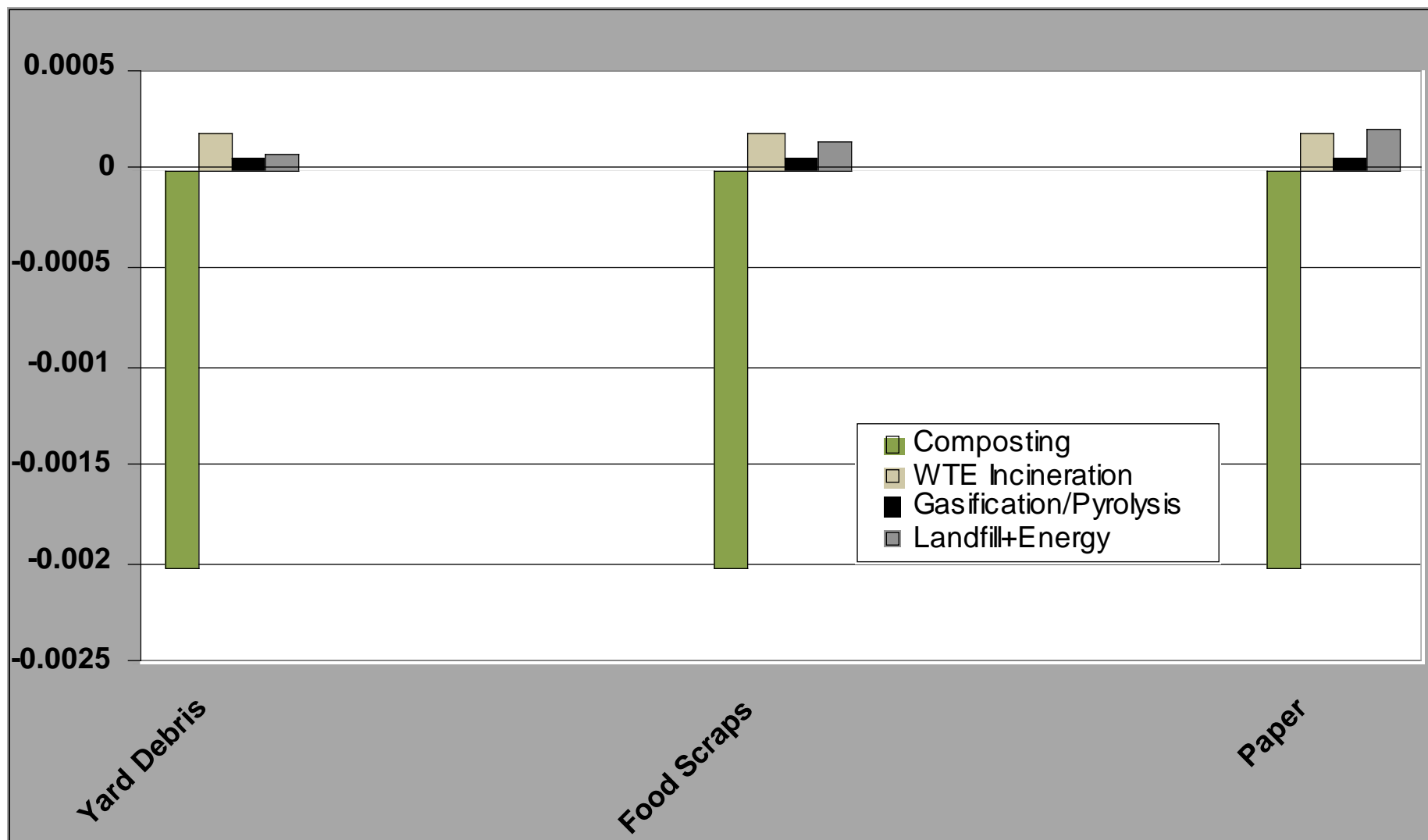


Eutrophying Emissions: Composting vs. Disposal (tons eN/ton)



Source: Jeffrey Morris Environmental Benefits Calculator

EcoToxics Emissions: Composting vs. Disposal (tons e2,4-D/ton)



Source: Jeffrey Morris Environmental Benefits Calculator

Value of Pollution Reductions

LCA Impact	Economic Cost (US\$/ton)
Climate Change	\$36 eCO ₂
Human Health - Particulates	10,000 ePM _{2.5}
Human Health - Toxins	118 eToluene
Human Health - Carcinogens	3,030 eBenzene
Ecosystems Toxics	3,280 e2,4D
Acidification	661 eSO ₂
Eutrophication	4 eNitrogen

Source: Jeffrey Morris Environmental Benefits Calculator

Value of Pollution Reductions from Recycling & Composting

Discard Type	Environmental Value (US\$/ton)
Newspapers	\$328-332
Cardboard	424-449
Mixed Paper	156-178
Glass Containers	53-54
PET Plastics	578-646
HDPE Plastics	202-279
Other Plastics	202-279
Aluminum Cans	1,456
Ferrous Cans & Scrap	14-63
Food Scraps	59-97
Yard & Garden Debris	58-67
Compostable Paper	49-71

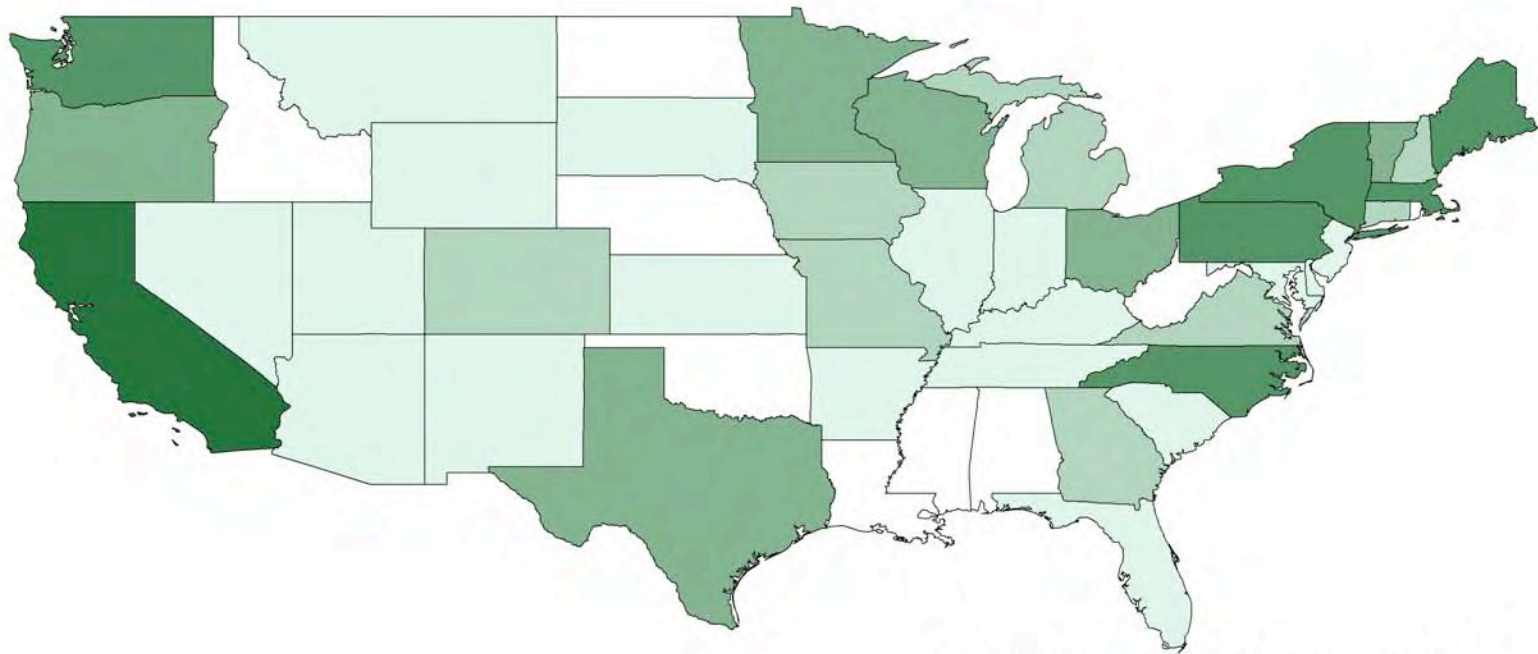
Source: Jeffrey Morris Environmental Benefits Calculator

True Costs Associated with Managing Organic Waste in Region of Niagara, Ontario, Canada (Cdn\$\$/metric ton)

	Compost Green Waste only	Compost Food Waste	Landfill Gas Recovery Flare	LGR Elec.	EFW Low	EFW High	EFW Best case
Operations Cost/ton	33.83	81.77	82.93	69.00	102.00	168.00	88.00
Environ. Benefit/Ton	49.59	49.59	7.79	19.63	25.28	25.28	25.28
True Cost/ton	(15.76)	32.18	75.14	49.37	76.72	142.72	62.72

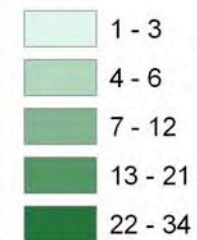
<http://www.regional.niagara.on.ca/news/2008/pdf/jan21Study.pdf>

Food Waste Composting Facilities



Food Waste Composting Facilities

Totals



Data courtesy of Biocycle Magazine 2008

Yard Trim, Food Waste Composting Infrastructure In Northeast States—2008 data

State	Yard Trim Compost*	FW – Farms	FW - Commercial	FW – Municipal	FW – Univ./ colleges
Conn.	95	2	1	-	2
Maine	80	5	2	1	6
Mass.	223	7	5	-	5
New Hampshire	25	-	2	2	2
New Jersey	172	-	1	1	1
New York	35	2	4	-	8
Rhode Island	15	-	-	-	-
Vermont	12	4	2	1	2

*2004 data from State of Garbage In America

Food Waste Data: 2008 BioCycle survey of Food Waste Composting Infrastructure

Municipal Solid Waste Composting in Northeast States

State	Mixed Waste Composting	Residential FW Composting
Massachusetts	2	2 (total of 212 HH)
New York	1	1 (drop off)
Vermont	0	1 (drop off)

Source: 2009 BioCycle National Surveys (November and December)



Delaware County, NY
-120 tons/day (35,000 tpy)
-6,700 tons/year of biosolids
-Conporec/S&W Services



Ag Choice, Andover, NJ





Rocky Hill Farms, Massachusetts





Fergus Falls, Minnesota Wastewater Treatment Plant



**Fepro Farms
Cobden, Ontario**



Give us **5**
minutes.

We'll put your
compost site
on the map.

Join BioCycle's www.findacomposter.com.

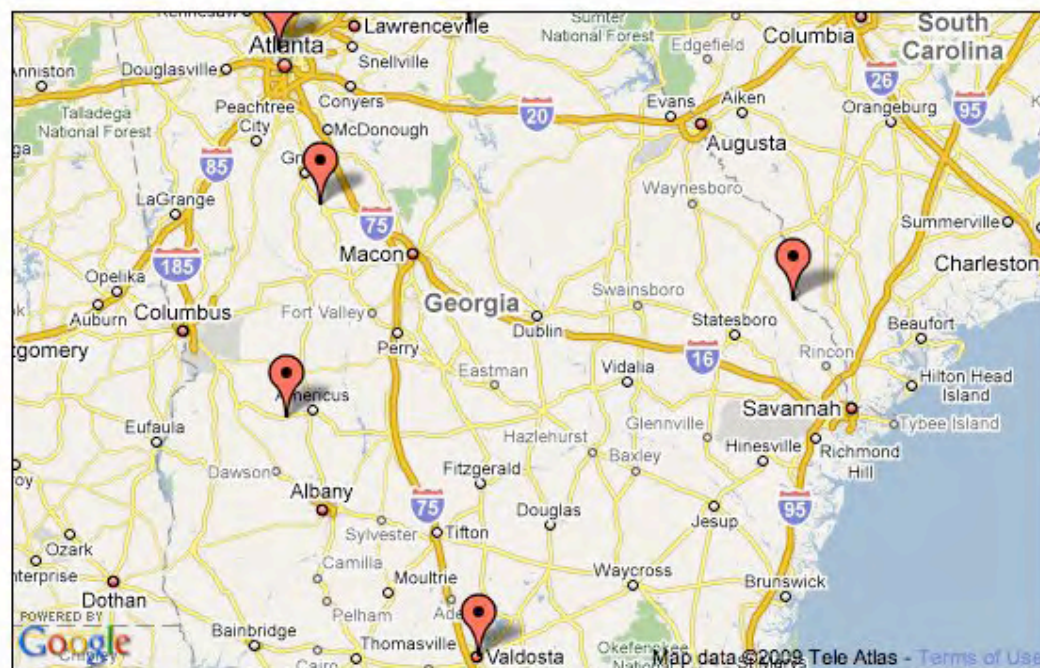
Your searchable data base of
composting facilities in North America.

Get linked to organics generators
and compost buyers today.

findacomposter.com



entries found.



Organization Name	City	State or Province	Postal/Zip code	URL of the organizations website
Back To The Garden Inc.	Athens	Georgia	30605	
City Of Valdosta Public Works	Valdosta	Georgia	31601	
Community Environmental Management Inc	Atlanta	Georgia	30327	
Erth Products, Llc	Plains	Georgia	31780	www.earthproducts.com
Greenco	Barnesville	Georgia	30204	www.greencoenvironmental.com
Longwood Plantation	Newington	Georgia	30446	www.longwood-plantation.com

Composting Operation Description *

If you selected Other, please specify

Yard trimmings site that accepts food residuals

Facility Ownership

If you selected Other, please specify

Municipally-owned

Regulatory Status *

If you selected Other, please specify

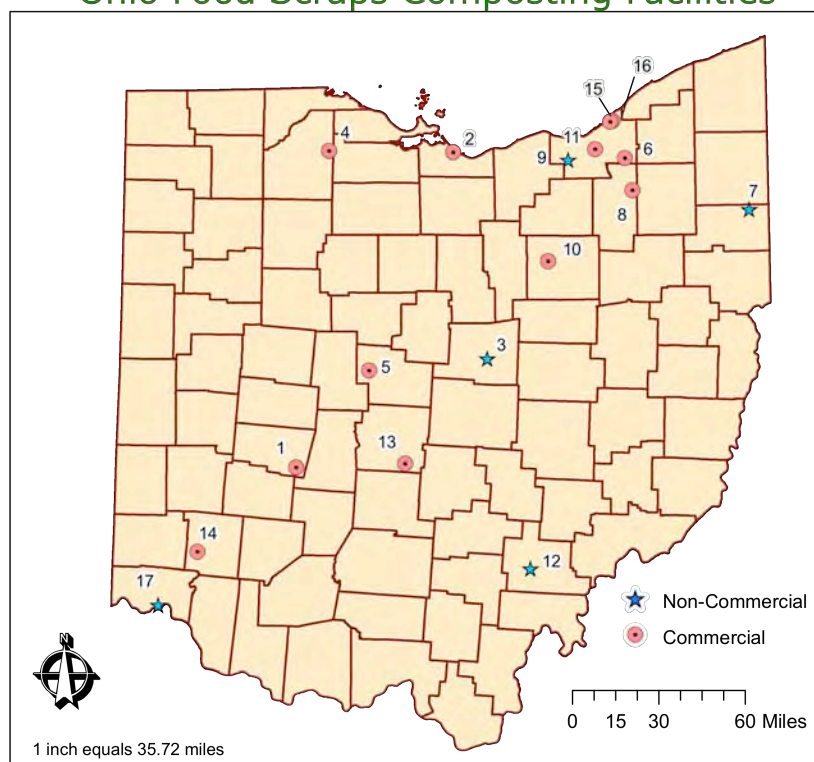
- ☐ Solid waste facility permit
- ☐ Permitted to accept source separated preconsumer only
- ☐ Permitted to accept source separated preconsumer and postconsumer food residuals only
- ☐ Biosolids composting permit
- ☐ Permit by rule
- ☐ Agriculture exemption
- ☐ On-Site composting exemption
- ☐ Other

Agricultural

- ☐ Cotton
- ☐ Crop fodder
- ☐ Crop residuals
- ☐ Feathers
- ☐ Hay Bales
- ☐ Manure - Aquaculture solids
- ☐ Manure - Dairy
- ☐ Manure - Horse
- ☐ Manure - Poultry
- ☐ Manure - Zoo animal
- ☐ Mortalities
- ☐ Mushroom waste/compost

Food	<input type="checkbox"/> Bones <input type="checkbox"/> Butcher residuals <input type="checkbox"/> Coffee grounds <input type="checkbox"/> Dairy <input type="checkbox"/> Fats, Oils, Grease (FOG) <input type="checkbox"/> Food processing wastes (commercial/industrial) <input type="checkbox"/> Grocery store <input type="checkbox"/> Liquids (not FOG) <input type="checkbox"/> Municipal Solid Waste (mixed) <input type="checkbox"/> Postconsumer <input type="checkbox"/> Preconsumer - Non-Vegatative <input type="checkbox"/> Preconsumer - Vegetative only <input type="checkbox"/> Residential food waste <input type="checkbox"/> Seafood <input type="checkbox"/> Special Events <input type="checkbox"/> Vegetable Oil
Paper And Compostable Products	<input type="checkbox"/> Compostable bags <input type="checkbox"/> Compostable serveware <input type="checkbox"/> Food soiled paper <input type="checkbox"/> Mixed paper <input type="checkbox"/> Office paper <input type="checkbox"/> Papermill waste <input type="checkbox"/> Un-waxed cardboard <input type="checkbox"/> Waxed cardboard
Yard trimmings And Wood Waste	<input type="checkbox"/> Branches <input type="checkbox"/> Brush <input type="checkbox"/> Construction & Demolition <input type="checkbox"/> Forestry slash <input type="checkbox"/> Grass <input type="checkbox"/> Greenhouse debris <input type="checkbox"/> Land clearing debris <input type="checkbox"/> Leaves <input type="checkbox"/> Logs <input type="checkbox"/> Sawdust <input type="checkbox"/> Stumps <input type="checkbox"/> Three dimensional lumber

Ohio Food Scraps Composting Facilities



Facility Contact Information

- | | | | |
|--|---|---|---|
| 1. Paygro
11000 Huntington Rd. B
South Charleston, Ohio 45368
(937) 462-8350 | 6. Cuyahoga Composting Facility
8640 Cochran Rd.
Solon, OH 44139
(440) 498-5700 | 11. Rosby Resource Recycling
54 E. Schaeff Rd.
Brooklyn Heights, OH 44131
(216) 661-6102 | 16. Utilities & Equipment Supply Co.
16569 St. Clair Ave.
Cleveland, OH 44110
(216) 670-6288 |
| 2. Barnes Nursery Inc
1630 Camp Rd.
Huron, Ohio 44839
(419) 433-5525 | 7. Youngstown State University
220 Custer Ave.
Youngstown, Ohio 44555
(330) 941-2294 | 12. Ohio University
137 Dairy Lane
Athens, OH 45701
(740) 593-2911 | 17. Findlay Market
1819 Race St.
Cincinnati, OH 45202
(513) 665-4389 |
| 3. Kenyon College
302 B College Park St.
Gambier, OH 43022
(740) 427-5828 | 8. Sagamore Soils
2001 E. Barlow Rd.
Hudson, OH 44236
(330) 656-5720 | 13. Kurtz Brothers, Central OH
2850 Rohr Rd.
Groveport, OH 43215
(614) 491-0868 | |
| 4. Hirzel Farms Organic Composting
2422 S.R. 105
Pemberville, Ohio 43450
(419) 287-0303 | 9. Baldwin Wallace
120 E. Grand St.
Berea, Ohio 44017
(440) 826-2414 | 14. Marvin's Organic Gardens
3268 US Route 42 S
Lebanon, OH 45036
(513) 938-3319 | |
| 5. Price Farms Organics Ltd
4838 Warrensburg Rd.
Delaware, Ohio 43015
(740) 362-4838 | 10. Paradise Composting
4300 Mechanicsburg Rd.
Wooster, OH 44691
(330) 669-3141 | 15. Sansai Environmental
1455 E. 186th St.
Cleveland, OH 44110
(216) 531-5374 | |

Updated June, 2009

For more information, please contact Ohio EPA at: (614)644-2621



McGill-Sussex



Source: McGill Composting

After tipping into the building truck beds and compactors are washed out



Source: McGill Composting



Source: Peninsula Composting



Source: Cedar Grove Composting



Source: Cedar Grove Composting



Source: Cedar Grove Composting

Food For Thought

- **State Funding Sources, e.g., landfill tip fee surcharge**
- **Adopting progressive public policies — state, local, federal?**
- **Facts:**
 - **Can operate composting, AD plants without negative impact**
 - **Measurable benefits to using processed organics**
 - **Energy generation via anaerobic digestion**
 - **Behavior can be modified; pump has been primed for ICI sector**
- **Current realities:**
 - **Stymied on regulations, siting challenges**
 - **Shortage of private developers building state of the art composting facilities**
 - **Hesitation to commit**

Questions?

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www.biocycle.net