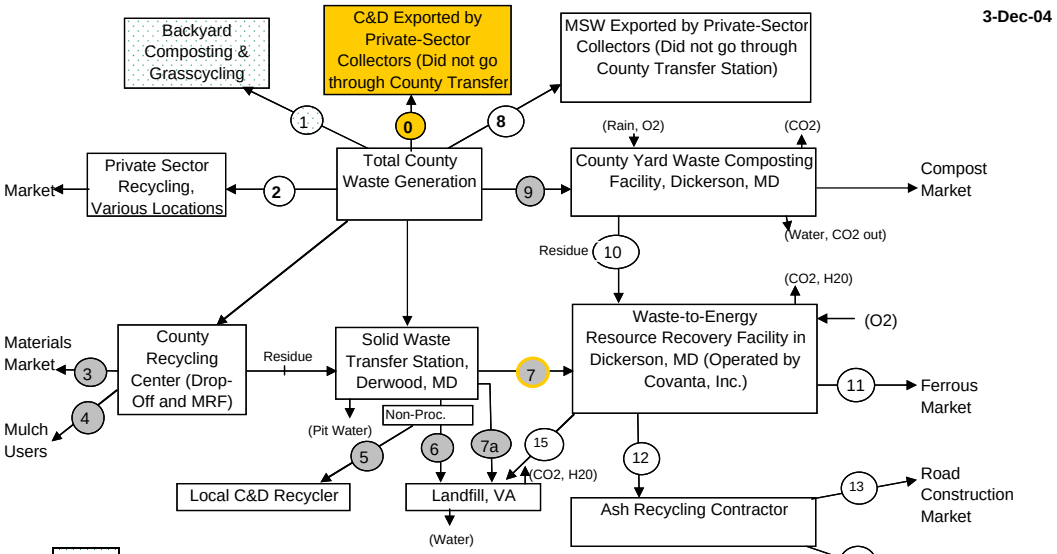
MATERIAL FLOW DIAGRAM
Fiscal Year 2004

3-Dec-04



KEY:

1	Calculated by netting measured collection from estimated yard waste generation.
2, 8	Audited or otherwise documented. Often based on truck scales of others.
	Data is from State-certified County truck scales Owned by County.
	Data is from State-certified truck scales, privately operated under contract to County.
	This color indicates C&D waste, which is not MSW, not eligible for recycling and is not to be included in recycling rate calculation.*

Total Waste Generation, Including C&D Exported by Private Sector	1,471,245	
County Management Waste (CMW) = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 =	1,380,696	
Maximum Possible MSW (above less nonprocessibles, streams 5 & 6	**1,256,648**	Yields conservative recycling rate, but includes non-MSW*
Total MSW, corrected for estimated C&D burned included in stream 7	1,141,229	*

Stream No.	Material Description	Sources) of Data	Total (tons/yr)	Comments	
0	Construction & Demo Debris Private Expo	Licensed Collector Reports under ER 92-59	90,549	Not County-managed and not eligible for recycling	
1	Yard Waste Source Reduction	Calculated w/ estimates & measurements	82,274	17.5% of MSW less leakage less yard waste facility tons	
2	Recycled via non-County Facilities	Collector, Processor, Business & Self-Hauler Rpt	158,961	Filtered to avoid double-counting	
3	County Rec. Materials Sales	County TS & MRF Scales, Outbound	101,677		
4	Mulch Loaded Out From TS	County Transfer Station (TS) Scale Records	30,362		
5	Non-Processibles Recycled**	County TS Scale Out Records	7,852		
6	Non-Processibles Land filled**	County Trans. Stat'n. & Covanta Scale Records	116,197		
7	Loaded on Rail to RRF (Processible)	Covanta Scales as Loaded	639,764	<<< Includes C&D Burned at RRF,	(100,583) *
7a	By-pass (Accepted Processible Land filled	County TS Scale Out Records	6,405	Pilot Test	
8	Waste Disposed Out of County	Audited 6-Mo. Hauler Reports	158,153		
9	All Incoming Leaves and Grass	Compost Facility & TS Scale Records	79,051	Includes	2,079 to Va Facility
10	Composting Residue to RRF	Covanta Scale Records	-		
11	Ferrous recovered at RRF	Covanta Scale Records	19,626		
12	Ash Loaded to Ash Recycling Contractor	Covanta Scale Records	-	Ash recycling pilot completed	
13	Non-Metal Outgoing from ash Recycler	Ash Recycling Contractor Truck Scales	-	Ash recycling pilot completed	
14	Metals (Fe, Cu, Brass, Coins)	Ash Recycling Contractor Truck Scales	-	Ash recycling pilot completed	
15	All ash not recycled	Covanta Scale Records	190,349		

Recycling Rate Calculations, Conservative Approach (denominator includes C&D burned at RRF)*		Numerator	Denominator	Rate	
Minimum County Recycling Rate	**(1 + 2 + 3 + 4 + 9 - 10 + 11 + 13 + 14) / (CMW - 5 - 6) =**	**471,952**	**1,256,648**	**37.56%**	
County Recycling Rate "Without Ash"	(Same as above but without Stream 13)	471,952	1,256,648	37.56%	
State Recycling Rate	(2 + 3 + 4 + 9 - 10 + 11 + 13 + 14) / (CMW - 1 - 5 - 6) =	383,055	1,167,751	32.80%	***
State Recycling & Reduction Rate	(2 + 3 + 4 + 9 - 10 + 11 + 13 + 14) / (CMW - 1 - 5 - 6) + 5.0% =	383,055	1,167,751	37.80%	
EPA Recycling Rate	(2 + 3 + 4 + 9 - 10 + 11 + 14) / (CMW- 1 - 5 - 6) =	383,055	1,167,751	32.80%	***

Notes:

* Construction and Demolition (C&D) waste is not MSW (e.g. should not be included in the Recycling Rate calculation. However, County scale records do not positively discern C&D burned at the RRF from MSW burned at the RRF. Therefore, the calculations above are conservative (e.g. lower bounded) in that they assume that all tons burned are MSW, eligible for recycling, and included in denominator. However, scale records do enable a reasoned estimate of C&D burned at the RRF to be 100,583 tons. Removing the C&D burned the RRF from stream 7, reduces the calculation of stream 1 (backyard composting) by 14,863 tons, and yields the following rates:

Recycling Rate Calculations (without C&D estimated to have been burned at RRF)

(Burned C&D removed from calculation)	Numerator	Denominator	Rate	
County Recycling Rate	**457,116**	**1,141,229**	**40.05%**	
County Recycling Rate "Without Ash"	457,116	1,141,229	40.05%	
State Recycling Rate	383,055	1,067,168	35.89%	***
State Recycling & Reduction Rate	383,055	1,067,168	40.89%	
EPA Recycling Rate	383,055	1,067,168	35.89%	***

** Nonprocessibles are Construction & Demolition-type materials: not eligible for recycling credit, but are County-managed solid waste.

*** For State and EPA methods, numerator and denominator exclude motor oil

Nomenclature: "C&D" means "Construction and Demolition" waste, exclusive of MSW, traditionally managed by the private sector, but much now comes to County TS.
"CMW" means "County Management Waste". It includes all MSW, whether or not exported by private sector collectors, but only C&D delivered to TS.
"MSW" stands for "Municipal Solid Waste", and represents the waste eligible for recycling under the State recycling law, regulations and guidelines.
"TS" stands for the County's "Transfer Station", located in Derwood, Maryland, just south of Gaithersburg.