

Components of the Waste Stream and Recycling Rate

MARKETS ASSESSMENT 1998

The process of characterizing North Carolina's waste stream relies on reported disposal data, information gathered on private and public recovery efforts, reports from the U.S Environmental Protection Agency (EPA) on the national waste stream, and data from trade associations and other sources on specific commodities. Disposal data is gathered through mandated reporting of all permitted solid waste facilities to the North Carolina Division of Waste Management (DWM). Similarly, recovery data is collected from North Carolina municipalities and counties through a mandatory reporting process. Private sector recovery data is gathered by the Division of Pollution Prevention and Environmental Assistance (DPPEA) through voluntary surveys of private processors and end-users in

conjunction with the bi-annual market assessment. DPPEA makes an effort to eliminate all possible double-counting or other artificial inflation of the recovery data. However, the response rate to the private sector survey is relatively low (less than 50 percent), therefore actual recovery is more than likely underestimated.

Annual generation is calculated by adding disposed tons to public recovery tons and private recovered tons. No attempt is made to characterize the tonnage effect of source reduction activities because no reliable data source is available. According to DWM, more than 8.04 million tons of solid waste generated in North Carolina was disposed during fiscal year 1996-97.¹ Public sector recovery efforts in fiscal year 1996-97 accounted for another 1.02 million tons.² Survey data for calendar year 1997 yielded another 3.08 million tons of materials recovered from the private sector. Using the 1996-97 disposal and public recovery data as the estimate for the 1997 calendar year, North Carolina generated more than 12 million tons of solid waste in 1997.

Figure 1 illustrates the estimated components of the generated waste stream, by weight. Wood (secondary manufacturing wastes and pallets) made up the largest component (25 percent), and construction and demolition (C&D) debris contributed another 21 percent. Paper made up about 18 percent of the waste stream, and organic materials made up 13 percent. Altogether, these four major categories accounted for 77 percent of generated wastes. All other categories $\frac{3}{4}$ such as electronics, glass, metals, plastics, textiles, tires, white goods, and "misc/unknown" materials $\frac{3}{4}$ each comprised six percent or less.

Figure 2 illustrates the breakdown of North Carolina's waste stream as disposed, by weight, in 1997. In this representa-

tion, C&D debris made up the largest component (29 percent), and paper made up another 18 percent. Organic materials comprised about 12 percent of the waste stream, and wood made up 11 percent. All other materials each comprised 10 percent or less. A comparison of the two pie charts provides insight into recovery successes and shortfalls. For example wood is a highly recovered commodity, as reflected by the much smaller percentage it represents of the disposed waste stream versus the generated waste stream. Plastics, on the other hand, have a relatively low recovery rate, reflected in its higher percentage of the disposed waste stream versus the generated waste stream.

Figure 3 presents the data used to generate these pie charts. Detailed information on the data sources and assumptions used to create Figures 1 and 2 are presented in each Commodity Profile.

RECYCLING RATE FOR NORTH CAROLINA

Using the data gathered for this market assessment, it is possible to calculate a recycling rate for North Carolina.³ In calculating the rate, DPPEA excludes materials that do not typically enter MSW landfills (e.g., automobiles, animal manure, primary wood wastes). Some adjustments to private sector data were made to account for materials already captured in local government data. The overall and commodity-specific recycling data are presented in Figure 3.⁴ An estimate of the total tonnage of material recycled in 1997 is 4.1 million tons, which yields a 34 percent recycling rate. The 1991 State Solid Waste Plan estimated the recycling rate at 17 percent. With the help of more accurate data and a considerably enhanced recycling infrastructure, North Carolina can now document a rate double that original estimate.

¹ NC Department of Environment and Natural Resources, Draft North Carolina Solid Waste Management Annual Report, July 1, 1996 – June 30, 1997, p. 22. The 8,041,734 tons reported by DWM counts exported tons and discounts imported tons.

² Ibid, p.28.

³ North Carolina has a waste reduction goal of 40 percent by 2001, rather than a recycling goal, meaning there is no statutory requirement to calculate a recycling rate for North Carolina. However, DPPEA receives numerous inquiries into the recycling rate, and for this reason, it is calculated here.

⁴ These figures do not include estimates of used oil and used oil filters, because these data are collected as gallons and number of filters.

Figure 1: Estimated NC Generated Waste Stream - 1997

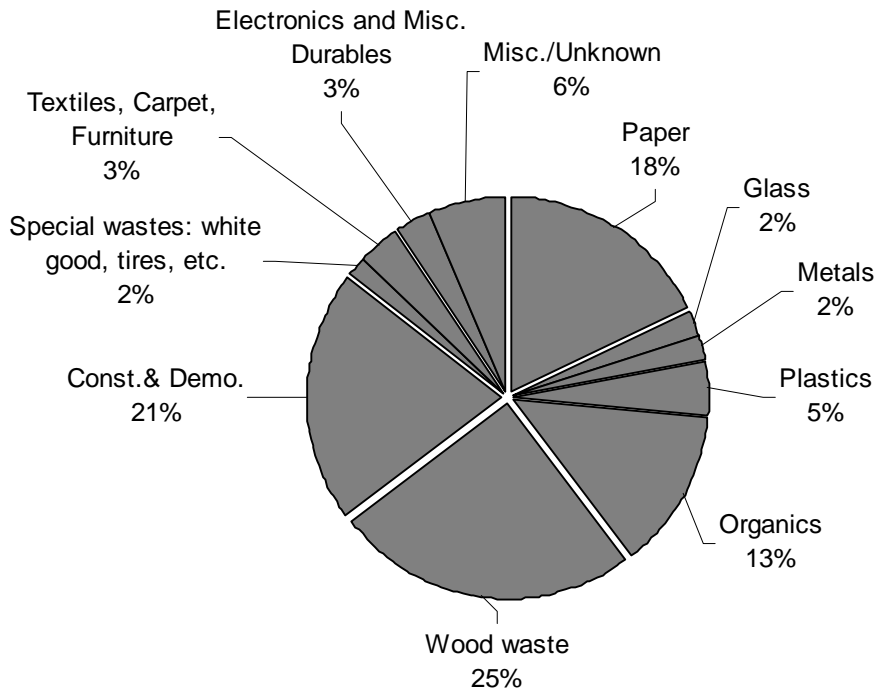


Figure 2: Estimated NC Disposed Waste Stream - 1997

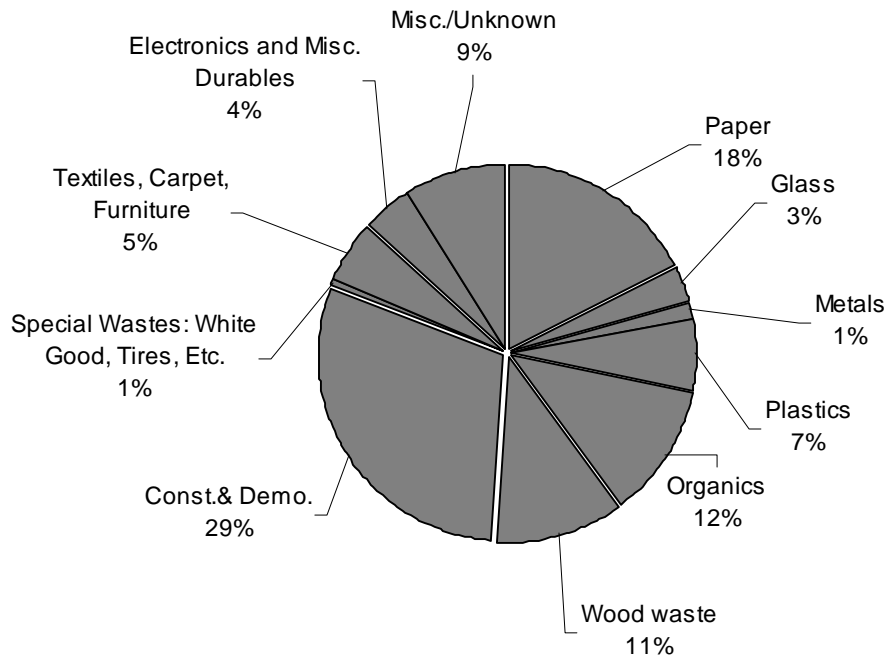


Figure 3: Generation and Recovery of Materials in MSW in North Carolina, 1997 (in tons and percent of generation of each material)

Material	Generation	Recovery	Disposal	Recovery Rate
<i>Construction & Demolition Debris</i>	2,519,000	152,874	2,366,126	6%
<i>Electronics</i>	50,328	0	50,328	0%
<i>Total Glass</i>	282,197	45,025	237,171	16%
Flint	141,099	23,134	117,965	16%
Green	73,371	10,392	62,979	14%
Amber	67,727	11,499	56,228	17%
<i>Total Metal Containers</i>	120,749	29,459	91,290	24%
Aluminum Cans	42,891	21,076	21,815	49%
Steel Cans	77,858	8,383	69,475	11%
<i>Total Organic Materials</i>	1,635,655	712,870	922,785	44%
Yard Waste	773,155	695,620	77,535	90%
Food Residuals	862,500	13,662	848,838	2%
<i>Total Paper</i>	2,164,589	770,171	1,394,418	35.6%
Newsprint	282,412	159,594	122,818	56.5%
Cardboard	852,770	424,456	428,314	49.8%
Office Paper	186,773	54,722	132,051	29.3%
Magazines & Catalogs	138,169	15,806	122,363	11.4%
Mixed Paper	678,384	115,182	563,202	17%
Other Paper (e.g. Phone Directories)	26,081	411	25,670	1.5%
<i>Total Plastics</i>	549,328	26,279	523,049	5%
PETE	47,300	13,609	33,691	29%
HDPE	114,600	7,203	107,397	6%
PVC	34,300	1,648	32,652	5%
LDPE	139,300	2,244	137,056	2%
PP	71,800	287	71,513	0%
PS	55,300	350	54,950	1%
Other Plastics	87,014	938	86,076	1%
<i>Textiles</i>	221,902	14,448	207,454	7%
Carpet	48,627	180	48,447	0%
Post-Consumer Textiles	173,275	14,268	159,007	8.2%
<i>Scrap Tires</i>	95,000	42,750	52,250	45%
<i>White Goods</i>	100,395	81,320	19,075	81%
<i>Total Wood</i>	3,046,665	2,264,661	782,004	74%
Pallets	433,665	151,661	282,004	35%
Secondary Mfr. Waste	2,613,000	2,113,000	500,000	81%
<i>Other</i>	726,246	0	726,246	0%
Diapers	83,400	0	83,400	0%
Furniture & Furnishings	203,496	0	203,496	0%
Miscellaneous Durables	305,522	0	305,522	0%
Unknown	707,843	0	707,843	0%
TOTAL MSW in NC	12,178,004	4,136,270	8,041,734	34%