

RESIDENTIAL WASTE: 1989/1990 COMPARED TO 2004/2005

One objective of the WCS was to compare today's waste stream with that of **1989/1990 WCS**, the last time a citywide waste characterization was carried out by DSNY. Comparing 2004/2005 results to those from 15 years prior took some adjustment, because fewer, and in a few cases slightly different, sort categories were used in the earlier study. The 1989/1990 study also did not include bulk materials in its seasonal composition estimates. When the 2004/2005 categories were adjusted to align with those from 1989/1990, several clear patterns emerged.

Material Group	Fall		Winter		Spring		Summer	
	1989	2004	1990	2005	1990	2005	1989	2005
PAPER ¹	36.9%	32.0%	32.2%	32.5%	31.5%	28.9%	32.4%	31.0%
PLASTIC	8.8%	13.6%	9.2%	14.7%	9.2%	14.5%	9.9%	15.1%
GLASS	4.9%	4.2%	5.7%	4.8%	5.7%	4.5%	5.8%	5.5%
METAL	5.5%	5.1%	5.5%	5.1%	5.7%	4.9%	4.9%	4.6%
YARD	6.2%	5.4%	8.4%	1.4%	4.1%	5.8%	4.7%	4.0%
OTHER ORGANIC	35.6%	34.9%	36.4%	37.7%	39.9%	36.4%	39.7%	35.2%
INORGANIC/HHW	2.0%	4.1%	2.6%	3.4%	3.9%	4.5%	2.7%	3.7%
APPLIANCES/ ELECTRONICS ²	0.0%	0.8%	0.0%	0.5%	0.0%	0.5%	0.0%	0.8%
TOTAL³	100%	100%	100%	100%	100%	100%	100%	100%
designated recyclable fraction	49%	35%	45%	38%	44%	34%	45%	36%
1. including nonrecyclable and recyclable paper 2. This category was not assessed in 1989-90. 3. results here for 2004/05 are shown without bulk included, for comparability with the 1989-90 results								

A LOWER BASELINE FRACTION OF RECYCLABLES IN THE WASTE STREAM

The WCS of 1989/1990 suggested that between 44% and 49%, or 45% averaged over the year, of the overall waste stream consisted of paper, metal, glass and plastic materials designated for recycling. The 2004/2005 WCS estimates this baseline at 36%. As discussed in other sections of this Results Highlights, knowledge of current baseline, in conjunction with the actual diversion rate, has implications for our calculation of the capture rate. If the baseline were really 45%, then our 18% diversion rate would mean that we were capturing only 40% of potential recyclables ($18\% \div 45\% = 40\%$). But we know now that the baseline is lower. Our 18% diversion rate actually reflects a capture rate of 50%. In other words, we're doing better than we previously estimated.

The reasons for the drop in baseline recyclables have to do with changes in products between 1989/1990 and now, particularly light-weighting of packaging and paper, and the move from glass to plastic containers. The change also reflects methodological refinements in the classification of paper in the 2004/2005 WCS.

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2004-05 NYC Residential and Street Basket Waste Characterization Study

A DECREASE IN RECYCLABLE PAPER

Paper has, overall, decreased as a fraction of the waste (refuse + recyclables) stream. Although in one season (Winter) it showed a slight increase from 1990 to 2005, overall it is clear that there is less paper being thrown out or recycled today than 15 years ago. In particular, there has been a marked fall since 1990 in newspaper and corrugated cardboard, most probably due to light-weighting and new packaging and print technologies, as well as paperless technologies such as the internet.

SUBCATEGORIES OF PAPER IN WASTE								
	Fall		Winter		Spring		Summer	
	1989	2004	1990	2005	1990	2005	1990	2005
NEWSPAPER	11.1%	7.6%	8.3%	8.1%	8.4%	7.7%	9.5%	7.5%
CORRUGATED/KRAFT	5.2%	3.1%	5.3%	2.5%	4.8%	2.0%	5.0%	2.0%
HIGH GRADE (OFFICE) PAPER	0.9%	0.9%	0.5%	1.0%	0.2%	0.9%	1.5%	0.9%
PHONE BOOKS, PAPER BACKS	1.2%	0.8%	0.4%	1.1%	0.5%	0.7%	1.2%	1.2%
"OTHER PAPER"	18.5%	19.6%	17.7%	19.8%	17.5%	17.5%	15.2%	19.4%
Subtotal: Recyclable fraction	36.9%	23.8%	32.2%	25.7%	31.5%	22.5%	32.4%	24.0%
Subtotal: Non-Recyclable fraction	*	8.2%	*	6.8%	*	6.4%	*	7.0%
GRAND TOTAL, PAPER	36.9%	32.0%	32.2%	32.5%	31.5%	28.9%	32.4%	31.0%

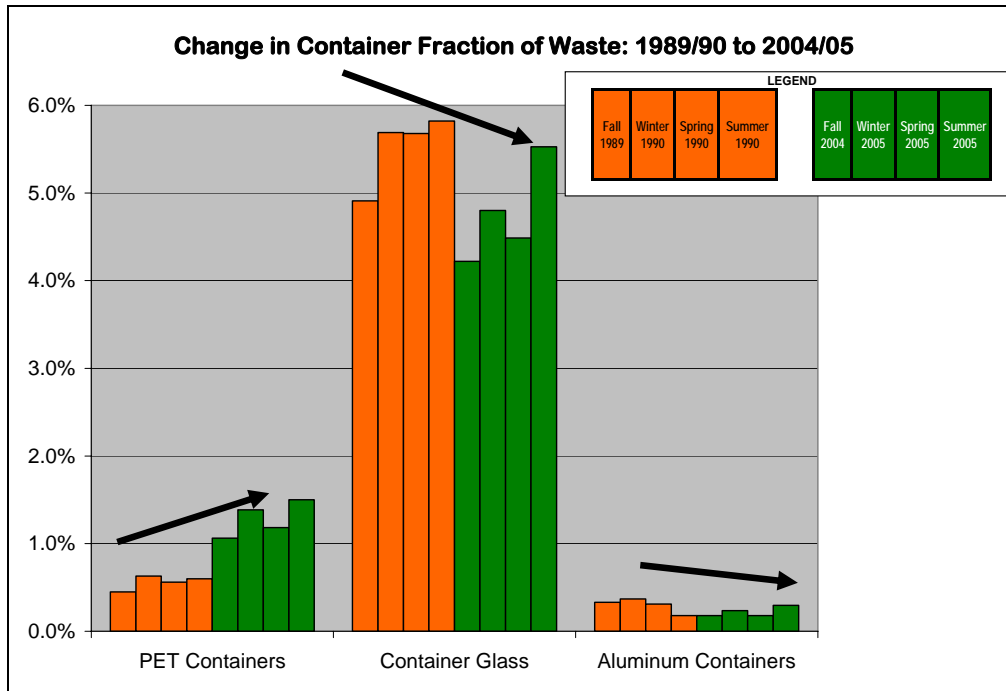
* not separately assessed

In contrast, the fraction of paper marked "other" has slightly increased over time. The 1989/1990 WCS categorized a wider range of papers as "other" than the 2004/2005 Study. In the earlier study, "Other Paper" included mixed paper of all kinds (which is recyclable under our current program), as well as soiled tissues and napkins, waxed and plastic coated papers, and other papers which are not accepted for recycling. The 2004/2005 WCS was able to tease these groups apart, because it used more sort categories. Using the current study, we see that today, between 11% and 13% of what the older study called "other paper" is paper designated as recyclable, and the rest consists of paper not suitable for recycling. Back in 1989/1990, all of paper in the "other" category was assumed to be recyclable. The estimates of how much paper there was in the waste stream that could potentially be recycled were therefore overstated at that time.

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BEVERAGE CONTAINERS: A MOVE TO PLASTICS

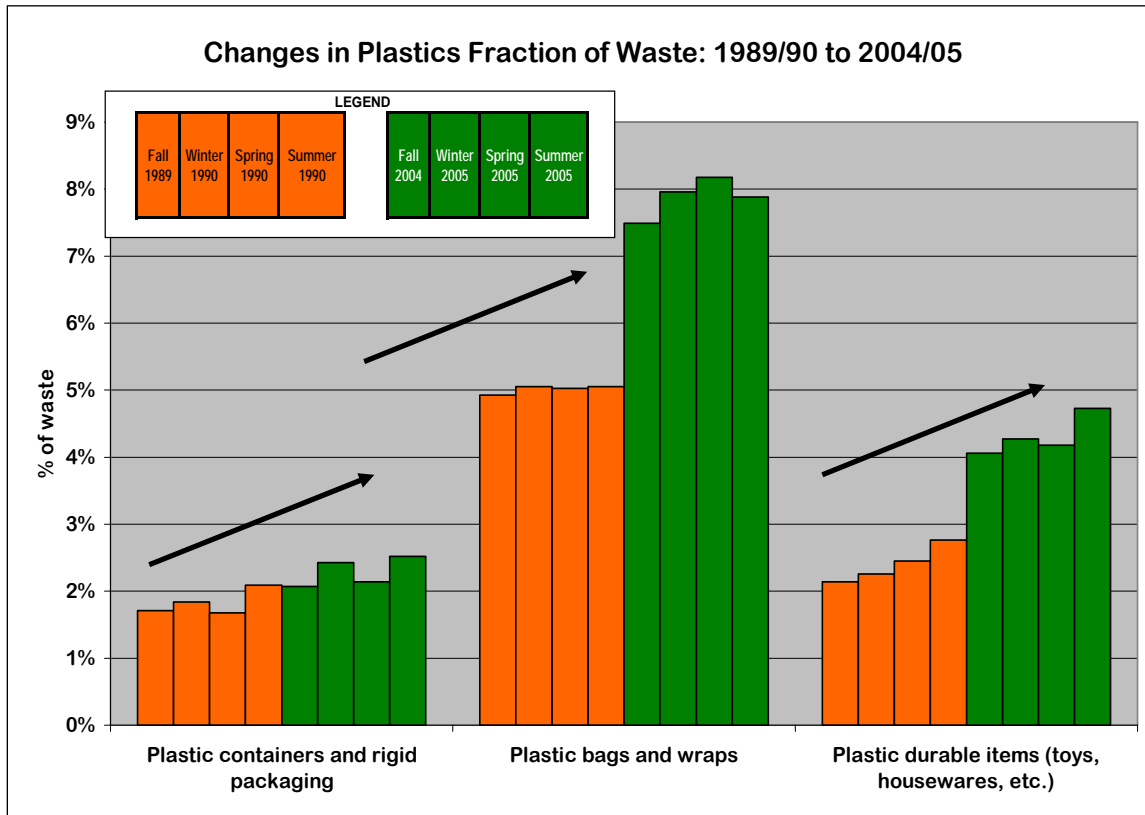
Although the 1989/1990 WCS did not distinguish beverage from non-beverage (i.e. food) containers, we can approximate this percentage by looking at the fraction of waste that is PET (soda bottles), aluminum cans, and glass containers. Comparing the composition of these three material groups from then to now suggests that PET bottles have to some degree replaced glass bottles and aluminum cans. The fact that PET bottles and aluminum cans are very light in comparison to glass makes the replacement less than a 1: 1 ratio in terms of weight. However, as the chart below shows, there are clear directional trends.



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AN INCREASE IN PLASTICS OVERALL

In addition to PET, plastics in general have increased as a fraction of the waste stream. This trend, as shown in the chart on the next page, is most pronounced in the case of plastic bags and wraps, which now make up close to 8% of the combined waste stream. Plastic **durables**, like toys, household items, and plastic appliances have also increased. Growth in rigid containers — including bottles, tubs, and trays, has been more modest.



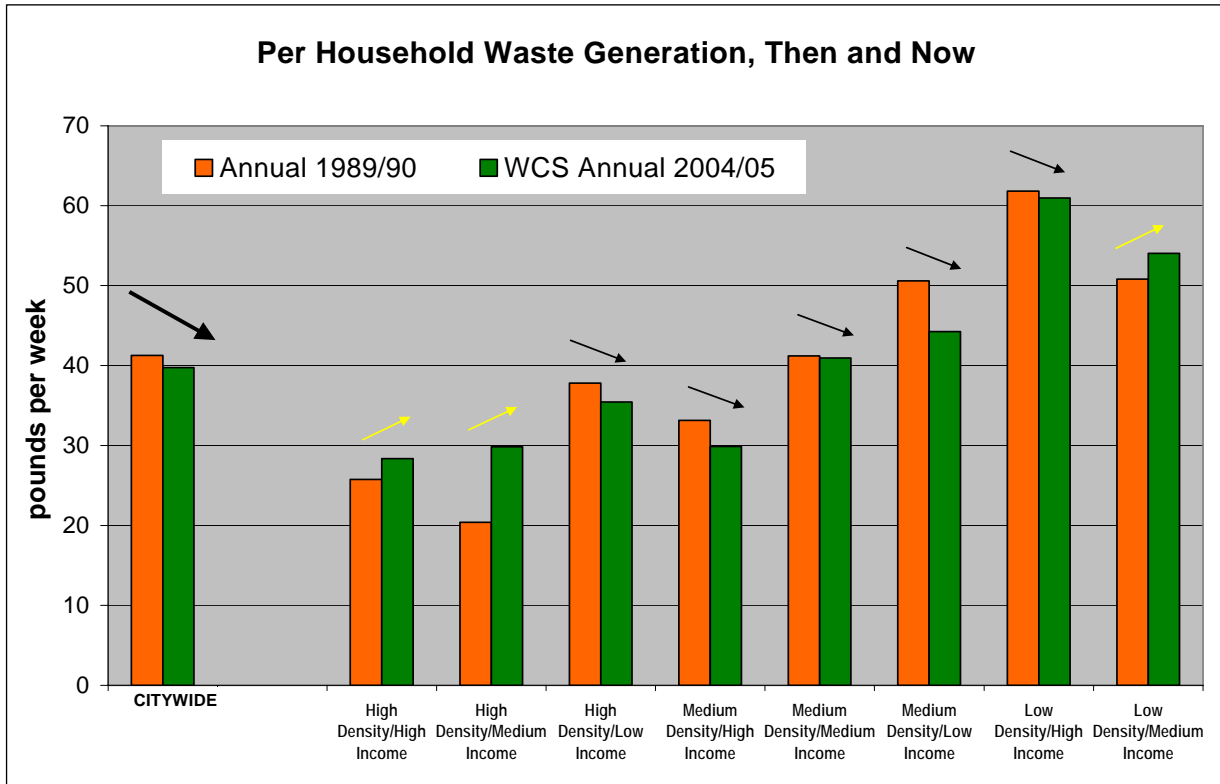
SHIFTS IN WASTES OTHER THAN PAPER, METAL, GLASS AND PLASTIC

The preceding discussion has focused on changes in the fraction of waste that is paper, metal, glass and plastic, since understanding changes in materials designated for curbside recycling is of immediate importance to program planning and evaluation. The WCS Final Report details the shifts in composition of other organic and inorganic categories of waste. The differences in waste composition between 1989/1990 and 2004/2005 for these “other” materials reflect a variety of factors - including the relative composition of paper, metal, glass and plastic wastes; seasonal fluctuations; and methodological differences between the 1989/1990 and 2004/2005 studies.

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WASTE GENERATION: THEN AND NOW

The WCS estimated an average household generation rate of 39.7 pounds per week in 2004/2005, as opposed to 41.2 pounds per week in 1989/1990. As shown on the next page, the generation rate varies considerably across strata, with most strata's rates decreasing along with the average (shown with black down arrows), with a few exceptions (indicated with yellow up arrows).



As you read on:

Understanding how the waste stream has changed over time is important for several reasons. If programs were designed with one set of composition statistics in mind, these programs will need updating when new statistics come in. Similarly, if policy expectations are based on outdated figures, unreasonable goals will be set.

Understanding why the waste stream has changed is another matter. Changes in composition have to do with economics - what gets produced and consumed, using what materials, in what amounts. Producers of consumer commodities make choices based on their bottom line; these choices change over time as light-weighting and new materials become available for mass production. Consumers' tastes change as well.

When comparing the 1989/1990 Study results to the 2004/2005 results, we should also bear in mind that the earlier study was carried out when information technology was less advanced, and the City's

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recycling program was in its infancy. The 1989/1990 Study was the best that it could be at that time, but technology and experience have yielded a more precise and comprehensive new study. For that reason, readers should not pin unnecessary importance on parsing out small changes in percentages, or small categories, between then and now. What is important is the big picture of how our waste stream now is different from what it was then.

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