

# The City of San Francisco STREETS LITTER RE-AUDIT 2008

PREPARED FOR

The City of San Francisco  
San Francisco Environment Department

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# Executive Summary

The City of San Francisco continues to be known throughout North America for its initiatives to protect the environment. The City has a multitude of waste reduction and waste management programs in place to improve the environment for residents. Such activities as recently moving to “all-plastics” pick ups in the curbside recycling program are examples of how this city achieved a 70% diversion rate by 2007.

In 2007, the City conducted a litter audit. Working with HDR / BVA Engineering, a local San Francisco full service firm, the City audited litter on city streets. HDR / BVA in turn contracted MGM Management, a Canadian environmental consulting firm that has expertise in the area of litter audit work to design the audit to conform with their proven methodology. MGM Management has conducted over a fourteen major litter audits to major North American municipalities since 2002, and has an accumulated data base of over 56,000 litter observations.

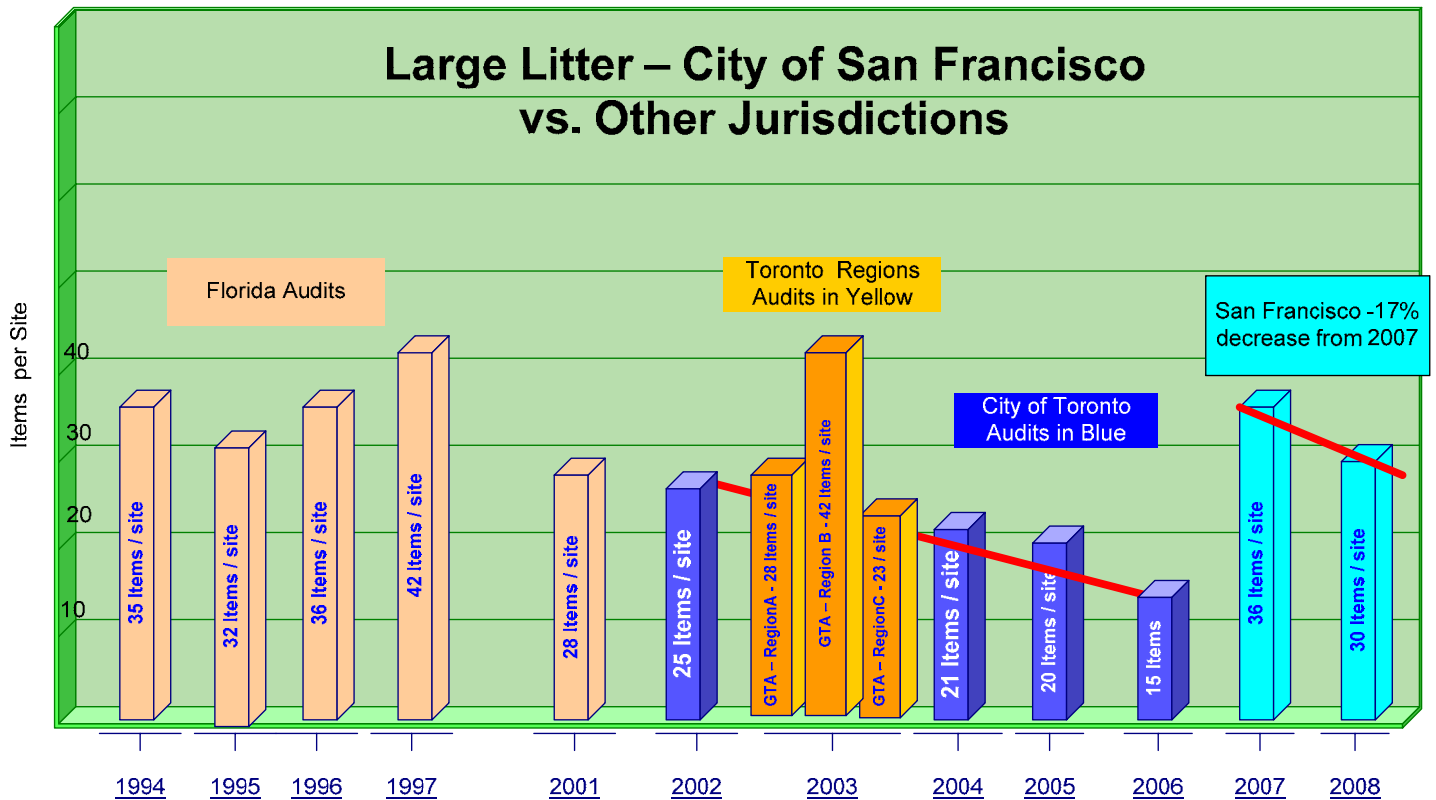
The San Francisco Department of Environment decided that it was necessary to re-audit the 2007 sites in 2008, and to add additional sites to strengthen the litter observations. HDR / BVA Engineering managed and provided trained auditors for the work, while MGM Management provided the audit design, methodology protocols, site selection including new randomly selected sites, data management and data analysis services.

Within this study litter is classified as “large” for those items over 4 square inches in size or as “small” litter for items less than 4 sq. in. Eighty-four sub-categories of large and sixteen sub-categories for small litter were examined.

A total of 3,973 items of large litter were observed by auditors, on San Francisco streets during the April 2008 litter audit.

One hundred and thirty two sites (increased from 105 in 2007) were audited April 7 - 18, 2008. This audit was conducted at approximately the same time of year in 2008 as in the previous audit (conducted April 9 – 20, 2007).

The 2007 audit observed, an average of 36 items of large litter per site; which decreased 17% to 30 items of large litter per site in 2008 ( 3,973 / 132 sites). The chart below illustrates how the results in the San Francisco litter audit compare with 2007 and with other jurisdictions.



The largest category of large litter observed, at 664 litter pieces was non-branded paper napkins and paper towels. This is a similar result from the 2007 audit, where napkins were the second most significant category (570 pieces of large litter in 2007). Printed paper materials were the second most significant litter category at 380 items, followed closely by miscellaneous paper, last year's most significant large litter category. Miscellaneous paper was the third most significant category in the 2008 litter audit with 318 items observed.

Again in 2008, all fiber based products and items that were observed contributed 51% of the total large litter observed, as compared to 54% in the 2007 audit. Fiber based litter included paper, paperboard, cardboard, towels, napkins, newspapers, books, flyers, printed materials, and business forms, stationary.

Focus on plastic is misplaced

An interesting observation was made in terms of what brands of printed materials are on the ground in San Francisco. MUNI tickets and transfers are a contributor to paper litter on city streets. This observation of transit ticket, receipts and transfers as being a significant contribution to paper litter is consistent with observations made by the consultant in our (other) urban audits. This is an area where action can reduce litter significantly.

The second most significant material type observed was plastic materials. These included miscellaneous plastic, plastic packaging, wrap, plastic bags-retail and non-retail, hot and cold plastic drink cups, plastic jars, bottles, composites, utensils, zip bags, beverage containers, trays, polystyrene cups, confectionary, sweet and snack food packaging, pouches, plates, retail bags, and carrying rings. The most significant single category of plastic litter was unidentified miscellaneous plastic litter; which is litter that is broken or weathered that auditors cannot identify it with certainty; and is assumed to be plastic. Miscellaneous plastic litter accounted for 186 littered items or 4.7 % (compared to 9% in 2007) of total litter. All large plastic litter in aggregate accounted for 953 items observed (compared to 746 in 2007), or 24 % of total large litter observed (compared to 20% in 2007).

Below we compare litter occurrence in San Francisco versus all previous audits completed by the consultant. This allows a comparison to other jurisdictions where litter audits have been done using the same methodology.

### San Francisco 2008 vs. Other Jurisdictions (2002 - 2007)<sup>1</sup>.

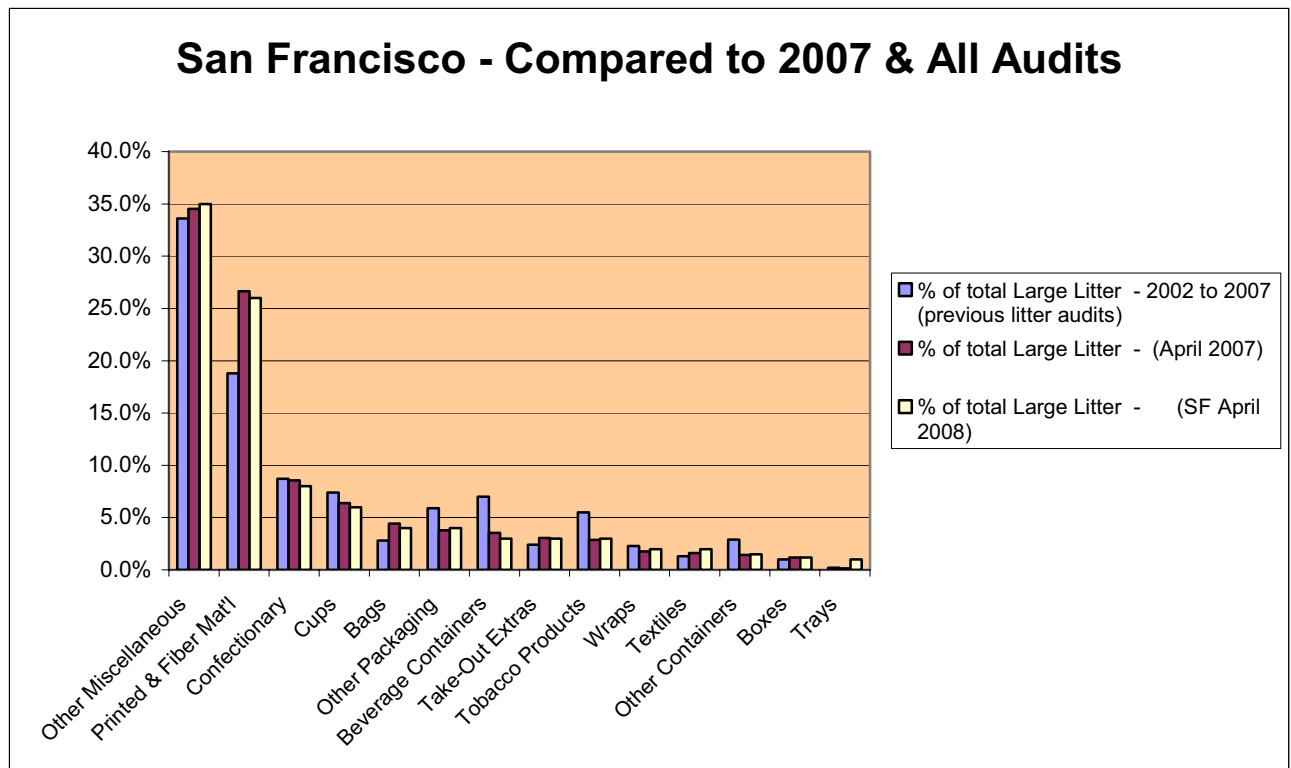
	Observations - 2002 to 2006 (other jurisdictions)	% of total Large Litter - 2002 to 2006 (other jurisdictions)	San Francisco Litter Audit (April 2007)	% of total Large Litter - SF April 2007	% of total Large Litter - SF April 2008
Other Miscellaneous	15,428	33.2%	1,316	34.5%	23.6%
Printed & Fiber Mat'l	8,693	18.7%	1,016	26.7%	31.3%
Confectionary	4,094	8.8%	326	8.6%	7.6%
Cups	3,366	7.2%	243	6.4%	6.4%
Bags	1,232	2.7%	169	4.4%	5.9%
Other Packaging	2,862	6.2%	145	3.8%	3.3%
Beverage Containers	3,420	7.4%	135	3.5%	3.0%
Take-Out Extras	1,076	2.3%	116	3.0%	3.8%
Tobacco Products	2,594	5.6%	110	2.9%	3.7%
Wraps	1,109	2.4%	68	1.8%	3.6%
Textiles	608	1.3%	62	1.6%	1.0%
Other Containers	1,472	3.2%	55	1.4%	2.2%
Boxes	448	1.0%	45	1.2%	3.4%
Trays	88	0.2%	6	0.2%	0.1%
	46,490	100%	3,812	100%	100%

Total bag litter is a small portion of total (5.9% of large items, 3.7% of small)

Bag litter has increased after plastic bag ban

1. Aggregated litter data, Litter audits by MGM Management including:  
 City of Toronto, Canada (2002, 2003, 2004 (2 audits), 2005, 2006  
 Regional Municipality of Peel, Canada (2003)  
 Regional Municipality of York, Canada (2003)  
 Regional Municipality of Durham, Canada (2003)

## San Francisco - Compared to 2007 & All Audits



Again in 2008, observations of the small litter classification during the San Francisco audit showed a relatively low occurrence of small litter on city streets, as compared to audits performed by the consultant in other cities. In the 2008 audit, 2,335 small litter items were observed (compared to 2,393 in 2007) at 132 sites audited. This averages 18 items per site (compared to 23 in 2007) which is comparable with 21 items / site for the City of Toronto, Ontario, Canada; where considerable clean-up activities and litter abatement efforts have been underway for several years. Averages twice as high as the small litter rate observe in San Francisco in 2007 have been recorded by the consultant in other litter audits.

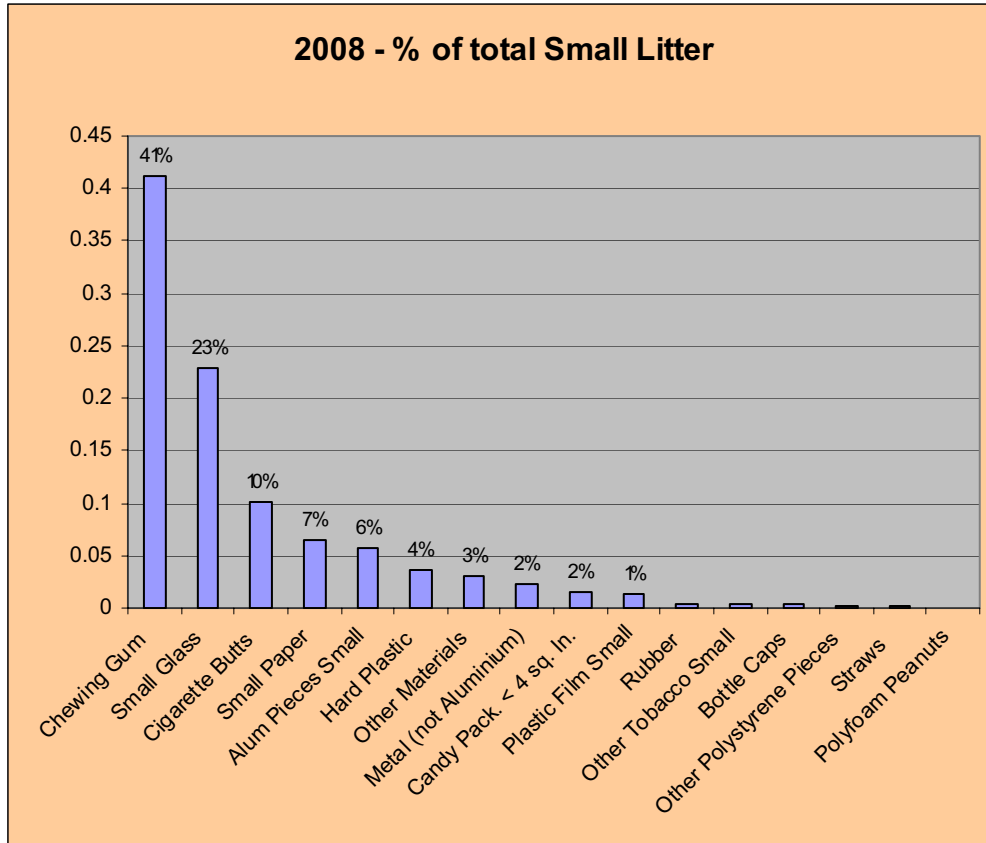
As identified in the 2007 litter audit, gum deposits on San Francisco streets continue to be a significant issue. Gum deposits on sidewalks and roadways cause a sticky and annoying problem for pedestrians. Gum deposits accounted for 39.5% of all the small litter observed during the 2007 audit, and in 2008 a similar observations was noted. In the 2008 litter audit gum deposits were 41% of the small litter observations made (960 gum deposits noted). Glass and paper small litter were also significant contributors to this class of litter.

Small litter is difficult to control, in that it is “manufactured” by a combination of degradation (weather) and man-made activities (vehicle traffic, mowing, etc.).

The small litter results for the 2008 San Francisco audit sites are illustrated below.

Due to the nature of randomly selecting sites and the methodology used for litter auditing of those locations, the consultant is of the opinion that this litter audit is representative of the overall litter occurrence in the City of San Francisco streets, as of April 2008.

## 2007 San Francisco - Small Litter – by Category



## Small Litter Summary

Category	Description	SF	SF	SF	SF
		2008	2008	2007	2007
		Total Small Litter Items Observed	% of Total Small Litter	Total Small Litter Items Observed	% of Total Small Litter
16	Chewing Gum	960	41.1%	946	39.5%
8	Small Glass	535	22.9%	710	29.7%
9	Small Paper	153	6.6%	187	7.8%
1	Cigarette Butts	234	10.0%	135	5.6%
15	Other Materials	73	3.1%	97	4.1%
11	Hard Plastic	85	3.6%	92	3.8%
10	Plastic Film Small	33	1.4%	56	2.3%
2	Other Tobacco Small	9	0.4%	51	2.1%
14	Metal (not Aluminium)	52	2.2%	41	1.7%
13	Rubber	10	0.4%	26	1.1%
12	Alum Pieces Small	135	5.8%	19	0.8%
5	Candy Pack. < 4 sq. In.	36	1.5%	16	0.7%
6	Polyfoam Peanuts	2	0.1%	8	0.3%
7	Other Polystyrene Pieces	6	0.3%	5	0.2%
3	Bottle Caps	8	0.3%	4	0.2%
4	Straws	4	0.2%	0	0.0%
		2,335	100.0%	2,393	100.0%

Average SF Small Litter Items / site

18

23

### 3.2.3 Bags

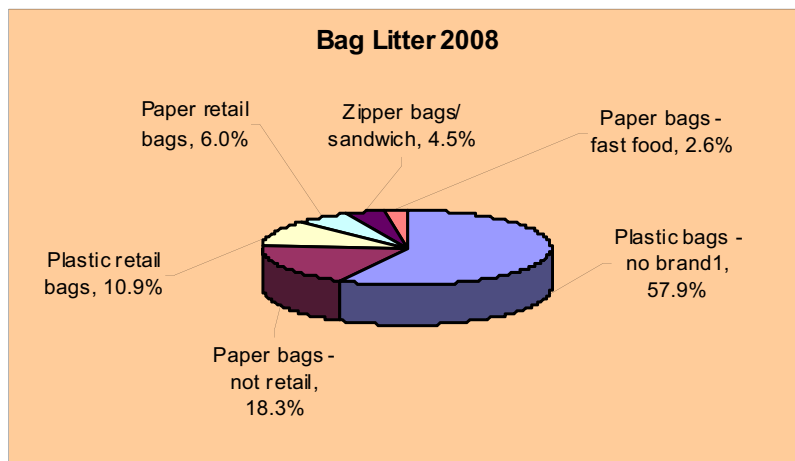
#### 3.2.3 Bags

			2008	2007
	Items	% of Sub-category	% of Total Large Litter	% of Total Large Litter
Plastic bags - no brand <sup>1</sup>	136	57.9%	3.42%	1.11%
Paper bags - not retail	43	18.3%	1.08%	1.88%
Plastic retail bags	25.5	10.9%	0.64%	0.60%
Paper retail bags	14	6.0%	0.35%	0.37%
Zipper bags/ sandwich	10.5	4.5%	0.26%	0.31%
Paper bags - fast food	6	2.6%	0.15%	0.18%
	235	100.0%	5.91%	4.45%

Plastic bag ban has done nothing to reduce bag litter  
 Plastic retail bags were 0.6% before and after plastic bag ban

Sub-category average (2002 - 2007 - 54,000 observations) 2.80%

- Note: Plastic bags with no clear brand marking included in this sub-category
- Item counts may not equal whole numbers due to averaging.



#### Discussion:

Plastic bags including retail sacks, zipper bags represented 4.3 % of total large litter (172 items out of 3,973). Plastic bags represented 73% of bag litter, as observed in the 2008 litter audit. Plastic bags with or without brand marking on them (i.e. grocery bags) represented 69% of the litter in this category, and 4% of total litter. Paper bags collectively accounted for 24 % of this sub-category, with non-retail paper bags (like lunch bags) representing 18% of the sub-category.

In 2008, as was also observed in 2007, bag litter in San Francisco was higher (5.9% of total litter) than the consultant's category average for bags in all audits conducted between 2002 – 2007 (2.8%) from other combined jurisdictions.