

# The City of San Francisco STREETS LITTER AUDIT

## 2007

PREPARED FOR

The City of San Francisco  
San Francisco Environment Department

PREPARED BY



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&



May 18, 2007

# Executive Summary

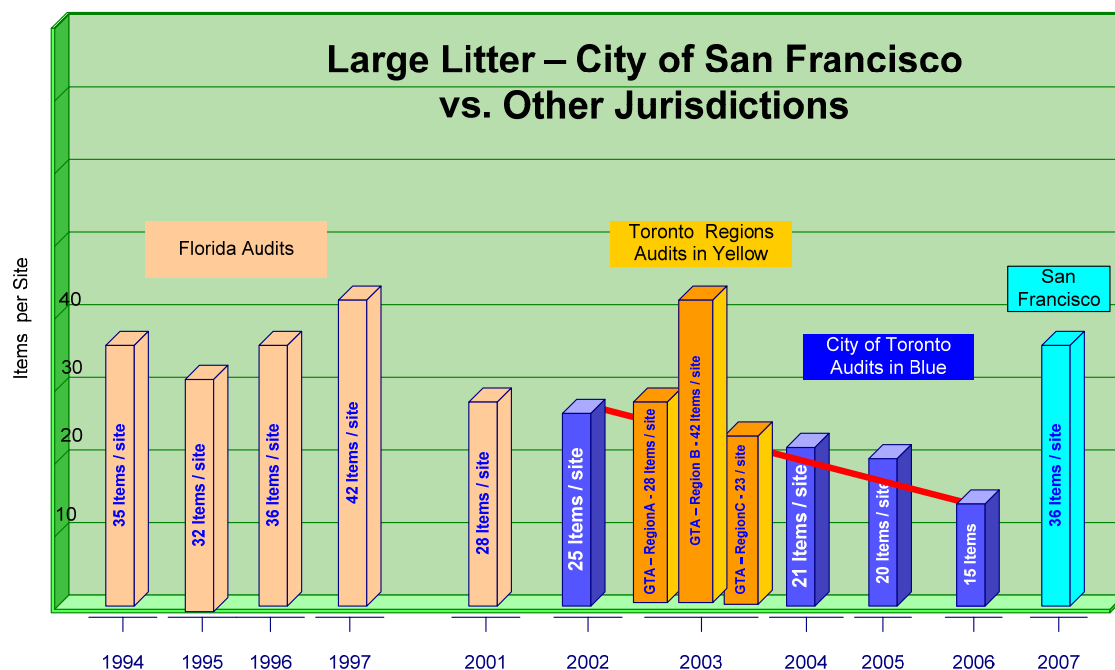
The City of San Francisco is known throughout North America for its forward thinking and initiatives to protect the environment. The City has a multitude of waste reduction and waste management programs in place to improve the environment for residents.

In early 2007, the City made inquiries into the feasibility for conducting a litter audit in 2007. Working with HDR / BVA Engineering, a local San Francisco full service firm, the City inquired into methods used by other municipalities to impartially and accurately audit litter on city streets. HDR / BVA in turn contacted MGM Management, a Canadian environmental consulting firm that has expertise in the area of litter audit work. MGM Management has conducted over a dozen major litter audits to major North American municipalities since 2002, and has an accumulated litter data base of over 46,000 observations.

A project plan was developed and approved by San Francisco Department of Environment to conduct a litter audit in April 2007. HDR / BVA Engineering managed and provided trained auditors for the work, while MGM Management provided the methodology protocols, site selection, 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 3,812 pieces of large litter were observed by auditors, on San Francisco streets during the April 2007 litter audit. One hundred and five sites were audited between April 9 – 20, 2007. This was an average of 36 items of large litter per site. As this audit is the benchmark or first litter audit done by San Francisco, it is not possible to comment upon whether the City is getting more or less littered with time. However, because the San Francisco audit was conducted using the same methodology as other jurisdictions some anecdotal comparison is possible. The chart below illustrates how the results in the San Francisco litter audit compare with other jurisdictions.



The largest category of large litter observed, at 570 litter pieces was miscellaneous paper. This represented 15% of the total littered items observed. Non-branded paper napkins and paper towels was the second most significant category of litter with 494 items observed, or 13% of total litter. All fiber based products and items that were observed contributed 2,051 items or 54% of the total large litter observed. Fiber based litter included paper, paperboard, cardboard, towels, napkins, newspapers, books, flyers, printed materials, and business forms, stationary.

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 significant 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 so broken or weathered that auditors cannot identify it with certainty; and is assumed to be plastic.. Miscellaneous plastic litter accounted for 342 littered items or 9% of total litter. All large plastic litter in aggregate accounted for 746 items observed, or 20% of total large litter observed.

Of interest to the City of San Francisco is how litter occurrence in that municipality compared to other jurisdictions where litter audits have been done using the same methodology. A comparison of San Francisco, versus other audits performed by the consultant between 2002 – 2006, appears below.

## San Francisco vs. Other Jurisdictions (2002 - 2006)<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 - SFO April 2007
Other Miscellaneous <sup>2</sup>	15,428	33%	1,316	35%
Printed & Fiber Mat'l	8,693	19%	1,016	27%
Confectionary	4,094	9%	326	9%
Cups	3,366	7%	243	6%
Bags	1,232	3%	169	4%
Other Packaging	2,862	6%	145	4%
Beverage Containers	3,420	7%	135	4%
Take-Out Extras	1,076	2%	116	3%
Tobacco Products	2,594	6%	110	3%
Wraps	1,109	2%	68	2%
Textiles	608	1%	62	2%
Other Containers	1,472	3%	55	1%
Boxes	448	1%	45	1%
Trays	88	0%	6	0%
	46,490	100%	3,812	100%

1. Aggregated litter data, Litter audits by MGM Management including:

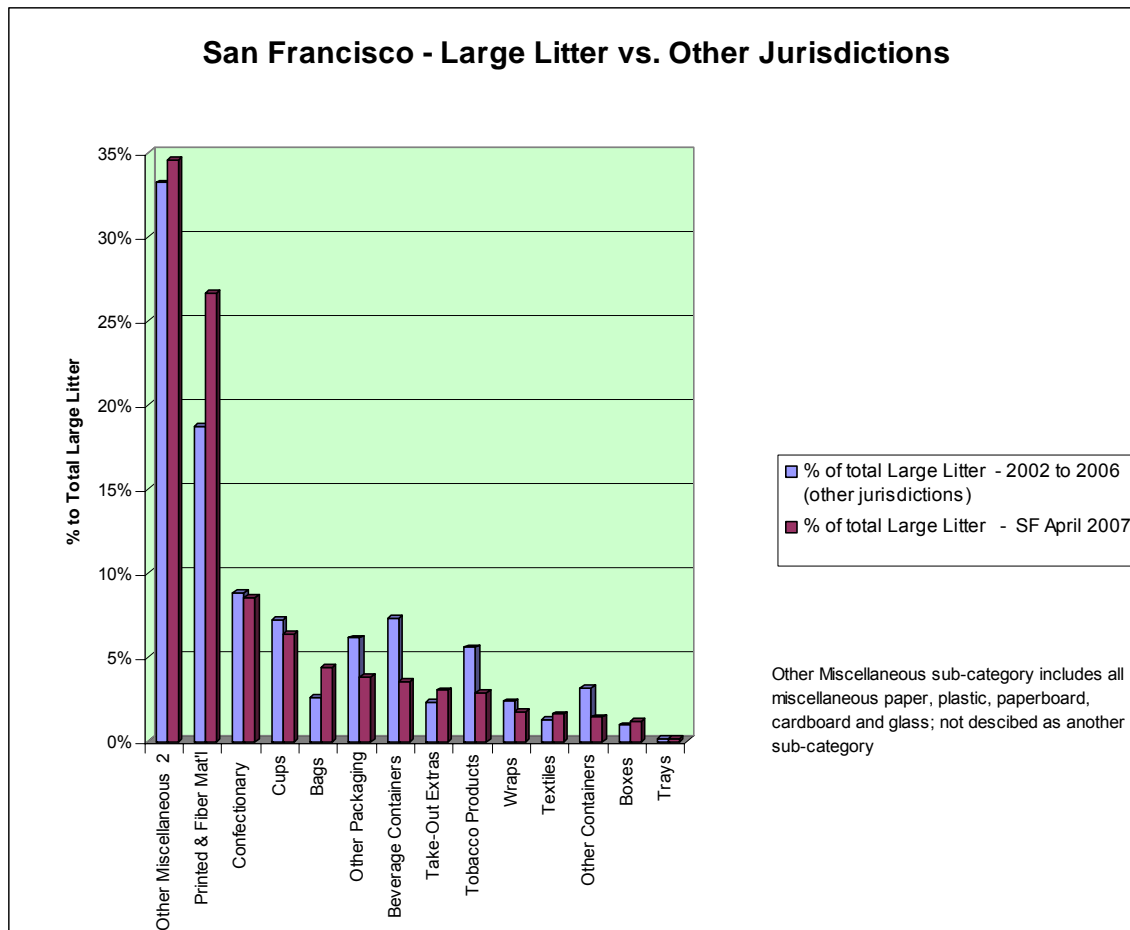
City of Toronto, Canada (2002, 2003, 2004 (2 audits), 2005, 2006

Regional Municipality of Peel, Canada (2003)

Regional Municipality of York, Canada (2003)

Regional Municipality of Durham, Canada (2003)

2. Other Miscellaneous sub-category includes all miscellaneous paper, plastic, paperboard, cardboard and glass; not described as another sub-category



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 San Francisco, 2,393 small litter items were observed in 104 sites audited. This averages 23 items per site and 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 audits.

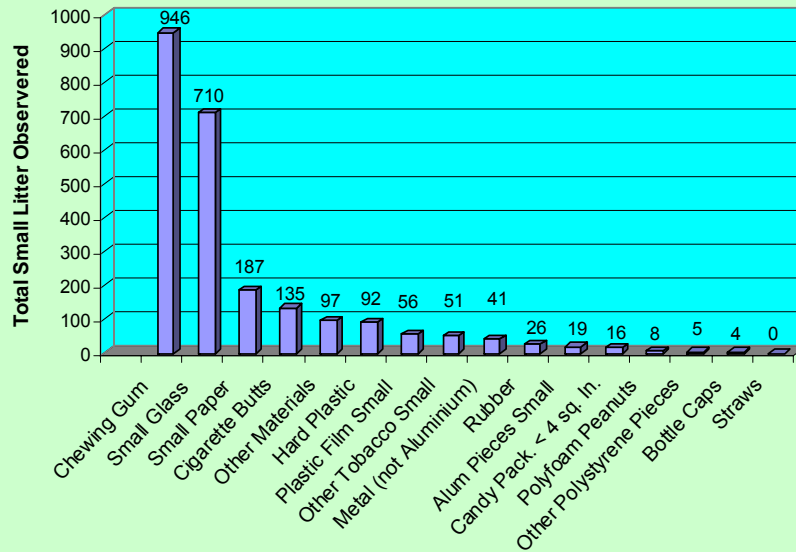
Gum deposits on San Francisco streets are a significant issue. Gum deposits on sidewalks and roadways cause a sticky and annoying problem for pedestrians. Gum deposits accounted for 39.5% of all the small litter observed during the audit. Glass and paper small litter were also significant contributors 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 2007 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 2007.

## Total Small Litter Items Observed



### 2007 San Francisco - Small Litter – by Category

## Small Litter Summary

Category	Description	Total Small Litter Items Observed	SF 2007	Toronto 2006
			% of Total Small Litter	% of Total Small Litter
16	Chewing Gum	946	39.5%	30.9%
8	Small Glass	710	29.7%	15.4%
9	Small Paper	187	7.8%	17.3%
1	Cigarette Butts	135	5.6%	14.8%
15	Other Materials	97	4.1%	2.5%
11	Hard Plastic	92	3.8%	3.6%
10	Plastic Film Small	56	2.3%	2.8%
2	Other Tobacco Small	51	2.1%	2.4%
14	Metal (not Aluminium)	41	1.7%	1.1%
13	Rubber	26	1.1%	0.7%
12	Alum Pieces Small	19	0.8%	2.4%
5	Candy Pack. < 4 sq. In.	16	0.7%	1.6%
6	Polyfoam Peanuts	8	0.3%	2.3%
7	Other Polystyrene Pieces	5	0.2%	1.7%
3	Bottle Caps	4	0.2%	0.1%
4	Straws	0	0.0%	0.4%
		2393	100.0%	100.0%
Average SF Small Litter Items / site <sup>1</sup>		23		

Note: Current Toronto small litter average 21 Items / site

## TABLE OF CONTENTS

Executive Summary .....	2
Acknowledgements .....	7
1.0 Introduction.....	8
2.0 Methodology	
2.1 Site Selection .....	10
2.2 Detailed Site Files.....	12
2.3 Conducting a Site Audit.....	12
2.4 Classification of Large Litter.....	13
2.5 Classification of Small Litter.....	14
2.6 Survey Counts.....	22
2.7 Documentation and File Management.....	22
2.8 Photo Record.....	22
2.9 Branded Litter Observations.....	24
2.10 Survey Schedule and Progress.....	24
3.0 Large Litter Results	
3.1 Discussion of Large Litter Results.....	25
Top 25 Sub-Categories Equal 85% of Litter.....	26
Table – Top 25 Categories of Litter in San Francisco.....	27
Table – All Large litter Data Observed .....	28
3.2 Detailed Large Litter Results	
3.2.1 Beverage Containers.....	30
3.2.2 Cups.....	31
3.2.3 Bags.....	32
3.2.4 Boxes.....	33
3.2.5 Other Containers.....	34
3.2.6 Wraps.....	35
3.2.7 Take-Out Extras.....	36
3.2.8 Trays.....	37
3.2.9 Confectionary .....	38
3.2.10 Textiles .....	39
3.2.11 Other Packaging .....	40
3.2.12 Printed and Fiber Materials .....	41
3.2.13 Tobacco Products .....	42
3.2.14 Other Miscellaneous .....	43
4.0 Small Litter Results .....	45
Appendix 1 - Large Litter Audit Form .....	49
Appendix 2 – Site Locations & Driving Directions .....	50
Appendix 3 – Site Rankings (Large Litter – ranked from dirtiest to cleanest) .....	61
Appendix 4 – Photographs - Setting up Sites .....	63
Appendix 5 – Branded Litter Results .....	65

## List of Tables

Table 1	Categories of Small Litter (16 Categories).....	15
Table 2	Categories of Large Litter (14 Categories – 84 Sub-categories)...	16
Table 3	Detailed Description for Large Litter Sub-categories .....	18
Table 4	Top 25 Sub-Categories Equal 85% Litter .....	27
Table 5	Summary of All Large Litter Observed.....	28
Table 6	Brands of Litter Observed – by Category Grouping.....	81
Table 7	All Branded Litter – Alphabetical .....	84

## List of Figures

Figure 1	105 Sites Randomly Selected in San Francisco.....	11
Figure 2	Schematic of Site Setup.....	13
Figure 3	Small Litter Templates.....	14
Figure 4	Site Set-up Small Litter .....	14
Figure 5	Site Photographs .....	23
Figure 6	Most Significant Sub-categories of Litter .....	26

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# 1.0 Introduction

## 1.1 Overview

Litter is a problem virtually everywhere where disposable / recyclable packaging is used. People have personal opinions about what litter is – the reality is much different. Whereas there is a general perception that select groups of products make up the majority of litter, field research shows that litter is made up of a broad range of products and materials.

Various researchers describe a clear picture of what litter is comprised of. For example, data show that beverage containers are usually less than 10% (by count) (Daniel Syrek of the Institute for Applied Research), Florida State University at Gainesville, Center for Marine Conservation, and Keep America Beautiful, Keep Florida Beautiful etc. – as well as Beverage Recovery in Canada research in Newfoundland and Ontario, Canada). Beverage container litter includes milk cartons and bottles, pop, beer, liquor, wine, coolers, sips, cups etc.

The purpose of this report is to outline the methodology and results of a litter audit conducted on behalf of the City of San Francisco during April 2007.

This work was conducted by HDR / BVA Engineering Inc.; a San Francisco based full service engineering and environmental management firm. MGM Management, a Division of 6528058 Canada Inc. was sub-retained by HDR / BVA Engineering Inc. to assist them in the design, site selection, data management and data analysis for this litter audit.

MGM Management has conducted a number of litter audits including this audit:

- Ontario – conducted under supervision of Dan Syrek, 1990
- Ontario – Toronto area 1994, done by McKenney with Syrek assistance
- City of Toronto, Streets Litter Audit 2002
- Regional Municipality of Peel, Streets Litter Audit 2003
- Regional Municipality of York, Streets Litter Audit 2003
- Regional Municipality of Durham, Streets Litter Audit 2003
- City of Toronto – Streets Litter Audit 2004
- City of Toronto – Parks Litter Audit 2004
- City of Toronto - Streets Litter Audit 2005
- City of Toronto - Streets Litter Audit 2006
- City of San Francisco (USA) - Streets Litter Audit 2007 (April 2007)
- City of Edmonton - Streets Litter Audit 2007 (May –June 2007)
- City of Toronto - Streets Litter Audit 2007 (pending July – Aug 2007)
- City of Hamilton (Canada) – Streets Litter Audit (pending Aug 2007)

In the USA – over 30 litter count surveys have been done by Syrek, (and reviewed by MGM Management). More recently five excellent surveys have been completed across all of the 29 counties of Florida by the University of Florida. Criticism developed that the Syrek methodology was too complicated and difficult to replicate the results, thus a simpler method was sought. In 1993 the Florida Legislature directed the Florida Center for Solid and Hazardous Waste Management to conduct a state-wide litter count. The Center developed a method for surveying litter that was understandable, simple and statistically valid. MGM Management has been trained in the methods of both the Syrek and by staff of the University of Florida to extract the best of both methodologies and adapt them to our methods.

In the past some local environmental groups have done litter audits of their own design. These methodologies may not be scientific in their development and they often tended to not be reproducible. Measurement techniques need to be unbiased, scientifically rigorous, and reproducible to be defensible. Comparison to other jurisdictions has not usually been possible with local litter audit methods. The methodology used and the data developed from this audit can be reproduced should the City of San Francisco wish to do so, and the results can be compared to other jurisdictions that have used the same approach.

This survey uses a proven and recognized method of identifying litter survey sites and for counting litter.

## **2.0 City of San Francisco Litter Audit - Methodology**

The City of San Francisco litter audit counted “accumulated litter”. This is as compared to “fresh litter” counts, where a sight is cleaned, then researchers return after a set time to count the number of pieces of litter that have been deposited. Accumulated litter allows for an examination of the occurrence of litter as it has developed over time. Fresh litter count surveys are much more labour intensive, and costly to conduct, than accumulated litter counts.

### **2.1 Site Selection Process**

#### **2.1.1 Random Site Selection**

In selecting where to conduct a site audit it is important to have an unbiased method of selection. The current methodology does not allow discretion in the field in selecting sites to be audited. Sites are pre-selected using computer techniques. In this way, neither the “dirtiest” nor the “cleanest” locations are picked. The survey teams count litter at sites that are selected in advance of field crews traveling to the location.

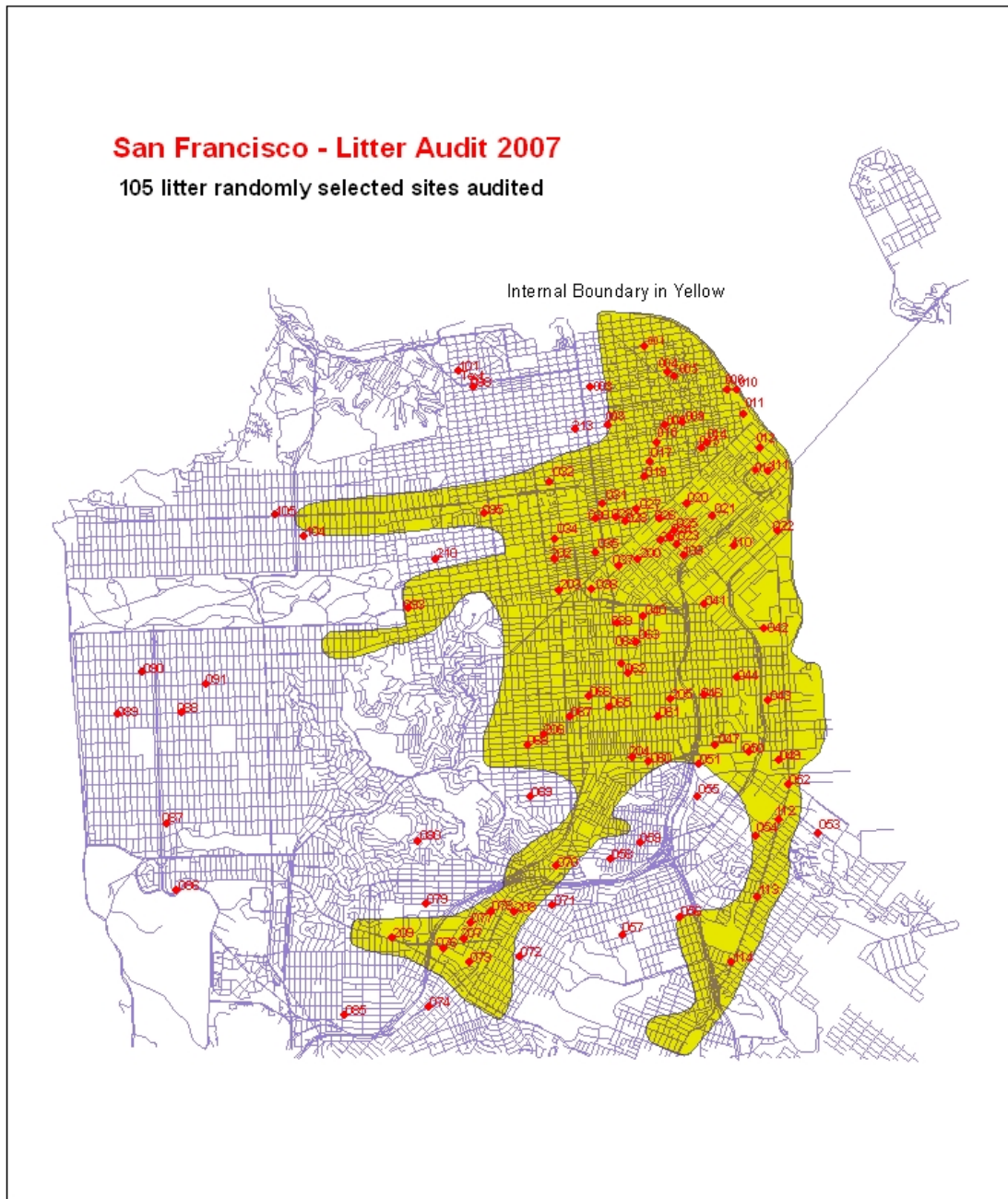
To select sites for the City of San Francisco Litter Audit, a geographical information system (GIS) database for the City of San Francisco was acquired (software used was ArcGIS 9.2 by Environmental Systems Research Institute Inc.). Working with San Francisco Environment, GIS data files were provided. Using ArcGIS 9.2, the consultant had access to 16,256 center-line coordinates for all potential public street locations within the service area of the City of San Francisco. With these data coordinates, the consultant used a computer sample generation program to randomly select potential litter audit sites. These data were then plotted on computer generated maps using ArcGIS 9.2, and detailed locations identified.

The consultant was requested to force the site selection program to provide 75% of the locations within the internal boundary service areas of the City, while the remaining 25% of sites represented the rest of the City’s geographical area.

The final outcome was 120 randomly selected potential sites. Some of these sites were rejected because they were within ¼ mile of each other, or because they occurred on freeways, railway lines, or ponds. A total of 105 randomly selected sites were audited by field surveyors, from the period April 9, 2007 to April 20, 2007.

**Figure 1 - 105 Random Sites Were Audited in 2007**

Sites were chosen by computer using ArcGIS 9.2 software.



The potential sample sites were then plotted for the entire City of San Francisco on a GIS generated map. Detailed street maps are then used to more accurately locate the sites, using two local map sources, San Francisco; ISBN 1-55368-168-1, MapArt [www.mapart.com](http://www.mapart.com) and also San Francisco & San Mateo Counties; Street Guide, The Thomas Guide, ISBN 01-528-85961-7.

Sites were rejected if they were located:

- on major highways / freeways
- location was on a bridge
- location clearly within a construction area
- on railway / subway rights-of-way
- on hydroelectric power line rights-of-way
- on / within water (ponds, rivers, streams/ lakes)
- access was difficult or impossible
- if located on industrial or private lands

Detailed directions were written by the consultant to direct audit teams to each of the selected sites. Directions were written in a manner that would allow any field team to find each site easily. Field teams were asked to travel to the sites using these directions so that no bias towards whether the site was dirty or clean would be introduced.

For each site further details of the audit site were added to the archival file by the audit team while at location, to allow future audit teams to find the same sites should the City wish to re-audit them in the future.

## **2.2 Detailed Site Files**

The consultant created an individual hard copy site file for each location. These files contain the following:

- discrete site location ID number
- travel directions sheet
- photographic label card (for taking photos on-site)
- Large Litter Site Surveyor Form - (for recording large litter observed)
- Small Litter Item Count form (for recording small litter)

## **2.3 Conducting a Site Audit**

Teams were paired in groups of two. Site auditors were hired by HDR / BVA Engineering Inc. Each team worked independently, reporting their activities to the HDR / BVA Engineering Inc., Project Manager. The City was divided into two work sectors, with teams assigned site files accordingly.

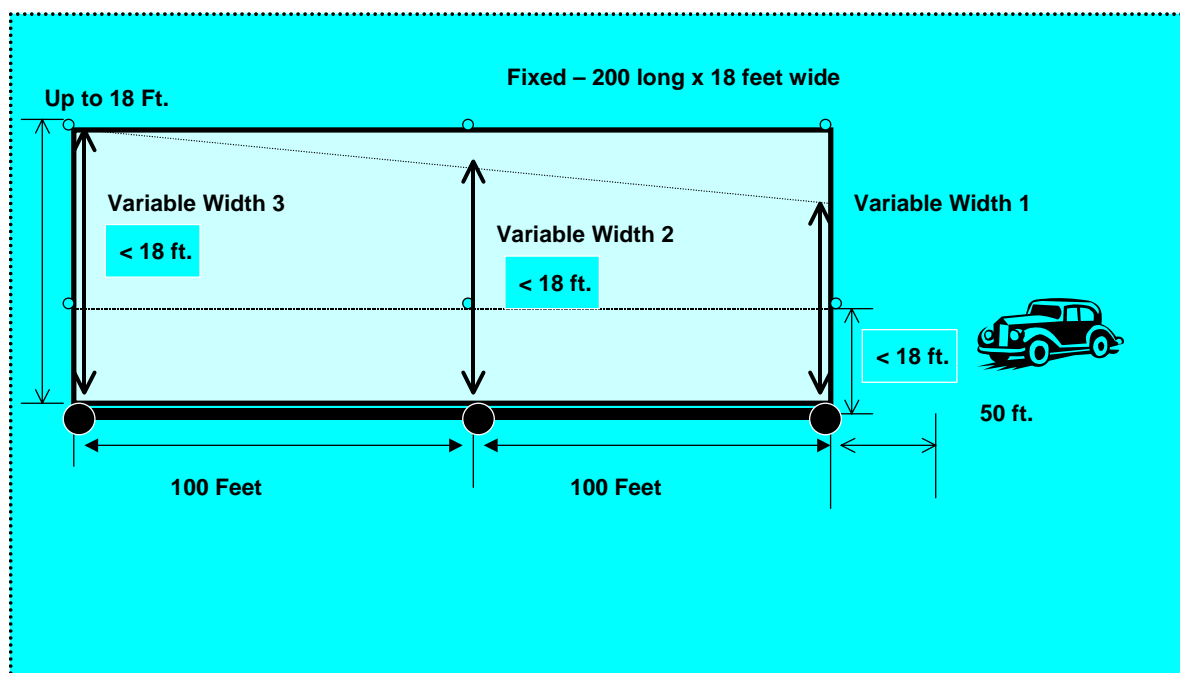
Upon being assigned site files each audit team traveled to their sites. It is of note that the team that audited the downtown areas volunteered to use bicycles as their transportation method. This proved to be a very effective means of doing sites in a congested metropolitan area. By using bicycles, time was saved, and parking costs avoided.

Teams approached their assigned sites from the directions requested and located the site. Upon arriving at a site, the teams safely parked their vehicles. Traffic cones were placed on the roadway for traffic control, and team members dressed in fluorescent orange/ yellow traffic vests to increase their visibility. The teams reported their activities throughout the sampling day to the Project Manager by cellular telephone.

Beginning at the front of the parked car (or the start of the site), the team used a measuring device to measure 50 feet ahead of the start of the site. Using street marking paint, a mark was drawn on the pavement ahead to denote the starting point of the audit site. From this point the team measured an additional 100 feet, marking the roadway with another identifier to show the mid-point of the site. A final measurement of an additional 100 feet denoted the end of the audit site. Each site was 200 feet in length.

The width of the site was measured from 1.5 feet inside the curb (from the center of the roadway) towards the outer edge of the site, up to a maximum width of 18 feet. The rule was set to include 1.5 feet into the street since the curb is a normal catchments structure, for which the municipality is responsible for litter clean up. Sites with a width of 18 feet and 200 feet long were designated as a “fixed” site. In many instances a site was less than 18 feet wide. This occurred in commercial areas where storefronts provide less than 18 feet from the roadways (plus 1.5 feet into the road). Sites less than 18 feet in width are designated as “variable” sites.

**Figure 2 - Schematic of Litter Audit Site**



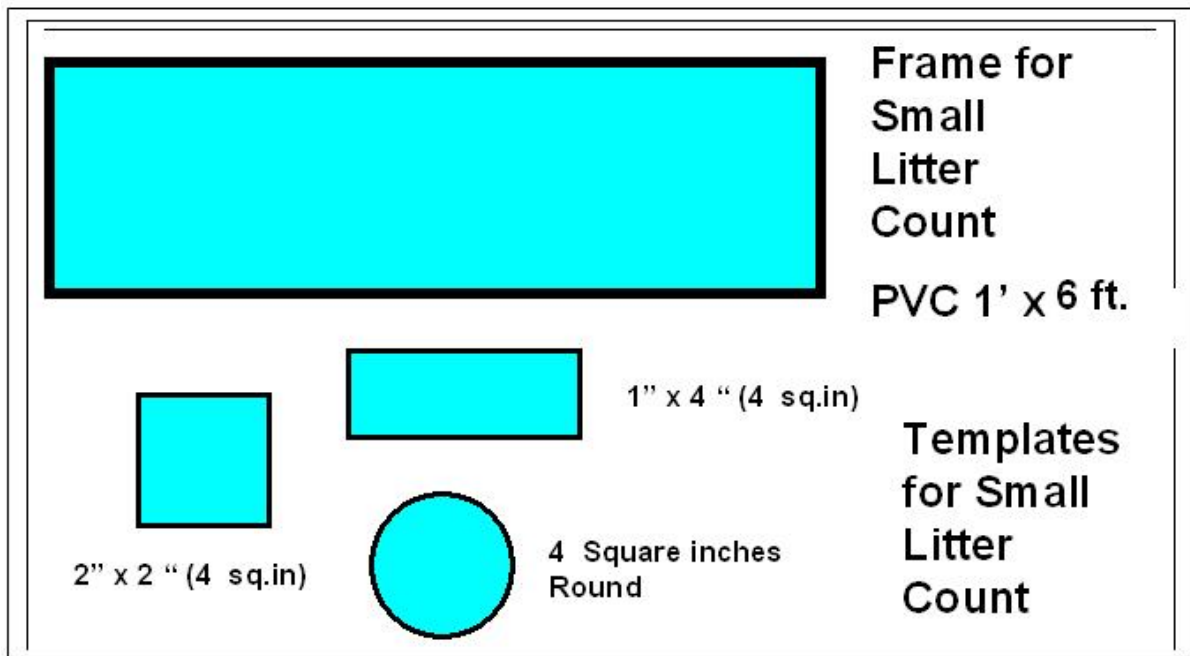
## 2.4 Classification of Large Litter

For purposes of classifying litter, and in accordance with the methods used in previous litter surveys conducted by us, large litter was defined to be that which is greater than 4 square inches in size.

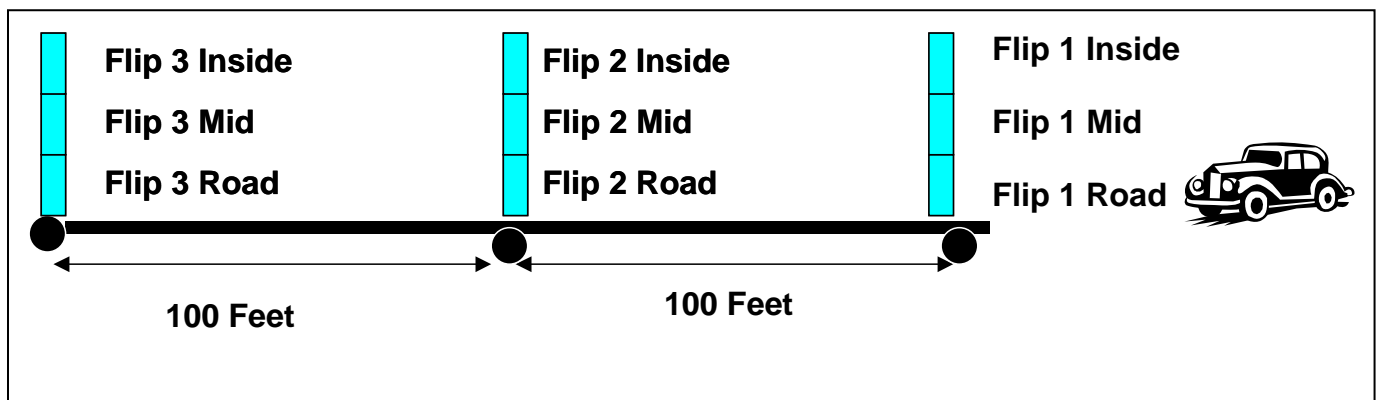
## 2.5 Classification of Small Litter

Small litter were those pieces of debris that were less than 4 square inches in size, within a defined area with an audit site. The small litter audit methodology examines three transacts, or slices, of the site. A frame made of 1/2 inch P.V.C. plastic tubing was constructed to act as a frame. This frame was 1 foot wide and 6 feet long. A surveyor would look for and count small litter in three samples, one at the start of the site, one at the mid-point and one at the end of the site. At each transact section; three flips of the frame are done, thus surveying 18 square feet of the site – repeated three times.

**Figure 3 – Small Litter Templates**



**Figure 4 – Site Set-up – Small Litter**



## **Table 1 - Categories of Small Litter**

The categories in the litter counts less than 4 square inches that were examined are:

- cigarette butts/ debris
- other tobacco
- bottle caps
- straws
- candy packaging & wrappers
- polyfoam packing materials
- other polystyrene debris
- glass
- paper
- plastic film
- hard plastic
- aluminium / foil debris
- rubber
- metal (not aluminium)
- other materials
- gum deposits on roadways & sidewalks



**Table 2 - Categories of Large Litter**

Eighty-four sub-categories of large litter were counted, including:

Major Category	Sub-Category Number	Large Litter	Sub-Category Name	Material
1	1	Beer Cans	Beverage	metal
	2	Beer Bottles (glass)	Beverage	glass
	3	Soft Drink (glass)	Beverage	glass
	4	Soft Drink (cans)	Beverage	metal
	5	Soft Drink (plastic)	Beverage	plastic
	6	Sport Drink (glass)	Beverage	glass
	7	Sport Drink (plastic)	Beverage	plastic
	8	Water (glass)	Beverage	glass
	9	Water (plastic)	Beverage	plastic
	10	Wine/ Liquor (glass)	Beverage	glass
	11	Wine/ Liquor (plastic/other)	Beverage	plastic
	12	Milk/Juice (Plastic)	Beverage	plastic
	13	Milk/Juice (glass)	Beverage	glass
	14	Milk/Juice (Gable Top)	Beverage	paper
2	15	Foil Pouches	Other Packaging	composite
	16	Aseptic (Box)	Other Packaging	composite
	17	Broken Glass Container	Other Packaging	glass
	18	Six pack plastic rings	Other Packaging	plastic
	75	Foil containers	Other Packaging	metal
3	19	Plastic drink cups	Cups	plastic
	20	Paper Cups (cold)	Cups	paper
	21	Paper Cups (Hot)	Cups	paper
	22	Polystyrene cups (foam)	Cups	plastic
	23	Other paper cups	Cups	paper
	24	Cup Lids, Pieces lids	Cups	plastic
4	25	Plastic retail bags	Bags	plastic
	26	Paper retail bags	Bags	paper
	27	Paper bags - fast food	Bags	paper
	28	Plastic bags - not retail	Bags	plastic
	29	Paper bags - not retail	Bags	paper
	30	Zipper bags/ sandwich	Bags	plastic
5	31	Cardboard boxes/ box mat'l	Other Packaging	paper
	32	Paperboard (cereal type)	Other Packaging	paper
	33	Paper Beverage Cases	Other Packaging	paper
	34	Polystyrene clamshells	Other Packaging	plastic
	35	Paper clamshells	Other Packaging	paper
	36	Other Plastic Shells/Boxes	Other Packaging	plastic
6	37	Plastic Jars / Bottles/ Lids	OTHER CNTRS.	plastic
	38	Glass jars/ bottles misc.	OTHER CNTRS.	glass
	39	Cans - steel	OTHER CNTRS.	metal
	40	Cans - aluminum	OTHER CNTRS.	metal
	41	Container lids	OTHER CNTRS.	
	42	Aerosol cans (paint, oils, etc.)	OTHER CNTRS.	metal
7	43	Paper Food Wrap	Food Wraps/ Cntrs	paper
	44	Paper / foil composite wrap	Food Wraps/ Cntrs	composite
	45	Plastic wrap	Food Wraps/ Cntrs	plastic
	54	Condiment package (salt, ketchup, vinegar etc.)	Take-Out Extras	
	55	Utensils	Take-Out Extras	plastic

	56	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes	Take-Out Extras	paper
	57	Paper Fast Food Plates	Take-Out Extras	paper
	58	Poly Fast Food Plates	Take-Out Extras	plastic
	59	Other Plastic FF Plates	Take-Out Extras	plastic
	60	Plates - Other Mat's	Take-Out Extras	
8	46	Polystyrene Trays	Trays	plastic
	47	Paper Trays	Trays	paper
	48	Other Mat'l Trays (what?)	Trays	
9	49	Gum wrappers	Confectionary/Snack	
	50	Candy bar wraps	Confectionary/Snack	
	51	Candy pouches	Confectionary/Snack	
	52	Sweet packaging (describe)	Confectionary/Snack	
	53	Other confectionery (describe)	Confectionary/Snack	
	63	Snack food packaging	Confectionary/Snack	
10	61	Clothing or clothing pieces	Cloth	
	62	Other cloth	Cloth	
11	64	Plastic packaging other	Other Miscellaneous	plastic
	65	Paper packaging other	Paper/ Fibre Mat'l	paper
	66	Plastic / composite other	Other Miscellaneous	
	67	Foil materials / foil pieces	Other Miscellaneous	metal
12	68	No Brand Name Towels / Napkins / Serviettes	Paper/ Fibre Mat'l	paper
	69	Lottery ticket debris	Paper/ Fibre Mat'l	paper
	70	Printed material (newspapers, flyers, books etc.)	Paper/ Fibre Mat'l	paper
	71	Stationary (school, business etc.)	Paper/ Fibre Mat'l	paper
	72	Receipts (business forms, bus transfers, etc.)	Paper/ Fibre Mat'l	paper
13	73	Cigarette / cigar debris (>4")	Tobacco	
	74	Tobacco other (packs, matches, cellophane)	Tobacco	
14	76	Misc. Paper	Other Miscellaneous	paper
	77	Misc. Plastic	Other Miscellaneous	plastic
	78	Misc. Paperboard	Other Miscellaneous	paper
	79	Misc. Cardboard	Other Miscellaneous	paper
	80	Misc. Glass	Other Miscellaneous	glass
	81	Vehicle & Metal Road Debris	Other Miscellaneous	
	82	Construction debris	Other Miscellaneous	
	83	Tire & Rubber debris	Other Miscellaneous	rubber
	84	Home Articles	Other Miscellaneous	

**Table 3 - Detailed Descriptions of Large Item Categories**

1	Beer Cans	All brands of consumer beer can containers
2	Beer Bottles (glass)	Refillable and non-refillable beer bottles, all sizes
3	Soft Drink (glass)	Soft drinks, carbonated, non-carbonated, flavoured drinks in glass containers
4	Soft Drink (cans)	Soft drinks, carbonated, non-carbonated, flavoured drinks in metal can containers
5	Soft Drink (plastic)	Soft drinks, carbonated, non-carbonated, flavoured drinks in plastic containers, all sizes
6	Sport Drink (glass)	Sport drinks, carbonated or non-carbonated, flavoured drinks in glass containers, all sizes
7	Sport Drink (plastic)	Sport drinks, carbonated or non-carbonated, flavoured drinks in plastic containers, all sizes
8	Water (glass)	Packaged water, carbonated or non-carbonated, flavoured drinks in glass containers, all sizes
9	Water (plastic)	Packaged water, carbonated or non-carbonated, flavoured drinks in plastic containers, all sizes
10	Wine/ Liquor (glass)	Wine & liquor in glass, all sizes
11	Wine/ Liquor (plastic/other)	Wine & liquor in plastic or any other formats, all sizes
12	Milk/Juice (Plastic)	Milk or juice containers, packages in plastic
13	Milk/Juice (glass)	Milk or juice containers, packages in glass
14	Milk/Juice (Gable Top)	Milk or juice containers, packages in gable top paper cartons, all sizes
15	Foil Pouches	All packaged goods in foil packaging, pieces of foil materials
16	Aseptic (Box)	Drink-in-box, juice, fluids, other
17	Broken Glass Container	Glass fragments
18	Six pack plastic rings	Retainer plastic for carrying cans
19	Plastic drink cups	Cups, all sizes, all resin types
20	Paper Cups (cold)	Cups, all sizes, all paper types - cold drinks
21	Paper Cups (Hot)	Cups, all sizes, all paper types - hot drinks
22	Polystyrene cups (foam)	Cups, all sizes, all polystyrene types - hot drinks
23	Other paper cups	Cups, other materials
24	Cup Lids, Pieces lids	Fragments and pieces of cups
25	Plastic retail bags	Whole and pieces of retail plastic bags
26	Paper retail bags	Whole and pieces of retail paper bags

27	Paper bags – fast food	Whole and pieces of fast food outlet paper bags
28	Plastic bags – not retail	Whole and pieces of plastic bags, not retail i.e. dry cleaning
29	Paper bags - not retail	Paper bags & sacs, example leaf bag debris
30	Zipper bags/ sandwich	plastic lunch bags and sacs
31	Cardboard boxes/ box mat'l	All cardboard and box materials
32	Paperboard (cereal type)	Cereal, shoe boxes and pieces etc.
33	Paper Beverage Cases	Paper material outer packaging for beverage products
34	Polystyrene clamshells	Whole and pieces of take-away or other Styrofoam containers
35	Paper clamshells	Whole and pieces of take-away or other paper containers
36	Other Plastic Shells/Boxes	PET, PVC, HDPE , other material shells
37	Plastic Jars / Bottles/ Lids	All jars, bottles etc, plastic, non beverage, example dish detergent bottle
38	Glass jars/ bottles misc.	All jars, bottles not described above, in glass
39	Cans – steel	Food, non-food and other product steel can containers
40	Cans - aluminum	Food, non-food and other product aluminum can containers
41	Container lids	All lids, closures, and pieces > 4 sq. in.
42	Aerosol cans (paint, oils, etc.)	Aerosol cans, tops, lids - all products
43	Paper Food Wrap	Wrap for food, commercial & non-commercial; example meat wrap,
44	Paper / foil composite wrap	Wrap for food or non-food items, commercial & non-commercial; example hamburger paper/ foil composite wrap,
45	Plastic wrap	All plastic wrap types, food, non-food
46	Polystyrene Trays	Trays for take-out, non-take out, microwavable, display etc
47	Paper Trays	Trays for take-out, non-take out, microwavable, display etc
48	Other Mat'l Trays (what?)	Trays for take-out, non-take out, microwavable, display etc
49	Gum wrappers	Packaging used to seal, sell gum products
50	Candy bar wraps	Packaging used to seal, sell candy products
51	Candy pouches	Packaging used to seal, sell candy products - pouch format
52	Sweet packaging (describe)	Packaging used to seal, sell confections (cakes, pies, sweet snack products

53	Other confectionery (describe)	All other packaging for confectionaries
54	Condiment package (salt, ketchup, vinegar etc.)	Pouches, containers, creamers etc
55	Utensils	Forks, knives, chop sticks etc
56	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes	Towels & napkins etc with brand identification identifiable
57	Paper Fast Food Plates	Paper Plates, used to serve fast food
58	Poly Fast Food Plates	Polystyrene Plates, used to serve fast food
59	Other Plastic FF Plates	Other Material Plates, used to serve fast food
60	Plates - Other Materials	Plates for other than fast food applications, i.e. picnic plates used by families
61	Clothing or clothing pieces	All cloth, clothing pieces, and clothing discarded on the site
62	Other cloth	Tarps, industrial fabrics etc
63	Snack food packaging	All snack food (i.e.. Salty snacks, chips)
64	Plastic packaging other	Plastic packaging otherwise not described
65	Paper packaging other	Paper packaging otherwise not described
66	Plastic / composite other	All paper and composite debris not previously described
67	Foil materials / foil pieces	Foils and pieces, aluminum food foils, industrial foils
68	No Brand Name Towels / Napkins / Serviettes	Napkins and towels - no brand identification
69	Lottery ticket debris	Tickets, and gaming items
70	Printed material (newspapers, flyers, books etc.)	All printed material, commercially printed
71	Stationary (school, bus. etc.)	Includes school papers, written items, other printed materials such as business forms
72	Receipts (business forms, bus transfers etc. )	Receipts, business items, invoices, packing slips, bus transfers, commercial tickets (concerts, cinema)

73	Cigarette / cigar debris (>4")	Tobacco items
74	Tobacco other (packs, matches, cellophane)	Packages, wrappers, tobacco foil products, lighters, matchboxes
75	Foil containers	Foil containers (ice cream wraps)
76	Misc. Paper	All other non-described paper material, whole or shredded, unidentifiable as another category
77	Misc. Plastic	All other non-described plastic material, whole or shredded, unidentifiable as another category
78	Misc. Paperboard	All other non-described paperboard material, whole or shredded, unidentifiable as another category
79	Misc. Cardboard	All other non-described cardboard material, whole or shredded, unidentifiable as another category
80	Misc. Glass	All other non-described glass material, whole or broken, unidentifiable as another category
81	Vehicle & Metal Road Debris	Debris associated with transportation, private or commercial
82	Construction debris	Debris associated with construction, private or commercial
83	Tire & Rubber debris	Rubber materials, tire pieces, shock absorbers, sheet rubber or pieces
84	Home Articles	All non-described household items, (i.e.. Lamps, electrical, lawn chairs, etc)

## **2.6 Survey Counts**

After setting up each site, one auditor commenced the large litter survey count, and recorded brands of items observed at the site. The other auditor commenced the small litter survey, using the methodology described above.

Before starting the large litter survey, the field technician first checked his/her tape recorder to ensure it was working properly.

The auditor then dictated the description sections of the Surveyor Site Form (Appendix 1) into the recorder. This information describes the site number, date, digital photos taken, camera used, start time, type of site (residential, industrial, commercial, downtown core), type of roadway, whether road is divided, grass height, evidence of a clean-up, stop sign/traffic light visible, fast food near-by, convenience store nearby, described the litter catch points (grass mow line, hedge, fence, other), and provided a visual litter rating on a subjective basis. All photographs are part of the archival record for this survey – and are part of the electronic database supplied to the City

The visual litter rating is an “opinion” expressed by the surveyor as to whether the site is dirty (highest rating = 4) or clean (lowest rating = 1).

Once this information is recorded the auditor proceeds to walk the first pass through the site slowly, taping his/ her observations into the tape-recorder as they observe the site. Proceeding back and forth across the site until the surveyor has walked the site up to the mid-point. The surveyor noted that they had reached the mid-point, then continuing on observing litter up to the end of the site boundary, making verbal notations of the litter observed and describing them into the 84 sub-categories of litter. This completed “Pass One”. The surveyor then repeated the observations (Pass Two) over the site, using the same procedure, but in the opposite direction. Results of the two passes are used in data analysis.

## **2.7 Documentation & File Management**

At each site the teams were required to make a tape-recorded record of their observations of large litter. At the end of doing the verbal entries into the recorder, a team member then transcribed the verbal observations onto a Large Litter Site Form (Appendix 1). In this way the verbal record was transferred to a written record for the site.

These forms were later transcribed into a database for analysis. Each site’s observation forms were transcribed at the site before leaving the location. If a recording problem occurred, the site was redone.

Each form was returned in its file folder to the Project Manager for archival purposes.

## **2.8 Photographic Record of the Site**

At each site location, the litter audit team took digital photographs. One shot was taken at the start of the site, looking towards the end of the site – away from the vehicle. The second shot was taken in the mid-point of the site – looking across the width of the site toward the boundary. And the final photograph was taken at the end of the site – looking back towards the start of the site (towards the vehicle). The purpose of the photographs is to set the scene of the site – not to detail litter on the ground.

In each case the number of photographs at each site was recorded on the Surveyor Site Form. The site-specific digital photographs were downloaded to the database of the survey, as an archival record of the site during the audit period.

**Figure 5 - Site Photographs** (example photographs)





## **2.9 Branded Litter Observations**

Using the Large Litter Site Form (with 84 sub-categories of large litter) as a guide, data was also gathered for observing Branded Litter. Branded litter is large litter (i.e. over 4 square inches) that has a recognizable brand name affixed. Team auditors verbally identified litter by brand name, which was later transcribed onto the Large Litter Site Form, for data entry and analysis. Where any doubt occurred in the identification of a brand of litter, no entry was made.

## **2.10 Survey Schedule and Progress**

The field audit teams were assembled for training on April 9, 2007. Following an orientation and safety training session field observations began immediately. Fieldwork was conducted between April 9, 2007 – April 20, 2007.

Each two-person audit team were able to complete between 7 – 10 sites per day allowing for breaks, lunch and travel time.

## 3.0 Large Litter Survey Results

Field observations were dictated into tape recorders, then later transcribed onto Large Litter Site Form (Appendix 1) and Small Item Count Sheets.

Forms were then inputted into a Microsoft Access database for analysis.

### 3.1 Discussion of Large Litter Results

Litter counted for the City of San Francisco Litter audit, were grouped into 14 broad categories.

- |                                      |                                  |
|--------------------------------------|----------------------------------|
| ▪ Other (incl. misc. paper)          | Paper (printed mat's, news)      |
| ▪ Other Packaging (salty snacks etc) | Confectionary (candy)            |
| ▪ Cups (hot, cold drinks)            | Beverage containers              |
| ▪ Tobacco products                   | Other Containers (not beverage)  |
| ▪ Bags (paper, plastic)              | Take out extras (condiments etc) |
| ▪ Food wraps                         | Cloth / Clothing                 |
| ▪ Plates                             | Trays                            |

In total, 3,812 pieces of large litter were counted. This is an average of 36 items per site based upon the 105 sites audited.

The largest category of litter observed, at 570 litter pieces, was miscellaneous paper. This represented 15% of the total littered items observed. Non-branded paper napkin and paper towels was the second most significant category of litter with 494 items observed, or 13% of total litter. All fiber based products and items observed contributed 2,051 items or 54% of the total litter observed. Fiber based litter included paper, paperboard, cardboard, towels, napkins, newspapers, books, flyers, printed materials, and business forms, stationary.

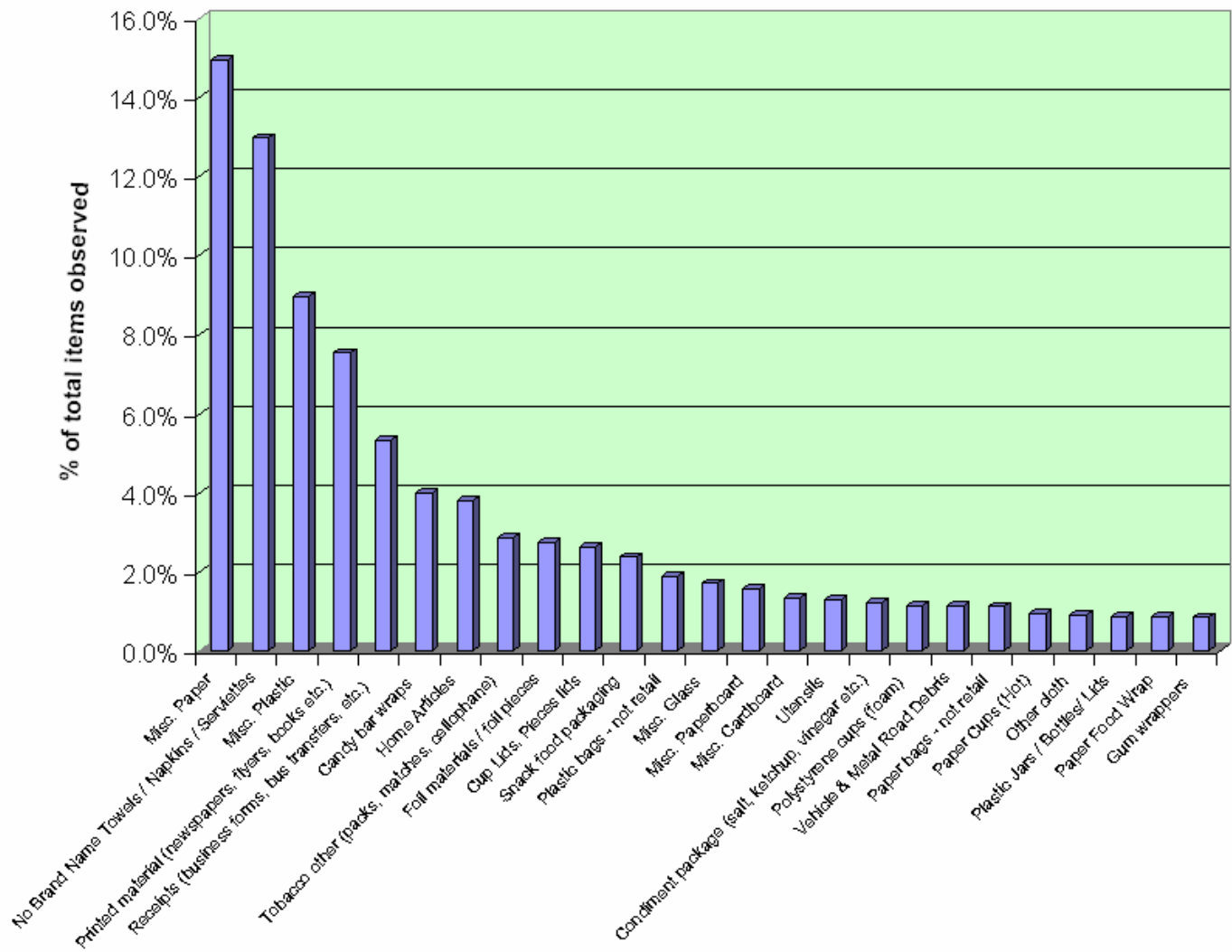
The second most significant material type observed was plastic materials.

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 litter; which is litter that is so broken or weathered that auditors cannot identify it with certainty; and is assumed to be plastic. Miscellaneous plastic litter accounted for 342 littered items or 9% of total litter. All large plastic litter in aggregate accounted for 746 items observed, or 20% of total litter observed.

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 San Francisco, 2,393 small litter items were observed in 104 sites audited. This averages 23 items per site and 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 audits.

**Figure 6 – Most Significant Sub-Categories of Litter**

## Top 25 Sub-categories - 85% of Litter



**Table 4 - Top Litter Sub-Categories Equal 85% of Litter**

**San Francisco - Large Litter Observations - Top 25 Categories**

<b><u>Large Litter Category</u></b>	<b><u>Average</u></b>	<b><u>% of Total</u></b>	
Misc. Paper	570	15.0%	
No Brand Name Towels / Napkins / Serviettes	494.5	13.0%	
Misc. Plastic	342	9.0%	
Printed material (newspapers, flyers, books etc.)	287	7.5%	
Receipts (business forms, bus transfers, etc.)	203	5.3%	
Candy bar wraps	152	4.0%	
Home Articles	145	3.8%	
Tobacco other (packs, matches, cellophane)	109	2.9%	
Foil materials / foil pieces	104.5	2.7%	
Cup Lids, Pieces lids	100.5	2.6%	
Snack food packaging	90.5	2.4%	
Plastic bags - not retail	71.5	1.9%	
Misc. Glass	65	1.7%	
Misc. Paperboard	59.5	1.6%	
Misc. Cardboard	50.5	1.3%	
Utensils	49	1.3%	
Condiment package (salt, ketchup, vinegar etc.)	46	1.2%	
Polystyrene cups (foam)	43	1.1%	
Vehicle & Metal Road Debris	43	1.1%	
Paper bags - not retail	42.5	1.1%	
Paper Cups (Hot)	36	0.9%	
Other cloth	34	0.9%	
Plastic Jars / Bottles/ Lids	33	0.9%	
Paper Food Wrap	32.5	0.9%	
Gum wrappers	32	0.8%	84.9%

**Table 5 - Summary of All Large Litter Observed (2007)****San Francisco - Large Litter Observations - All Categories**

<b><u>Large Litter Category</u></b>	<b><u>Average</u></b>	<b><u>% of Total</u></b>
Misc. Paper	570	15.0%
No Brand Name Towels / Napkins / Serviettes	494.5	13.0%
Misc. Plastic	342	9.0%
Printed material (newspapers, flyers, books etc.)	287	7.5%
Receipts (business forms, bus transfers, etc.)	203	5.3%
Candy bar wraps	152	4.0%
Home Articles	145	3.8%
Tobacco other (packs, matches, cellophane)	109	2.9%
Foil materials / foil pieces	104.5	2.7%
Cup Lids, Pieces lids	100.5	2.6%
Snack food packaging	90.5	2.4%
Plastic bags - not retail	71.5	1.9%
Misc. Glass	65	1.7%
Misc. Paperboard	59.5	1.6%
Misc. Cardboard	50.5	1.3%
Utensils	49	1.3%
Condiment package (salt, ketchup, vinegar etc.)	46	1.2%
Polystyrene cups (foam)	43	1.1%
Vehicle & Metal Road Debris	43	1.1%
Paper bags - not retail	42.5	1.1%
Paper Cups (Hot)	36	0.9%
Other cloth	34	0.9%
Plastic Jars / Bottles/ Lids	33	0.9%
Paper Food Wrap	32.5	0.9%
Gum wrappers	32	0.8%
Paper Cups (cold)	32	0.8%
Construction debris	31.5	0.8%
Lottery ticket debris	31	0.8%
Sweet packaging (describe)	30.5	0.8%
Beer Bottles (glass)	29.5	0.8%
Plastic drink cups	29.5	0.8%
Clothing or clothing pieces	28	0.7%
Plastic packaging other	27.5	0.7%
Plastic wrap	25.5	0.7%
Plastic retail bags	23	0.6%
Polystyrene clamshells	20.5	0.5%
Candy pouches	18.5	0.5%
Name Brand (Fast Food etc.) Towels / Napkins	14.5	0.4%
Paper retail bags	14	0.4%
Wine/ Liquor (plastic/other)	13	0.3%
Soft Drink (cans)	12.5	0.3%

Continued.....

## **San Francisco - Large Litter Observations - All Categories**

<b><u>Large Litter Category</u></b>	<b><u>Average</u></b>	<b><u>% of Total</u></b>
Zipper bags/ sandwich	11.5	0.3%
Foil containers	10.5	0.3%
Plastic / composite other	10.5	0.3%
Sport Drink (glass)	10.5	0.3%
Paper / foil composite wrap	10	0.3%
Paperboard (cereal type)	10	0.3%
Tire & Rubber debris	9.5	0.2%
Water (plastic)	9	0.2%
Other Plastic Shells/Boxes	7.5	0.2%
Cardboard boxes/ box mat'l	7	0.2%
Foil Pouches	7	0.2%
Milk/Juice (Plastic)	7	0.2%
Paper bags - fast food	7	0.2%
Soft Drink (glass)	6.5	0.2%
Beer Cans	6	0.2%
Cans - aluminium	6	0.2%
Aerosol cans (paint, oils, etc.)	5.5	0.1%
Aseptic (Box)	5.5	0.1%
Cans - steel	5	0.1%
Paper Trays	4.5	0.1%
Milk/Juice (Gable Top)	4	0.1%
Soft Drink (plastic)	4	0.1%
Poly Fast Food Plates	3.5	0.1%
Wine/ Liquor (glass)	3.5	0.1%
Container lids	3	0.1%
Other confectionery (describe)	3	0.1%
Paper Fast Food Plates	3	0.1%
Sport Drink (plastic)	3	0.1%
Paper packaging other	2.5	0.1%
Broken Glass Container	2	0.1%
Glass jars/ bottles misc.	2	0.1%
Milk/Juice (glass)	1.5	0.0%
Other paper cups	1.5	0.0%
Cigarette / cigar debris (>4")	1	0.0%
Paper clamshells	1	0.0%
Stationary (school, business etc.)	1	0.0%
Polystyrene Trays	0.5	0.0%
	3812.5	100.0%

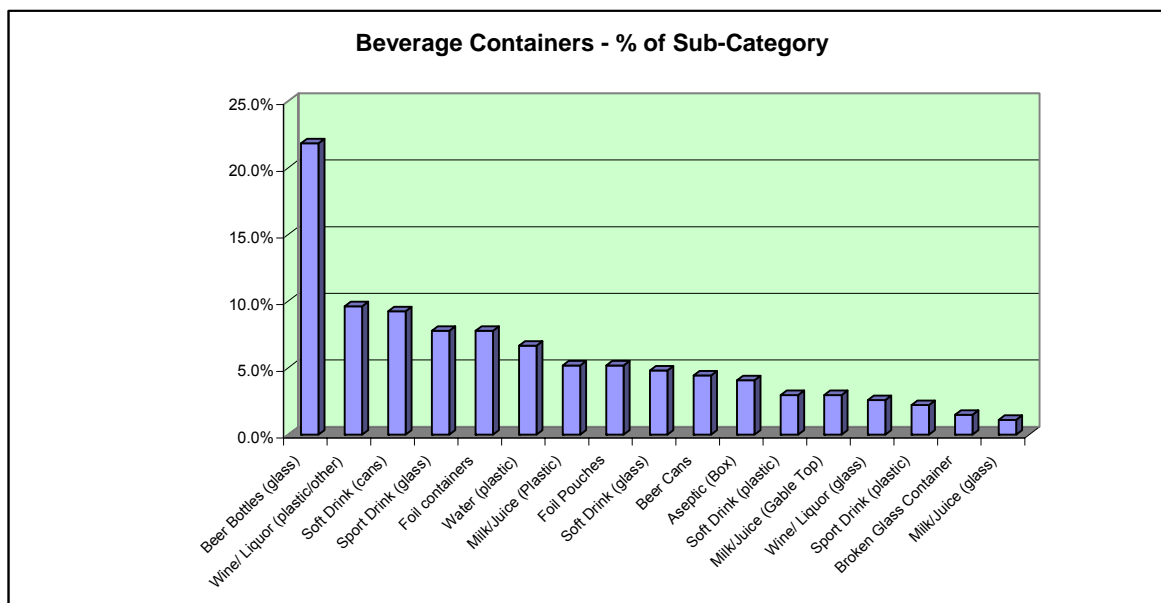
## 3.2 Detailed Analysis by Major Category

### 3.2.1 Beverage Containers

(Soft drink, beer, wine/liquor, sports, water)

#### Beverage Container Summary

	Items	% of Sub-Category	% of Total Litter
Beer Bottles (glass)	29.5	21.9%	0.77%
Wine/ Liquor (plastic/other)	13	9.6%	0.34%
Soft Drink (cans)	12.5	9.3%	0.33%
Sport Drink (glass)	10.5	7.8%	0.28%
Foil containers	10.5	7.8%	0.28%
Water (plastic)	9	6.7%	0.24%
Milk/Juice (Plastic)	7	5.2%	0.18%
Foil Pouches	7	5.2%	0.18%
Soft Drink (glass)	6.5	4.8%	0.17%
Beer Cans	6	4.4%	0.16%
Aseptic (Box)	5.5	4.1%	0.14%
Soft Drink (plastic)	4	3.0%	0.10%
Milk/Juice (Gable Top)	4	3.0%	0.10%
Wine/ Liquor (glass)	3.5	2.6%	0.09%
Sport Drink (plastic)	3	2.2%	0.08%
Broken Glass Container	2	1.5%	0.05%
Milk/Juice (glass)	1.5	1.1%	0.04%
<b>Total</b>	<b>135</b>	<b>100.0%</b>	<b>3.54%</b>



#### Discussion:

The total beverage category yielded a count of 135 items, or 3.5 % of the total litter counted. This level of beverage container litter is lower than the 7.3 % of total litter for beverage containers observed in audits conducted by the consultant in all jurisdictions between 2002-2006 from other jurisdictions (46,000 data points). This may partially be explained by the California Redemption Value, placed upon containers in California which provides an incentive for many of these containers to be salvaged for refunds. The data obtained where the contribution of containers was over 7% were in non-deposit – refund jurisdictions.

Soft drink containers in aggregate accounted for 1 % of total litter (0.96% for all types of soft drink and sport drink containers). Beer containers accounted for about the same amount at 0.92% of total litter; while wine / liquor containers were lower at 0.43% of total litter.

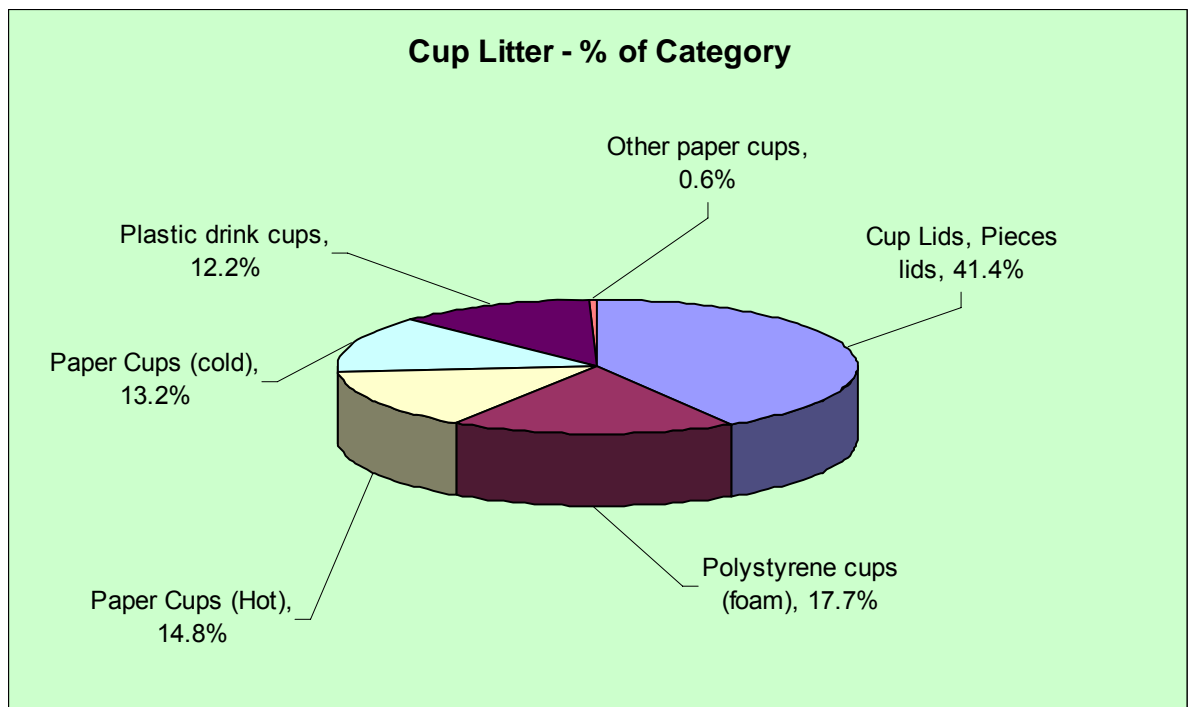
### 3.2.2 Cups

#### Cup Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Cup Lids, Pieces lids	100.5	41.4%	2.64%
Polystyrene cups (foam)	43	17.7%	1.13%
Paper Cups (hot)	36	14.8%	0.94%
Paper Cups (cold)	32	13.2%	0.84%
Plastic drink cups	29.5	12.2%	0.77%
Other paper cups	1.5	0.6%	0.04%
<b>Total</b>	<b>242.5</b>	<b>100.0%</b>	<b>6.36%</b>

1. Note: Observations may not be whole numbers due to averaging.

2. Category average - 2002 - 2006 7.2 % (46,000 observations)



#### Discussion:

Cup litter includes hot and cold drink cups. This is indicative of wastes from a variety of over-the-counter food providers, whereby litter is then deposited on public lands. The category includes, polystyrene cups as well as lids and pieces of lids from hot and cold drink containers.

The sub-category yielded 6.4 % of the total litter counted in the San Francisco Litter audit, compared to a category average over the consultants 2002 – 2006 audits from other jurisdictions of 7.2% of total litter. San Francisco appears to have an average amount of cup litter. Cup lids and pieces and Styrofoam cups make up the majority of the litter in this category, reflecting those retailers that sell their product in this format.

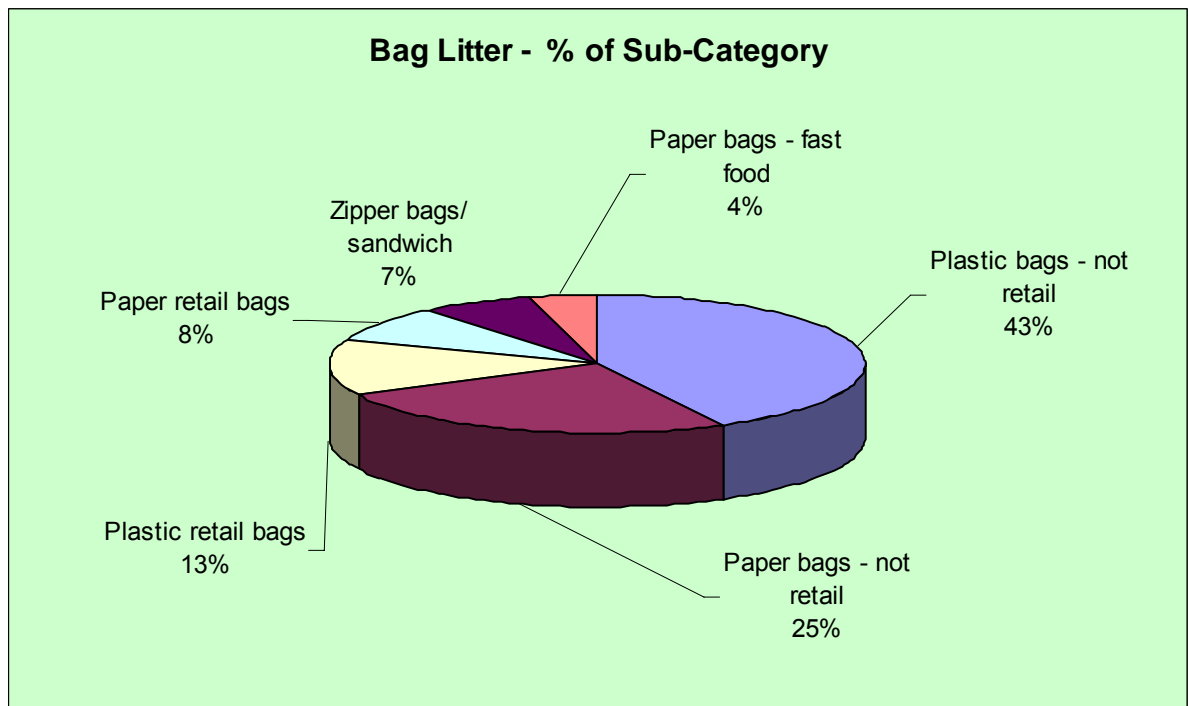


### 3.2.3 Bags

#### Bag Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Plastic bags - not retail	71.5	42.2%	1.88%
Paper bags - not retail	42.5	25.1%	1.11%
Plastic retail bags	23	13.6%	0.60%
Paper retail bags	14	8.3%	0.37%
Zipper bags/ sandwich	11.5	6.8%	0.30%
Paper bags - fast food	7	4.1%	0.18%
<b>Total</b>	<b>169.5</b>	<b>100.0%</b>	<b>4.45%</b>

1. Note: Observations may not be whole numbers due to averaging.
2. Sub-category average - 2002 - 2006 7.2 % (46,000 observations)



#### Discussion:

Bags that were not retail in nature, such as dry cleaning bags or other non-branded plastic bags represented 3 % of total litter (1.88% plastic bags – not retail) + 1.11% paper bags – not retail), representing the largest portion of litter in this sub-category or 68% of bag litter. Plastic bags with a retail marking on them (i.e. grocery bags) represented 13% of the litter in this category, 0.59% of total litter. Paper bags from fast food outlets accounted for 4 % of this sub-category, and paper bags other than from retail were 8% of the sub-category litter. Bag litter in San Francisco was observed to be higher (4.43% of total litter) than the consultant's category average for bags in all audits conducted between 2002 – 2006 (2.7%) from other jurisdictions.

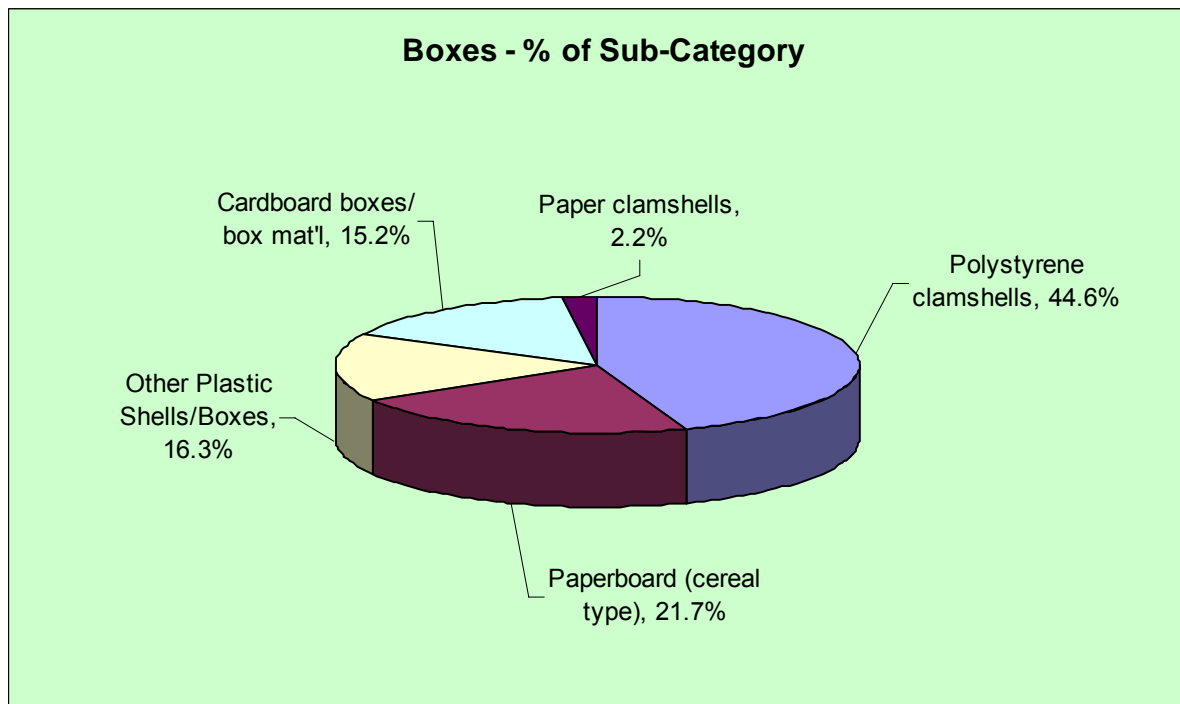
### 3.2.4 Boxes

#### Box Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Polystyrene clamshells	20.5	44.6%	0.5%
Paperboard (cereal type)	10	21.7%	0.3%
Other Plastic Shells/Boxes	7.5	16.3%	0.2%
Cardboard boxes/ box mat'l	7	15.2%	0.2%
Paper clamshells	1	2.2%	0.0%
Totals	46	100.0%	1.2%

1. Note: Observations may not be whole numbers due to averaging

2. Sub-category average - 2002 - 2006 0.8% (46,000 observations)



#### Discussion:

Polystyrene clamshell type boxes and paperboard type boxes represented 66 % of this sub-category. The amount of litter from the boxes sub-category was slightly greater as a percentage of total litter in the San Francisco audit as compared to the consultant's average for this category in audits between 2002 – 2006 from other jurisdictions; 1.2% of total litter in the San Francisco audit compared to an average of 0.8% in aggregate litter audits from other jurisdictions.

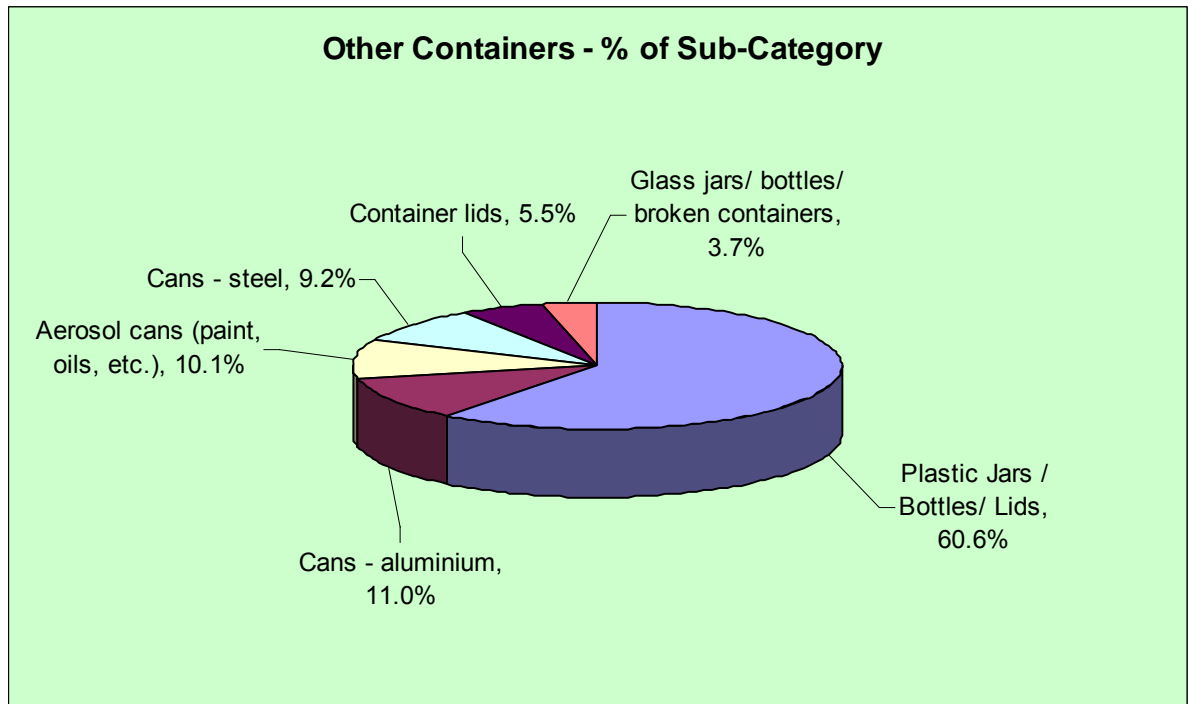
### 3.2.5 Other Containers (non-beverage)

#### Other Containers Litter Summary

	Items <sup>1.</sup>	% of Sub-Category	% of Total Litter <sup>2.</sup>
Plastic Jars / Bottles/ Lids	33	60.6%	0.87%
Cans - aluminium	6	11.0%	0.16%
Aerosol cans (paint, oils, etc.)	5.5	10.1%	0.14%
Cans - steel	5	9.2%	0.13%
Container lids	3	5.5%	0.08%
Glass jars/ bottles/ broken containers	2	3.7%	0.05%
	54.5	100.0%	1.43%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006 1.4 % (46,000 observations)



#### Discussion:

Containers other than beverage containers accounted for quite low proportion of total litter in the San Francisco litter audit. Only 54 large litter items (1.43 % of total litter) were observed in this sub-category. Plastic jars, bottles and lids which did not fit another specific sub-category were 61% of the litter in this sub-category. The proportion of other container litter observed during the San Francisco litter audit was consistent with the consultant's observations of this category being 1.4% of total litter, in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations).

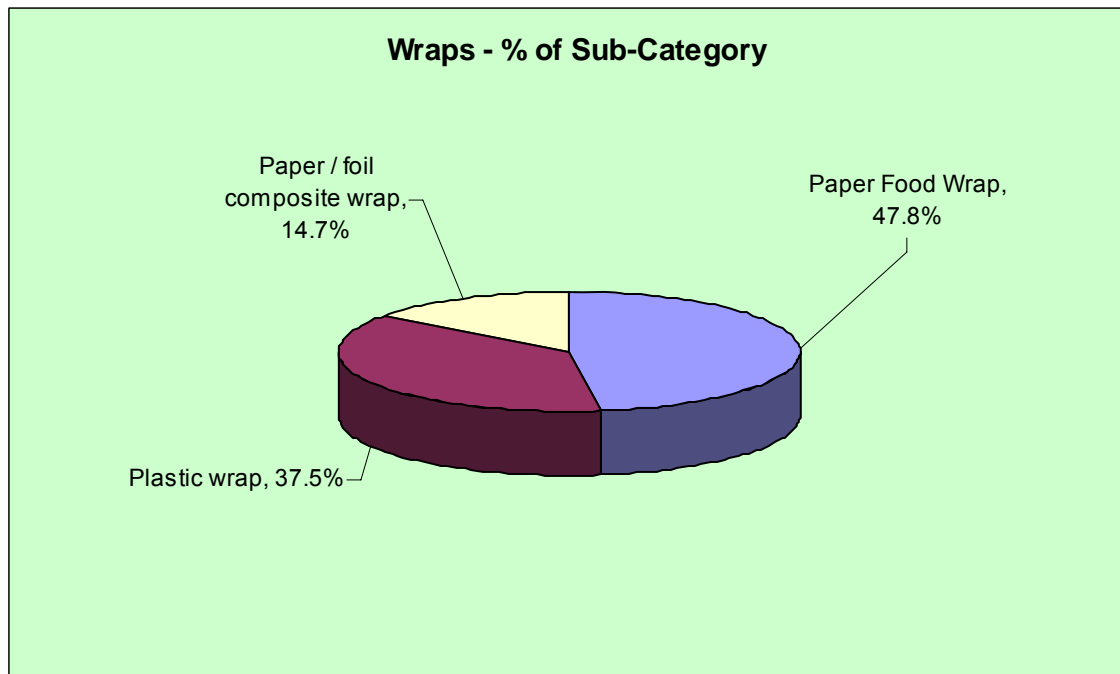
### 3.2.6 Wraps

#### Wraps Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Paper Food Wrap	32.5	47.8%	0.85%
Plastic wrap	25.5	37.5%	0.67%
Paper / foil composite wrap	10	14.7%	0.26%
Total	68	100.0%	1.78%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006 2.4 % (46,000 observations)



#### Discussion:

Within this category are items which are used to wrap food for consumption off premises, mainly from fast food outlets. Paper food wraps accounted for the largest segment of the wrap litter observed, at 48 % of the sub-category. Plastic food wrap materials were 58% of the observed wrap litter in this sub-category.

The proportion of wrap litter observed during the San Francisco litter audit was marginally less than the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations) (1.78% wraps in San Francisco vs. 2.4% wraps in 46,000 observations).

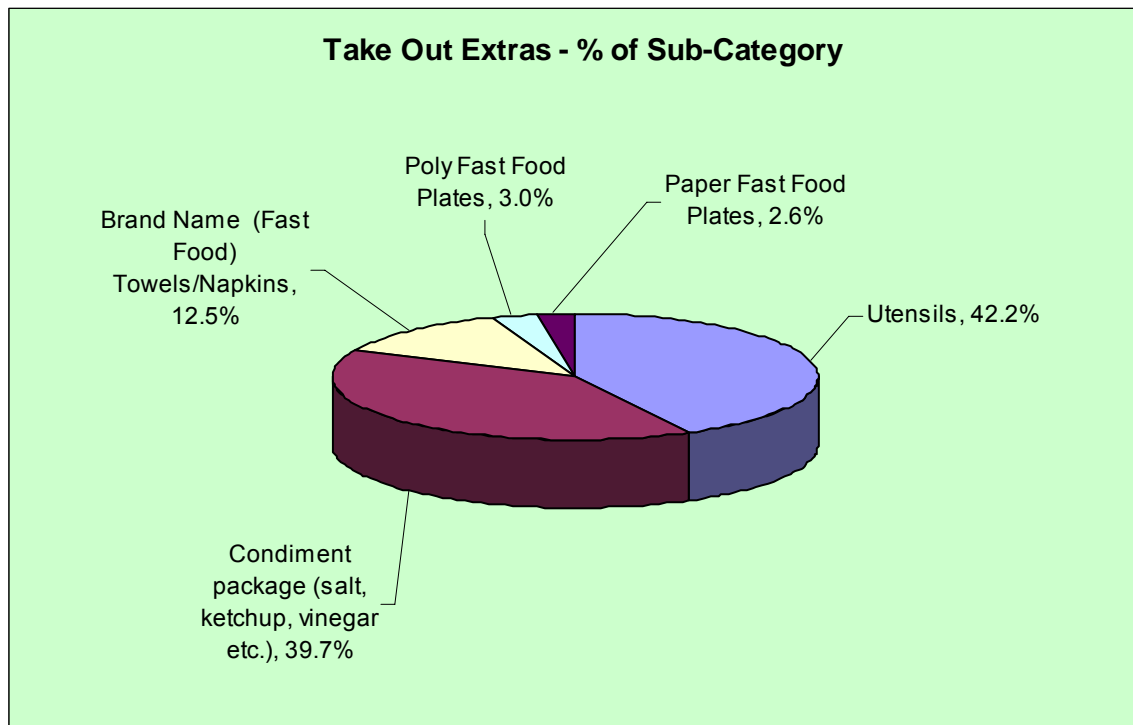
### 3.2.7 Take Out Extras

#### Take-Out Extras Litter Summary

	Items <sup>1.</sup>	% of Sub-Category	% of Total Litter <sup>2.</sup>
Utensils	49	42.2%	1.29%
Condiment package (salt, ketchup, vinegar etc.)	46	39.7%	1.21%
Brand Name (Fast Food) Towels/Napkins	14.5	12.5%	0.38%
Poly Fast Food Plates	3.5	3.0%	0.09%
Paper Fast Food Plates	3	2.6%	0.08%
Total	116	100%	3.04%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 2.38 % (46,000 observations)



#### Discussion:

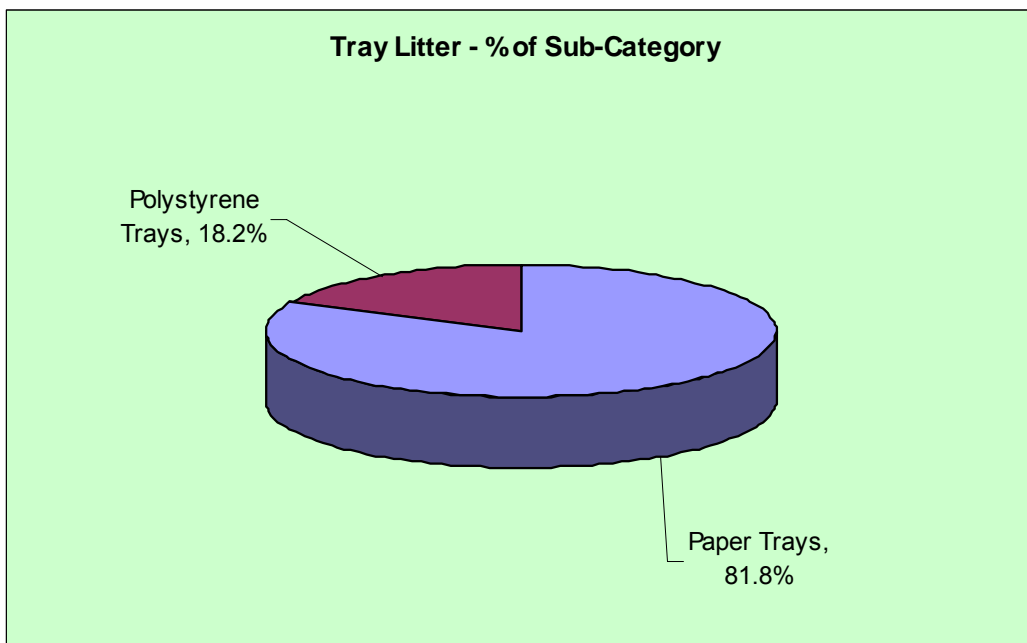
The sub-category of Take-out Food Extras includes condiment packages (ketchup, vinegar, salt, pepper, etc.) and utensils used by patrons of fast food establishments, as well as name brand napkins and fast food plates. Non-branded napkins are not included in this sub-category, since they may or may not be attributable to fast food outlet customers, and are therefore included in with paper litter. Utensils and condiment packaging from fast food stores made up 82% of the litter attributed to this sub-category. The proportion of take-out extras litter observed during the San Francisco litter audit was greater than the average found in aggregated litter observations performed between 2002 – 2006 in other jurisdictions (46,000 observations). (3.04% wraps in San Francisco vs. 2.38% take-out extra litter found in 46,000 observations).

### 3.2.8 Trays

#### Tray Litter Summary

	Items 1.	% of Sub-Category	% of Total Litter 2.
Paper Trays	4.5	81.8%	0.12%
Polystyrene Trays	1	18.2%	0.03%
Other Tray Materials	0	0.0%	0.00%
	5.5	100.0%	0.14%

1. Note: Observations may not be whole numbers due to averaging.
2. Sub-category average - 2002 - 2006, 0.2 % (46,000 observations)



#### Discussion:

Trays represented a very small category of large litter well less than 1% (0.14%). Tray litter observed during the San Francisco litter audit was less than the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (0.14% wraps in San Francisco vs. 0.20 % take-out extra litter found in 46,000 observations).

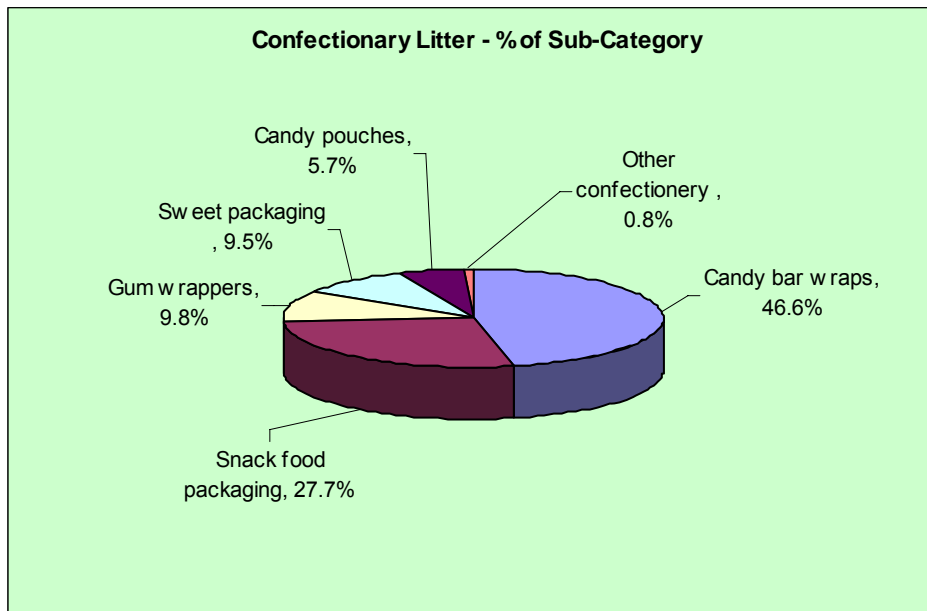
### 3.2.9 Confectionary

#### Confectionary Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Candy bar wraps	152	46.6%	3.99%
Snack food packaging	90.5	27.7%	2.37%
Gum wrappers	32	9.8%	0.84%
Sweet packaging	31	9.5%	0.81%
Candy pouches	18.5	5.7%	0.49%
Other confectionery	2.5	0.8%	0.07%
Totals	326.5	100.0%	8.57%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 8.8 % (46,000 observations)



#### Discussion:

Confectionary products include candy bar wraps, candy pouches, and other snack food packaging and pouches. Confectionary packaging wastes are a significant component of the litter observed in this audit, at 8.6% of the total large litter observed.

The most significant contributors were candy bar wrappers and snack food packaging (snack food packaging include savoury and salty snacks). Confectionary litter observed during the San Francisco litter audit was very close to the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (8.57 % of total litter in San Francisco vs. 8.8% observed in 46,000 observations).

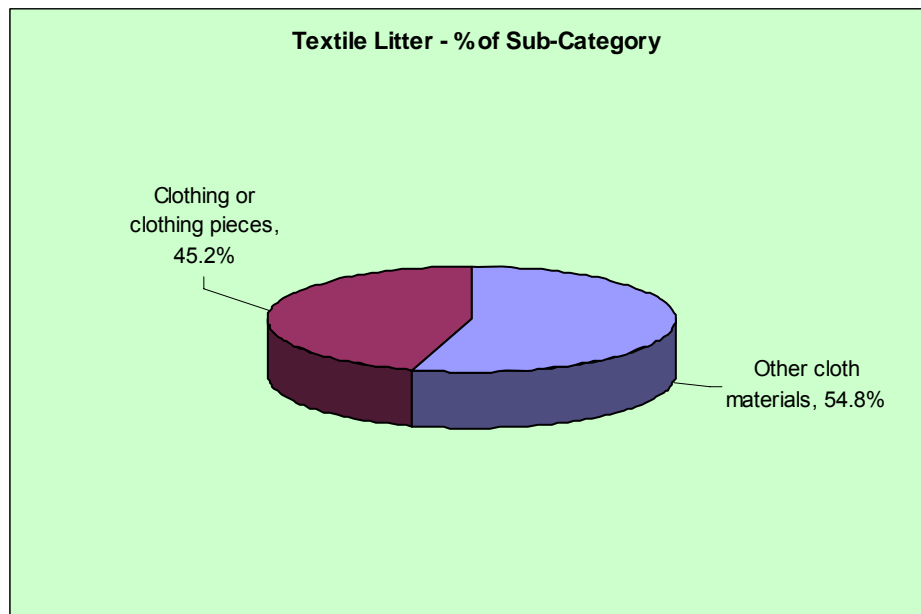
### 3.2.10 Textiles

#### Textile Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Other cloth materials	34	54.8%	0.89%
Clothing or clothing pieces	28	45.2%	0.73%
Total	62	100.0%	1.63%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 1.3 % (46,000 observations)



#### Discussion

In total 62 items of textile nature were observed in the San Francisco litter audit – this is a relatively small contributor to total large litter in the City. The textile litter observed during the San Francisco litter audit was very close to the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (1.63 % of total litter in San Francisco vs. 1.3% observed in 46,000 observations).



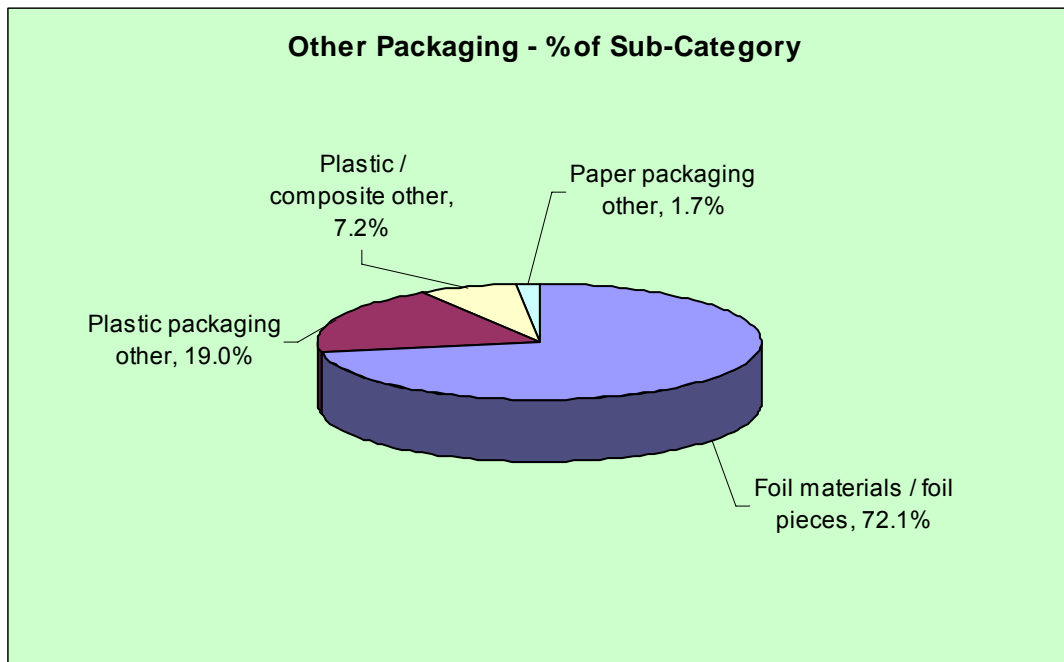
### 3.2.11 Other Packaging

#### Other Packaging Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
Foil materials / foil pieces	104.5	72.1%	2.74%
Plastic packaging other	27.5	19.0%	0.72%
Plastic / composite other	10.5	7.2%	0.28%
Paper packaging other	2.5	1.7%	0.07%
Total	145	100.0%	3.80%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 6.2 % (46,000 observations)



#### Discussion

This sub-category includes packaging that did not fit into other packaging sub-categories, but which were still identifiable as large litter. In the San Francisco litter audit this is a significant contributor of total large litter in the City. The “other packaging” large litter observed during the San Francisco litter audit was less than the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (3.8 % of total litter in San Francisco vs. 6.2% observed in 46,000 observations). In this aggregated data, foil materials and foil pieces makes up the largest segment in the sub-category as observed in San Francisco.

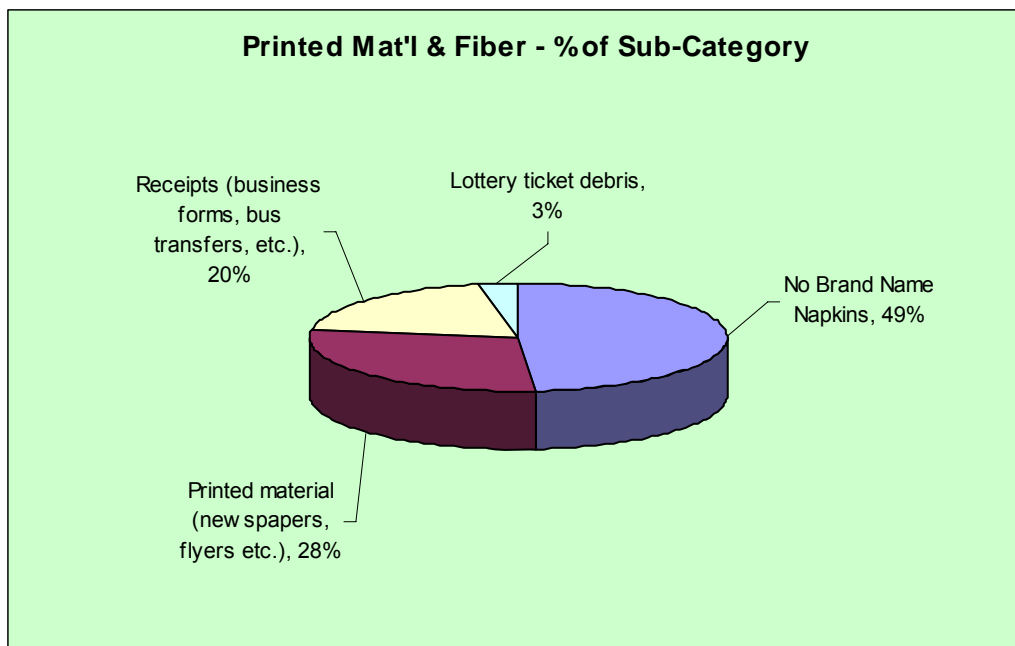
### 3.2.12 Printed & Fibre Materials

#### Printed and Fiber Litter Summary

	Items <sup>1</sup>	% of Sub-Category	% of Total Litter <sup>2</sup>
No Brand Name Napkins	494.5	49%	13.0%
Printed material (newspapers, flyers etc.)	287	28%	7.5%
Receipts (business forms, bus transfers, etc.)	203	20%	5.3%
Lottery ticket debris	31	3%	0.8%
Stationary (school, business etc.)	1	0%	0.0%
Totals	1016.5	100%	26.7%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 18.7 % (46,000 observations)



#### Discussion

This sub-category is a significant contributor to large litter in San Francisco. The largest proportion of this sub-category, (49%) was napkins or pieces of napkins which could not be directly attributed to the fast food sub-category, because no brand markings were visible. It is likely that a significant proportion of this napkin litter originates from fast food service outlets.

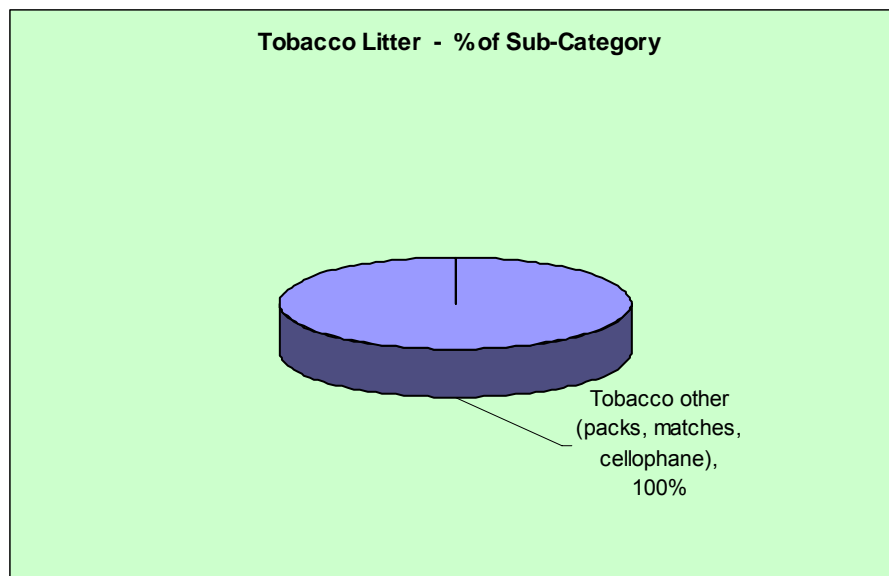
Printed materials including newspaper and flyer litter, printed MUNI tickets and other business receipts are also large contributors to overall large litter in the City. This sub-category is a higher level of proportional litter, compared to the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (27 % of total litter in San Francisco vs. 18.7% observed in 46,000 observations).

### 3.2.13 Tobacco

#### Tobacco 1. Products Litter Summary

	Items <sup>2</sup>	% of Sub-Category	% of Total Litter <sup>3</sup>
Tobacco other (packs, matches, cellophane)	110	100%	2.89%

1. Tobacco litter does not include cigarette butts - < 4 sq. in in size (see small litter)
2. Note: Observations may not be whole numbers due to averaging.
3. Sub-category average - 2002 - 2006, 5.6 % (46,000 observations)



#### Discussion

The amount of tobacco large litter observed on San Francisco streets contributed 2.89% of total litter. This is a significantly lower level of tobacco litter compared to the average found in aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (2.89 % of total litter in San Francisco vs. 5.6% observed in 46,000 observations).

### 3.2.14 Other Miscellaneous

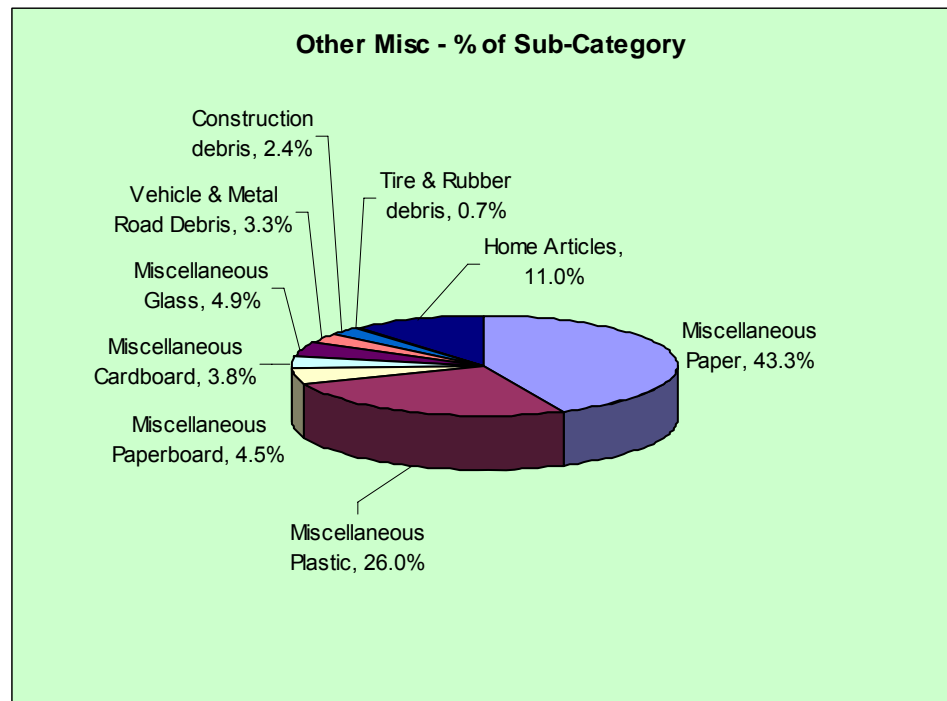
This sub-category is normally the largest sub-category grouping because it includes various miscellaneous material types which cannot be grouped in other categories. The sub-category includes miscellaneous paper, miscellaneous plastic, miscellaneous cardboard, miscellaneous paperboard, miscellaneous glass, vehicle & road debris, tire and rubber debris, construction debris, and home articles.

#### Other Miscellaneous Litter Summary

	Items <sup>1.</sup>	% of Sub-Category	% of Total Litter <sup>2.</sup>
Miscellaneous Paper	570	43.3%	15.0%
Miscellaneous Plastic	342	26.0%	9.0%
Miscellaneous Paperboard	59.5	4.5%	1.6%
Miscellaneous Cardboard	50.5	3.8%	1.3%
Miscellaneous Glass	65	4.9%	1.7%
Vehicle & Metal Road Debris	43	3.3%	1.1%
Construction debris	31.5	2.4%	0.8%
Tire & Rubber debris	9.5	0.7%	0.2%
Home Articles	145	11.0%	3.8%
Total	1316	100.0%	34.5%

1. Note: Observations may not be whole numbers due to averaging.

2. Sub-category average - 2002 - 2006, 33.2 % (46,000 observations)



## **Discussion:**

This sub-category yields the largest segment of litter observed in the City of San Francisco Litter Audit since it is a general category that encompasses much of the unspecific litter observed. In total 1,316 pieces of large litter fell into this general category.

Miscellaneous materials are those that cannot be identified other than by the material type or likely origin of the litter (i.e. home articles, vehicle debris). Paper materials accounted for the largest proportion of this sub-category, at 570 large litter items in this sub-category (43%) or a significant 15% of total large litter counted. Miscellaneous plastic materials accounted for 342 of the sub-category and 9% of all the large litter counted.

These categories consisted of bits of stationary, newspapers, flyers, and often included shredded paper from lawn mowing. This material derives from a plethora of sources, that once weathered or when grass is mowed is shredded into indistinguishable large litter pieces.

Miscellaneous paper and miscellaneous plastic are two sub-categories that warrant discussion. Because of the nature of paper or plastic litter, it is often not possible for litter auditors to determine what the paper or plastic litter was as an original product or packaging component. This is because both types of these materials degrade due to weathering, and often lost their distinguishing features that would allow more positive identification to be included in another sub-category. If litter auditors could not positively categorize a piece of paper or plastics litter as belonging to a specific sub-category (i.e. confectionary), then they classified that item of litter as miscellaneous paper or plastic. These two sub-categories are significant for planners of litter abatement programs, since in aggregate they represent nearly one-quarter (24%) of total large litter on San Francisco streets. Effective efforts to reduce paper litter and plastic litter would reduce total litter substantially.

The miscellaneous litter observed is consistent with aggregated litter observations in audits performed between 2002 – 2006 in other jurisdictions (46,000 observations). (34.5 % of total litter in San Francisco vs. 33.2% observed in 46,000 observations).

## 4.0 Small Litter Survey Results

### 4.1 Discussion of Small Litter Results

The categories examined in the litter counts of items less than 4 square inches in size are:

- cigarette butts/ debris
- other tobacco
- bottle caps
- straws
- candy packaging
- polyfoam packing materials
- other polystyrene debris
- glass
- paper
- plastic film
- hard plastic
- aluminum / foil debris
- rubber
- metal (not aluminum)
- other materials
- chewing gum

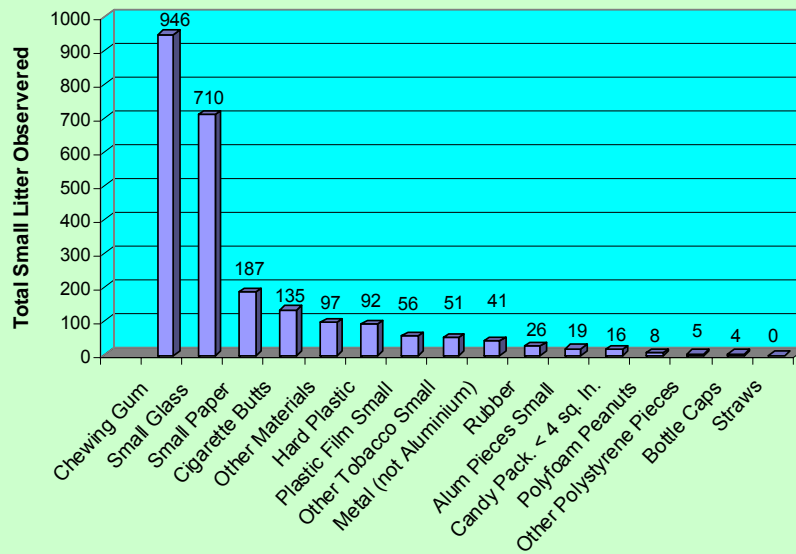
The small litter methodology allows researchers to count small litter that fell within the three slices within a given site (transacts) – three 6 square foot segments of a site ( 3 x 1 foot by 6 feet). Accordingly, the small litter counts may or may not have recorded some of the small litter existing on a site, depending on whether the placement of the transact frames encompass the small litter or not. However, the benefit of this method is its rigor. Every site was handled in the same way. Thus, this was a fair and objective examination of small litter as observed.

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

Observations of small litter during the San Francisco litter audit showed a relatively low occurrence of small litter on city streets, as compared other to audits performed by the consultant in other jurisdictions. In San Francisco, 2,393 small litter items were observed in 104 sites audited. This average of 23 items per site 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 observed in San Francisco in 2007, have been recorded by the consultant in audits conducted in other jurisdictions. A note of caution however is required in considering small litter audit results. The methodology specifies that only a very small area within a site is actually measured for small litter items. For a fixed site (18 ft x 200 ft = 3,600 sq. ft.) less than 1% of the entire site is audited for small litter items. The small litter audit results should be considered as an indication of “relative” types of small litter on local streets.

It is interesting to note that gum deposits on San Francisco streets were the most significant small litter item observed, this is consistent with other audits performed by the consultant where gum deposits are usually the largest proportion of small litter observed. The other top small litter proportions (i.e. paper, glass, cigarette butts) observed in the San Francisco audit are also consistent with previous audit observations from other jurisdictions.

## Total Small Litter Items Observed



## 2007 San Francisco - Small Litter – by Category

Category	Description	Total Small Litter Items Observed	SFO 2007	Toronto 2006
			% of Total Small Litter	% of Total Small Litter
16	Chewing Gum	946	39.5%	30.9%
8	Small Glass	710	29.7%	15.4%
9	Small Paper	187	7.8%	17.3%
1	Cigarette Butts	135	5.6%	14.8%
15	Other Materials	97	4.1%	2.5%
11	Hard Plastic	92	3.8%	3.6%
10	Plastic Film Small	56	2.3%	2.8%
2	Other Tobacco Small	51	2.1%	2.4%
14	Metal (not Aluminium)	41	1.7%	1.1%
13	Rubber	26	1.1%	0.7%
12	Alum Pieces Small	19	0.8%	2.4%
5	Candy Pack. < 4 sq. In.	16	0.7%	1.6%
6	Polyfoam Peanuts	8	0.3%	2.3%
7	Other Polystyrene Pieces	5	0.2%	1.7%
3	Bottle Caps	4	0.2%	0.1%
4	Straws	0	0.0%	0.4%
		2393	100.0%	100.0%
	Average SFO Small Litter Items / site <sup>1</sup>	23		

Note: Current Toronto small litter average 21 Items / site

On a concluding note, one way to derive more accurate small litter audit information is to do full site small litter audit observations. These have been done by the consultant in other audits, but in the case of the San Francisco litter audit for 2007 full site small litter audits were not done due to their labour cost. Each full site small litter audit takes 1 – 3 hours to complete compared to the method chosen for the San Francisco 2007 audit, where a large and small litter site could be completed in well under 1 hour.

The benefit of doing full site small litter observations is that a much larger small litter sample size is observed, and a “concentration” figure can be estimated. By knowing the total area of the sites where the full small observations are done, a concentration of types of litter per square foot can be calculated. Some municipalities have found this useful to estimate for example the total number of cigarette butts on city streets (within stated error factors).



**Notes:**

# APPENDIX 1 – Large Litter Audit Form

## Large Litter Site Form

CHECK TAPE RECORDER IS WORKING

Site ID Number: \_\_\_\_\_ Date: \_\_\_\_\_ Photos Taken: \_\_\_\_ Y/N

Start Time: \_\_\_\_\_ Finished Time: \_\_\_\_\_ Tape #: \_\_\_\_\_

Surveyor's Name: \_\_\_\_\_ FIXED or VARIABLE \_\_\_\_ F / V (circle one)

### If variable:

Width 1 :Beginning: \_\_\_\_\_ ft. (up to 18ft.)

Width 2: Middle: \_\_\_\_\_ ft. (up to 18ft.)

Width 3: End \_\_\_\_\_ ft. (up to 18ft.)

**Always 200 feet long**

Road type: Major highway ☐ Paved Rural Road ☐ Unpaved Rural Road ☐ Major City Street ☐

Minor City Street ☐ Laneway ☐ Other ☐ \_\_\_\_\_ (describe)

Lanes: 2, 4, 6, other (explain)

Is roadway / highway divided: \_\_\_\_\_ Y / N

### Area Attribute:

Built up / urban area ☐

Is the area Residential ☐

Industrial ☐

Parkland

☐ Rural setting ☐

Grass Height: a. < 3 inches: ☐ b. 3" – 6": ☐ c. over 6 ": ☐ ( Check one)

Catch point: fence ☐ hedge ☐ curb ☐ mower line ☐ tree line ☐ other ☐  
\_\_\_\_\_ details

Visual rating of site: ( 1 = cleanest ; 4 = dirtiest) \_\_\_\_\_

Is there a Fast food store within 1 KM? \_\_\_\_\_ Y/N

Convenience store within 1 KM \_\_\_\_\_ Y/N

Traffic light / stop sign or major intersection within sight? \_\_\_\_\_ Y/N

Evidence of Litter Clean up? \_\_\_\_\_ Y/N

Cleanup details \_\_\_\_\_  
\_\_\_\_\_ (text)

Additional comments : \_\_\_\_\_

CAT #	CATEGORY	Pass 1	Total	Pass 2	Total	BRAND NAMES OBSERVED
	<b>MISCELLANEOUS LITTER</b>					
76	Misc. Paper (unidentifiable paper)					
77	Misc. Plastic (unidentifiable plastic)					
78	Misc. Paperboard (unidentifiable paperboard)					
79	Misc. Cardboard (unidentifiable cardboard)					
80	Misc. Glass (unidentifiable glass)					
	<b>CONTAINERS</b>					
1	Beer Cans					
2	Beer Bottles (glass)					
3	Soft Drink (glass)					
4	Soft Drink (cans)					
5	Soft Drink (plastic)					
6	Sport Drink (glass)					
7	Sport Drink (plastic)					
8	Water (glass)					
9	Water (plastic)					
10	Wine/ Liquor (glass)					
11	Wine/ Liquor (plastic/other)					
12	Milk/Juice (Plastic)					
13	Milk/Juice (glass)					
14	Milk/Juice (Gable Top)					
15	Foil Pouches					
16	Aseptic (Box)					
17	Broken Glass Container					
18	Six pack plastic rings					
	<b>CUPS</b>					
19	Plastic drink cups					
20	Paper Cups (cold)					
21	Paper Cups (Hot)					
22	Polystyrene cups (foam)					
23	Other paper cups					
24	Cup Lids, Pieces lids					
	<b>BAGS</b>					
25	Plastic retail bags					
26	Paper retail bags					
27	Paper bags – fast food					
28	Plastic bags – not retail					
29	Paper bags - not retail					
30	Zipper bags/ sandwich					
	<b>Boxes</b>					
31	Cardboard boxes/ box mat'l					
32	Paperboard (cereal type)					
33	Paper Beverage Cases					
34	Polystyrene clamshells					
35	Paper clamshells					
36	Other Plastic Shells/Boxes					
	<b>Other Containers &amp; Packaging</b>					
37	Plastic Jars / Bottles/ Lids					
38	Glass jars/ bottles misc.					
39	Cans – steel					
40	Cans – aluminium (not beverage)					
41	Container lids					
42	Aerosol cans (paint, oils, etc.)					
64	Plastic packaging other					
65	Paper packaging other					
66	Plastic / composite other					
67	Foil materials / foil pieces					
75	Foil containers					
City of San Francisco Department of Environment Litter Survey Report - May 2007						51

	<b>WRAPS &amp; TRAYS</b>					
43	Paper Food Wrap					
44	Paper / Foil composite wrap					
45	Plastic wrap					
46	Polystyrene Trays					
47	Paper Trays					
48	Other Mat'l Trays					
	<b>CANDY &amp; GUM &amp; SNACKS</b>					
49	Gum wrappers					
50	Candy bar wraps					
51	Candy pouches					
52	Sweet packaging (describe)					
53	Other confectionery (describe)					
63	Snack food packaging (chips / peanuts etc)					
	<b>FAST FOOD ITEMS</b>					
54	Condiment package (salt, ketchup, vinegar etc.)					
55	Utensils					
56	Name Brand (Fast Food etc.) Towels / Napkins / Serviettes					
57	Paper Fast Food Plates					
58	Poly Fast Food Plates					
59	Other Plastic Fast Food Plates					
60	Plates - Other Materials					
68	No Brand Name Towels / Napkins / Serviettes					
	<b>HOUSEHOLD ARTICLES</b>					
61	Clothing or clothing pieces					
62	Other cloth					
81	Vehicle & Metal Road Debris					
82	Construction debris					
83	Tire & Rubber debris					
84	Home Articles					
	<b>PRINTED MATERIALS</b>					
69	Lottery ticket debris					
70	Printed material (newspapers, flyers, books etc.)					
71	Stationary (school, bus, etc.)					
72	Receipts (business forms, bus transfers etc.)					
	<b>TOBACCO PRODUCTS</b>					
73	Cigarette / cigar debris (>4")					
74	Tobacco other (packs, matches, cellophane)					

## APPENDIX 2 – Site Locations & Driving Directions

Site Id	Map Source	Map Insert Co-ord	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
1	MapArt	B-82	A-10	FRANCISCO	STREET	Francisco St - just west of Mason St.	Street sweeping sign.
3	MapArt	C-81	B-9	UNION	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel N on Sansome to Broadway then turn left onto Broadway - proceed to Columbus turn right onto Columbus - continue to Union St turn Left onto Union - proceed past Larkin - site is on Union just west of Larkin St.	Very steep with construction in progress - did not include obvious construction materials. Gardner waters plants and sprays debris down hill.
4	MapArt	C-83	B-11	FILBERT	STREET	Filbert west of Stockton	Site in front of church and church buildings. Street sweeping signs.
5	MapArt	D-83	B-11	JASPER	PLACE	Jasper Place - is Proceed N on Sansome St - left on Broadway proceed to Grant - turn right on Grant to Filbert turn Left on Filbert and proceed to Jasper Place - turn left onto Jasper Place - site is before Union St	Very narrow alley. Small stree in North Beach very very clean.
6	MapArt	C-85	B-11	DAVIS	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel North on Sansome St - to Vallejo St - turn right and proceed to Davis St - turn right onto Davis - site is immediately after turning onto Davis.	There is a parking lot past the fence.
7	MapArt	D-81	B-10	WASHINGTON	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel North on Sansome St to California - turn left (west) continue on California until Larkin - turn right (N) on Larkin - to Washington St - turn right on Washington - Site is on Washington east of Larkin	
8	MapArt	D-83	B-11	POWELL	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel N on Sansome St to California and turn left onto California - proceed to Powell St and turn right -(N) - proceed past Clay St - site is on Powell just N of Clay	
9	MapArt	D-83	B-11	GRANT (was PAGODA PI)	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel N on Sansome - turn left onto Sacramento St - proceed to Grant St. Site on Grant St. north of Clay St.	
10	MapArt	D-85	B-12	THE EMBARCADERO	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel North on Sansome St to Broadway - turn Right travel East to The Embarcadero -- Site is south of Broadway	Anti-Litter sign on site.
11	MapArt	D-85	B-12	DRUM	STREET	Drum St - downtown - N side of street east do Davis St.	All small litter sites in front of a tennis club.
12	MapArt	E-86	C-12	HOWARD	STREET	Howard St. just west of Spear St on N side of street	Many strings around parking meters.
13	MapArt	F-86	C-12	FREMONT	STREET	Fremont St - N of Folsom St.	
14	MapArt	E-84	C-11	PETRARCH	PLACE	Commencing at HDR's Offices (Sansome/ Sutter) - travel N on Sansome - turn left Pine St - then immediately thereafter turn onto Petarch Place - it is VERY close to HRD offices.	
15	MapArt	E-84	C-11	MONTGOMERY	STREET	North on Sansome St from HDR offices, to Pine St turn left on Pine - proceed to Montgomery turn left onto Montgomery - site is on Montgomery at Bush St.	
16	MapArt	E-83	C-10	NOB HILL	PLACE	From HRD office - N on Pine St. Turn left onto Pine St. proceed west on Pine to Mason St. - turn Right on Mason to Nob Hill - site is on Nob Hill Place. (This site may be hard to find)	Cars parked parallel on street.

Site Id	Map Source	Map Insert Co-ord	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
17	MapArt	E-82	C-10	TAYLOR	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Geary St - turn right onto Geary and proceed west to Taylor - turn right onto Taylor and proceed north of Sutter - Site is on Taylor just N of Sutter.	
19	MapArt	F-83	C-11	GEARY	BOULEVARD	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Geary St. - turn Right onto Geary St .... Site is on Geary in front of Union Square. Measure where people can walk.	Litter was measured where people can walk. Grate by curb collected litter.
20	MapArt	G-84	D-11	MISSION	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to proceed to 4th -site is on Mission between 4th & 5th St.	Site in front of Westin Denys, etc.
21	MapArt	G-85	D-11	04 TH	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St - turn left onto th St..... Site is at 4th St / Folsom.....Site is at Just S of Folsom St.	
22	MapArt	H-86	D-12	KING	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - turn left onto 4th St ; Turn Left onto King St. .... Site is on King just SW of 2 St.	Near Bauparie
23	MapArt	H-83	D-11	RUSS	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St - turn left (S) onto 6th St. proceed to Minna St. turn Right onto Minna St and then turn left onto <u>Russ St - Site on Russ St just before Folsom St</u>	Section 3 of small litter in front of Extreme Pizza.
24	MapArt	H-83	D-11	RUSS	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 6th St turn left onto 6th St.- proceed to Minna St - turn right on Minna and proceed to Russ St - Turn left onto Russ St - Site is immediate at Russ and Minna on Russ St.	
25	MapArt	H-83	D-10	HOWARD	STREET	Howard St. just west of 6th St on N side of street	
26	MapArt	G-83	D-10	STEVENSON	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 6th St - turn left onto 6th St - then first left onto Stevenson - site is on Stevenson just after turning from 6th St.	Street cleaning signs.
27	MapArt	G-82	D-10	LEAVENWORTH	STREET	Leavenworth - Just N of Golden Gate Ave - on E side of street	
28	MapArt	G-82	D-10	MCALLISTER	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Ellis St. - to Hyde St turn left onto Hyde going South - then turn left onto McAllister - site is just east of Hyde on south side of McAllister.	
29	MapArt	G-82	D-10	LARKIN	STREET	Larkin just N of McAllister St - by the Hastings College of Law on E side of street	
30	MapArt	G-81	D-10	GOLDEN GATE	AVENUE	Golden Gate - East of Van Ness	Cleanup sign. Item 79 in large litter were full boxes.
31	MapArt	F-81	D-10	ELLIS	STREET	Ellis just w of Polk	Small Litter - section 1 is in front of Comfort Inn and Section 2 in front of Auto Repair "TRI" . Sign on site.

Site Id	Map Source	Map Insert Co-	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
32	MapArt	F-80	C-9	POST	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Geary St - turn right onto Geary and proceed westbound - turn onto Laguna St - then immediately onto Post St - site is on Post just west of Laguna St.	Sign on site.
34	MapArt	H-81	D-9	FULTON	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Van Ness - turn right go N to Fulton St. Turn left and proceed on Fulton - site is on Fulton just west of Laguna St - by U of San Fran	Space under fence that catches debris. Sign.
35	MapArt	H-81	D-10	FELL	STREET	Site is on north side of Fell St. just east of Pierce by Ida B Wells School.	Litter gathered around trees & parked cars.
37	MapArt		D-10	MISSION	STREET	Mission St SW of 10 th St - before 11th St	Street signs
38	MapArt	J-81	E-9	MCCOPPIN	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Valencia St - turn left onto Valencia - proceed to McCoppin turn left again onto McCoppin - Site is on McCoppin just west of Jessie St.	Section 1 of small litter was square at grass that collected litter.
39	MapArt		E-10	15TH	STREET	Site is on 15 ST - w of Shotwell St, below Hwy 101 Expressway	
40	MapArt		E-10	TREAT	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 10th St - turn left (SE) into 10 th St. - Turn right onto Harrison St. (S) - continue to Treat St.... Turn left onto Treat Street - two sites are on Treat St this one is on Treat at Alabama & Alameda	Small Litter Audit - Section 1 in front of SPCA and Section 2 has "no dumping" sign of fence.
41	MapArt		E-11	DE HARO	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto 16 th St. - continue to De Haro St. turn left onto De Haro St .... Site is On De Haro just at start of King St.	
42	MapArt		E-12	16TH	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St - turn left (SE) on to 4th St. then turn Right (SW) onto Third St - continue towards Missions Rock Terminal to 16th St - turn Right onto 16 St.	All sections in front of new UCSF building; very very tidy. Site clean as a whistle. Opposite side of street was much dirtier.
43	MapArt		F-12	INDIANA	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - continue to Mariposa St. turn right (W) then on third street turn Left (S) onto Indiana St. .... Site is on Indiana just N of Tubb St in small green space area	Broken window found on large litter site as well as a television. Cars parked perpendicular to curb.
44	MapArt		F-12	19TH	STREET	19th - East of Connecticut , not far from John F Foran Expressway Sit eon 19th St/	Home article - ant trap. Steep Street
46	MapArt		F-11	22ND	STREET	22nd at Rhode Island St.	Extremely steep street.

Site Id	Map Source	Map	Full Map	Site_name	Site_type	Directions	Additional Comments
47	MapArt		G-11	26TH	STREET	From HDR's Offices - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - continue to Mariposa St. turn right (W) then on third street turn Left (S) onto Indiana St. ; Continue S on Indiana to Cesar Chavez - (Cesar Chavez may turn in to Army St. W of Guerro St) proceed to Cesar Chavez / Army and Castro - From Cesar Chavez/ Castro proceed N on Castro to 26th St. - turn right onto 26th St. - site is on north side of 26 st., east of Da Haro, between Da Haro	
49	MapArt		G-12	MARIN	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - continue to Mariposa St. turn right (W) then on third street turn Left (S) onto Indiana St. Continue S on Indiana until Cesar Chavez - turn Right (W) proceed to Evans Ave , turn right onto Evans (SE) proceed to Marin St. .... Site is on Marin just before Tennessee - east of Hwy 280	Dummed bag of trash on site. Sampled 18 feet out from warehouse wall, plus 5ft out from fence. Wide Unmarked Lane - No curb.
50	MapArt		G-12	CESAR CHAVEZ	STREET	Cesar Chavez at Just west Mississippi St	
51	MapArt		G-12	MARIN	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - continue to Mariposa St. turn right (W) then on third street turn Left (S) onto Indiana St. Continue S on Indiana until Cesar Chavez - turn Right (W) proceed to Evans Ave , turn right onto Evans (SE) proceed to Marin St. .... Site on north side of Marin just between Kahas and Potrero.	Marin St and Potrero there were high weeds where a lot of tras was.
52	MapArt		H-13	03 ST	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - Site is on 3 St at 000 Arthur towards Burka.	
53	MapArt		J-12	EVANS	AVENUE	Commencing from HDR's offices, proceed SW on Market St. to 3rd St - proceed on 3rd past Hwy 101 - continue on towards Bay where 3rd turn South - continue south past Marin St ( & over Islais Creek Channel ) then turn left onto Evans - site is on Evans just before Keith St. (near Postal Facility)	Very windy so trash was blowing garbage between passes 1 and 2.
54	MapArt		H-12	PHELPS	STREET	Commencing from HDR's offices, proceed SW on Market St. to 3rd St - proceed on 3rd past Hwy 101 - continue on towards Bay where 3rd turn South - continue south past Marin St ( & over Islais Creek Channel ) then turn right onto Phelps - site is on Phelps just past La Salle Blvd. (near SFO Community College)	In small litter unable to make 3rd flip on section 3 due to shrubbery. Several photos taken of trash dump area. Really trashy and next to industrial business looks like dumping zone. Shrubby crowded with litter and a car seat on curb.



Site Id	Map Source	Map Insert Coord	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
55	MapArt		H-11	MCKINNON	AVENUE	Commencing from HDR's offices, proceed SW on Market St. to 3rd St - proceed on 3rd past Hwy 101 - continue on towards Bay where 3rd turn South - turn right on Cesar Chavez St proceed to Evans Ave - turn left onto Evans - go S on Evans to McKinnon Ave turn right - site is on McKinnon from Upton St. towards Barnavald on side of metal fence	Major #3 (16.5"X 12") illegal dumping site plus two #2 (3'X5") sites nearby on this stretch of McKinnon. These were in front of the mesh wire fence of "Golden Brand Receiving" (Barneveld Ave.) Several documentary photos taken (survey sheet has more detail)
56	MapArt		K-11	BACON	STREET	Commencing from HDR's offices, proceed SW on Market St. to Van Ness proceed to Mission St. - turn right and proceed on Mission to Silver Ave. proceed on Silver to University St - turn right (S) proceed to Bacon St. - site is on Bacon just past Goettingen St - between Goettingen St & Brussels St. on same side as school playground.	
57	MapArt		K-10	BACON	STREET	Commencing from HDR's offices, proceed SW on Market St. to Van Ness proceed to Mission St. - turn right and proceed on Mission to Silver Ave. proceed on Silver to University St - turn right (S) proceed to Bacon St. - turn right - site is on Bacon between Princeton St. & Amherst.	
58	MapArt		J-10	CRESCENT	AVENUE	commencing from HDR's offices, proceed SW on Market St. to Van Ness proceed to Mission St. - turn right and proceed on Mission to Crescent St - turn left (east) and proceed to near end of Crescent St. just west of Andover St.	
59	MapArt		J-10	PRENTISS	STREET	From HDR's offices travel SW on Market St. - turn left onto 10 St and then right onto Mission St going South - proceed on Mission until turning left onto Cortland Ave - proceed along Cortland to Banks - turn right - go S on Banks to Tomkins turn left then turn left again onto Prentiss - site is on Prentiss N of Tomkins	
60	MapArt		G-10	CESAR CHAVEZ	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 4th St. - proceed to Third St ; Turn right (West) onto Third St. - continue to Mariposa St. turn right (W) then on third street turn Left (S) onto Indiana St. Continue S on Indiana until Cesar Chavez - .... Site is on south side of Cesar Chavez between Harrison and Alabama.	
61	MapArt		G-10	23RD	STREET	Site on south side of 23rd St west of Bryant St. between Bryant and Florida.	
62	MapArt		F-10	FOLSOM	STREET	Site is on east side of Folsom St - Just S of 19th. Next to fire station.	
63	MapArt		F-10	TREAT	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 10th St - turn left (SE) into 10 th St. - Turn right onto Harrison St. (S) - continue to Treat St.... Turn left onto Treat Street - two sites are on Treat St one at each end - this one is at Treat and Alameda Street -- Site is on west side of Treat St between 17th St and 16th St.	Unable to do flip 3 in section 1 or section 3 of small litter. Trash collects in the pockets around the trees in the sidewalk. This site appears to be a dumping site i.e. broken glass, condoms, clothing.

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64	MapArt		F-10	SHOTWELL	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 10 th St - turn left and proceed South to 18th St - turn left and proceed to Shotwell St. Turn left onto Shotwell - site is on east side of Shotwell between 19th St and 18th St.	Sidewalk is very clean but drug/dump litter on inner and outer part of curb. Appears as though site is home to vagrants.
65	MapArt		G-10	22ND	STREET	Site is on the norths side of 22nd St. between Capp and mission.	Site is located in front of a business. Lots of chewing gum on the sidewalk.
66	MapArt		F-9	21ST	STREET	Site is on south side of 21St just west of Valencia St	
67	MapArt		G-9	QUANE	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Delores St - turn Left and proceed South to 22nd St - turn left onto 22nd St - proceed to Quane St - Site is on Quane St just S of 22nd St.	Site consisted of property & driveways - 18 foot width across alleyway.
68	MapArt		E-8	NOE	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St. - turn right on 15th St. proceed 100 yard to Noe St. and turn left (S) onto Noe St - site is on West side of Noe between Jersey St. & 25th St.	
69	MapArt		H-8	NOE	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Delores - turn left and travel South on Delores to 29th St. turn right (West) and proceed to Noe turn left (South) on Noe - site is on Noe between Day and 29th St across from school	
70	MapArt		J-9	MISSION	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guererro St. - turn left onto 4th St ; Turn Right onto Cesar Chavez - to Mission St - turn Right - proceed SW to St (Saint) Mary's St. - Site on Mission w of St Mary's.	Tons of gum splotches on this sidewalk stretch between Murray and Delaware Terrace.
71	MapArt		K-9	SILVER ( Was CAYUGA (m	STREET	Three sites on / near original site - Moved to Silver Ave. - Silver at Cogdon St. - Commencing from HDR's offices, proceed SW on Market St. to Van Ness proceed to Mission St. - turn right and proceed on Mission to Silver Ave. proceed on Silver to Edinburgh St - Site is on Silver just east of Edinburgh S	Tall grass 12" plus around 2 trees planted in side walk.
72	MapArt		K-8	PERSIA (CAYUGA - duplica	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guererro St. - turn left onto Guererro St - proceed south to Cesar Chavez turn left proceed to Mission St - - turn proceed to Persia - turn left onto Persia - site is on Persia just after Madrid St.	
73	MapArt		K-8	CAYUGA	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guererro St. - turn left onto Guererro St - proceed south to Cesar Chavez turn left proceed to Mission St - - turn Right onto Mission proceed to Ocean Ave. turn right proceed to Alemany Ave turn left onto Alemany. From site on Alemany Ave just past Ottawa Ave - go N on Ottawa - left onto Cayuga; site on Cayuga across from Balboa High School and starts 4 car lengths below Junior Terrace along the school wire fence side of Cayuga.	
74	MapArt		K-8	ALEMANY	BOULEVARD	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guererro St. - turn left onto Guererro St - proceed south to Cesar Chavez turn left proceed to Mission St - - turn Right onto Mission proceed to Ocean Ave. turn right proceed to Alemany Ave turn left onto Alemany. Site is on Alemany Ave just past Foote St	
75	MapArt		B-9	OCTAVIA	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel N on Sansome - turn left (west) onto California - proceed to Franklin St.- proceed N on Franklin to Union St then right onto Octavia St. . Site is on Octavia North of Union St.	Cleaning sign.
76	MapArt		K7	SAN JOSE AVE.	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 10 th St - turn left (S) and proceed to Mission St turn right onto Mission- proceed on Mission to Ocean Ave - turn right onto Ocean Ave then right onto San Jose - site is in front of Balboa Park (actually in front of park on San Jose)	

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77	MapArt		K7	DELANO AVE.	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guerro St. - turn left onto 4th St ; Turn Right onto Cesar Chavez - to Mission St - turn Right - proceed SW to Tingly St - turn Right proceed along Mission to Santa Rosa Ave.....From Santa Rosa site - Delano Ave is west on San Rosa to San Jose Ave - turn left (SW) to San Juan turn left again and proceed to Delano Ave .... Site is on Delano just past Santa Ynez Ave starting at 35 Delano.	
78	MapArt		K8	SANTA ROSA AVE.	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guerro St. - turn left onto 4th St ; Turn Right onto Cesar Chavez - to Mission St - turn Right - proceed along Mission to Santa Rosa Ave. Site is on Santa Rosa starting at 239 Santa Rosa.	
79	MapArt		K7	JUDSON AVE.	DRIVE	This site is quite close to Molimo Dr - follow Forester St S to Judson - site is on Judson E of Forester	Returned to site to obtain data on trash in the grass field as had not realized it was to be included when they were there previously. Site was even cleaner then on first visit.
80	MapArt		J7	MOLIMO DR.	DRIVE	Starting at California St/ Market Street - travel SW on Market St. - street becomes Portola Drive - continue on along Portola past the intersection of Woodside (going west ) / O'Shaughnessy going SE) - turn left after O'Shaughnessy onto Teresita o Stay on Teresita until you hit Bella Vista Way - turn left - the first street on your right is Molimo Dr. - Site starts at #63 Molima Dr and proceeds towards Teresita.	
85	MapArt		L6	BROAD ST.	DRIVE	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guerro St. - turn left onto Guerro St - proceed south to Cesar Chavez turn left proceed to Mission St - - turn Right onto Mission proceed to Ocean Ave. turn right proceed to Alemany Ave turn left onto Alemany - continue on Alemany go under Hwy 280 turn on Orizaba Ave to Broad St - turn right - site is on Broad at corner of Orizaba Ave.	
86	MapArt		K3	GELLERT DR.	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to South Van Ness - turn left proceed S on South Van Ness to Ocean Ave. - turn right on Ocean and proceed to Clearfield Dr left and proceed to end of St to Gellert - turn right - site is between Clearfield & Morningside Dr.	
87	MapArt		H3	VICENTE ST.	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to South Van Ness - turn left proceed S on South Van Ness to Ocean Ave. - turn right on Ocean and proceed to 19Ave - turn right (N) proceed to Vicente St. - turn left onto Vincente and proceed to 35 Ave - site is on Vicente just west of 35 Ave.	Sidewalk is clean but tall grass in front of a few residences has collected litter.
88	MapArt		G3	NORIEGA ST.	STREET	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue to Stanyan turn right (S) on Stanyan and proceed past Golden Gate park then turn right (W) onto Lincoln Way(West)- proceed on Lincoln Way to 32 Ave - turn left onto 32 Ave and proceed to Noriega St - turn right on Noriega - Site is immediately after turn on Noriega.	
89	MapArt		G2	NORIEGA ST.	STREET	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue to Stanyan turn right (S) on Stanyan and proceed past Golden Gate park then turn right (W) onto Lincoln Way(West)- proceed on Lincoln Way to 32 Ave - turn left onto 32 Ave and proceed to Noriega St - turn right on Noriega - Site is near the end of Noriega. just west of 42nd Ave across from 76 Gas Station.	

Site Id	Map Source	Map Insert Coord	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
90	MapArt		F3	KIRKHAM ST.	STREET	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue to Stanyan turn right (S) on Stanyan and proceed past Golden Gate park then turn right (W) onto Lincoln Way(West)- proceed on Lincoln Way to Sunset Blvd - turn left (S) onto Sunset Blvd. to Kirkham turn right onto Kirkham - Site on Kirkham St. between 38th and 39th Ave.starting next to house #1501 38th Ave.	Photos taken of large clear plastic bag that appeared to be dumped which contained plastic dishware and a toaster rack.
91	MapArt		F3	LAWTON ST.	STREET	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue to Stanyan turn right (S) on Stanyan and proceed past Golden Gate park then turn right (W) onto Lincoln Way(West)- proceed on Lincoln Way to 19th Ave - turn left onto 19th Ave then proceed S to Lawton St - turn right (W) and proceed to site which is between 28th Ave and 29th Ave. on the north side of the street.	
93	MapArt		E7	WALLER ST.	STREET	Waller St - just east of Stanyan St.	
95	MapArt		D8	ELLIS ST.	STREET	Ellis just w of Divisadero St on N side of street	There are driveways and high grass/bush area just west of the gas station. Most of the trash collected in shrubbery right behind 76 gas station. Took extra photo of this site.
98	MapArt		B8	DIVISADERO ST.	STREET	Commencing from HDR's offices, proceed N on Sansome St to California - turn left onto California - proceed to Divisadero - turn right (N) proceed to Greenwich St. - site is on Divisadero just N of Greenwich St	Looks like gum was removed on parts of sidewalk.
101	MapArt		D6	STANYAN ST.	AVENUE	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - to turn Right onto Stanyan St - Site is on East side of Stanyan St between Anza St. and Turk Blvd.	Site is a residential area that is well maintained.
104	MapArt		D5	12TH AVE.	STREET	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue past Stnyan Blvd.to 12th Ave. Site is on west side of 12 th Ave just south of of Anza St. Between Anza St. and Balboa St.	
105	MapArt		E5	GEARY (was 10th Ave.)	BOULEVARD	From HRD's offices travel N on Sansome St to Geary St - turn left onto Geary and proceed (quite a long way) past Mason St and towards the Univ. of San Francisco - Continue past Park Presidio Blvd. Site on north side of Geary between 16th Ave. and 17th Ave.	Lots of wind and pedestrians
109	MapArt	H-84	D11	SHERMAN	STREET	SW on Market St to 6th St.; S on 6th St. to Harrison St.; W on Harrison St to Sherman St.; site on Sherman St just North of Harrison St.	Illegal Dumping of Old Toilet, Box et Al. Small Litter Section 2 in front of school.
110	MapArt	H-85	D12	BRANNAN	STREET	SW on Market Street, S on 4th Street, go under the I80. Brannan is the 3rd street past I80. Site on Brannan between 4th and 5th.	
111	MapArt	F-86	C12	BEALE	STREET	From Market Street turn south on Beale. Site is between Beale and Folsom.	

Site Id	Map Source	Map Insert Co.	Full Map Coord	Site_name	Site_type	Directions	Additional Comments
112	MapArt		H12	3RD	STREET	SW on Market; turn S onto 4th Street and proceed to 3rd St; turn right onto 3rd St. proceed past Evans St.; site on West side of 3rd St. just south of Galvez Ave.	
113	MapArt		K12	3RD	STREET	From Market Street turn S onto 4th St; proceed to 3rd St. and turn right onto 3rd St. and proceed south past Cesar Chavez St and Evans Ave. Site is on 3rd St. just North of Underwood. Site should be done on east side of 3rd if possible.	Train line (T - Line) divides the street.
114	MapArt		L12	3RD	STREET	Site is on 3rd Street from Ingerson towards Hollister.	There were several trash collection points on this site. Tall grass in front of residential garage, grass & chain link fence and dirt pockets in front of business. Three photos were taken of these areas.
200	MapArt	H-83	D10	9TH	STREET	9 st at between Atoma and Minna St SE of Market St.	
201	MapArt	H-83	D10	7TH	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to 7th St - turn left onto 7th St..... Site is on east side of 7th St. just before Howard St.	
202	MapArt		D9	BUCHANAN ST.	STREET	Buchanan St - just North of Fell St	Fence by playground. Wind blows most of the litter to the other side of the street.
203	MapArt		E9	BUCHANAN ST.	STREET	Buchanan St - just South of Waller St	
204	MapArt		G10	FOLSOM ST.	STREET	Site on west side of Folsom St. - just N of Cesar Chavez St. between Cesar Chavez and 26th St.	
205	MapArt		G11	HAMPSHIRE ST.	STREET	Site on west side of Hampshire St - between 22nd St. and 21st St.	Very wind trash was blowing in and out of site.
206	MapArt		G9	24TH ST.	AVENUE	Site is on south side of 24th St. east of Sanchez St.	Small Litter - none found. Large leafed plants are lovely to look at but most of the litter collected underneath them.
207	MapArt		K8	MEDA AVE. (as site #76A)	STREET	From HRD office - travel SW on Market St to Van Ness - turn left onto Van Ness to Mission - turn right onto Missions and proceed past Hwy 280 to Onondaga Ave turn right on Onondaga Ave proceed to Oteso Ave turn right and proceed to Meda - turn left onto Meda - site starts at 2 Meda and goes across Ostago along Meda.	
208	MapArt		K8	COTTER ST.	AVENUE	Commencing at HDR's Offices (Sansome/ Sutter) - travel North on Sansome to Vallejo St - turn right and proceed to Davis St - turn Right - site is immediately after turn onto Davis. St. - turn left onto 4th St ; Turn Right onto Cesar Chavez - to Mission St - turn Right - proceed SW to Cotter St - turn Right onto Theresa St. .... At end of the street turn left onto San Jose Ave proceed 100 yds to Cotter turn left onto Cotter. Site on Cotter 50 feet from Mission on public library side	
209	MapArt		L7	OCEAN AVE. (was site #79A)	STREET	Commencing at HDR's Offices (Sansome/ Sutter) - travel SW on Market St to Guerrero St. - turn left onto Cesar Chavez - to Mission St - turn Right onto Mission St and proceed all the way S to Ocean Ave. turn right onto Ocean Ave. site is on Ocean just past Consuelo Ave.	
210	MapArt		D7	ASHBURY ST.	STREET	West side of Ashbury St - just south of Fulton St	A lot of litter was collected in the grass & dirt around the trees planted in the sidewalk.
213	MapArt		B9	FRANKLIN ST.	STREET	Franklin - N of Washington St.	Street cleaning signs.

## APPENDIX 3 – Site Rankings

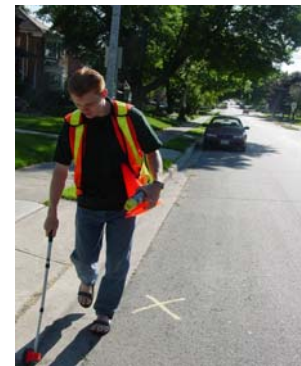
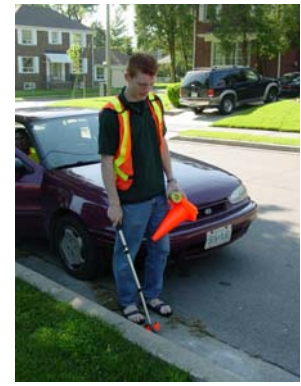
Site Id	Site Name	Items / Site	
109	SHERMAN	93	Above average
25	HOWARD	87	Above average
61	23RD	87	Above average
38	MCCOPPIN	76	Above average
201	7TH	73	Above average
14	PETRARCH	71	Above average
37	MISSION	67	Above average
39	15TH	63	Above average
9	GRANT (was PAGODA Pl)	60	Above average
98	DIVISADERO ST.	56	Above average
105	GEARY	54	Above average
114	3RD	53	Above average
65	22ND	49	Above average
4	FILBERT	48	Above average
40	TREAT	48	Above average
88	NORIEGA ST.	47	Above average
13	FREMONT	44	Above average
56	BACON	44	Above average
62	FOLSOM	44	Above average
110	BRANNAN	44	Above average
70	MISSION	38	Above average
71	SILVER	38	Above average
17	TAYLOR	36	Above average
204	FOLSOM ST.	34	Above average
205	HAMPSHIRE ST.	33	Above average
67	QUANE	32	Above average
8	POWELL	31	Above average
21	04 TH	28	Above average
24	RUSS	28	Above average
26	STEVENSON	28	Above average
1	FRANCISCO	26	Above average
27	LEAVENWORTH	25	Above average
63	TREAT	25	Above average
31	ELLIS	24	Above average
<b>200</b>	<b>9TH</b>	<b>23</b>	<b>AVERAGE</b>

Site Id	Site Name	Items / Site	
23	RUSS	22	Below average
73	CAYUGA	22	Below average
111	BEALE	22	Below average
30	GOLDEN GATE	20	Below average
51	MARIN	20	Below average
52	03 ST	20	Below average
58	CRESCENT	20	Below average
72	PERSIA	20	Below average
208	COTTER ST.	20	Below average
5	JASPER	19	Below average
6	DAVIS	19	Below average
112	3RD	19	Below average
20	MISSION	18	Below average
113	3RD	18	Below average
213	FRANKLIN ST.	17	Below average
22	KING	16	Below average
55	MCKINNON	16	Below average
85	BROAD ST.	16	Below average
202	BUCHANAN ST.	16	Below average
54	PHELPS	15	Below average
209	OCEAN AVE. (was site #79A)	15	Below average
7	WASHINGTON	14	Below average
16	NOB HILL	14	Below average
28	MCALLISTER	14	Below average
75	OCTAVIA	14	Below average
10	THE EMBARCADERO	13	Below average
49	MARIN	13	Below average
87	VICENTE ST.	13	Below average
89	NORIEGA ST.	13	Below average
95	ELLIS ST.	13	Below average
3	UNION	12	Below average
35	FELL	12	Below average
69	NOE	12	Below average
91	LAWTON ST.	12	Below average
93	WALLER ST.	12	Below average
15	MONTGOMERY	11	Below average
210	ASHBURY ST.	10	Below average
11	DRUM	9	Below average
68	NOE	9	Below average
104	12TH AVE.	9	Below average
207	MEDA AVE. (as site #76A)	9	Below average
34	FULTON	8	Below average
78	SANTA ROSA AVE.	8	Below average
43	INDIANA	7	Below average
53	EVANS	7	Below average
79	JUDSON AVE.	7	Below average
29	LARKIN	6	Below average
41	DE HARO	6	Below average
66	21ST	6	Below average
74	ALEMANY	6	Below average
76	SAN JOSE AVE.	6	Below average
203	BUCHANAN ST.	6	Below average
47	26TH	5	Below average
46	22ND	4	Below average
57	BACON	4	Below average
77	DELANO AVE.	4	Below average
44	19TH	3	Below average
59	PRENTISS	3	Below average
90	KIRKHAM ST.	3	Below average
19	GEARY	2	Below average
50	CESAR CHAVEZ	2	Below average
80	MOLIMO DR.	2	Below average
101	STANYAN ST.	2	Below average
86	GELLERT DR.	1	Below average

## APPENDIX 4 - Photos - Setting up a Site

### Large Litter Audits

- Team Arrives at the site, Measures 50ft. ahead of car, sets up site
- Marks starting point – mid-point and end of site
- Takes photos of site
- Then walks site – describing the large litter – and dictating into a tape recorder





## Photos - Small Litter – Set up and Counting

- While team member is completing large litter count – small litter frame is used to examine small litter



- Small litter is examined at close range  
In order to see, count and describe



- Three “flips” counted at each site



# **APPENDIX 5 - Branded Litter Survey (2007)**

PREPARED FOR

San Francisco Environmental Services

PREPARED BY MGM Management  
[www.mgm-management.com](http://www.mgm-management.com)  
May 2007

## **Appendix 5 - Branded Litter Survey**

### **1.0 Methodology – Branded Litter**

Using the Surveyor Site Form (with 84 categories of large litter) as a guide, data observing the names of manufacturers and brand owners of littered materials were recorded. Branded litter is described as any large litter (i.e. over 4 square inches) that has a recognizable brand name affixed. Where doubt occurred in the brand of the item – no entry was made.

Auditors identified litter by brand name, which was later transcribed onto Site Survey Forms, for data entry and analysis.

### **2.0 Branded Litter Results**

#### **2.1 Beverage Branded Litter**

Beer cans represent an insignificant contribution to large litter in the City of San Francisco. Only a few beer containers (6 cans in total) of any brand were observed during the audit. We deem this sample to be too small to be statistically valid for commenting on the distribution of beer container litter on San Francisco streets.

The 3 brands of beer cans and 4 brands of beer bottles were observed:

##### **Cans**

- Budweiser
- Coors
- Miller

##### **Beer Bottles**

- Widemer
- Corona (33% - 3 of 9 )
- Richards Beer
- Carvichi

#### **2.2 Soft Drink Cans - Branded Litter**

Soft drink containers were also a relatively small contributor to large litter on San Francisco streets. Only a few soft drink beverage containers were brand identified by auditors (20 containers in total). We deem this sample to be too small to be statistically valid for commenting on the distribution of soft container brands on San Francisco streets; however we report the observations below.

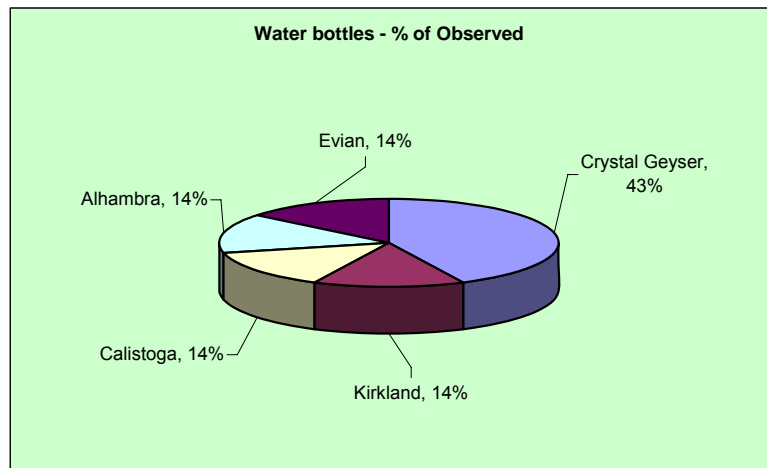
Brands of soft drinks observed:

- Sobe
- Snapple
- Nantucket Nectar
- Red Bull
- Coca-Cola
- Rockstar
- Shasta

### 2.3 Bottled Water - Branded Litter

#### Water Bottle Brands

	Units	% of Observed
Crystal Geyser	3	43%
Kirkland	1	14%
Calistoga	1	14%
Alhambra	1	14%
Evian	1	14%
	7	100%



**Discussion:** Bottled water has continued to be a growth packaged beverage for people on the go. Sales of bottled water have been reported growing at over 10% per year in various trade magazines.

Five brands of water bottles observed as litter on San Francisco streets in the 2007 litter audit; these were:

- Crystal Geyser (most significant)
- Kirkland (COSTCO)
- Calistoga
- Alhambra
- Evian

## 2.4 Sport Drinks - Branded Litter

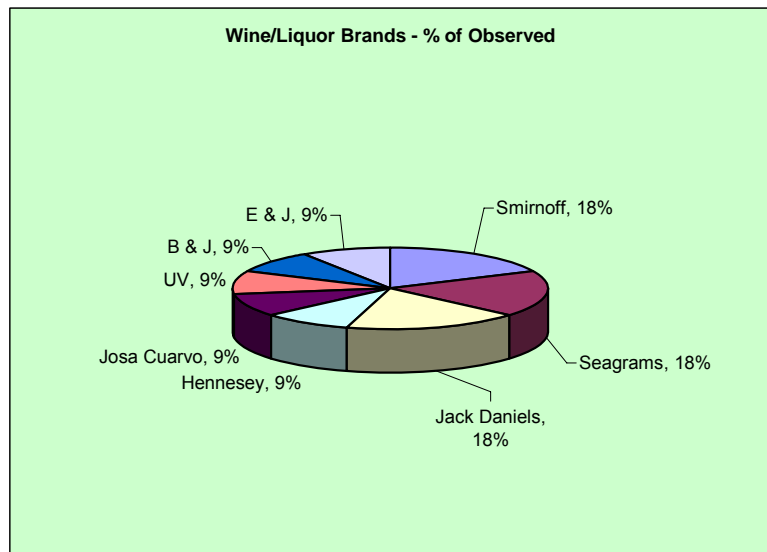
**Discussion:** Sport drinks were not a significant component of total large litter on San Francisco streets. Only 3 sports drink containers were observed in the 2007 audit. The only brand name observed was Gatorade.

## 2.5 Wine & Liquor - Branded Litter

Wine & liquor large litter was also not a significant component of total large litter on San Francisco streets. Eleven branded containers in the wine & liquor category were observed in the 2007 San Francisco litter audit.

### Wine/ Liquor Bottle Brands

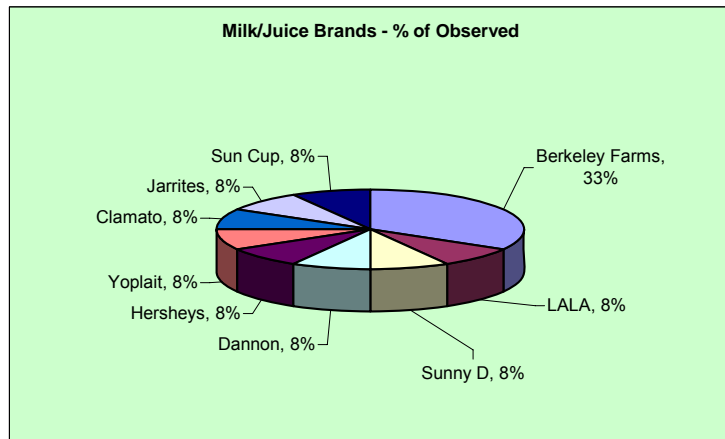
	Units	% of Observed
Smirnoff	2	18%
Seagrams	2	18%
Jack Daniels	2	18%
Hennesey	1	9%
Josa Cuarvo	1	9%
UV	1	9%
B & J	1	9%
E & J	1	9%
	11	100%



## 2.6 Milk & Juice - Branded Litter

### Milk & Juice Container Brands

	Units	% of Observed
Berkeley Farms	4	33%
LALA	1	8%
Sunny D	1	8%
Dannon	1	8%
Hersheys	1	8%
Yoplait	1	8%
Clamato	1	8%
Jarrites	1	8%
Sun Cup	1	8%
	12	100%

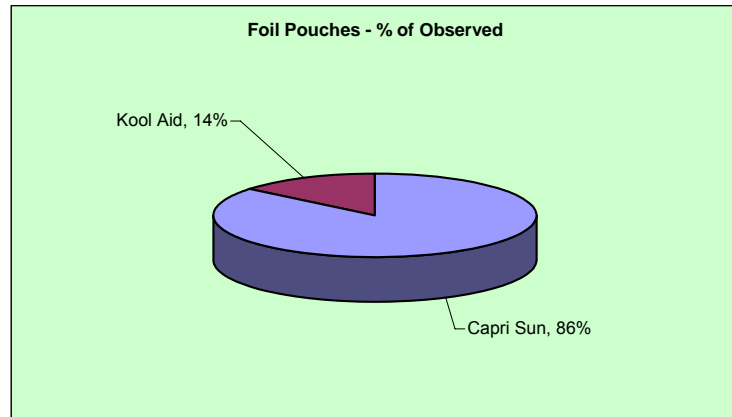


**Discussion:** Various brands of milk and juice products in glass and plastic containers were observed during the 2007 litter audit. The most prominent brand observed was Berkeley Farms product containers.

## 2.7 Foil Pouch Drinks - Branded Litter

**Foil Pouch Container Brands**

	Units	% of Observed
Capri Sun	6	86%
Kool Aid	1	14%
	7	100%



**Discussion:** Only 7 containers were observed for this sub-category of large litter, of which 6 were Capri Sun.

## 3.0 Cups, Lids and Cup Debris Branded Litter

This category encompasses all cold and hot drink cup litter, including lids.

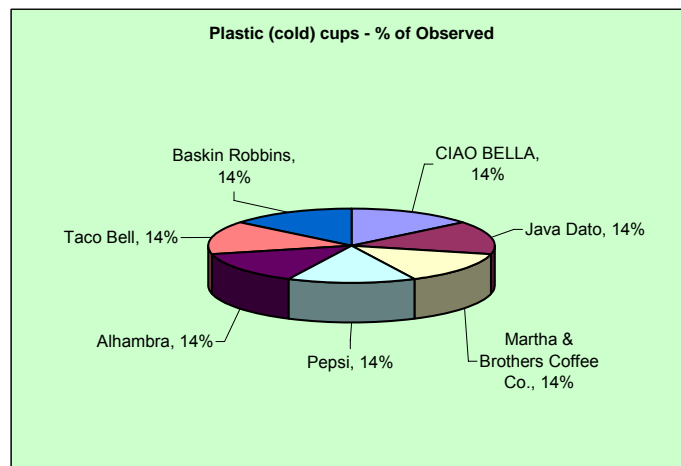
In general sites near a coffee shop, fast-food outlet or other over-the-counter drink outlet were highest in their occurrence of cup debris.

Presentation of the brand observations for this subcategory appears below.

### Plastic drink (cold) cup Brands

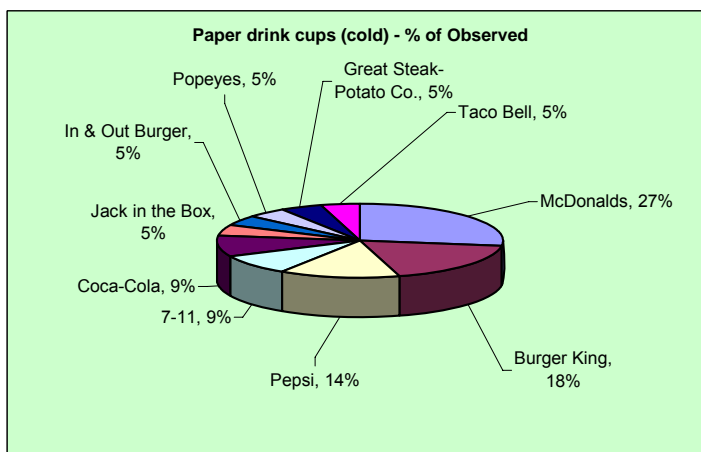
	Units	% of Observed
CIAO BELLA	1	14%
Java Dato	1	14%
Martha & Brothers Coffee	1	14%
Pepsi	1	14%
Alhambra	1	14%
Taco Bell	1	14%
Baskin Robbins	1	14%
	7	100%

Total observed 29 items - 7 brands



### Paper drink (cold) cup Brands

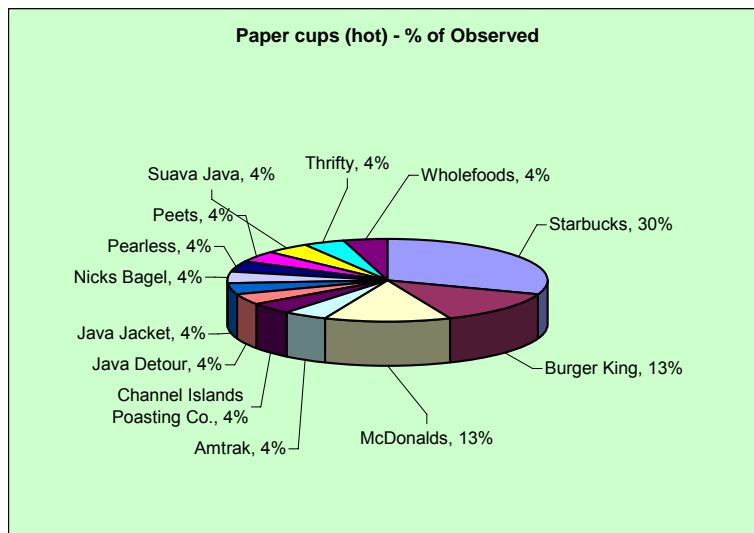
	Units	% of Observed
McDonalds	6	27%
Burger King	4	18%
Pepsi	3	14%
7-11	2	9%
Coca-Cola	2	9%
Jack in the Box	1	5%
In & Out Burger	1	5%
Popeyes	1	5%
Great Steak-Potato Co.	1	5%
Taco Bell	1	5%
	22	100%



The 2007 San Francisco Litter audit also examined the brands of hot drink paper cups, normally associated with coffee shops. These brand results appear below.

#### Paper drink (hot) cup Brands

	Units	% of Observed
Starbucks	7	30%
Burger King	3	13%
McDonalds	3	13%
Amtrak	1	4%
Channel Islands Poasting Co.	1	4%
Java Detour	1	4%
Java Jacket	1	4%
Nicks Bagel	1	4%
Pearless	1	4%
Peets	1	4%
Suava Java	1	4%
Thrifty	1	4%
Wholefoods	1	4%
	23	100%



Starbucks, Burger King and McDonalds accounted for 56% of the branded hot cup litter observed.

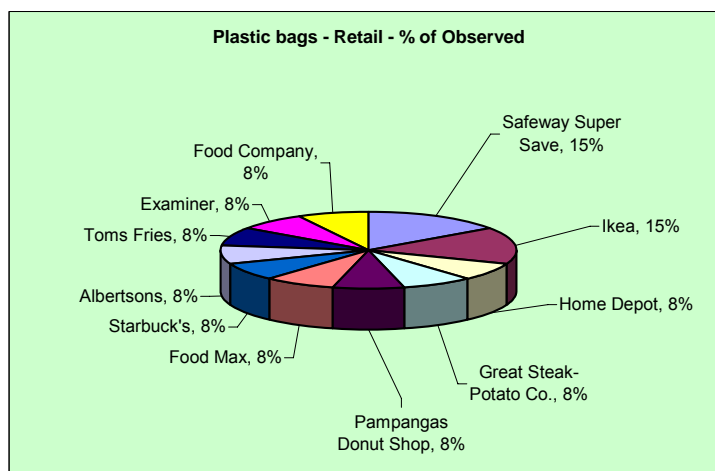
## 4.0 Bag Branded Litter

### 4.1 Plastic & Paper Retail and Paper Bags from Fast Food

In the 2007 San Francisco Litter Audit, field teams observed 13 items in the plastic retail bag sub-category. There were ten brands of plastic retail bags observed, with Ikea and Safeway brands occurring more than the others.

#### Plastic Bags - Brands

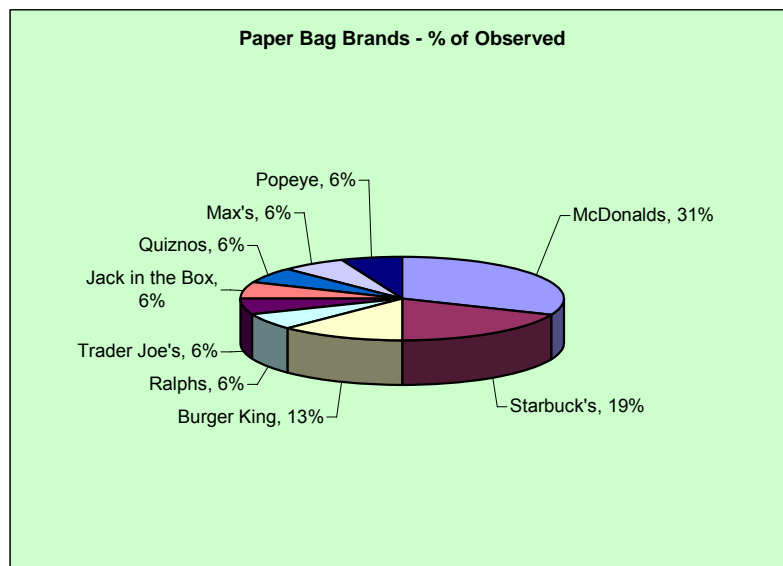
	Units	% of Observed
Safeway Super Save	2	15%
Ikea	2	15%
Home Depot	1	8%
Great Steak-Potato Co.	1	8%
Pampangas Donut Shop	1	8%
Food Max	1	8%
Starbuck's	1	8%
Albertsons	1	8%
Toms Fries	1	8%
Examiner	1	8%
Food Company	1	8%
	13	100%





## Paper Bags - Brands

	Units	% of Observed
McDonalds	5	31%
Starbuck's	3	19%
Burger King	2	13%
Ralphs	1	6%
Trader Joe's	1	6%
Jack in the Box	1	6%
Quiznos	1	6%
Max's	1	6%
Popeye	1	6%
Total	16	100%



In the paper bags sub-category, McDonalds, Starbuck's and Burger King represented 63% of the brands observed.

## 5.0 Boxes, Cardboard Boxes, Other Containers, Food Wrap

The boxes sub-category of litter, contributed 1.2% of total large litter observed. The brands that were observed were: North Beach, Tylenol, TDK, Benadryl, Corona, SOS, Jiffy Muffin, and Tampax.

In the Other Containers sub-category (1.4% of total large litter), Walgreens, Rite Aid, Planters, Similac, Dinty Moore, Neon and Dole containers were observed.

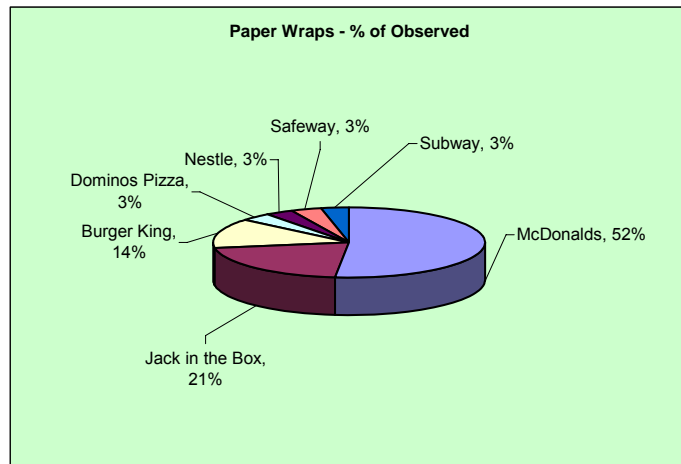
## 6.0 Fast Food Litter Brands Identified

### 6.1 Food Wraps - Brands

Brands observed in the wraps sub-category were 1.78% of total large litter and are illustrated below in terms of the brands observed.

#### Paper Wraps - Brands

	Units	% of Observed
McDonalds	15	52%
Jack in the Box	6	21%
Burger King	4	14%
Dominos Pizza	1	3%
Nestle	1	3%
Safeway	1	3%
Subway	1	3%
Total	29	100%



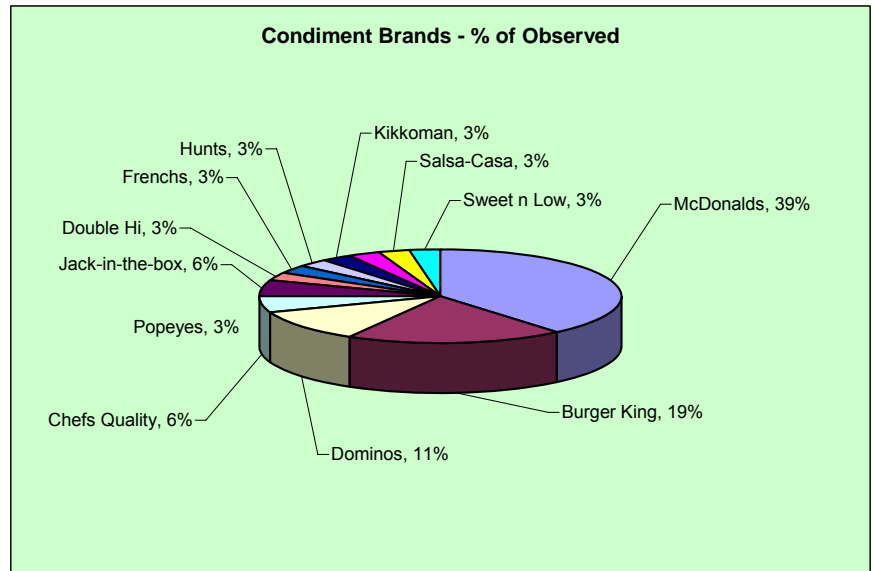
The litter audit teams observed other food wrap materials, such as plastic wraps, and plastic/composite foil wraps; however positive brand identifications could not be made.

## 6.2 Take-Out Extra Branded Litter

Take-out extras constitute a relatively significant contribution of large litter observed on San Francisco streets, with 116 items (3.04% of total large litter observed) . Eighty-two per cent of the take out litter observed were utensils from fast food or condiment packages. The brand observations for these items are illustrated below. Note that utensils do not normally carry any brand information therefore the data presented below represents condiment packaging.

Condiment Packaging - Brands

	Units	% of Observed
McDonalds	14	39%
Burger King	7	19%
Dominos	4	11%
Chefs Quality	2	6%
Jack-in-the-box	2	6%
Double Hi	1	3%
Frenchs	1	3%
Hunts	1	3%
Kikkoman	1	3%
Popeyes	1	3%
Salsa-Casa	1	3%
Sweet n Low	1	3%
Total	36	100%



## 7.0 Confectionary Branded Litter

Confectionary products comprised 8.57 % of total large litter in the San Francisco audit which is a significant amount of litter. Below we illustrate the brands of products observed in this sub-category.

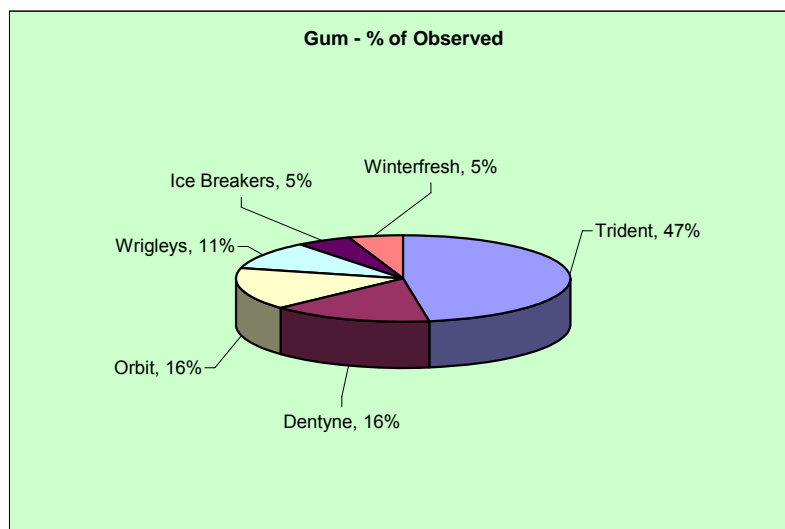
### 7.1 Brands of Gum Wrap Litter

Gum litter appears to be a significant issue in San Francisco. Gum packaging litters the streets, and there are high occurrences of gum deposits on sidewalks and streets throughout the city.

Three brands make up over 80% of branded gum litter observed (Trident, Dentyne, Orbit).

### Confectionary - Gum - Brands

	Units	% of Observed
Trident	9	47%
Dentyne	3	16%
Orbit	3	16%
Wrigleys	2	11%
Ice Breakers	1	5%
Winterfresh	1	5%
	19	100%



## 7.2 Brands of Candy Wrap Litter

In the San Francisco litter audit 152 candy wraps were observed, which represent a significant contribution to total large litter at 3.99%. Of these 152 candy wraps observed, 100 were identifiable by brand. The brand identity of these candy wraps is illustrated below.

### Confectionary - Candy Wrappers - Brands

	Units	% of Observed		Units	% of Observed
Tootsie Roll	8	8.0%	Butter Finger	1	1.0%
Hersheys	7	7.0%	Glorias	1	1.0%
Snickers	7	7.0%	Goodyear	1	1.0%
M & M's	4	4.0%	Gummy Worms	1	1.0%
Werthers	4	4.0%	Jeffifay	1	1.0%
Mamba	3	3.0%	Joseph Schmidt	1	1.0%
Nestle	3	3.0%	Kellogs	1	1.0%
Reese	3	3.0%	Kiss	1	1.0%
Twix	3	3.0%	Laffy Taffy	1	1.0%
Airheads	2	2.0%	Lifesaver	1	1.0%
Brachs Cinnamon	2	2.0%	Lollipop	1	1.0%
Charms	2	2.0%	Max	1	1.0%
Ghiradelli	2	2.0%	Menthe Mint	1	1.0%
Jelly Belly	2	2.0%	Musketeers	1	1.0%
Jolly Ranches	2	2.0%	New York	1	1.0%
Kit-Kat	2	2.0%	Night Crawler	1	1.0%
Milky Way	2	2.0%	Orbit	1	1.0%
Nature Valley	2	2.0%	Rice Krispy Treats	1	1.0%
Nibs	2	2.0%	Skittles	1	1.0%
Now-Later	2	2.0%	Sour Neon	1	1.0%
Sour Power	2	2.0%	Sour Patch	1	1.0%
Starburst	2	2.0%	Twinkie	1	1.0%
Abba Zabba Taffy	1	1.0%	Walgreen	1	1.0%
Balis Best	1	1.0%	Welchers	1	1.0%
Boyba Wang	1	1.0%	Wenka Laffy Taffy	1	1.0%
Bubbalo	1	1.0%	White Rabbit	1	1.0%
			Whoppers	1	1.0%
			Wonka	1	1.0%
				100	100%

### 7.3 Brands of Candy Pouch Litter

During the San Francisco litter audit only eight brand observations for candy punch litter were made, these included: Mike-N-Ike, Air Head, Granola, Nature Valley Lite Sours, Nestle, Delmonte and M & M's.

### 7.4 Brands of Sweet Snack Litter

#### Confectionary - Sweet snack packaging - Brands

	Units	% of Observed		Units	% of Observed
Altoids	1	4%	Klondike	1	4%
Betty Crocker	1	4%	Little Debbie	1	4%
Dots	1	4%	Malstar	1	4%
Drumstick	1	4%	Nannis	1	4%
Famous Amos Cookies	1	4%	Nature Valley	1	4%
Gogurt	1	4%	Orbit	1	4%
Good Cooky	1	4%	Organic Krispy Rice	1	4%
Gummy Worm	1	4%	Propez	1	4%
Hagen Dass	1	4%	Ricola	1	4%
Halls	1	4%	Safeway	1	4%
Ice Breakers	1	4%	Starbuck's	2	7%
Icepep	1	4%	Starbuck's	1	4%
Junior Caramel	1	4%	X-H	1	4%
			Total	27	100%

## 7.5 Brands of Snack Food (savoury & salted snacks) Litter

### Confectionary - Snack packaging (savory/salted) - Brands

	Units	% of Observed		Units	% of Observed
Cheetos	6	8.6%	Cop Agra	1	1.4%
Doritos	6	8.6%	Christie	1	1.4%
Frito	6	8.6%	Davids	1	1.4%
Planters Peanuts	3	4.3%	Dearfield Farms	1	1.4%
Sour Power	3	4.3%	El Sabrosa	1	1.4%
Austin	2	2.9%	Flavorade	1	1.4%
Cottage Cheese III	2	2.9%	Garden	1	1.4%
Keebler	2	2.9%	Granola	1	1.4%
Kettles	2	2.9%	Hostess	1	1.4%
Little Debbie's	2	2.9%	Nissin	1	1.4%
Lunchables	2	2.9%	Organic Valley	1	1.4%
Nature Valley	2	2.9%	Precious	1	1.4%
Slim Jim	2	2.9%	Pringles	1	1.4%
Styrofoam Cups Noodles	2	2.9%	Protein Bar	1	1.4%
Sunmaid	2	2.9%	Pudding Cup	1	1.4%
Toms	2	2.9%	Quaker	1	1.4%
Amos	1	1.4%	Ramon	1	1.4%
Baby star Noodles	1	1.4%	Roland	1	1.4%
Brown Cow	1	1.4%	Ruffles	1	1.4%
Cheese Maker	1	1.4%	Seawood	1	1.4%
			Total	70	100.0%

## 8.0 Branded Printed Materials

In the sub-category of branded litter, printed material represents about 13.6% of the total litter observed, and as such is a significant sub-category.

Printed materials of various types of newspapers and advertisements were a significant contributor to large litter, contributing 7.5 % of total large litter observed. Many of the pieces of large litter counted could not be positively identified as to the brand name of the producer of the printed material, due mostly to weathering of the litter, or shredding where lawn mowing activities may take place.

The printed materials that could be identified by brands are illustrated below.

## 8.1 Newspapers, Advertisements

### Printed Litter - (papers/flyers) - Brands

	Units	% of Observed		Units	% of Observed
Pizza Lova	4	12.1%	Mr. pizza Man	1	3.0%
Trader Joe's	3	9.1%	Mythic Pizza & La Carreta	1	3.0%
Shiso flyer	2	6.1%	Nob Hill Gazette	1	3.0%
Best Buy	1	3.0%	Rite Aid	1	3.0%
Circuit City	1	3.0%	SF Guardian	1	3.0%
Digna Cleaning	1	3.0%	Spanish Cultural Center	1	3.0%
E Bay Express	1	3.0%	Starbuck's	1	3.0%
Faqueria	1	3.0%	Subway	1	3.0%
GMC	1	3.0%	Tritech	1	3.0%
Irish Harold	1	3.0%	Venica Pizza Man	1	3.0%
JC Pennys	1	3.0%	Volara Pizza	1	3.0%
Lowes	1	3.0%	Yellow Pages	1	3.0%
Magazina	1	3.0%	Zcavacha	1	3.0%
Mervins	1	3.0%			
				33	100.0%

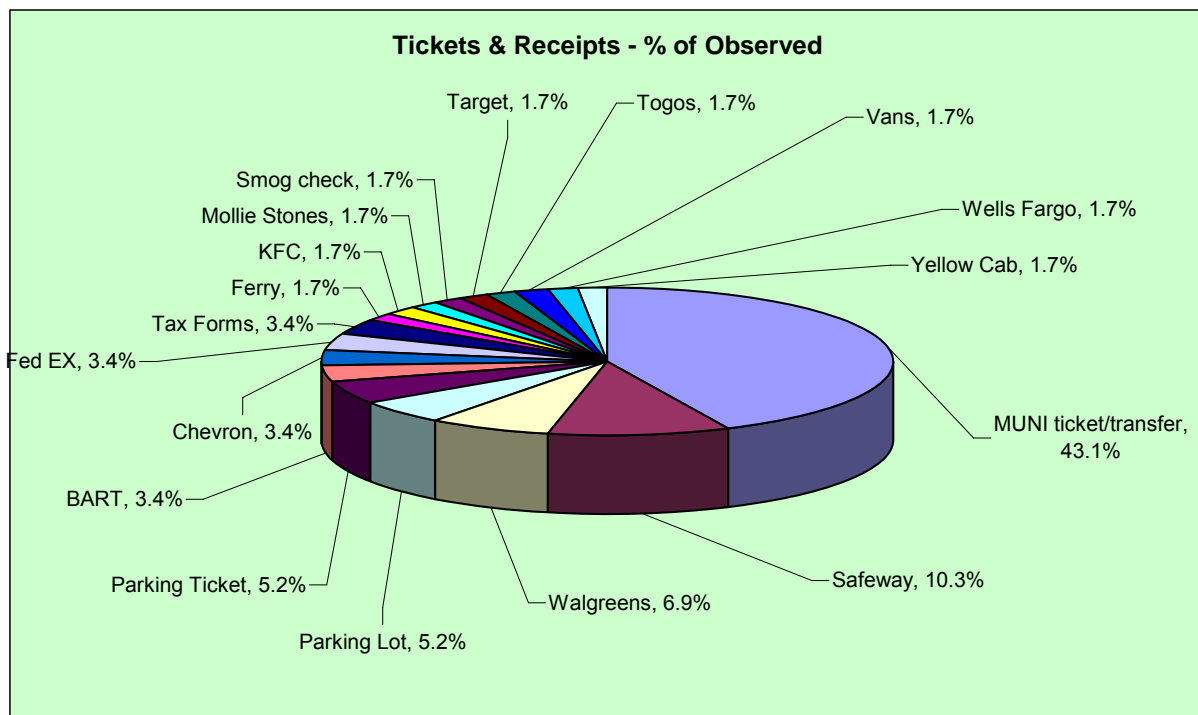
## 8.2 Business Forms (MUNI Tickets, business receipts etc)

Business forms, tickets, transfers and receipt litter continue to be of significance as a sub-category of large litter on San Francisco streets. Business forms as a sub-category represent 5.3% of total large litter. MUNI tickets and transfers are a significant branded business form of litter. This observation, with bus and transit litter being significant, has been observed by the consultant at similar levels of total litter in other municipalities. This is an on-going issue for large municipalities.

See data details on the next page.

# **Printed Litter - (Tickets/transfers / receipts) - Brands**

	Units	% of Observed
MUNI ticket/transfer	25	43.1%
Safeway	6	10.3%
Walgreens	4	6.9%
Parking Lot	3	5.2%
Parking Ticket	3	5.2%
BART	2	3.4%
Chevron	2	3.4%
Fed EX	2	3.4%
Tax Forms	2	3.4%
Ferry	1	1.7%
KFC	1	1.7%
Mollie Stones	1	1.7%
Smog check	1	1.7%
Target	1	1.7%
Togos	1	1.7%
Vans	1	1.7%
Wells Fargo	1	1.7%
Yellow Cab	1	1.7%
	58	100.0%



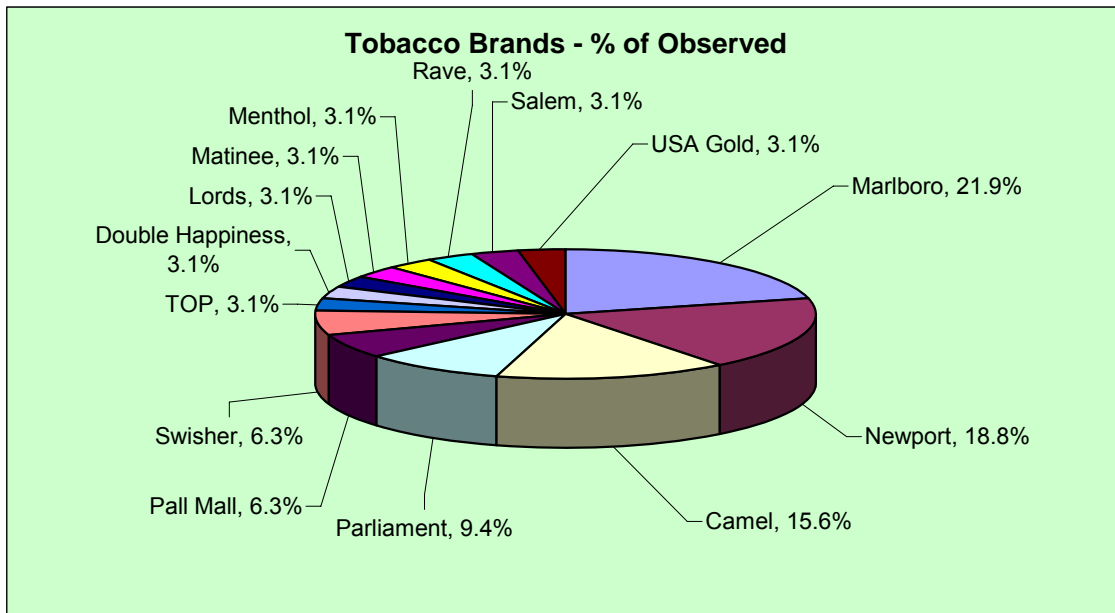


## 9.0 Tobacco Litter

Marlboro, Newport, Camel and Parliament brands make up 66% of tobacco litter observed on San Francisco streets.

### Tobacco Litter - Brands

	Units	% of Observed
Marlboro	21	21.9%
Newport	7	18.8%
Camel	6	15.6%
Parliament	5	9.4%
Pall Mall	3	6.3%
Swisher	2	6.3%
TOP	2	3.1%
Double Happiness	1	3.1%
Lords	1	3.1%
Matinee	1	3.1%
Menthol	1	3.1%
Rave	1	3.1%
Salem	1	3.1%
USA Gold	1	3.1%
	32	100.0%



**BRAND Identification - Brand Names Identified by Category**

<b>Beverage</b>		
	<b>Items Identified</b>	<b>% of Total Litter</b>
Crystal Geyser	3	0.08%
Jack Daniels	2	0.05%
Seagrams	2	0.05%
Smirnoff	2	0.05%
Alhambra	1	0.03%
B & J	1	0.03%
Calistoga	1	0.03%
Coca-Cola	1	0.03%
E & J	1	0.03%
Ensure	1	0.03%
Evian	1	0.03%
Hennesey	1	0.03%
Josa Cuarvo	1	0.03%
Kirkland	1	0.03%
Lucea Thai Tea	1	0.03%
Red Bull	1	0.03%
Rockstar	1	0.03%
Shasta	1	0.03%
Sunny D	1	0.03%
UV	1	0.03%

<b>Plastic &amp; Paper Bags</b>		
	<b>Items Identified</b>	<b>% of Total Litter</b>
McDonalds	5	0.13%
Starbuck's	3	0.08%
Burger King	2	0.05%
Ikea	2	0.05%
Safeway Super Save	2	0.05%
Albertsons	1	0.03%
Examiner	1	0.03%
Food Company	1	0.03%
Food Max	1	0.03%
Great Steak-Potato Co.	1	0.03%
Home Depot	1	0.03%
Jack in the Box	1	0.03%
Max's	1	0.03%
Pampangas Donut Shop	1	0.03%
Popeye	1	0.03%
Quiznos	1	0.03%
Ralphs	1	0.03%
Starbuck's	1	0.03%
Toms Fries	1	0.03%
Trader Joe's	1	0.03%

<b>Cup Litter</b>		
	<b>Items Identified</b>	<b>% of Total Litter</b>
McDonalds	9	0.24%
Starbucks	7	0.18%
Burger King	4	0.10%
Pepsi	4	0.10%
Burger King	3	0.08%
7-11	2	0.05%
Coca-Cola	2	0.05%
Alhambra	1	0.03%
Amtrak	1	0.03%
Bar Mo	1	0.03%
Baskin Robbins	1	0.03%
Channel Islands Poasting Co.	1	0.03%
CIAO BELLA	1	0.03%
Great Steak-Potato Co.	1	0.03%
In & Out Burger	1	0.03%
Jack in the Box	1	0.03%
Java Dato	1	0.03%
Java Detour	1	0.03%
Java Jacket	1	0.03%
Martha & Brothers Coffee Co.	1	0.03%
Nicks Bagel	1	0.03%
Pearless	1	0.03%
Peets	1	0.03%
Pepsi	1	0.03%
Popeyes	1	0.03%
Suava Java	1	0.03%
Taco Bell	1	0.03%
Taco Bell	1	0.03%
Thrifty	1	0.03%
Wholefoods	1	0.03%

<b>Boxes &amp; Clamshells</b>		
	<b>Items Identified</b>	<b>% of Total Litter</b>
McDonalds	9	0.24%
Benadryl	1	0.03%
Corona	1	0.03%
KFC	1	0.03%
Listerine	1	0.03%
North Beach	1	0.03%
Sos	1	0.03%
Tampax	1	0.03%
TDK	1	0.03%
Tylenol	1	0.03%
Yves	1	0.03%
Alkaseltzer	0	0.00%

<b>Other Containers</b>		
	<b>Items Identified</b>	<b>% of Total Litter</b>
Walgreens	1	0.03%
Rite Aid	1	0.03%
Planters	1	0.03%
Dole	1	0.03%
Similac	1	0.03%
Neon	1	0.03%
Dinty Moore	1	0.03%

Paper & Plastic Wraps		
	Items Identified	% of Total Litter
McDonalds	15	0.39%
Jack in the Box	6	0.16%
Burger King	4	0.10%
Angel 500	2	0.05%
Dominos Pizza	1	0.03%
Me Jii	1	0.03%
Nestle	1	0.03%
Padia Sura Orange Crama	1	0.03%
Safeway	1	0.03%
Subway	1	0.03%
Togos	1	0.03%
Triaminic	1	0.03%

Take-Out Extras		
	Items Identified	% of Total Litter
McDonalds	14	0.37%
Burger King	7	0.18%
Dominos	4	0.10%
Chefs Quality	2	0.05%
Jack-in-the-box	2	0.05%
Quiznos	2	0.05%
7 Eleven	1	0.03%
Cup Noodles	1	0.03%
Double Hi	1	0.03%
Frenchs	1	0.03%
Hunts	1	0.03%
Kikkoman	1	0.03%
Popeyes	1	0.03%
Salsa-Casa	1	0.03%
Starbucks	1	0.03%
Sweet n Low	1	0.03%
Tullys	1	0.03%

Trays		
	Items Identified	% of Total Litter
Yves	1	0.03%

Confectionary			Confectionary (con't)		
	Items Identified	% of Total Litter		Items Identified	% of Total Litter
Trident	9	0.24%	Ice Breakers	2	0.03%
Tootsie Roll	8	0.21%	Icepep	1	0.03%
Hersheys	7	0.18%	Jeffifay	1	0.03%
Snickers	7	0.18%	Joseph Schmidt	1	0.03%
M & M's	4	0.10%	Junior Caramel	1	0.03%
Werthers	4	0.10%	Kellogs	1	0.03%
Dentyne	3	0.08%	Kiss	1	0.03%
Mamba	3	0.08%	Klondike	1	0.03%
Nestle	3	0.08%	Laffy Taffy	1	0.03%
Orbit	3	0.08%	Lifesaver	1	0.03%
Reese	3	0.08%	Little Debbie	1	0.03%
Twix	3	0.08%	Lollipop	1	0.03%
Airheads	2	0.05%	Malstar	1	0.03%
Brachs Cinnamon	2	0.05%	Max	1	0.03%
Charms	2	0.05%	Menthe Mint	1	0.03%
Ghiradelli	2	0.05%	Musketeers	1	0.03%
Jelly Belly	2	0.05%	Nannis	1	0.03%
Jolly Ranches	2	0.05%	Nature Valley	1	0.03%
Kit-Kat	2	0.05%	New York	1	0.03%
Milky Way	2	0.05%	Night Crawler	1	0.03%
Nature Valley	2	0.05%	Orbit	2	0.03%
Nibs	2	0.05%	Organic Krispy Rice	1	0.03%
Now-Later	2	0.05%	Propez	1	0.03%
Sour Power	2	0.05%	Rice Krispy Treats	1	0.03%
Starbuck's	2	0.05%	Ricola	1	0.03%
Starburst	2	0.05%	Safeway	1	0.03%
Wrigleys	2	0.05%	Skittles	1	0.03%
Abba Zabba Taffy	1	0.03%	Sour Neon	1	0.03%
Altoids	1	0.03%	Sour Patch	1	0.03%
Balis Best	1	0.03%	Starbuck's	1	0.03%
Betty Crocker	1	0.03%	Twinkie	1	0.03%
Boyba Wang	1	0.03%	Walgreen	1	0.03%
Bubbaloo	1	0.03%	Welchers	1	0.03%
Butter Finger	1	0.03%	Wenka Laffy Taffy	1	0.03%
Dots	1	0.03%	White Rabbit	1	0.03%
Drumstick	1	0.03%	Whoppers	1	0.03%
Famous Amos Cookies	1	0.03%	Winterfresh	1	0.03%
Glorias	1	0.03%	Wonka	1	0.03%
Gogurt	1	0.03%	X-H	1	0.03%
Good Cooky	1	0.03%			
Goodyear	1	0.03%			
Gummy Worms	2	0.03%			
Hagen Dass	1	0.03%			
Halls	1	0.03%			

Other Packaging		
	Items Identified	% of Total Litter
Reeses	1	0.03%
Nona Shim	1	0.03%
McDonalds	1	0.03%

Printed Materials			Printed Materials (con't)		
	Items Identified	% of Total Litter	Items Identified	% of Total Litter	
MUNI ticket/transfer	25	0.66%	KFC	1	0.03%
Safeway	6	0.16%	Lowes	1	0.03%
Pizza Lova	4	0.10%	Magazina	1	0.03%
Walgreens	4	0.10%	Mervins	1	0.03%
Parking Lot	3	0.08%	Mollie Stones	1	0.03%
Parking Ticket	3	0.08%	Mr. pizza Man	1	0.03%
Trader Joe's	3	0.08%	Mythic Pizza & La Carreta	1	0.03%
BART	2	0.05%	Nob Hill Gazette	1	0.03%
Chevron	2	0.05%	Rite Aid	1	0.03%
Fed EX	2	0.05%	SF Guardian	1	0.03%
Shiso flyer	2	0.05%	Smog check	1	0.03%
Tax Forms	2	0.05%	Spanish Cultural Center	1	0.03%
Best Buy	1	0.03%	Starbuck's	1	0.03%
Circuit City	1	0.03%	Subway	1	0.03%
Digna Cleaning	1	0.03%	Target	1	0.03%
E Bay Express	1	0.03%	Togos	1	0.03%
Faqueria	1	0.03%	Tritech	1	0.03%
Ferry	1	0.03%	Vans	1	0.03%
GMC	1	0.03%	Venica Pizza Man	1	0.03%
Irish Harold	1	0.03%	Volara Pizza	1	0.03%
JC Pennys	1	0.03%	Wells Fargo	1	0.03%
			Yellow Cab	1	0.03%
			Yellow Pages	1	0.03%
			Zcavacha	1	0.03%

Tobacco Materials		
	Items Identified	% of Total Litter
Marlboro	22	0.58%
Newport	7	0.18%
Camel	6	0.16%
Parliament	5	0.13%
Pall Mall	3	0.08%
Swisher	2	0.05%
TOP	2	0.05%
Double Happiness	1	0.03%
Lords	1	0.03%
Marlboro	1	0.03%
Matinee	1	0.03%
Menthol	1	0.03%
Rave	1	0.03%
Salem	1	0.03%
Sonoma	1	0.03%
USA Gold	1	0.03%
Walgreens	1	0.03%

Other Miscellaneous		
	Items Identified	% of Total Litter
Fed Ex	8	0.21%
Cal Tax info	1	0.03%
Bed Bath & Beyond	1	0.03%
Refresha	1	0.03%
Stabucks	1	0.03%
Kleenex	1	0.03%
Eco Lab	1	0.03%
Lynx	1	0.03%
Martha Brothers	1	0.03%
Mike Ikes	1	0.03%
Bussman Fuses	1	0.03%
Duracell	1	0.03%
Arris	1	0.03%
Kichls	1	0.03%
Scottys	1	0.03%
Energizer	1	0.03%

## All Branded Large Litter - Alphabetical

	Items Identified	% of Total Litter		Items Identified	% of Total Litter
7 Eleven	3	0.08%	E & J	1	0.03%
Abba Zabba Taffy	1	0.03%	E Bay Express	1	0.03%
Airheads	2	0.05%	Eco Lab	1	0.03%
Albertsons	1	0.03%	Energizer	1	0.03%
Alhambra	2	0.05%	Ensure	1	0.03%
Alkaseltzer	0	0.00%	Evian	1	0.03%
Altoids	1	0.03%	Examiner	1	0.03%
Amtrak	1	0.03%	Famous Amos Cookies	1	0.03%
Angel 500	2	0.05%	Faqueria	1	0.03%
Arris	1	0.03%	Fed Ex	10	0.26%
B & J	1	0.03%	Ferry ticket	1	0.03%
Balis Best	1	0.03%	Food Company	1	0.03%
Bar Mo	1	0.03%	Food Max	1	0.03%
BART	2	0.05%	Frenchs	1	0.03%
Baskin Robbins	1	0.03%	Ghiradelli	2	0.05%
Bed Bath & Beyond	1	0.03%	Glorias	1	0.03%
Benadryl	1	0.03%	GMC	1	0.03%
Best Buy	1	0.03%	Gogurt	1	0.03%
Betty Crocker	1	0.03%	Good Cooky	1	0.03%
Boyba Wang	1	0.03%	Goodyear	1	0.03%
Brachs Cinnamon	2	0.05%	Great Steak-Potato Co.	2	0.05%
Bubbaloo	1	0.03%	Gummy Worms	2	0.05%
Burger King	20	0.52%	Hagen Dass	1	0.03%
Bussman Fuses	1	0.03%	Halls	1	0.03%
Butter Finger	1	0.03%	Hennesey	1	0.03%
Cal Tax info	1	0.03%	Hersheys	7	0.18%
Calistoga	1	0.03%	Home Depot	1	0.03%
Camel	6	0.16%	Hunts	1	0.03%
Channel Islands Poasting Co.	1	0.03%	Ice Breakers	2	0.05%
Charms	2	0.05%	Icepep	1	0.03%
Chefs Quality	2	0.05%	Ikea	2	0.05%
Chevron	2	0.05%	In & Out Burger	1	0.03%
CIAO BELLA	1	0.03%	Irish Harold	1	0.03%
Circuit City	1	0.03%	Jack Daniels	2	0.05%
Coca-Cola	3	0.08%	Jack in the Box	10	0.26%
Corona	1	0.03%	Java Dato	1	0.03%
Crystal Geyser	3	0.08%	Java Detour	1	0.03%
Cup Noodles	1	0.03%	Java Jacket	1	0.03%
Dentyne	3	0.08%	JC Pennys	1	0.03%
Digna Cleaning	1	0.03%	Jeffifay	1	0.03%
Dinty Moore	1	0.03%	Jelly Belly	2	0.05%
Dole	1	0.03%	Jolly Ranches	2	0.05%
Dominos Pizza	5	0.13%	Josa Cuarvo	1	0.03%
Dots	1	0.03%	Joseph Schmidt	1	0.03%
Double Happiness	1	0.03%	Junior Caramel	1	0.03%
Double Hi	1	0.03%			
Drumstick	1	0.03%			
Duracell	1	0.03%			
		0.03%			

## All Branded Large Litter - Alphabetical

	Items Identified	% of Total Litter		Items Identified	% of Total Litter
Kellogs	1	0.03%	North Beach	1	0.03%
KFC	2	0.05%	Now-Later	2	0.05%
Kichls	1	0.03%	Orbit	5	0.13%
Kikkoman	1	0.03%	Organic Krispy Rice	1	0.03%
Kirkland	1	0.03%	Padia Sura Orange Cram	1	0.03%
Kiss	1	0.03%	Pall Mall	3	0.08%
Kit-Kat	2	0.05%	Pampangas Donut Shop	1	0.03%
Kleenex	1	0.03%	SFO Parking Ticket	3	0.08%
Klondike	1	0.03%	Parliament	5	0.13%
Laffy Taffy	1	0.03%	Pearless	1	0.03%
Lifesaver	1	0.03%	Peets	1	0.03%
Listerine	1	0.03%	Pepsi	5	0.13%
Little Debbie	1	0.03%	Pizza Lova	4	0.10%
Lollipop	1	0.03%	Planters	1	0.03%
Lords	1	0.03%	Popeye	3	0.08%
Lowe's	1	0.03%	Propez	1	0.03%
Lucea Thai Tea	1	0.03%	Quiznos	3	0.08%
Lynx	1	0.03%	Ralphs	1	0.03%
M & M's	4	0.10%	Rave	1	0.03%
Magazina	1	0.03%	Red Bull	1	0.03%
Malstar	1	0.03%	Reeses	4	0.10%
Mamba	3	0.08%	Refresha	1	0.03%
Marlboro	23	0.60%	Rice Krispy Treats	1	0.03%
Martha & Brothers Coffee Co.	1	0.03%	Ricola	1	0.03%
Martha Brothers	1	0.03%	Rite Aid	2	0.05%
Matinee	1	0.03%	Rockstar	1	0.03%
Max	1	0.03%	Safeway	10	0.26%
Max's	1	0.03%	Salem	1	0.03%
McDonalds	53	1.39%	Salsa-Casa	1	0.03%
Me Jii	1	0.03%	Scottys	1	0.03%
Menthe Mint	1	0.03%	Seagrams	2	0.05%
Menthol	1	0.03%	SF Guardian	1	0.03%
Mervins	1	0.03%	Shasta	1	0.03%
Mike Ikes	1	0.03%	Shiso flyer	2	0.05%
Milky Way	2	0.05%	Similac	1	0.03%
Mollie Stones	1	0.03%	Skittles	1	0.03%
Mr. Pizza Man	1	0.03%	Smirnoff	2	0.05%
MUNI ticket/transfer	25	0.66%	Smog check	1	0.03%
Musketeers	1	0.03%	Snickers	7	0.18%
Mythic Pizza & La Carreta	1	0.03%	Sonoma	1	0.03%
Nannis	1	0.03%	Sos	1	0.03%
Nature Valley	3	0.08%	Sour Neon	1	0.03%
Neon	1	0.03%	Sour Patch	1	0.03%
Nestle	4	0.10%	Sour Power	2	0.05%
New York	1	0.03%	Spanish Cultural Center	1	0.03%
Newport	7	0.18%	Starbucks	17	0.45%
Nibs	2	0.05%	Starburst	2	0.05%
Nicks Bagel	1	0.03%	Suava Java	1	0.03%
Night Crawler	1	0.03%			
Nob Hill Gazette	1	0.03%			
Nona Shim	1	0.03%			

## All Branded Large Litter - Alphabetical

	Items Identified	% of Total Litter		Items Identified	% of Total Litter
Subway	2	0.05%	Vans	1	0.03%
Sunny D	1	0.03%	Venica Pizza Man	1	0.03%
Sweet n Low	1	0.03%	Volara Pizza	1	0.03%
Swisher	2	0.05%	Walgreens	7	0.18%
Taco Bell	2	0.05%	Welchers	1	0.03%
Tampax	1	0.03%	Wells Fargo	1	0.03%
Target	1	0.03%	Wenka Laffy Taffy	1	0.03%
Tax Forms	2	0.05%	Werthers	4	0.10%
TDK	1	0.03%	White Rabbit	1	0.03%
Thrifty	1	0.03%	Wholefoods	1	0.03%
Togos	2	0.05%	Whoppers	1	0.03%
Toms Fries	1	0.03%	Winterfresh	1	0.03%
Tootsie Roll	8	0.21%	Wonka	1	0.03%
TOP	2	0.05%	Wrigleys	2	0.05%
Trader Joe's	4	0.10%	X-H	1	0.03%
Triaminic	1	0.03%	Yellow Cab	1	0.03%
Trident	9	0.24%	Yellow Pages	1	0.03%
Tritech	1	0.03%	Yves	2	0.05%
Tullys	1	0.03%	Zcavacha	1	0.03%
Twinkie	1	0.03%			
Twix	3	0.08%			
Tylenol	1	0.03%			
USA Gold	1	0.03%			
UV	1	0.03%			