

ORDINANCES TO BAN PLASTIC CARRYOUT BAGS IN
LOS ANGELES COUNTY
BAG USAGE DATA COLLECTION STUDY

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SECTION ES **EXECUTIVE SUMMARY**

Sapphos Environmental, Inc. conducted consumer surveys and collected data counts from August 29 to September 29, 2009, to assess the bag usage habits of customers at grocery stores located throughout the County of Los Angeles (County). The results of the observations and data collected are presented in this Bag Usage Data Collection Study.

A total of 214 stores, or approximately 40 percent of the total number of stores that may be affected by the proposed ordinances, were surveyed as part of the data collection and observations conducted. This randomized study was completed to provide a representation of the general bagging practices at grocery stores in the County. At stores that did not make plastic carryout bags readily available, of the total bags consumed, 78 percent were paper carryout bags and 18 percent were reusable bags. Of the consumers surveyed at these stores, 24 percent used reusable bags while shopping. At stores where plastic carryout bags were available, 96 percent of the bags used were plastic carryout bags and 2 percent were reusable bags. Of the customers observed at these stores, 4 percent used reusable bags while shopping.

The relative carrying capacities of plastic to paper carryout bags have been reported to be as much as 1:8¹ or as little as 1:1 or 1:1.5.² As an independent check, Sapphos Environmental, Inc. completed a store trial, where the carrying capacity of plastic to paper bags was tested, to compare the load capacity of paper carryout bags and that of plastic carryout bags; in other words, which type of bag would most efficiently carry a fixed number of items. The trial confirmed that a 1:1.5 ratio is a reasonable representation of the relationship between paper carryout bags and plastic carryout bags in terms of use and carrying capacity. Section 4.0, *Bag Capacity Analysis*, of this study describes the elements of the store trial in detail.

¹ AEA Technology. August 2009. *Single Use Bag Study*. Prepared for: Welsh Assembly Government.

² Franklin Associates, Ltd., 1990. *Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks*. Prairie Village, KS.

SECTION 1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

1.1.1 Purpose

This Bag Usage Data Collection Study was undertaken by Sapphos Environmental, Inc. for the County of Los Angeles (County) Department of Public Works in support of the proposed Ordinances to Ban Plastic Carryout Bags in Los Angeles County (proposed ordinances). The purpose of this study is to provide data regarding the bag usage habits of consumers at grocery stores located throughout the incorporated cities and unincorporated territories of the County. This data will allow the County to assess the current bag preferences (paper carryout bags, plastic carryout bags, or reusable bags) of consumers at stores located throughout the County.

The study further compared the capacity of the plastic bag to the paper bag by determining the number of plastic bags and paper bags that would be required to contain all items from the same grocery list. This will assist the County in establishing what ratio would be appropriate to compare these two bag types.

1.1.2 Definitions

For the purposes of this study, the following terms are defined:

- **Store:** (as currently defined by the County) any retail establishment located within or doing business within the geographical limits of the incorporated cities or unincorporated territories of the County and that meets any of the following requirements:
 1. Meet the definition of a *supermarket* as found in the California Public Resources Code, Section 14526.5
 2. Are buildings that have more than 10,000 square feet of retail space that generate sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code
 3. The County is considering extending the jurisdiction of the proposed ordinances to stores that are part of a chain of convenience food stores, supermarkets and other grocery stores, convenience stores, pharmacies and drug stores within the County
- **Reusable bag(s):** a bag with handles that is specifically designed and manufactured for multiple reuse and is made of either (a) cloth or other machine-washable fabric or (b) durable plastic that is at least 2.25 mils thick
- **Paper carryout bag(s):** a carryout bag made of paper that is provided by a store to a customer at the point of sale
- **Plastic carryout bag(s):** a bag, excluding a reusable bag but including a compostable plastic carryout bag, that is provided by a store to a customer at the point of sale

- **Survey:** an observation or the list of observations collected by the data-collecting team for this study; the terms *survey* and *observation* are used interchangeably in this report

1.1.3 Scope

The proposed ordinances may impact over 200 stores throughout both the unincorporated territories and incorporated cities of the County. However, the County anticipates that fewer than 100 stores located within the unincorporated territories of the County would be subject to the proposed County ordinance (Figure 1.1.3-1, *Stores Subject to Proposed Ordinances*). Should cities within the incorporated areas of the County adopt comparable ordinances, additional stores would be subject to these comparable proposed ordinances.

The scope of this study included a review of 214 stores located within the unincorporated territories of the County or within the incorporated cities within the County. This is approximately equivalent to 40 percent of the total number of stores that may be affected by the proposed ordinances.¹ The observations have been collected from randomly selected stores that represent a variety of store chains and locations and that include each of the five Supervisorial Districts within the County. The method in which the stores were selected is described in Section 2, *Methodology*.

¹ As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated areas would be affected by the proposed ordinances. The number of stores in the 88 incorporated cities of the County that would be affected if all of the cities adopted comparable ordinances was determined from the infoUSA database (accessed April 29, 2010) for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of \$2 million or higher and a square footage of 10,000 square feet or greater.

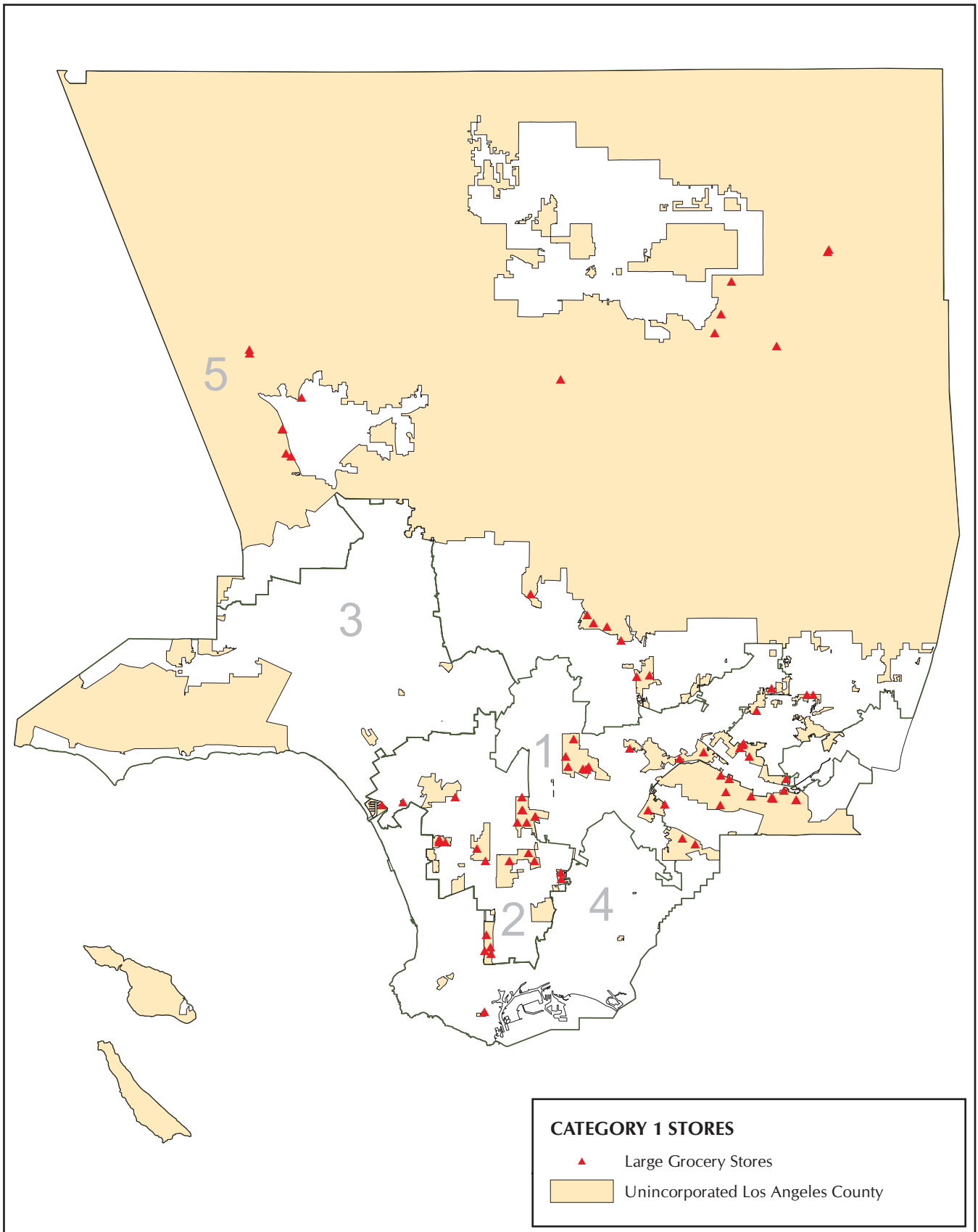


FIGURE 1.1.3-1
Stores Subject to Proposed Ordinances

SECTION 2.0 METHODOLOGY

This study was designed by Sapphos Environmental, Inc., under the direction of Ms. Marie Campbell, president of Sapphos Environmental, Inc., who has more than 20 years of experience in project management in all aspects of environmental compliance. Ms. Campbell has both a Master of Arts degree in Geography (Geomorphology/Biogeography), as well as a Bachelor of Arts degree in Ecosystems: Conservation of Natural Resources, from the University of California at Los Angeles (UCLA). In addition, Ms. Campbell served as a research analyst at UCLA.

This section of the study provides a description of the survey design. The four subsections within this section describe the following:

- Survey area: what specific communities and cities were surveyed within the County
- Survey description: how the surveys were conducted
- Study methodology: how the surveyed stores were selected from the stores located within the County
- Caveats: what issues/concerns should be considered in review of the findings presented in this study

2.1 SURVEY AREA

The survey area consisted of stores within both the incorporated cities and unincorporated territories of the County, inclusive of all five County Supervisorial Districts. Table 2.1-1, *Survey Store Locations*, and Figure 2.1-1, *Number of Stores Surveyed within Supervisorial Districts*, provide a list of the cities (and communities) located within the survey area and list the zip codes in which these stores are located, along with the number of stores that were surveyed within each of these cities. A total of 214 stores were surveyed, with 7 of the stores located in unincorporated areas (including stores located in Bassett, Calabasas, East San Gabriel, La Crescenta, two stores in Valencia, and one store located in Whittier Narrows). It has been estimated that a maximum of 529 stores would be affected by the proposed ordinances, if adopted by the County and all 88 incorporated cities. Therefore, the sample size of 214 stores is statistically significant because it is equivalent to approximately 40 percent (or more than 1/3) of the total number of stores that may be affected by the proposed ordinances.

**TABLE 2.1-1
SURVEY STORE LOCATIONS**

City	Zip Code(s)	Number of Stores Surveyed	Unincorporated Area? (Yes/No)
Alhambra	91801 and 91803	1	No
Arcadia	91006 and 91007	2	No
Azusa	91702	1	No
Bassett	91746	1	Yes
Bell Gardens	90201	1	No
Bellflower	90706	1	No
Beverly Hills	90212 and 90210	2	No
Bixby Knolls	90807	1	No

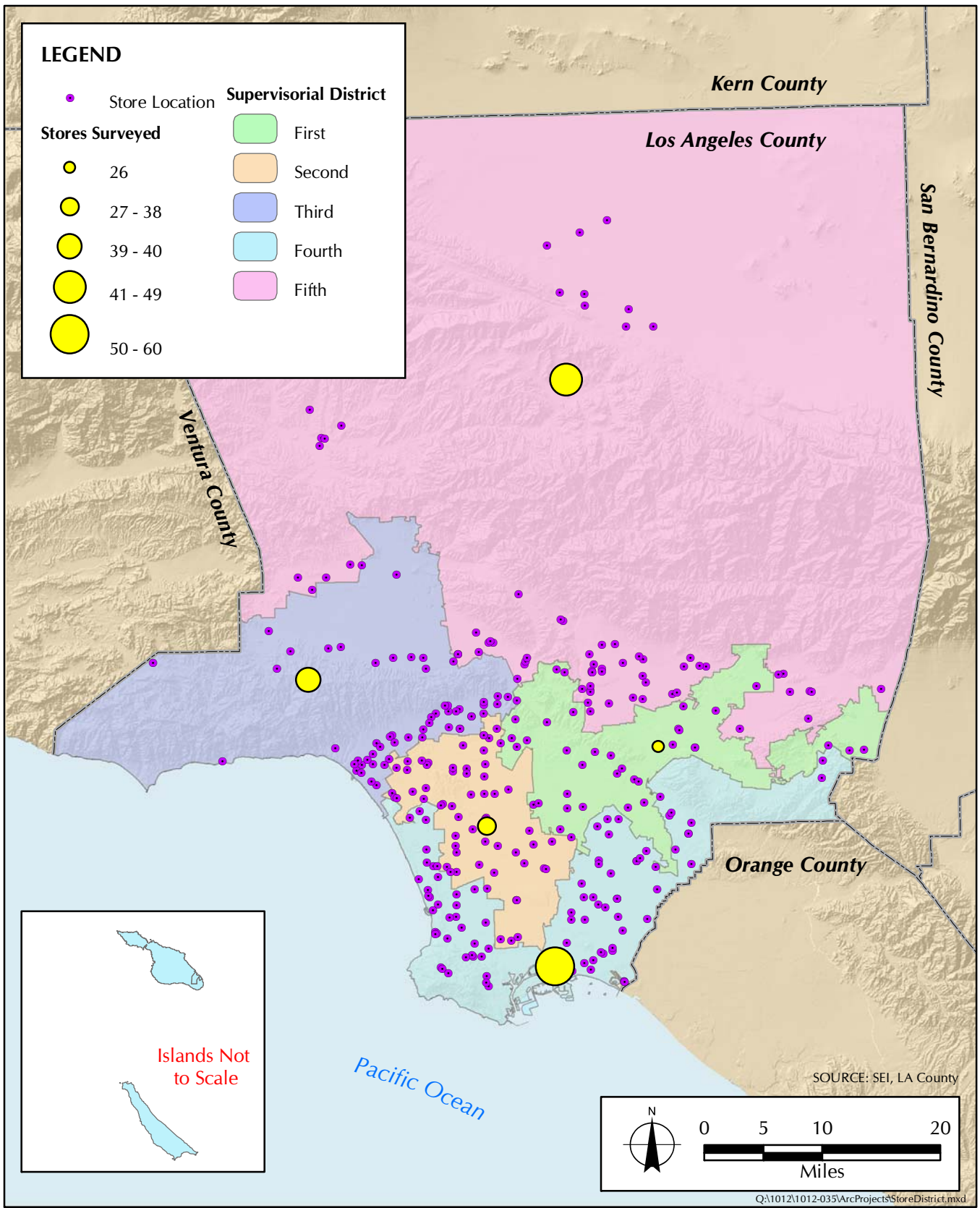


FIGURE 2.1-1
 Number of Stores Surveyed within Supervisory Districts

**TABLE 2.1-1, Continued
SURVEY STORE LOCATIONS**

City	Zip Code(s)	Number of Stores Surveyed	Unincorporated Area? (Yes/No)
Burbank	91502, 91504, 91505, and 91506	2	No
Calabasas	91302	1	Yes
Carson	90745 and 90746	2	No
Cerritos	90703	1	No
Chatsworth	91311	1	No
Claremont	91711	1	No
Compton	90220	2	No
Culver City	90230 and 90232	4	No
Diamond Bar	91765	2	No
Downey	90240, 90241, and 90242	2	No
Duarte	91010	1	No
Eagle Rock	90041	1	No
East San Gabriel	91775	1	Yes
El Monte	91732	3	No
El Segundo	90245	2	No
Encino	91316	1	No
Gardena	90247 and 90249	2	No
Glendale	91201, 91204, 91205, and 91206	6	No
Glendora	91740	2	No
Granada Hills	91344	1	No
Hawaiian Gardens	90716	1	No
Hawthorne	90250	2	No
Hermosa Beach	90254	3	No
Hollywood	90027	1	No
Huntington Park	90255	1	No
Inglewood	90301, 90302, and 90303	3	No
La Cañada	91011	1	No
La Crescenta	91214	1	Yes
La Mirada	90638	1	No
Lakewood	90805 and 90713	3	No
Lancaster	93534, 93535, and 93536	3	No
Lawndale	90260	1	No
Lomita	90717	2	No
Long Beach	90802, 90803, 90804, 90805, 90806, 90807, 90808, 90814, and 90815	11	No
Los Angeles	90001, 90002, 90005, 90006, 90007, 90008, 90016, 90017, 90018, 90019, 90020, 90022, 90024, 90025, 90027, 90029, 90031, 90032, 90034, 90036, 90037, 90038, 90041, 90043, 90044,	36	No

**TABLE 2.1-1, Continued
SURVEY STORE LOCATIONS**

City	Zip Code(s)	Number of Stores Surveyed	Unincorporated Area? (Yes/No)
	90045, 90046, 90047, 90049, 90059, 90062, 90063, 90064, and 90067		
Lynwood	90262	1	No
Manhattan Beach	90266	3	No
Maywood	90270	1	No
Monrovia	91016	2	No
Montebello	90640	2	No
Monterey Park	91754	1	No
Northridge	91324	1	No
Norwalk	90650	3	No
Palmdale	93550, 93551, and 93552	5	No
Paramount	90723	1	No
Pasadena	91101, 91103, 91104, 91105, 91106, and 91107	11	No
Pico Rivera	90660	2	No
Pomona	91766	2	No
Rancho Palos Verdes	90275	1	No
Redondo Beach	90277 and 90278	6	No
Rolling Hills Estates	90274	2	No
San Dimas	91773	2	No
San Gabriel	91775	1	No
San Pedro	90732	1	No
Santa Fe Springs	90670	1	No
Santa Monica	90401, 90403, 90404, and 90405	7	No
Sherman Oaks	91403 and 91423	3	No
South El Monte	91733	1	No
South Gate	90280	1	No
South Pasadena	91030	2	No
Studio City	91604	1	No
Temple City	91780	1	No
Toluca Lake	91602	1	No
Torrance	90501, 90502, 90503, 90504, and 90505	9	No
Valencia	91354 and 91355	1	Yes
Venice	90291	1	No
West Covina	91790	1	No
West Hills	91307	1	No
West Hollywood	90038, 90046, 90048, and 90069	6	No

**TABLE 2.1-1, Continued
SURVEY STORE LOCATIONS**

City	Zip Code(s)	Number of Stores Surveyed	Unincorporated Area? (Yes/No)
West Los Angeles	90034 and 90064	3	No
Westchester	90045	1	No
Westlake Village	91362	1	No
Whittier	90601, 90602, 90603, 90604, 90605, and 90606	5	No*
Woodland Hills	91364	1	No
Total Number of Stores Surveyed		214	

* The store located in Whittier Narrows (zip code 90601) is within the unincorporated area.

2.2 METHODOLOGY

2.2.1 Survey Description

The survey teams were composed of college graduate interns who conducted store surveys between August 29 and September 29, 2009. Each team was supervised by one Sapphos Environmental, Inc. technical specialist familiar with the purpose of this study.

Each intern and specialist who collected data was provided instructions related to how data should be collected. The interns and specialists were not guided to accept or reject any specific data and were not made aware of any overlying purpose or intended outcome for the collection of the data. The team members were also taken to a store to make observations and to determine the best methods by which to collect the observational data prior to initiation of the study. During this practice run, the team determined that an average of 50 observations could be collected at each store in order to ensure that each team was able to survey between 6 to 8 stores a day, within an 8-hour period, when travel time to the stores and the flow of consumer traffic to the stores was taken into account.

Each team surveyed the bag use characteristics of up to 50 consumers per store in 214 stores located throughout the County. The goal of the survey sample was to gather observations from forty (40) stores in each of the five (5) Supervisorial Districts of the County or at least 200 stores. Due to time restraints and in order to ensure that the data that was collected represented as large a variety of stores possible, the teams were instructed to collect data from approximately 50 observations. Each survey team used a standard data collection form, which was developed based upon the type of data that the team was required to collect (Appendix A, *Sample Data Collection Form*). Each survey form identifies the surveyor's name; the date and time the survey was conducted; the name and address of the store being surveyed; the availability of plastic carryout bags; the quantity of paper carryout bags, plastic carryout bags, and reusable bags used to bag the purchase; and the total value of the purchase. The survey times ranged from 10:00 a.m. to 10:00 p.m., and data were collected on all seven days of the week, Monday through Sunday.

The survey was designed to collect data both from stores that offer plastic carryout bags as an option and from stores that do not readily provide plastic carryout bags to consumers. The observational data collected from these stores provide an overview of the consumer bag use choices in the County and the nontraditional stores offer a close representation of consumer bag use choices where plastic bags are not made readily available in the County. As previously noted, the survey sample was collected from areas within all five Supervisorial Districts of the County.

2.2.2 Store Selection

Sapphos Environmental, Inc. compiled a list of 312 stores, out of a total of approximately 529 stores, within the unincorporated territories and incorporated cities within the County. The list was compiled using information available at the respective store chain Web sites, local community Web sites, and compiled lists of stores located in the County, as available online.^{1,2,3,4,5,6,7,8,9,10,11,12,13}

The 214 stores that were surveyed as part of this study were randomly selected from the list of 312 stores within the County (Figure 2.1-1). The list of store chains surveyed, as shown in Table 2.2.2-1, *Store Sample List*, includes stores representing a variety of store chains that serve diverse economic, socioeconomic, and demographic populations. Each of these stores fit the County's definition of a store as described in Section 1.0, Introduction.

¹ Citysearch. 2009. *Los Angeles Grocery Stores*. Available at: http://losangeles.citysearch.com/listings/los-angeles/grocery_stores/56050_1713

² Albertsons. 2009. *Find a Store*. Web site. Available at: <http://locator.albertsons.com/StoreLocatorAction.do?action=showStoreSearch>

³ Bristol Farms. 2009. *Locations, Los Angeles County*. Web site. Available at: <http://www.bristolfarms.com/locations/index.html>

⁴ Gelson's. 2009. *Locations*. Web site. Available at: <http://www.gelsons.com/>

⁵ Jons Marketplace. 2009. *Locations*. Web site. Available at: <http://www.jonsmarketplace.com/locations.aspx>

⁶ Pavilions. 2009. *Find a Store Near You*. Web site. Available at: <http://www.pavilions.com/IFL/Grocery/Store-Locator>

⁷ Payless Foods. 2009. *Locations*. Web site. Available at: http://www.paylessfoods.com/payless_locations.htm

⁸ Ralphs. 2009. *Store Finder*. Web site. Available at: <http://www.ralphs.com/Pages/default.aspx#>

⁹ Superior Grocers. 2009. *Locations, Los Angeles*. Web site. Available at: <http://www.superiorgrocers.com/LocationsWEEKLYSPECIALS/tabid/57/Default.aspx>

¹⁰ Top Valu. 2009.

¹¹ Trader Joe's. 2009. *Trader Joe's Locations, Los Angeles County*. Web site. Available at: http://www.traderjoes.com/Attachments/SC_loc.pdf

¹² Vons. 2009. *Find a Store*. Web site. Available at: <http://www.vons.com/IFL/Grocery/Store-Locator>

¹³ Whole Foods. 2009. *Find Your Store*. Web site. Available at: <http://www.wholefoodsmarket.com>

**TABLE 2.2.2-1
STORE SAMPLE LIST**

Store List	Store Classification
Albertsons	Traditional
Bristol Farms	Traditional
Food 4 Less	Traditional
Gelson's	Traditional
Gigante Supermarket ¹⁴	Traditional
Jons Marketplace	Traditional
Pavilions	Traditional
Payless Foods	Traditional
Price Rite 101	Traditional
Ralphs	Traditional
Superior Grocers	Traditional
Top Value (also spelled Valu)	Traditional
Trader Joe's	Nontraditional
Vons	Traditional
Whole Foods	Nontraditional

The stores were classified into one of two categories: traditional stores and nontraditional stores. *Traditional* stores, which include most large supermarket chains, typically provide plastic carryout bags as the first choice to consumers—whereby consumers are provided plastic bags as the free and primary bag type unless they specify that they would prefer another bag type. Other establishments encourage the use of reusable bags by not making plastic carryout bags readily available to consumers as a first choice; these stores typically supply paper bags as the free and primary bag type. These stores are referred to as *nontraditional* for the purposes of this study.¹⁵ Team survey collection assignments were divided to include both traditional and nontraditional stores; however, the two store classifications were separated in this study to ensure the survey results were not biased by the distinction between these store classifications.

The two-store classification system is appropriate because the two types of stores are inherently different in the usage of carryout bags. The nontraditional stores offer a close representation of consumer bag use choices where plastic bags are not made readily available in the County. It was also anticipated that nontraditional stores would have a higher number of consumers using reusable bags. If this were in fact the case, the total number of consumers using reusable bags would have been artificially inflated in that it would have shown a larger number of consumers currently using reusable bags. The appropriation of plastic and paper bags would have also been artificially shifted in such a manner. It was anticipated that plastic bags are not as common in nontraditional stores; however, grouping the results of both store types would not have allowed these distinctions to be observed.

¹⁴ Recently, some of the Gigante Supermarket store locations have changed their store name to El Super, and, as such, the stores may now operate under the name El Super.

¹⁵ Although plastic carryout bags were not offered as the primary carryout bag in nontraditional store chains, several of the nontraditional store locations did provide plastic carryout bags to consumers who requested them.

2.2.3 Store Selection Methodology

The methodology for randomly selecting the 214 stores surveyed included the following steps:

1. Two lists of stores were drafted in a Microsoft Excel spreadsheet: one list of traditional stores and one list of nontraditional stores. The lists included the name, address, zip code, and telephone number for each store.
2. Due to the limited number of nontraditional stores located within the County, all 70 nontraditional stores identified in the list were selected as survey locations. As such, the remaining 130 stores surveyed were selected from the traditional stores list.
3. All traditional stores were assigned numbers 1 through 99. Once the number 99 was reached, the subsequent stores were assigned numbers 1 through 99, until all stores were numbered.
4. The store assignments were then selected by using the Microsoft Excel spreadsheet program's random function (and multiplying the function by 100 to generate whole numbers 1 through 99).
5. All stores that corresponded to the random numbers selected were listed until 130 traditional stores were generated.
6. An additional 10 store locations were included as alternatives, should surveys at any of the selected stores have failed or be cut short for any reason.

2.2.4 Data Collection Methodology

Sapphos Environmental, Inc. followed a strategic methodology for collecting data from the stores:

1. Each of the six survey teams was assigned between 35 and 40 store locations to survey.
2. Survey teams canvassed their assigned stores to collect the bag usage data.
3. The teams were directed to be as discrete as possible, informing the store manager only where necessary that the team would be collecting data for a study. No consumers were approached or questioned as part of this survey. In addition, no information related to the consumer identities was required or collected.
4. Each team member collected data for all consumers in the checkout lines. "Express" lines, or lines with an item count limit (for example, 15 items or fewer), were avoided because many consumers in these lines do not utilize or require bags as frequently as consumers in the other lines.
5. Survey team members were stationed at one or more lines and they counted the number of paper carryout bags, plastic carryout bags, or reusable bags utilized by each consumer in that line.
6. Survey teams collected up to 50 data points within each store.
7. The alternate store locations were used to collect additional data when survey teams were requested not to survey or when an adequate number of observations were not collected, such as where the customer traffic was extremely limited or where teams were asked not to survey upon the commencement of data collection.

2.3 CAVEATS/CONSIDERATIONS

Five factors were considered during the preparation of this study. Although these factors do not affect the findings of this survey, they are relevant to understanding the survey process.

2.3.1 Consumer Traffic

The survey teams visited store sites on various days and times throughout the course of the study. Consumer traffic varied at each store and at various times. As a result, a survey team may have spent more time obtaining data at certain stores, or may have limited the number of surveys conducted at certain stores in order to move to alternate store locations with higher consumer traffic to complete the surveys.

2.3.2 Cost Factor

Although cost observations were made and recorded as part of the study, the amount spent by the consumers had no correlation to the store chain's grocery item costs or savings. The number and types of items purchased varied greatly by consumer, and as such, the information in this report has no comparative value regarding store cost comparisons.

2.3.3 Bagging Technique

The survey teams observed that the bagging technique [which for the purposes of this study are defined as the type of bag used / how it was used (for example, double bagging,¹⁶ combining a paper bag and plastic bag, overstuffing/understuffing,¹⁷ etc.), as well as the number of shopping bags used to bag items] varied by item, consumer preference/request, specific store, and cashier. For example, it was noted that while some cashiers double bag all items, others in the same store only use single bags unless requested by the customer to do otherwise. However, some stores moderate this practice by implementing a policy for the number of items / weight of items placed in each bag used by an employee.¹⁸

2.3.4 Rejection

In certain instances, the survey teams were requested not to complete surveys or were asked to remove themselves from the store premises. In such instances, the survey teams were directed to either go to the designated alternate store (if it was within the community of the primary store) or to identify an alternative store within the vicinity from which to collect data. This strategy was intended to ensure that the area (community) that had been randomly selected during the survey initiation phase was represented in the survey data.

¹⁶ "Double bagging" means two bags instead of one are used to bag a particular set of grocery items.

¹⁷ "Overstuffing" means placing *more* items in a bag than the bag's standard capacity; conversely, "understuffing" refers to placing *fewer* items in a bag than the bag's standard capacity.

¹⁸ One manager at a Ralphs grocery store that was surveyed indicated that employees were informed that any carryout bag (both plastic and paper) used at the store must contain a minimum of three items (depending on the size/weight). The store manager further noted that the weight of the items placed in carryout bags (both plastic and paper) generally averaged 5 pounds.

2.3.5 Statistical Application

The surveys conducted are an attempt to gather observational data currently not available. The surveys were conducted in an unbiased manner, and stores were selected at random to avoid biases to specific areas or types of stores within the County. The study was limited to the resources (financial and survey personnel available) and methodology indicated above.

SECTION 3.0

BAG USAGE ANALYSIS

A total of 5,120 observations were made at the 214 stores surveyed throughout the County. Each bag was observed and counted separately; bags that were double-bagged were counted as two (2) bags, where bags that were triple-bagged three (3) bags were counted, and so on. The results of these observations are separated by surveys conducted at traditional stores and those conducted at nontraditional stores (Appendix B, *Survey Results*), and provide the following information gathered during the surveys:

- Observation number – denotes the total number of observations made at the stores
- Number of bags used by bag type (paper, plastic, or reusable) – identifies the number of each bag type used by the observed consumer
- Dollar amount spent on the total purchase (rounded to the nearest whole dollar) – documents the amount spent by each consumer should it be anticipated that there was a correlation between the amount of bags used and the amount spent by a consumer
- Average dollar amount spent per bag by bag type (paper, plastic, or reusable) – documents the average amount spent by consumer per bag type

If an observation included more than one bag type, the corresponding dollar amount spent is shown in bold text in Appendix B and the average dollar amount spent per bag type is placed in the column of only one of the bag types represented (Appendix B). Of the observations recorded, 141 included the use of more than one bag type (including 90 observations at traditional stores and 51 observations at nontraditional stores).

The results of the bag usage surveys conducted at traditional stores indicated that when plastic carryout bags are available, customers use considerably more of these than of other types of bags. The survey results illustrate how the availability of plastic carryout bags as an option affects customer behavior.

Customers of traditional stores used significantly more plastic carryout bags than did customers of nontraditional stores. Customers at nontraditional stores were observed to use only 85 plastic carryout bags compared to 17,109 plastic carryout bags used by customers at traditional stores. Furthermore, customers observed at traditional stores used only 18 percent of the paper carryout bags used by customers at nontraditional stores. These observations are described in detail below.

The number of reusable bags observed in use during the study represented 24 percent of the total bags observed at nontraditional stores and 2 percent of that observed at traditional stores. These observations are described in detail below.

Opponents of reusable bags have argued that reusable bags are traditionally used by a select portion of the consumer population, namely the more affluent consumers or those consumers who shop at nontraditional stores. Surveyors noted that although a majority of the nontraditional stores were located within the western portion of the County (primarily in the Third Supervisorial District),¹ the use of reusable bags at surveyed stores varied throughout the County. In fact, reusable bags represented up to 9 percent of the bags used at one traditional store located in the

¹ Nontraditional stores were located in or adjacent to all five Supervisorial Districts of the County.

south-eastern portion of the County. This finding would indicate that the assumption that more affluent populations or those segments of the population that have access to or shop at nontraditional stores are the only consumers that use reusable bags is not the case throughout all areas of the County.

3.1 TRADITIONAL STORES

A total of 4,281 customers were surveyed at traditional stores, who spent an average of approximately \$35.00 at these stores.² In total, customers used 272 paper carryout bags; 17,109 plastic carryout bags; and 410 reusable bags. The amount consumers spent towards each bag (cost per bag) for traditional stores were summarized as: approximately \$6.05 for paper bags, plastic bags were \$2.07, and reusable bags were \$9.81.³ Table 3.1-1, *Traditional Stores Summary*, provides a general summary of the findings of surveys at traditional stores.

² The average amount spent by the consumers who were observed at the two store types did not vary greatly. The amount spent by the consumers was used to calculate an estimated cost of groceries per bag type. Inclusion of the amount spent by the consumer in this study also demonstrates the variance in the consumers surveyed. Based upon the qualitative observations of the surveyors (specialists and interns) that conducted the observations, the number of bags used did not directly correlate to the number of items purchased by the consumers or the number or type of bags used. However, a much larger study could be performed to determine the correlation between the amount of money spent and the number of bags used.

³ The cost per bag was found by removing observations that included more than one bag type and assessing the remaining costs associated with each bag type divided by the total number of that particular bag type used.

**TABLE 3.1-1
TRADITIONAL STORES SUMMARY**

Summary	Finding	Percentage
Number of customers observed	4,281	N/A
Average dollar amount spent (rounded to nearest dollar) ¹	\$35.00	N/A
Median	\$24.00	
Range	\$1.00 to \$445.00	
Total observed amount spent	\$151,914.32	
Bag Summary		
Number of paper carryout bags used	272 ²	1.5
Paper median	1	
Paper range	0 to 10	
Number of plastic carryout bags used	17,109	96.1
Plastic median	3	
Plastic range	0 to 42	
Number of reusable bags used	410 ³	2.3
Reusable median	2	
Reusable range	0 to 11	
Total bags used during study periods	17,791	100
Cost of Transaction Per Paper Bag	Cost of Transaction Per Plastic Bag	Cost of Transaction Per Reusable Bag
\$6.05	\$2.07	\$9.81




NOTES:

- The term *average* (for the dollar amount) is the sum of the dollar amount spent for each observation divided by the total number of observations.
The *median* is the middle number when all of the values are arranged from the lowest to the highest number.
The *range* is the lowest and highest numbers of a particular set of data. For this study, the range is the lowest and highest number of a particular bag type that was observed.
 - Rounded to nearest thousandth (0.0152)
 - Rounded to nearest thousandth (0.0230)
 - The amount spent has been rounded to the nearest dollar for all observations.
- N/A = not applicable

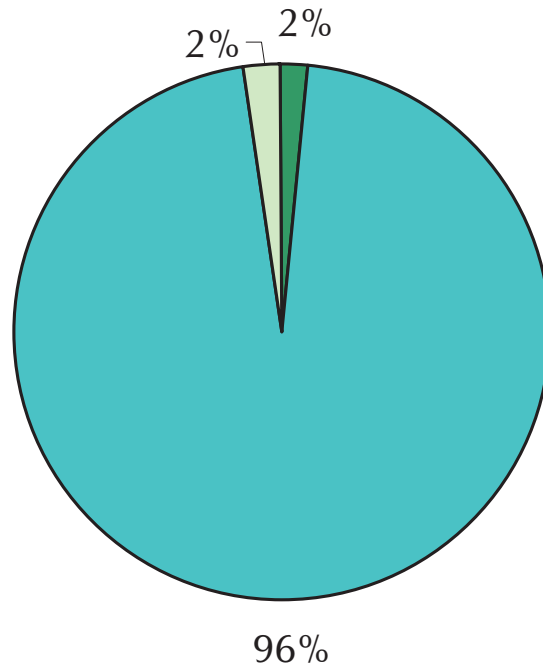
Of the 17,791 bags used at traditional stores, approximately 96 percent (17,109) were plastic, approximately 2 percent (272) were paper, and approximately 2 percent (410) were reusable (Figure 3.1-1, *Percentage of Bag Types Used at Traditional Stores and Nontraditional Stores*).

The number of bags used compared with the dollar amount spent by a customer during each observation is represented in Appendix B. Customers spent an average of approximately \$35.00 at traditional stores, with a spending range of approximately \$1.00 to \$445.00, where all amounts were rounded to the nearest whole dollar amount. Figure 3.1-2, *Number of Bags Used per Total Amount Spent at Traditional Stores by Bag Type*, compares the number of bags used with the total amount of money spent during each observation. It was anticipated that the dollar amount spent by consumers would have a correlation to the number of bags used. The histograms present a general overview of the types of bags utilized by the customers observed. In some instances, the customers observed did not use a particular bag type, and these observations were recorded and

LEGEND

-  Paper
-  Plastic
-  Reusable

Bag Types Used at Traditional Stores



Bag Types Used at Nontraditional Stores

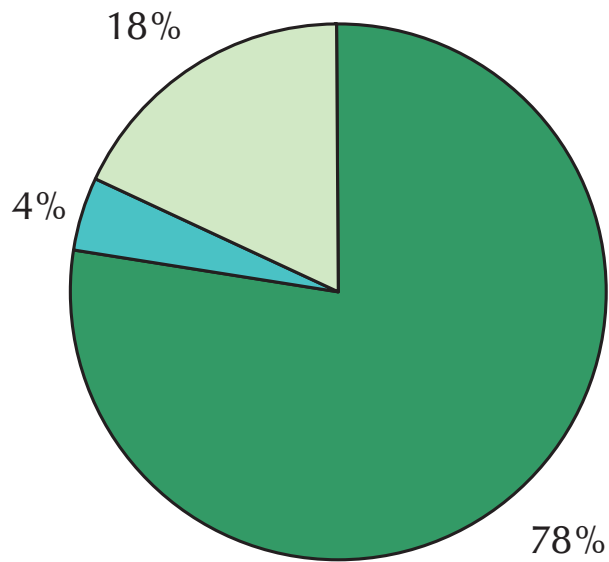


FIGURE 3.1-1
Percentage of Bag Types Used at Traditional Stores and Nontraditional Stores

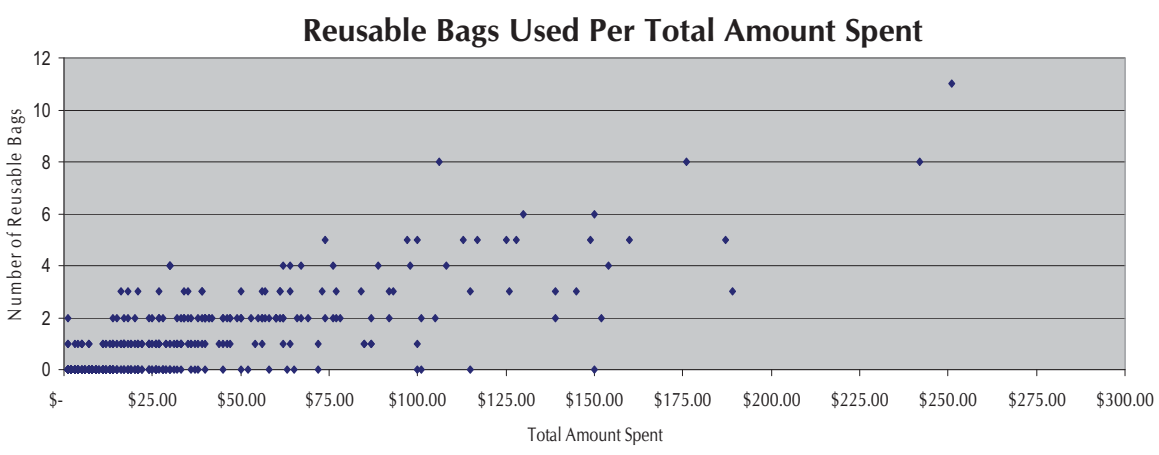
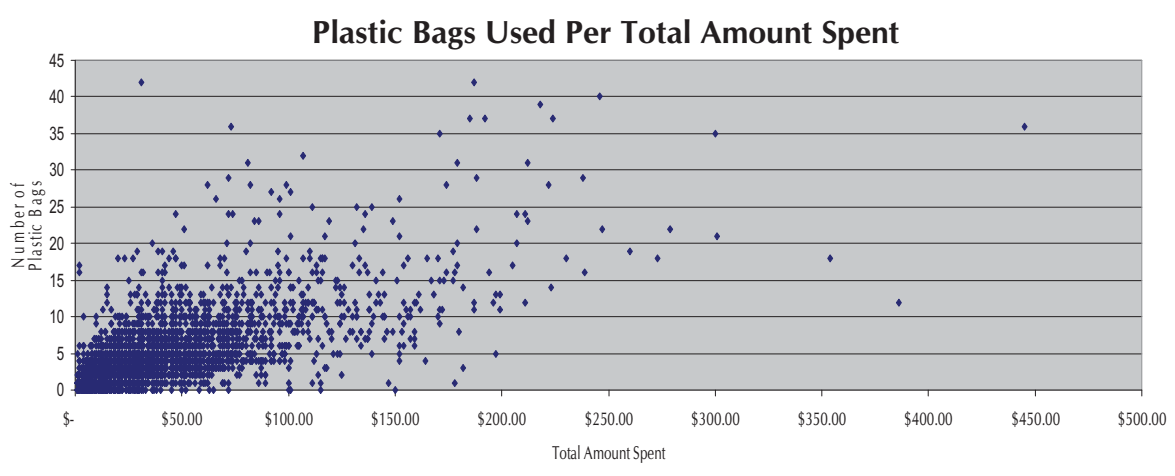
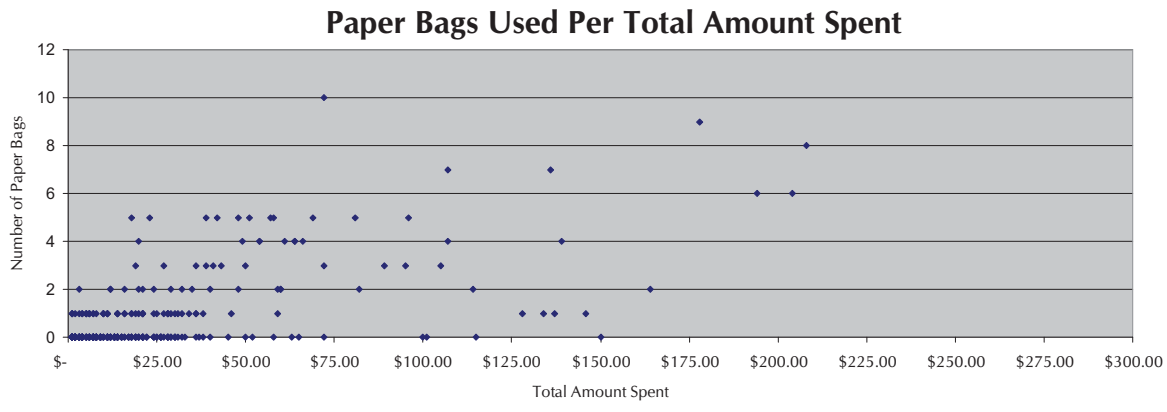


FIGURE 3.1-2
Number of Bags Used Per Total Amount Spent at Traditional Stores by Bag Type

are represented in the tables.⁴ Figure 3.1-2 depicts data of observations during which consumers used no bags of a certain type or used multiple bag types.

3.2 NONTRADITIONAL STORES

A total of 839 consumers were surveyed at nontraditional stores surveyed. The average amount spent in these stores was approximately \$38.00, with a spending range of approximately \$1.00 to approximately \$283.00. In total, customers of nontraditional stores used 1,479 paper carryout bags, 85 plastic carryout bags, and 342 reusable bags. The cost per bag for nontraditional stores was summarized as: approximately \$7.13 for paper bags, plastic bags were \$3.61, and reusable bags were \$13.86.⁵ Table 3.2-1, *Nontraditional Stores Summary*, provides a summary of findings at nontraditional stores.

**TABLE 3.2-1
NONTRADITIONAL STORES SUMMARY**

Summary	Finding	Percentage
Number of consumers observed	839	N/A
Average ¹ whole dollar amount spent	\$38.00	N/A
Median	\$29.00	
Range	\$1.00 to \$283.00	
Total observed amount spent	\$32,645.00	
Bag Summary		
Number of paper carryout bags used	1,479	78
Paper median	2	
Paper range	0 to 12	
Number of plastic carryout bags used	85	4
Plastic median	1	
Plastic range	0 to 8	
Number of reusable bags used	342	18
Reusable median	1	
Reusable range	0 to 6	
Total bags used during study periods	1,906	100
Cost Per Bag Paper	Cost Per Bag Plastic	Cost Per Bag Reusable
\$7.13	\$3.61	\$13.86

NOTES:

1. The average the sum of the dollar amount spent for each observation divided by the total number of observations collected.
 2. The amount spent has been rounded to the nearest dollar for all observations.
- N/A = not applicable

⁴ As a result, there are zero bags shown for particular values, which disproportionately show zero values within the histograms. For example, if a customer spent \$40.00 and only used plastic bags, the bag count may be zero in the histogram depicting paper bags usage and would be accounted for in the histogram depicting plastic bag usage.

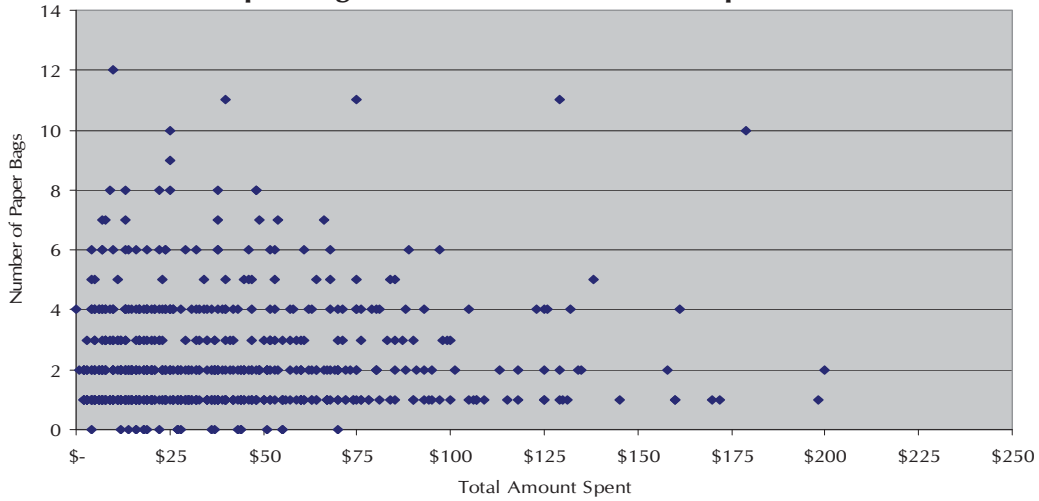
⁵ The cost per bag was found by removing observations that included more than one bag type and assessing the remaining costs associated with each bag type divided by the total number of that particular bag type used.

Of the 1,906 total bags used by customers surveyed at nontraditional stores, approximately 78 percent (1,479) of the bags were paper, approximately 18 percent (342) were reusable, and approximately 4 percent (85) were plastic (Figure 3.1-1).

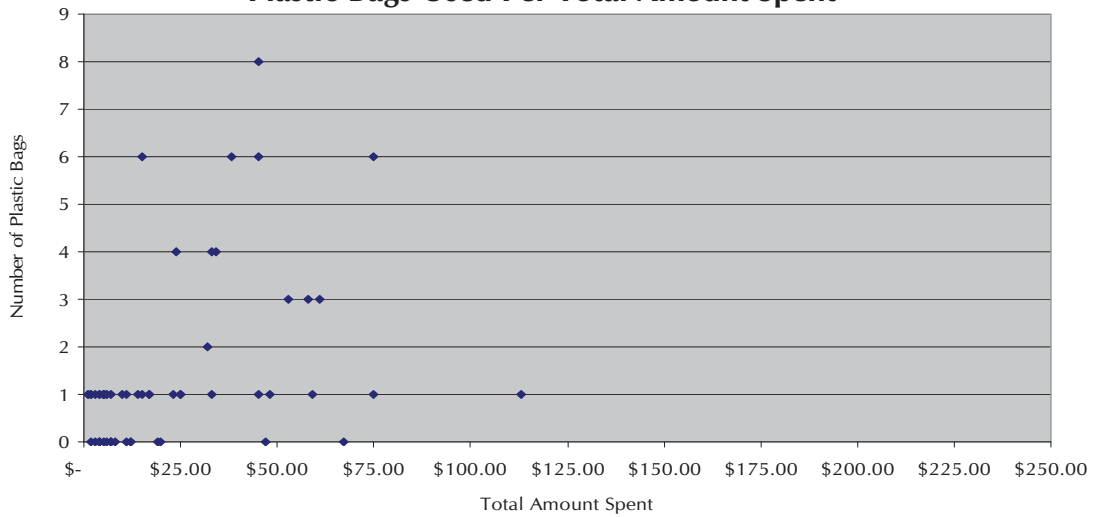
The dispersion of the results of the number of bags used in relation to the amount spent during each observation is represented in Appendix B. The average amount that customers spent at nontraditional stores was approximately \$38.00, with a spending range of approximately \$1.00 to approximately \$283.00, where all amounts were rounded to the nearest whole dollar amount. The histograms in Figure 3.2-1, *Number of Bags Used per Total Amount Spent at Nontraditional Stores by Bag Type*, depict the number of bags observed compared with the total amount of money spent during each observation. As with traditional stores, collectively, the three histograms present a general overview of the types of bags used by customers observed at nontraditional stores during the study. In some instances, the customers observed did not use a particular bag type, and these observations were recorded and are represented in Figure 3.2-1.⁶ The histograms present the observations of consumers that used no bags of a certain type or multiple bags types.

⁶ As a result, there are zero bags shown for particular values which disproportionately show zero values within the histograms. For example, if a customer spent \$40.00 and only used plastic bags, the bag count may be zero in the paper bags histogram of Figure 3.2-1 and would be accounted for in the plastic bag histogram in Figure 3.2-1.

Paper Bags Used Per Total Amount Spent



Plastic Bags Used Per Total Amount Spent



Reusable Bags Used Per Total Amount Spent

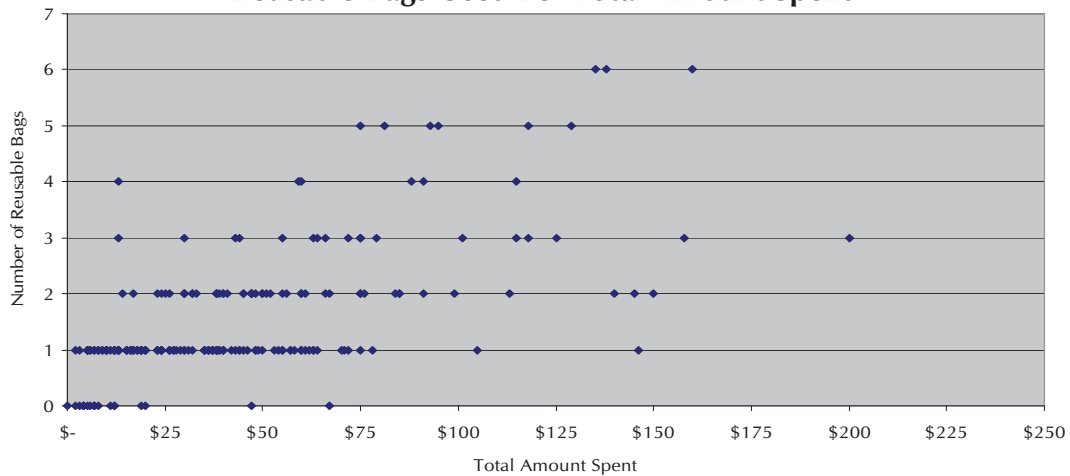


FIGURE 3.2-1
Number of Bags Used Per Total Amount Spent at Nontraditional Stores by Bag Type

SECTION 4.0 BAG CAPACITY ANALYSIS

4.1 STORE TRIAL

The relative carrying capacities of plastic to paper bags have been reported to be as much as 1:8¹ or as little as 1:1 or 1:1.5.^{2,3} As an independent check, a store trial was conducted to evaluate the carrying capacities of paper carryout bags and plastic carryout bags. Sapphos Environmental, Inc. staff conducted a store trial and purchased identical items from a standard shopping list to assess the relationship between the two types of bags.

Sapphos Environmental, Inc. staff compiled a standard grocery list from a Web site dedicated to compiling shopping lists.⁴ The grocery list selected from the Web site is referred to as the "Ultimate Shopping List," which provides a comprehensive list of items that represent a variety of standard grocery items consumed by the typical American family (Appendix C, *Standard Grocery List*). The Ultimate Shopping List is divided into 27 subcategories of foodstuffs and household items consumed by American families. It is understood that the stores that would be affected by the proposed ordinances would be grocery stores, and the volume of grocery items is generally more standard in size and packaging in comparison to other merchandise such as household items and electrical appliances. For the purposes of this study, the store trial focused on the grocery items. Prior to visiting the store, staff members selected random grocery items from 17 of the subcategories that would represent items regularly purchased by families and, for easier size comparison, whose packaging would be standard (for example, a container of mushrooms is the same size if purchasing 8 ounces).⁵

The selected items are shown in Table 4.1-1, *Store Trial Shopping List*.

¹ AEA Technology. 2009. Single Use Bag Study. Final report prepared for the Welsh Assembly Government, August 2009.

² Franklin Associates, Ltd., 1990. *Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks*. Prairie Village, KS.

³ Use-Less-Stuff. 28 March 2008. *Review of Life Cycle Data Relating to Disposable, Compostable, Biodegradable, and Reusable Bags*. Rochester, MI.

⁴ Grocerylists.org. Accessed 29 October 2009. *The Ultimate Grocery List*. Web site. Available at: <http://www.grocerylists.org/ultimatest>

⁵ Family shopping lists are typically larger and more standard than the shopping lists that might be associated with single individuals. In order to replicate the average potential capacity of the bags used, a list that would be common of a family was selected.

**TABLE 4.1-1
STORE TRIAL SHOPPING LIST**

Subcategory	Item(s) Purchased	Quantity
Fresh vegetables	1. Lettuce 2. Mushrooms	1. One head 2. One 8-ounce (oz) container
Fresh fruit	1. Bananas 2. Oranges	1. One cluster [approximately four bananas, 2 pounds (lbs)] 2. One bag
Refrigerated items	1. Bagels 2. Eggs	1. One bag (5 count) 2. One dozen (12 count, large)
Frozen	1. Tater tots 2. Ice cream 3. Pizza	1. One 32-oz frozen bag 2. One-half gallon 3. One 12.70-ounce, frozen
Condiments/sauces	1. Barbecue sauce 2. Ketchup 3. Mayonnaise	1. One 18-oz bottle 2. One 20-oz bottle 3. One 32-oz jar
Various groceries	1. Cereal 2. Macaroni and cheese 3. Peanut butter	1. One 25.5-oz box 2. Two 7.25-oz boxes 3. One 16.3-oz jar
Canned foods	1. Tuna 2. Vegetables	1. Two 5-oz cans 2. Two cans (14.5 to 15.25 ozs)
Spices and herbs	1. Black pepper 2. Salt 3. Vanilla extract	1. One 1.7-oz container 2. One 26-oz container 3. One 1 fluid oz bottle
Dairy	1. Butter 2. Milk	1. One 16-oz package 2. One 1 gallon jug
Cheese	1. Cottage cheese 2. Sandwich slices	1. One 16-oz container 2. One 10.23-oz package, individual slices
Meat	1. Bacon 2. Hot dogs	1. One 10-oz package 2. One 12-oz package
Beverages	1. Juice 2. Soda pop	1. One 64-fluid oz bottle 2. Two 2-liter bottles
Baked goods	1. Sliced bread	1. One loaf
Baking	1. Cake mix 2. Cake icing 3. Flour 4. Sugar	1. One 18.25-oz box 2. One 16.2-oz container 3. One 5-lb bag 4. One 4-lb bag
Snacks	1. Cookies 2. Nuts 3. Oatmeal 4. Corn chips	1. One 24 oz package 2. One 16-oz jar 3. One 18-oz container 4. One 1-lb bag
Baby stuff	1. Wipes	1. One 70-count container
Pets	1. Cat treats 2. Dog treats	1. One bag 2. One box

Two sets of the 44 items listed above were purchased at the same store by two staff members. Each staff member purchased the items from the same cashier, and the items were bagged by the same store bagger. One staff member asked the items to be bagged in single plastic carryout bags, and the other staff member requested that the items be bagged in single paper carryout bags. Staff members did not provide the store bagger any additional instructions as to how the items should be bagged. All items were single bagged using both bag types. The sum of the items purchased

totaled \$84 (specifically \$84.04 and \$84.13, respectively, as the weight of the bananas resulted in a 9-cent difference (Appendix D, *In-store Trial Receipts*).

4.1.1 Result

The 44 items listed above were bagged in 8 paper carryout bags and 14 plastic carryout bags. The number of plastic carryout bags used was nearly double the amount of paper carryout bags used. As such, the 1:1.5 ratio is a reasonable representation of the relationship between paper carryout bags to plastic carryout bags. Although a larger sample size would have been preferred, several other studies have noted similar conclusions regarding bag size.^{6,7,8}

⁶ Franklin Associates, Ltd., 1990. *Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks*. Prairie Village, KS.

⁷ Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Report prepared for: Carrefour Group.

⁸ Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Alliance.

SECTION 5.0 CONCLUSION

The findings of this study represent a sampling of stores within the County. This section provides a summary of each bag type (plastic, paper, and reusable) at the nontraditional and traditional stores surveyed. In addition, the resulting comparison of the carrying capacity of plastic bags and paper bags is also provided in this section.

5.1 BAGS BY TYPE

5.1.1 Plastic Bags

The data collected through direct observations demonstrate generally 4 percent of the bags used at nontraditional stores were plastic, whereas 96 percent of the bags used at the traditional stores were plastic. The study observed a combined total of 17,194 plastic bags used at both nontraditional and traditional stores. Of the total number of plastic bags (17,194) observed at both store types, the plastic bags used at nontraditional stores accounted for 0.5 percent (85) and those used at traditional accounted for 99.5 percent (17,109) (Table 5.1.1-1, *Plastic Bag Usage Summary*).

**TABLE 5.1.1-1
PLASTIC BAG USAGE SUMMARY**

Summary	Nontraditional Stores	Traditional Stores
Plastic bags observed (count)	85	17,109
Plastic bags observed (percentage of total bags observed at store)	4 percent	96 percent
Percentage of all plastic bags	0.5 percent	99.5 percent
Total plastic bags observed (all stores)	17,194	

5.1.2 Paper Bags

The findings of this study represent a sampling of the stores within the County. The data collected through direct observation demonstrate that of the bags used at nontraditional stores, generally 78 percent were paper; whereas at traditional stores surveyed, 2 percent of the bags used were paper. Researchers observed a total of 1,751 paper bags used at both the nontraditional and traditional stores. Of the total number of paper bags observed at both store types, the paper bags used at nontraditional stores accounted for 84 percent (1,479) and 16 percent (272) at traditional stores (Table 5.1.2-1, *Paper Bag Usage Summary*).

**TABLE 5.1.2-1
PAPER BAG USAGE SUMMARY**

Summary	Nontraditional Stores	Traditional Stores
Paper bags observed (count)	1,479	272
Paper bags observed (percentage of total bags observed at store)	78 percent	2 percent
Percentage of all paper bags	84 percent	16 percent
Total paper bags observed	1,751	

5.1.3 Reusable Bags

The findings of this study represent a sampling of stores within the County. The data collected through direct observation demonstrate that of the bags used at nontraditional stores, generally 18 percent were reusable; whereas at the traditional stores surveyed, 2 percent of the bags used were reusable. The study observed a combined total of 752 reusable bags used at both traditional and nontraditional stores. Of the total amount of reusable bags observed at both store types, the reusable bags used at nontraditional stores accounted for 45 percent (342) and 55 percent (410) at traditional stores (Table 5.1.3-1, *Reusable Bag Usage Summary*).

**TABLE 5.1.3-1
REUSABLE BAG USAGE SUMMARY**

Summary	Nontraditional Stores	Traditional Stores
Reusable bags observed (count)	342	410
Reusable bags observed (percentage of total bags observed at store)	18 percent	2 percent
Percentage of all reusable bags	45 percent	55 percent
Total reusable bags observed	752	

However, the number of reusable bags varied greatly over the observations conducted. The survey team noted that, although a majority of the nontraditional stores were located within the western portion of the County (primarily in the Third Supervisorial District),¹ the number of reusable bags used within the surveyed stores varied throughout the County. In fact, reusable bags represented up to 9 percent of the bags used at one store located in the southeast portion of the County.

The findings in this study suggest that there are a number of consumers currently using reusable bags in lieu of either paper bags or plastic bags. The 18 percent of reusable bags used by nontraditional store customers could be indicative of the approximate percentage of consumers that might be expected to shift to the use of reusable bags should the proposed ordinances be implemented in the County, as the proposed ordinances will ban the issuance of plastic carryout bags and will include an environmental awareness campaign to encourage the use of reusable bags.

¹ There were nontraditional stores located in or adjacent to all five Supervisorial Districts.

5.2 BAG SIZE COMPARISON

The store trial described in Section 4, Bag Capacity Analysis, determined that a ratio of 1:1.5 is a reasonable representation of the relationship between paper carryout bags to plastic carryout bags in terms of use and carrying capacity. However, multiple iterations of this trial would be required before a more definitive ratio can be determined.

5.3 CONCLUSIONS

The major conclusions of this study are as follows:

1. Currently, plastic is the most commonly used bag type at traditional stores. The data collected through direct observations demonstrate generally 4 percent of the bags used at nontraditional stores were plastic, whereas 96 percent of the bags used at the traditional stores were plastic.
2. Currently, paper is the most commonly used bag type at nontraditional stores. The data collected through direct observation demonstrate that of the bags used at nontraditional stores, generally 78 percent were paper, whereas at traditional stores surveyed 2 percent of the bags used were paper.
3. The 18 percent of reusable bags used by nontraditional store customers could be indicative of the approximate number of consumers that might be expected to shift to the use of reusable bags should the proposed ordinances be implemented in the County, as the proposed ordinances would ban the issuance of plastic carryout bags and would include an environmental awareness campaign to encourage the use of reusable bags.
4. The ratio of 1:1.5 is a reasonable representation of the relationship between paper carryout bags to plastic carryout bags in terms of use and carrying capacity.

APPENDIX B
COUNTY OF LOS ANGELES
BIODEGRADABLE AND COMPOSTABLE BAGS FACT SHEET

BIODEGRADABLE AND COMPOSTABLE BAGS

The purpose of this technical paper is to discuss and establish the definition of compostable and biodegradable plastic carryout bags that may be subject to the proposed ordinances to ban single use plastic carryout bags in Los Angeles County.

Definitions:

These definitions were selected through careful research of current state and national standards as well as industry and consumer preference.

Biodegradable Plastic □ a degradable plastic in which the degradation results from the action of naturally occurring microorganisms such as bacteria, fungi and algae¹

Compostable Plastic Carryout Bag □ a plastic carryout bag that (a) conforms to California labeling law (Public Resources Code Section 42355 et seq.), which requires meeting the current American Society for Testing and Materials (ASTM) standard specifications for compostability; (b) is certified and labeled as meeting the ASTM standard by a recognized verification entity such as the Biodegradable Product Institute; and (c) displays the word "compostable" in a highly visible manner on the outside of the bag²

Background

It is estimated that litter from plastic carryout bags accounts for as much as 25 percent of the litter captured within storm drains.³ According to the County of Los Angeles, each year approximately 6 billion plastic carryout bags are consumed in the County, which is equivalent to approximately 1,600 bags per household per year. Public agencies in California spend over □375 million each year for litter prevention, clean up, and disposal.⁴ The County of Los Angeles Flood Control District alone spent more than □18 million in 2008 for prevention, clean up, and enforcement efforts to reduce litter, of which plastic carryout bags are a component.

The proposed ordinances to ban plastic bags aim to reduce the litter and blight caused by littered plastic bags in marine and inland environments. Plastic grocery and other merchandise bags make up only 0.4 percent of the waste stream,^{5,6} but up to 7 to 30

¹ American Standards for Testing and Materials. (2004). D6400 - 04 Standard Specification for Compostable Plastics. *Standard Specification for Compostable Plastics* .

² Environmental Protection Agency. (2010, March 24). Retrieved April 5, 2010, from U.S. EPA Official Website: <http://www.epa.gov/epawaste/conservematerials/organics/reduce.htm>

³ June 18, 2004 City of Los Angeles - Characterization of Urban Litter, p.2

⁴ Quoted from Stephanie Barger of the Earth Resource Foundation in "Too Much Stuff" p.3 of The Laguna Beach Independent, June 6, 2003

⁵ California Environmental Protection Agency, Integrated Waste Management Board. December 2004. □Table ES-3: Composition of California's Overall Disposed Waste Stream by Material Type, 2003. □Contractor's Report to the Board: Statewide Waste Characterization Study, p. 6. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: <http://www.ciwmb.ca.gov/Publications/default.asp?pubid□1097>

⁶ Note: Plastics make up approximately 9.5 percent of California's waste stream by weight, including 0.4 percent for plastic carryout bags related to grocery and other merchandise, 0.7 percent for non-bag commercial and industrial packaging film, and 1 percent for plastic trash bags.

percent by mass of the litter found on highways, the LA River, catch basins, and street sweeping.⁷ Reducing the number of single use plastic carryout bags entering the litter stream is the main objective of the proposed ordinances.

An Environmental Impact Report (EIR) that complies with the California Environmental Quality Act (CEQA) has been prepared to support proposed ordinances to ban single use plastic carryout bags distributed by stores in Los Angeles County.

Biodegradable and Compostable Plastic Bags

There are two main types of plastic bags that claim to be biodegradable. One type is made from organic polymers (i.e., starch), and the other type is made from synthetic polymers with an additive that causes the product to degrade faster. The main difference is that the organic plastics can degrade into naturally occurring nutrients (as defined by ASTM D6400), while the synthetic plastic with the additive will physically break apart into smaller pieces of inorganic material that may or may not degrade over time.⁸ Some studies have found that degradation of "biodegradable" plastic bags can occur over long periods of time with initial exposure of thermal conditioning of 55°C or above.^{9,10,11} Another study also conducted ten standard tests for biodegradability on three different kinds of "biodegradable" plastic bags, including PCL/starch based, aliphatic/aromatic polyester, and polyethylene blended with a pro-oxidant additive. The biodegradation of the PCL/starch material was far greater than the aliphatic/aromatic polyester, which was far greater than the polyethylene/pro-oxidant blend, with the exception of the "Agricultural Soil Test" which relied on visual assessment of the soil after 11 months, with no weight or gaseous measurements to show molecular break down.¹²

Synthetic plastics with oxo-biodegradable additives break the plastic into smaller pieces, but it should be noted that the plastic, and all of its negative environmental impacts, remain in the environment for undetermined periods of time. The plastic breaks apart into smaller pieces, thereby spreading and infiltrating into the marine and inland environments quicker.¹³ The time needed and extent to which these synthetic plastic

⁷ June 18, 2004 City of Los Angeles - Characterization of Urban Litter, p.3

⁸ Thomas, Dr Noreen, Dr Jane Clarke, Dr Andrew McLauchlin, Mr Stuart Patrick. (2010). Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle. The Department for Environment, Food, and Rural Affairs. Loughborough University, Loughborough, United Kingdom.

⁹ Chiellini, E., Andrea Corti. A simple method suitable to test the ultimate biodegradability of environmentally degradable polymers. *Macromolecular Symposia*, V197, Issue1, Page 381-396, August 27, 2003.

¹⁰ Chiellini, E, Andrea Corti, Salvatore D'Antone, Norman C. Billingham. Microbial biomass yield and turnover in soil biodegradation tests: carbon substrate effects. *Journal of Polymer and the Environment*. Springer Netherlands. V15, Number 3. Page 169-178. July 7, 2007.

¹¹ Chiellini, E., Andrea Corti, Salvatore D'Antone. Oxo-biodegradable Full Carbon Backbone Polymers "Biodegradation behavior of Thermally Oxidized Polyethylene in an Aqueous Medium. *Polymer Degradation and Stability*, V92, Page 1378-1383. March 18, 2007.

¹² Feuilloley, P., Guy Cesar, Ludovic Benguigui, Yves Grohens, Isabelle Pillin, Hilaire Bewa, Sandra Lefaux, Mounia Jamal. Degradation of Polyethylene Designed for Agricultural Purposes. *Journal of Polymer and the Environment*. Springer Netherlands. V13, Number 4. Page 349-355. October, 2005.

¹³ California State University, Chico Research Foundation, "Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Food Service Ware "Final Report", June 2007, <http://www.calrecycle.ca.gov/Publications/Plastics/43208001.pdf>

fragments will degrade is unclear, as explained in the "Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle" study, conducted for the Department for Environment, Food, and Rural Affairs (DEFRA).¹⁴ Oxo-biodegradable plastic also diminishes the recycling stream because the oxo-additive continues to degrade throughout its lifespan, and when mixed with normal plastics in a traditional recycling plant, the oxo-additives will cause weaknesses in the reclaimed product.¹⁵

The ASTM has developed standard D6400-04¹⁶ as the standard for determining whether a plastic is compostable plastic. ASTM standard D6954, which has been referenced by additive manufacturers, is only applicable for comparison between plastics and refers to ASTM D6400 for determining compostability or biodegradation during composting.¹⁷ A study by the California Integrated Waste Management Board found that no degradation occurred for the oxo-biodegradable plastics under ASTM D6400.¹⁸ The European Plastic Recyclers Association (EuPR) warned that "oxo-biodegradable" plastics might do more harm than good to the environment. The EuPR indicates that the use of oxo-additives will not help the litter problem and will decrease recycling percentages and energy reclamation due to contamination of the recycling stream.¹⁹ A study released in January 2010 by DEFRA concluded that the time for oxo-degradable plastic to degrade is unclear; inclusion of oxo-degradable plastics in the recycling stream is detrimental to the recycling stream; oxo-degradable plastics do not degrade in anaerobic environments; and that the best end-of-life solution for oxo-degradable plastics is incineration followed by landfill.²⁰

Most compostable plastics are made from organic material, such as polylactic acid (PLA) which is made from corn starch or sugarcane. Plastics made from PLA require heat (140°F / 60°C), humidity (90%), and microorganisms to biodegrade. These conditions are found at industrial composting facilities and not in backyard composting piles, making compostable plastic bags impractical without a separate collection system.²¹

California public code prohibits manufacturers from selling plastic bags with "biodegradable," "degradable," or "decomposable" printed in any way on the bag

¹⁴ <http://www.defra.gov.uk/>

¹⁵ Thomas, Dr Noreen, Dr Jane Clarke, Dr Andrew McLauchlin, Mr Stuart Patrick. (2010). Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle. The Department for Environment, Food, and Rural Affairs. Loughborough University, Loughborough, United Kingdom.

¹⁶ American Standards for Testing and Materials. (2004). D6400 - 04 Standard Specification for Compostable Plastics.

¹⁷ American Standards for Testing and Materials. (2004). D6954 - 04 Standard Guide for Exposing and Testing Plastics that Degrade in the Environment by a Combination of Oxidation and Biodegradation.

¹⁸ Grenier, D., and Cote, L. 2007. Evaluation of the Impact of Biodegradable Bags on the Recycling of Traditional Plastic Bags (<http://www.pprc.org/research/rapidresDocs/biobags.pdf>)

¹⁹ Society of the Plastics Industry Bioplastics Council. (2010). *Position Paper on Oxo-Biodegradables and Other Degradable Additives*. Retrieved 2010, from <http://spi.files.cms-plus.com/about/BPC/SPI%20Bioplastic%20Council%20Bioplastics%20Position%20Paper%20on%20OXO-Biodegradable%20Plastic-FINAL.pdf>

²⁰ Thomas, Dr Noreen, Dr Jane Clarke, Dr Andrew McLauchlin, Mr Stuart Patrick. (2010). Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle. The Department for Environment, Food, and Rural Affairs. Loughborough University, Loughborough, United Kingdom.

²¹ Berry, J. (2010, February 8). What "Bio" Really Means. *Earth911.com*, pp. <http://earth911.com/news/2010/02/08/what-bio-really-means/>.

implying that the bag will break down; and restricts the distribution of bags labeled as "compostable" unless ASTM D6400 is met or as "marine degradable" unless ASTM D7081 is met.²² There are other ASTM standards that rank the degradation of plastic products (i.e., ASTM D6954, ASTM D6340, ASTM 5988), but none are meant to verify that bags will completely and cleanly degrade within a composting facility or marine environment.

Bio-based or compostable bags are not recyclable and need to be separated from the recycle stream to avoid contamination.^{23,24,25,26} Compostable plastics are not compatible with current recycling practices and if mixed with traditional plastic bags targeted for recycling, will cause the entire batch to be discarded. There are methods of separating out the compostable from the recyclable but it is costly and/or labor intensive, and would require regulations to be developed to confirm conventional use by facilities.

Conclusions

Compostable plastic requires environments only found in commercial composting facilities, including a core temperature above 130°F / 54°C, moisture, and oxygen (not found in modern landfills). Therefore, without a collection system and commercial composting facilities, the environment into which the bags is released is unpredictable, which could result in more litter and pollution of our marine and inland environments. This false sense of compostability could also cause consumers to become more careless with their plastic bags, and could lead to the increased litter related issues associated with plastic bags.²⁷ Contamination of the composting stream with non-compostable plastics may cause compost material to be toxic or unusable and be discarded. Separation and collection systems are required for the disposal of compostable plastic bags to produce quality compost material and not contaminate recycling processes. Using compostable carryout plastic bags in Los Angeles County is not practical at this time, due to the lack of local commercial composting facilities willing to process such bags.

Additionally, the use of compostable or biodegradable plastic carryout bags would not alleviate the litter problem or reduce the potential harm to marine wildlife, since both types of plastic bags have the same general characteristics of conventional plastic carryout bags (lightweight, persistent in the marine environment, etc.). Furthermore, the presence of compostable or biodegradable plastic in the recycle stream could

²² California Assembly Bill No. 1972. Chapter 436. Legislative Counsel's Digest. September 27, 2008. http://www.leginfo.ca.gov/pub/07-08/bill/asm/ab_1951-2000/ab_1972_bill_20080927_chaptered.pdf

²³ California Integrated Waste Management Board. (2009). *Compostable Plastics*. Sacramento, CA: California Department of Resources Recycling and Recovery (CalRecycle). Available at: <http://www.calrecycle.ca.gov/Publications/Plastics/2009001.pdf>.

²⁴ American Chemistry Council. (2009). *plasticbagrecycling.org*. Retrieved March 24, 2010, from http://www.plasticbagrecycling.org/plasticbag/s01_consumers.html.

²⁵ Reusablebags.com. (n.d.). What About Biodegradable Bags? Available at: <http://www.reusablebags.com/facts.php?id=8>.

²⁶ Merx, B. (2010). How to Increase the Mechanical Recycling of Post-Consumer Plastics. Brussels, Belgium: European Plastics Recyclers Association. Available at: <http://www.plasticsrecyclers.eu/uploads/media/eupr/HowToIncreasePlasticsRecyclingFINALlow.pdf>

²⁷ California Integrated Waste Management Board. (2009). *Compostable Plastics*. Sacramento, CA: California Department of Resources Recycling and Recovery (CalRecycle). Available at: <http://www.calrecycle.ca.gov/Publications/Plastics/2009001.pdf>.

potentially jeopardize the plastic recycling systems and would significantly reduce the quality of the recycled resin. Contamination of the recycling stream could ultimately result in batches of recyclable plastic products or materials being landfilled.

Allowing the use of biodegradable plastic bags without a separate collection system could cause an increase in litter, a decrease in recycling and recycled material quality, and could introduce more harmful chemicals from plastic fragments into the environment and the food chain.

Current state law does not require grocery stores to supply different containers for recyclable, compostable, or biodegradable plastic bags. Some, so called, "biodegradable" plastics are made of the same plastic polymers as conventional carryout plastic bags, while other biodegradable plastics are made from very different polymers that look and feel similar to conventional carryout plastic bags but would have very detrimental effects if mixed into the current recycling stream. Therefore, compostable and biodegradable plastic bags should be considered for inclusion in the definition of plastic carryout bags that will be banned in the proposed ordinances.

STORES THAT MAY BE AFFECTED BY THE PROJECT

The purpose of this technical paper is to establish the definition of stores that may be subject to the proposed ordinances to ban single use plastic carryout bags in Los Angeles County. Restaurants would not be included within the definition of “stores” in the proposed ordinances or alternatives.

Definitions:

North American Industry Classification System Codes

The North American Industry Classification System (NAICS) was developed as the standard for use by Federal statistical agencies in classifying business establishments for the collection, analysis, and publication of statistical data related to the business economy of the United States. NAICS was developed under the auspices of the Office of Management and Budget, and adopted in 1997 to replace the old Standard Industrial Classification (SIC) system.¹

445110 (Supermarkets and Other Grocery Stores, except Convenience) - This industry comprises establishments generally known as supermarkets and grocery stores primarily engaged in retailing a general line of food, such as canned and frozen foods; fresh fruits and vegetables; and fresh and prepared meats, fish, and poultry. Included in this industry are delicatessen-type establishments primarily engaged in retailing a general line of food.

445120 (Convenience Stores) - This industry comprises establishments known as convenience stores or food marts (except those with fuel pumps) primarily engaged in retailing a limited line of goods that generally includes milk, bread, soda, and snacks.

446110 (Pharmacies and Drug Stores) - This industry comprises establishments known as pharmacies and drug stores engaged in retailing prescription or nonprescription drugs and medicines.

County Voluntary Single Use Bag Reduction & Recycling Program

Category 1 – (AB 2449) stores – supermarkets & large drugstores

Category 2 – convenience food stores greater than 10,000 square feet

Category 3 – stores that are not Category 1 or 2 that provide plastic carryout bags (small food stores & drugstores, non-food stores)

Background

The proposed ordinances to ban plastic bags aim to reduce the litter and blight caused by littered plastic bags in marine and inland environments. Reducing the number of single use plastic carryout bags entering the litter stream is the main objective of the proposed ordinances.

An Environmental Impact Report (EIR) that complies with the California Environmental Quality Act (CEQA) has been prepared to support proposed ordinances to ban single use plastic carryout bags distributed by stores in Los Angeles County.

¹ <http://www.naics.com/>

The proposed County ordinance would ban the issuance of plastic carryout bags by 1) supermarkets with minimum gross annual sales of \$2 million and 2) retail stores that have over 10,000 square feet of retail space with a licensed pharmacy.²

Project Alternatives

The Draft EIR also evaluated the following alternatives:

- No Project Alternative - Status Quo
- Alternative 1 (A1) – Ban all plastic and paper at all supermarkets grossing at least \$2 million annually and large pharmacies (NAICS 445110 & 446110; Category 1)
- Alternative 2 (A2) – Ban all plastic and fee on paper at all supermarkets grossing at least \$2 million annually and (NAICS 445110 & 446110; Category 1)
- Alternative 3 (A3) – Ban all plastic at all supermarkets and other grocery stores, pharmacies, drug stores, and convenience stores with no limits on square footage or sales volumes (NAICS 445110, 445120, 446110)
- Alternative 4 (A4) – Ban all plastic and paper at all supermarkets and other grocery stores, pharmacies, drug stores, and convenience stores with no limits on square footage or sales volumes (NAICS 445110, 445120, 446110)

Number of Stores Potentially Affected by Project & Alternatives
(Based on infoUSA database unless otherwise noted)

Ordinance Version	Unincorporated Areas	Incorporated Cities	Countywide (unincorporated and incorporated areas)
Project	67*	462	529
A1	67*	462	529
A2	67*	462	529
A3	1,091	5,084	6,175
A4	1,091	5,084	6,175

*Based on County verification

Conclusions

Alternative 4 is anticipated to result in the greatest reduction in use of both plastic and paper carryout bags, and is considered to be the environmentally superior alternative.

² NAICS 445110 □ 446110; Category 1

Data Regarding Approximate Number of Plastic Bags Used per Store per Day

Chain #	Average Number of Bags/Store/Day*
1	4850
2	4665
3	34416
4	6448
Average	10391

*Note: Due to the proprietary nature of this data, store names and the number of stores per chain are not disclosed. Based on these values, which represent a total of 12 stores out of the 67 stores identified in the unincorporated County areas, an approximate number of 10,000 bags per store per day was used within this EIR.

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Congratulations! You're almost done.

We have **462** leads that match your criteria.

Did you know we also have **47 emails** ?

To provide you with the most accurate and deliverable data, we:

- Place more than 20 million phone calls per year.
- Send our business list through the United States Postal Service's (USPS) National Change of Address (NCOA) database.
- Certify our data using the USPS's Coding Accuracy Support Systems (CASS).



You currently have:

462 Leads

See Price

Did you know we also have:

47 Emails

Additional Options:

Save Search

New Search

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How To Change Criteria:

To change or add to your search criteria, click on the category title links.

To remove search criteria, click "Remove." Your count will automatically update.

In order to omit search criteria, click "Omit." Then select the criteria you would like to omit from this search.

Type Of Business [Add](#) [Omit](#)

Primary NAICS Codes and Ranges	446110	Remove
Primary NAICS Codes and Ranges	445110	Remove

Size Of Business [Add](#)

Actual Sales Volume	2 To 999999999 Million	Remove
Square Footage	10,000 - 39,999 Feet	Remove
Square Footage	40,000+ Feet	Remove

Other Selections [Add](#)

Geography [Add](#) [Omit](#)

City	Agoura Hills, CA	Remove
City	Alhambra, CA	Remove
City	Arcadia, CA	Remove
City	Artesia, CA	Remove
City	Avalon, CA	Remove
City	Azusa, CA	Remove
City	Baldwin Park, CA	Remove
City	Bell, CA	Remove
City	Bell Gardens, CA	Remove
City	Bellflower, CA	Remove
City	Beverly Hills, CA	Remove
City	Bradbury, CA	Remove
City	Burbank, CA	Remove
City	Calabasas, CA	Remove
City	Carson, CA	Remove
City	Cerritos, CA	Remove
City	Claremont, CA	Remove
City	Commerce, CA	Remove
City	Compton, CA	Remove
City	Covina, CA	Remove

City	Cudahy, CA	Remove
City	Culver City, CA	Remove
City	Diamond Bar, CA	Remove
City	Downey, CA	Remove
City	Duarte, CA	Remove
City	El Monte, CA	Remove
City	El Segundo, CA	Remove
City	Gardena, CA	Remove
City	Glendale, CA	Remove
City	Glendora, CA	Remove
City	Hawaiian Gardens, CA	Remove
City	Hawthorne, CA	Remove
City	Hermosa Beach, CA	Remove
City	Hidden Hills, CA	Remove
City	Huntington Park, CA	Remove
City	City of Industry, CA	Remove
City	Inglewood, CA	Remove
City	Irwindale, CA	Remove
City	La Canada Fltrdg, CA	Remove
City	La Habra Heights, CA	Remove
City	La Mirada, CA	Remove
City	La Puente, CA	Remove
City	La Verne, CA	Remove
City	Lakewood, CA	Remove
City	Lancaster, CA	Remove
City	Lawndale, CA	Remove
City	Lomita, CA	Remove
City	Long Beach, CA	Remove
City	Los Angeles, CA	Remove
City	Lynwood, CA	Remove
City	Malibu, CA	Remove
City	Manhattan Beach, CA	Remove
City	Maywood, CA	Remove
City	Monrovia, CA	Remove
City	Montebello, CA	Remove
City	Monterey Park, CA	Remove
City	Norwalk, CA	Remove
City	Palmdale, CA	Remove
City	Palos Vrds Ests, CA	Remove
City	Paramount, CA	Remove
City	Pasadena, CA	Remove
City	Pico Rivera, CA	Remove
City	Pomona, CA	Remove
City	Rancho Pls Vrds, CA	Remove
City	Redondo Beach, CA	Remove
City	Rolling Hls Ests, CA	Remove
City	Rolling Hills, CA	Remove
City	Rosamond, CA	Remove
City	San Dimas, CA	Remove
City	San Fernando, CA	Remove
City	San Gabriel, CA	Remove
City	San Marino, CA	Remove
City	Santa Clarita, CA	Remove
City	Santa Fe Springs, CA	Remove
City	Santa Monica, CA	Remove
City	Sierra Madre, CA	Remove
City	Signal Hill, CA	Remove
City	South El Monte, CA	Remove
City	South Gate, CA	Remove
City	South Pasadena, CA	Remove

City	Temple City, CA	Remove
City	Torrance, CA	Remove
City	Vernon, CA	Remove
City	Walnut, CA	Remove
City	West Covina, CA	Remove
City	West Hollywood, CA	Remove
City	Westlake Village, CA	Remove
City	Whittier, CA	Remove



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Congratulations! You're almost done.

We have **6,175** leads that match your criteria.

Did you know we also have **381** emails ?

To provide you with the most accurate and deliverable data, we:

- Place more than 20 million phone calls per year.
- Send our business list through the United States Postal Service's (USPS) National Change of Address (NCOA) database.
- Certify our data using the USPS's Coding Accuracy Support Systems (CASS).



You currently have:

6,175 Leads

See Price

Did you know we also have:

381 Emails

Additional Options:

Save Search

New Search

Exclude Lists

How To Change Criteria:

To change or add to your search criteria, click on the category title links.

To remove search criteria, click "Remove." Your count will automatically update.

In order to omit search criteria, click "Omit." Then select the criteria you would like to omit from this search.

Type Of Business [Add](#) [Omit](#)

Primary NAICS Codes and Ranges 445110 [Remove](#)

Primary NAICS Codes and Ranges 446110 [Remove](#)

Primary NAICS Codes and Ranges 445120 [Remove](#)

Size Of Business [Add](#)

Square Footage 0 - 2,499 Feet [Remove](#)

Square Footage 2,500 - 9,999 Feet [Remove](#)

Square Footage 10,000 - 39,999 Feet [Remove](#)

Square Footage 40,000+ Feet [Remove](#)

Other Selections [Add](#)

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County Los Angeles, CA [Remove](#)

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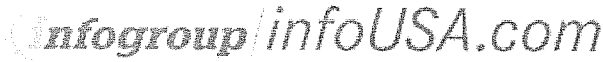
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Congratulations! You're almost done.

We have **5,084** leads that match your criteria.

Did you know we also have **314 emails** ?

To provide you with the most accurate and deliverable data, we:

- Place more than 20 million phone calls per year.
- Send our business list through the United States Postal Service's (USPS) National Change of Address (NCOA) database.
- Certify our data using the USPS's Coding Accuracy Support Systems (CASS).



You currently have:

5,084 Leads

[See Price](#)

Did you know we also have:

314 Emails ?

Additional Options:

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[New Search](#)

[Exclude Lists](#)

How To Change Criteria:

To change or add to your search criteria, click on the category title links.

To remove search criteria, click "Remove." Your count will automatically update.

In order to omit search criteria, click "Omit." Then select the criteria you would like to omit from this search.

Type Of Business [Add](#) [Omit](#)

Primary NAICS Codes and Ranges	445110	Remove
Primary NAICS Codes and Ranges	446110	Remove
Primary NAICS Codes and Ranges	445120	Remove

Size Of Business [Add](#)

Square Footage	0 - 2,499 Feet	Remove
Square Footage	2,500 - 9,999 Feet	Remove
Square Footage	10,000 - 39,999 Feet	Remove
Square Footage	40,000+ Feet	Remove

Other Selections [Add](#)

Geography [Add](#) [Omit](#)

City	Agoura Hills, CA	Remove
City	Alhambra, CA	Remove
City	Arcadia, CA	Remove
City	Artesia, CA	Remove
City	Avalon, CA	Remove
City	Azusa, CA	Remove
City	Baldwin Park, CA	Remove
City	Bell, CA	Remove
City	Bell Gardens, CA	Remove
City	Bellflower, CA	Remove
City	Beverly Hills, CA	Remove
City	Bradbury, CA	Remove
City	Burbank, CA	Remove
City	Calabasas, CA	Remove
City	Carson, CA	Remove
City	Cerritos, CA	Remove
City	Claremont, CA	Remove

City	Commerce, CA	Remove
City	Compton, CA	Remove
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City	Cudahy, CA	Remove
City	Culver City, CA	Remove
City	Diamond Bar, CA	Remove
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City	Hawthorne, CA	Remove
City	Hermosa Beach, CA	Remove
City	Hidden Hills, CA	Remove
City	Huntington Park, CA	Remove
City	City of Industry, CA	Remove
City	Inglewood, CA	Remove
City	Irwindale, CA	Remove
City	La Canada Fltrdg, CA	Remove
City	La Habra Heights, CA	Remove
City	La Mirada, CA	Remove
City	La Puente, CA	Remove
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City	Lancaster, CA	Remove
City	Lawndale, CA	Remove
City	Lomita, CA	Remove
City	Long Beach, CA	Remove
City	Los Angeles, CA	Remove
City	Lynwood, CA	Remove
City	Malibu, CA	Remove
City	Manhattan Beach, CA	Remove
City	Maywood, CA	Remove
City	Monrovia, CA	Remove
City	Montebello, CA	Remove
City	Monterey Park, CA	Remove
City	Norwalk, CA	Remove
City	Palmdale, CA	Remove
City	Palos Vrds Ests, CA	Remove
City	Paramount, CA	Remove
City	Pasadena, CA	Remove
City	Pico Rivera, CA	Remove
City	Pomona, CA	Remove
City	Rancho Pls Vrds, CA	Remove
City	Redondo Beach, CA	Remove
City	Rolling Hls Ests, CA	Remove
City	Rolling Hills, CA	Remove
City	Rosamond, CA	Remove
City	San Dimas, CA	Remove
City	San Fernando, CA	Remove
City	San Gabriel, CA	Remove
City	San Marino, CA	Remove
City	Santa Clarita, CA	Remove
City	Santa Fe Springs, CA	Remove
City	Santa Monica, CA	Remove
City	Sierra Madre, CA	Remove
City	Signal Hill, CA	Remove

City	South El Monte, CA	Remove
City	South Gate, CA	Remove
City	South Pasadena, CA	Remove
City	Temple City, CA	Remove
City	Torrance, CA	Remove
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City	West Hollywood, CA	Remove
City	Westlake Village, CA	Remove
City	Whittier, CA	Remove

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1012\1012-035\Data\Air\Deliveries_67.urb924

Project Name: Deliveries to 67 Stores

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Supermarket	0.04	0.08	0.50	0.00	0.09	0.02	65.51
TOTALS (lbs/day, unmitigated)	0.04	0.08	0.50	0.00	0.09	0.02	65.51

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Supermarket		4.00	1000 sq ft	1.00	4.00	53.20
					4.00	53.20

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.7	99.1	0.2
Light Truck < 3750 lbs	15.8	2.9	94.2	2.9

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	53.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	23.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	3.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	1.1	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	2.1	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	1.2	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	65.2	34.8	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	87.5	12.5

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	13.3	13.3
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0

Page: 3

5/21/2010 5:10:06 PM

Operational Changes to Defaults

Commercial-based non-work urban trip length changed from 7.4 miles to 13.3 miles

Commercial-based customer urban trip length changed from 8.9 miles to 13.3 miles

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1012\1012-035\Data\Air\Deliveries_423.urb924

Project Name: Deliveries to 462 Stores

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Supermarket	0.22	0.51	3.25	0.00	0.61	0.12	425.84
TOTALS (lbs/day, unmitigated)	0.22	0.51	3.25	0.00	0.61	0.12	425.84

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Supermarket		26.00	1000 sq ft	1.00	26.00	345.80
					26.00	345.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.7	99.1	0.2
Light Truck < 3750 lbs	15.8	2.9	94.2	2.9

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	53.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	23.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	3.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	1.1	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	2.1	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	1.2	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	65.2	34.8	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	87.5	12.5

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	13.3	13.3
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0

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Operational Changes to Defaults

Commercial-based non-work urban trip length changed from 7.4 miles to 13.3 miles

Commercial-based customer urban trip length changed from 8.9 miles to 13.3 miles

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1012\1012-035\Data\Air\Deliveries_1024.urb924

Project Name: Deliveries to 1,024 Stores

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Supermarket	0.24	0.57	3.63	0.00	0.68	0.14	474.98
TOTALS (lbs/day, unmitigated)	0.24	0.57	3.63	0.00	0.68	0.14	474.98

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Supermarket		29.00	1000 sq ft	1.00	29.00	385.70
					29.00	385.70

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.7	99.1	0.2
Light Truck < 3750 lbs	15.8	2.9	94.2	2.9

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	53.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	23.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	3.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	1.1	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	2.1	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	1.2	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	65.2	34.8	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	87.5	12.5

Travel Conditions

	Residential			Commute	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	13.3	13.3
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0

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Operational Changes to Defaults

Commercial-based non-work urban trip length changed from 7.4 miles to 13.3 miles

Commercial-based customer urban trip length changed from 8.9 miles to 13.3 miles

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: W:\PROJECTS\1012\1012-035\Data\Air\Deliveries_4622.urb924

Project Name: Deliveries to 4,622 Stores

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Supermarket	1.08	2.59	16.40	0.02	3.05	0.62	2,145.60
TOTALS (lbs/day, unmitigated)	1.08	2.59	16.40	0.02	3.05	0.62	2,145.60

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2011 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Supermarket		131.00	1000 sq ft	1.00	131.00	1,742.30
					131.00	1,742.30

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.7	99.1	0.2
Light Truck < 3750 lbs	15.8	2.9	94.2	2.9

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	53.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	23.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	3.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	1.1	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	2.1	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	1.2	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	65.2	34.8	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	87.5	12.5

Travel Conditions

	Residential			Commuter	Commercial	
	Home-Work	Home-Shop	Home-Other		Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	13.3	13.3
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Supermarket				2.0	1.0	97.0

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Operational Changes to Defaults

Commercial-based non-work urban trip length changed from 7.4 miles to 13.3 miles

Commercial-based customer urban trip length changed from 8.9 miles to 13.3 miles

Stores in unincorp territory	67	Reusable Bag Size	37
Stores in cities	462	Ratio of Reusable	
Plastic bag size (liters)	14	to Plastic Bags	2.6
Paper bag size (liters)	20.48		
Number of plastic bags per store per day	10000		
Number of paper bags per store per day	6836	based on 100% conversion from plastic to paper	

Ecobilan Data - Eutrophication	CML	Reusable Bag (1 Use)	
		g output	g phosphate
(w) Ammonia	0.42	3.35E-01	1.41E-01
(w) COD (Chemical Oxygen Demand)	0.022	1.43E-01	3.15E-01
(w) Nitrate	0.095	5.80E-02	5.51E-03
(w) Nitrite	0.13	-5.06E-07	-6.58E-08
(w) Nitrogenous Matter (Kjeldahl, as N)	0.42	9.56E-04	4.02E-04
(w) Nitrogenous Matter (unspecified)	0.42	4.45E-02	1.87E-02
(w) Phosphates	3.06	2.25E-02	6.89E-02
(w) Phosphorous Matter	3.06	0.00E+00	0.00E+00
(w) Phosphorous	3.06	3.86E-05	1.18E-04
(w) Phosphorous Pentoxide	1.336	-8.42E-06	-1.12E-05
Total			0.55

CML is the equivalence coefficient used to convert grams of each individual output to grams of phosphate equivalent

Ecobilan Data - Eutrophication	CML	Plastic Bags		Paper Bags	
		g output	g phosphate	g output	g phosphate
(w) Ammonia	0.42	1.28E-01	5.38E-02	6.11E-01	2.57E-01
(w) COD (Chemical Oxygen Demand)	0.022	5.09E-01	1.12E-01	2.74E-01	6.03E-01
(w) Nitrate	0.095	1.25E-01	1.19E-02	1.25E-00	1.19E-01
(w) Nitrite	0.13	4.39E-07	5.71E-08	1.90E-05	2.47E-06
(w) Nitrogenous Matter (Kjeldahl, as N)	0.42	3.00E-05	1.26E-05	-3.63E-04	-1.52E-04
(w) Nitrogenous Matter (unspecified)	0.42	7.36E-03	3.09E-03	2.51E-00	1.05E-00
(w) Phosphates	3.06	6.01E-03	1.84E-02	1.03E-01	3.15E-01
(w) Phosphorous Matter	3.06	3.02E-07	9.24E-07	1.52E-04	4.65E-04
(w) Phosphorous	3.06	3.67E-05	1.12E-04	5.25E-04	1.61E-03
(w) Phosphorous Pentoxide	1.336	2.66E-06	3.55E-06	1.29E-05	1.72E-05
Total			0.20		2.35

CML is the equivalence coefficient used to convert grams of each individual output to grams of phosphate equivalent

Eutrophication - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
grams phosphate per 9000 liters groceries	0.20	2.35	2.15	2.00	1.80	
grams phosphate per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
grams phosphate per bag	0.00	0.01	0.01	0.00	0.00	
grams phosphate per day per store	3.10	36.55	33.45	31.07	27.97	
kg phosphate per day per store	0.00	0.04	0.03	0.03	0.03	
kg phosphate per day in unincorp territory	0.21	2.45	2.24	2.08	1.87	
kg phosphate per day in cities	1.43	16.88	15.45	14.35	12.92	
Total kg phosphate for whole county	1.64	19.33	17.69	16.43	14.79	
based on 100 conversion from plastic to paper						
based on 85 conversion from plastic to paper						

Eutrophication - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
grams phosphate per 9000 liters groceries	0.20	0.18	-0.02	0.03	-0.17	
grams phosphate per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
grams phosphate per bag	0.00	0.00	0.00	0.00	0.00	
grams phosphate per day per store	3.10	2.85	-0.25	0.43	-2.67	
kg phosphate per day per store	0.00	0.00	0.00	0.00	0.00	
kg phosphate per day in unincorp territory	0.21	0.19	-0.02	0.03	-0.18	
kg phosphate per day in cities	1.43	1.31	-0.12	0.20	-1.23	
Total kg phosphate for whole county	1.64	1.51	-0.13	0.23	-1.41	
based on 3 uses						
based on 20 uses						

Ecobilan Data - Utilities	Plastic Bags	Paper Bags	Reusable Bags
Water Used (total) (liters)	52.6	173	137
Water Generated (unspecified) (liters)	4.1	1.3	-0.186
Water Generated (chemically polluted) (liters)	34.3	107	105
Water Generated (thermally polluted) (liters)	11.6	22.4	31.8
Total Wastewater Generated (liters)	50	130.7	136.614
Waste Generated (total) (kg)	2.59	4.73	6.99
Non-renewable energy consumption (MJ)	286	295	805
Total solid waste due to disposal (kg)	4.76	12.14	13.11

Assuming all bags are sent to landfill

Water Consumption - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Liters H2O per 9000 liters groceries	52.60	173.00	120.40	147.05	94.45	
Liters H2O per 1 liter groceries	0.01	0.02	0.01	0.02	0.01	
Liters H2O per bag	0.08	0.39	0.31	0.33	0.25	
Liters H2O per day per store	818.22	2691.11	1872.89	2287.44	1469.22	
Gallons H2O per day per store	216.15	710.92	494.76	604.28	388.13	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.01	0.05	0.03	0.04	0.03	
MGD per day in cities	0.10	0.33	0.23	0.28	0.18	
Total MGD for whole county	0.11	0.38	0.26	0.32	0.21	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Water Consumption - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
Liters H2O per 9000 liters groceries	52.60	45.67	-6.93	6.85	-45.75	
Liters H2O per 1 liter groceries	0.01	0.01	0.00	0.00	-0.01	
Liters H2O per bag	0.08	0.10	0.02	0.02	-0.07	
Liters H2O per day per store	818.22	710.37	-107.85	106.56	-711.67	
Gallons H2O per day per store	216.15	187.66	-28.49	28.15	-188.00	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.01	0.01	0.00	0.00	-0.01	
MGD per day in cities	0.10	0.09	-0.01	0.01	-0.09	
Total MGD for whole county	0.11	0.10	-0.02	0.01	-0.10	

based on 3 uses

based on 20 uses

Water Consumption - Boustead Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Gallons H2O 1000 paper bags (1500 plastic)	58.00	1004.00	946.00	853.40	795.40	
Gallons H2O per bag	0.04	1.00	0.97	0.85	0.81	
Gallons H2O per day per store	386.67	6863.28	6476.61	5833.79	5447.12	
MGD per day per store	0.00	0.01	0.01	0.01	0.01	
MGD per day in unincorp territory	0.03	0.46	0.43	0.39	0.36	
MGD per day in cities	0.18	3.17	2.99	2.70	2.52	
Total MGD for whole county	0.20	3.63	3.43	3.09	2.88	
based on 100 conversion from plastic to paper						
based on 85 conversion from plastic to paper						

Wastewater Generation - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
Liters H2O per 9000 liters groceries	50.00	45.54	-4.46	6.83	-43.17	
Liters H2O per 1 liter groceries	0.01	0.01	0.00	0.00	0.00	
Liters H2O per bag	0.08	0.10	0.03	0.02	-0.06	
Liters H2O per day per store	777.78	708.37	-69.41	106.26	-671.52	
Gallons H2O per day per store	205.47	187.13	-18.34	28.07	-177.40	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.01	0.01	0.00	0.00	-0.01	
MGD per day in cities	0.09	0.09	-0.01	0.01	-0.08	
Total MGD for whole county	0.11	0.10	-0.01	0.01	-0.09	
based on 3 uses						
based on 20 uses						

Wastewater Generation - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Liters H2O per 9000 liters groceries	50.00	130.70	80.70	111.10	61.10	
Liters H2O per 1 liter groceries	0.01	0.01	0.01	0.01	0.01	
Liters H2O per bag	0.08	0.30	0.22	0.25	0.18	
Liters H2O per day per store	777.78	2033.11	1255.33	1728.14	950.37	
Gallons H2O per day per store	205.47	537.09	331.62	456.53	251.06	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.01	0.04	0.02	0.03	0.02	
MGD per day in cities	0.09	0.25	0.15	0.21	0.12	
Total MGD for whole county	0.11	0.28	0.18	0.24	0.13	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Boustead Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
kg waste per 1000 paper bags (1500 plastic)	7.04	33.90	26.87	28.82	21.78	
kg waste per bag	0.00	0.03	0.03	0.03	0.02	
kg waste per day per store	46.90	231.74	184.84	196.98	150.08	
tons waste per day per store	0.05	0.26	0.20	0.22	0.17	
tons waste per day in unincorp territory	3.46	17.11	13.65	14.55	11.08	
tons waste per day in cities	23.88	118.02	94.13	100.31	76.43	
Total tons waste for whole county	27.35	135.13	107.78	114.86	87.51	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
kg waste per 9000 liters groceries	4.76	4.37	-0.39	0.66	-4.10	
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
kg waste per bag	0.01	0.01	0.00	0.00	-0.01	
kg waste per day per store	74.04	67.98	-6.07	10.20	-63.85	
tons waste per day per store	0.08	0.07	-0.01	0.01	-0.07	
tons waste per day in unincorp territory	5.47	5.02	-0.45	0.75	-4.72	
tons waste per day in cities	37.71	34.62	-3.09	5.19	-32.52	
Total tons waste for whole county	43.18	39.64	-3.54	5.95	-37.23	

based on 3 uses

based on 20 uses

Solid Waste - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
kg waste per 9000 liters groceries	4.76	12.14	7.38	10.32	5.56	
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
kg waste per bag	0.01	0.03	0.02	0.02	0.02	
kg waste per day per store	74.04	188.84	114.80	160.52	86.47	
tons waste per day per store	0.08	0.21	0.13	0.18	0.10	
tons waste per day in unincorp territory	5.47	13.95	8.48	11.86	6.39	
tons waste per day in cities	37.71	96.17	58.46	81.75	44.04	
Total tons waste for whole county	43.18	110.12	66.94	93.60	50.42	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

2007 recycle rate - plastic bags and sacks	11.9
2007 recycle rate - paper bags and sacks	36.8

Solid Waste - Ecobilan Data	Adjusted for 2007 EPA Recycle Rates			Adjusted for 2007 EPA Recycle Rates		
	Plastic LCA	Paper LCA	Difference	Plastic LCA	Paper LCA	Difference
kg waste per 9000 liters groceries	4.19	7.67	3.48	4.19	6.52	2.33
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	0.00
kg waste per bag	0.01	0.02	0.01	0.01	0.01	0.01
kg waste per day per store	65.23	119.35	54.12	65.23	101.45	36.21
tons waste per day per store	0.07	0.13	0.06	0.07	0.11	0.04
tons waste per day in unincorp territory	4.82	8.81	4.00	4.82	7.49	2.67
tons waste per day in cities	33.22	60.78	27.56	33.22	51.66	18.44
Total tons waste for whole county	38.04	69.60	31.56	38.04	59.16	21.12

based on 100% conversion from plastic to paper

based on 85% conversion from plastic to paper

Energy Consumption - Ecobilan Data	Adjusted for 2007 EPA Recycle Rates			Adjusted for 2007 EPA Recycle Rates	
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
MJ per 9000 liters groceries	286.00	295.00	9.00	250.75	-35.25
MJ per 1 liter groceries	0.03	0.03	0.00	0.03	0.00
MJ per bag	0.44	0.67	0.23	0.57	0.13
MJ per day per store	4448.89	4588.89	140.00	3900.56	-548.33
kWh per day per store	1235.80	1274.69	38.89	1083.49	-152.31
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.08	0.09	0.00	0.07	-0.01
Million kWh per day in cities	0.57	0.59	0.02	0.50	-0.07
Total million kWh for whole county	0.65	0.67	0.02	0.57	-0.08

based on 100% conversion from plastic to paper

based on 85% conversion from plastic to paper

Energy Consumption - Ecobilan Data					
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference
MJ per 9000 liters groceries	286.00	268.33	-17.67	40.25	-245.75
MJ per 1 liter groceries	0.03	0.03	0.00	0.00	-0.03
MJ per bag	0.44	0.61	0.17	0.09	-0.35
MJ per day per store	4448.89	4174.07	-274.81	626.11	-3822.78
kWh per day per store	1235.80	1159.47	-76.34	173.92	-1061.88
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.08	0.08	-0.01	0.01	-0.07
Million kWh per day in cities	0.57	0.54	-0.04	0.08	-0.49
Total million kWh for whole county	0.65	0.61	-0.04	0.09	-0.56

based on 3 uses

based on 20 uses

Energy Consumption - Boustead Data					
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
MJ per 1000 bags	763.00	2622.00	1859.00	2228.70	1465.70
MJ per bag	0.51	2.62	2.11	2.23	1.72
MJ per day per store	5086.67	17923.83	12837.16	15235.25	10148.59
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.09	0.33	0.24	0.28	0.19
Million kWh per day in cities	0.65	2.30	1.65	1.96	1.30
Total Million kWh for whole county	0.75	2.63	1.89	2.24	1.49

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Conversion Factors	
liters to gallons	0.26417205
kg to short tons	0.00110231
MJ to kWh	0.27777778

Stores in unincorp territory	1024	
Stores in cities	4622	
Plastic bag size (liters)	14	
Paper bag size (liters)	20.48	
Number of plastic bags per store per day	5000	
Number of paper bags per store per day	3418	based on 100 conversion from plastic to paper

Ecobilan Data - Eutrophication	CML	Reusable Bag (1 Use)	
		g output	g phosphate
(w) Ammonia	0.42	3.35E-01	1.41E-01
(w) COD (Chemical Oxygen Demand)	0.022	1.43E-01	3.15E-01
(w) Nitrate	0.095	5.80E-02	5.51E-03
(w) Nitrite	0.13	-5.06E-07	-6.58E-08
(w) Nitrogenous Matter (Kjeldahl, as N)	0.42	9.56E-04	4.02E-04
(w) Nitrogenous Matter (unspecified)	0.42	4.45E-02	1.87E-02
(w) Phosphates	3.06	2.25E-02	6.89E-02
(w) Phosphorous Matter	3.06	0.00E+00	0.00E+00
(w) Phosphorous	3.06	3.86E-05	1.18E-04
(w) Phosphorous Pentoxide	1.336	-8.42E-06	-1.12E-05
Total			0.55

CML is the equivalence coefficient used to convert grams of each individual output to grams of phosphate equivalent

Ecobilan Data - Eutrophication	CML	Plastic Bags		Paper Bags	
		g output	g phosphate	g output	g phosphate
(w) Ammonia	0.42	1.28E-01	5.38E-02	6.11E-01	2.57E-01
(w) COD (Chemical Oxygen Demand)	0.022	5.09E+00	1.12E-01	2.74E+01	6.03E-01
(w) Nitrate	0.095	1.25E-01	1.19E-02	1.25E+00	1.19E-01
(w) Nitrite	0.13	4.39E-07	5.71E-08	1.90E-05	2.47E-06
(w) Nitrogenous Matter (Kjeldahl, as N)	0.42	3.00E-05	1.26E-05	-3.63E-04	-1.52E-04
(w) Nitrogenous Matter (unspecified)	0.42	7.36E-03	3.09E-03	2.51E+00	1.05E+00
(w) Phosphates	3.06	6.01E-03	1.84E-02	1.03E-01	3.15E-01
(w) Phosphorous Matter	3.06	3.02E-07	9.24E-07	1.52E-04	4.65E-04
(w) Phosphorous	3.06	3.67E-05	1.12E-04	5.25E-04	1.61E-03
(w) Phosphorous Pentoxide	1.336	2.66E-06	3.55E-06	1.29E-05	1.72E-05
Total			0.20		2.35

CML is the equivalence coefficient used to convert grams of each individual output to grams of phosphate equivalent

Eutrophication - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
grams phosphate per 9000 liters groceries	0.20	2.35	2.15	2.00	1.80	
grams phosphate per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
grams phosphate per bag	0.00	0.01	0.01	0.00	0.00	
grams phosphate per day per store	1.55	18.27	16.72	15.53	13.98	
kg phosphate per day per store	0.00	0.02	0.02	0.02	0.01	
kg phosphate per day in unincorp territory	1.59	18.71	17.13	15.91	14.32	
kg phosphate per day in cities	7.16	84.46	77.30	71.79	64.63	
Total kg phosphate for whole county	8.75	103.17	94.43	87.70	78.95	
based on 100 conversion from plastic to paper						
based on 85 conversion from plastic to paper						

Eutrophication - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
grams phosphate per 9000 liters groceries	0.20	0.18	-0.02	0.03	-0.17	
grams phosphate per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
grams phosphate per bag	0.00	0.00	0.00	0.00	0.00	
grams phosphate per day per store	1.55	1.42	-0.13	0.21	-1.34	
kg phosphate per day per store	0.00	0.00	0.00	0.00	0.00	
kg phosphate per day in unincorp territory	1.59	1.46	-0.13	0.22	-1.37	
kg phosphate per day in cities	7.16	6.58	-0.59	0.99	-6.18	
Total kg phosphate for whole county	8.75	8.03	-0.71	1.21	-7.54	
based on 3 uses						
based on 20 uses						

Ecobilan Data - Utilities	Plastic Bags	Paper Bags	Reusable Bags
Water Used (total) (liters)	52.6	173	137
Water Generated (unspecified) (liters)	4.1	1.3	-0.186
Water Generated (chemically polluted) (liters)	34.3	107	105
Water Generated (thermally polluted) (liters)	11.6	22.4	31.8
Total Wastewater Generated (liters)	50	130.7	136.614
Waste Generated (total) (kg)	2.59	4.73	6.99
Non-renewable energy consumption (MJ)	286	295	805
Total solid waste due to disposal (kg)	4.76	12.14	13.11

Assuming all bags are sent to landfill

Water Consumption - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Liters H2O per 9000 liters groceries	52.60	173.00	120.40	147.05	94.45	
Liters H2O per 1 liter groceries	0.01	0.02	0.01	0.02	0.01	
Liters H2O per bag	0.08	0.39	0.31	0.33	0.25	
Liters H2O per day per store	409.11	1345.56	936.44	1143.72	734.61	
Gallons H2O per day per store	108.08	355.46	247.38	302.14	194.06	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.11	0.36	0.25	0.31	0.20	
MGD per day in cities	0.50	1.64	1.14	1.40	0.90	
Total MGD for whole county	0.61	2.01	1.40	1.71	1.10	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Water Consumption - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
Liters H2O per 9000 liters groceries	52.60	45.67	-6.93	6.85	-45.75	
Liters H2O per 1 liter groceries	0.01	0.01	0.00	0.00	-0.01	
Liters H2O per bag	0.08	0.10	0.02	0.02	-0.07	
Liters H2O per day per store	409.11	355.19	-53.93	53.28	-355.83	
Gallons H2O per day per store	108.08	93.83	-14.25	14.07	-94.00	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.11	0.10	-0.01	0.01	-0.10	
MGD per day in cities	0.50	0.43	-0.07	0.07	-0.43	
Total MGD for whole county	0.61	0.53	-0.08	0.08	-0.53	

based on 3 uses

based on 20 uses

Water Consumption - Boustead Data					
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
Gallons H2O 1000 paper bags (1500 plastic)	58.00	1004.00	946.00	853.40	795.40
Gallons H2O per bag	0.04	1.00	0.97	0.85	0.81
Gallons H2O per day per store	193.33	3431.64	3238.31	2916.89	2723.56
MGD per day per store	0.00	0.00	0.00	0.00	0.00
MGD per day in unincorp territory	0.20	3.51	3.32	2.99	2.79
MGD per day in cities	0.89	15.86	14.97	13.48	12.59
Total MGD for whole county	1.09	19.38	18.28	16.47	15.38
based on 100 conversion from plastic to paper					
based on 85 conversion from plastic to paper					

Wastewater Generation - Ecobilan Data					
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference
Liters H2O per 9000 liters groceries	50.00	45.54	-4.46	6.83	-43.17
Liters H2O per 1 liter groceries	0.01	0.01	0.00	0.00	0.00
Liters H2O per bag	0.08	0.10	0.03	0.02	-0.06
Liters H2O per day per store	388.89	354.18	-34.70	53.13	-335.76
Gallons H2O per day per store	102.73	93.57	-9.17	14.03	-88.70
MGD per day per store	0.00	0.00	0.00	0.00	0.00
MGD per day in unincorp territory	0.11	0.10	-0.01	0.01	-0.09
MGD per day in cities	0.47	0.43	-0.04	0.06	-0.41
Total MGD for whole county	0.58	0.53	-0.05	0.08	-0.50
based on 3 uses					
based on 20 uses					

Wastewater Generation - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Liters H2O per 9000 liters groceries	50.00	130.70	80.70	111.10	61.10	
Liters H2O per 1 liter groceries	0.01	0.01	0.01	0.01	0.01	
Liters H2O per bag	0.08	0.30	0.22	0.25	0.18	
Liters H2O per day per store	388.89	1016.56	627.67	864.07	475.18	
Gallons H2O per day per store	102.73	268.55	165.81	228.26	125.53	
MGD per day per store	0.00	0.00	0.00	0.00	0.00	
MGD per day in unincorp territory	0.11	0.27	0.17	0.23	0.13	
MGD per day in cities	0.47	1.24	0.77	1.06	0.58	
Total MGD for whole county	0.58	1.52	0.94	1.29	0.71	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Boustead Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
kg waste per 1000 paper bags (1500 plastic)	7.04	33.90	26.87	28.82	21.78	
kg waste per bag	0.00	0.03	0.03	0.03	0.02	
kg waste per day per store	23.45	115.87	92.42	98.49	75.04	
tons waste per day per store	0.03	0.13	0.10	0.11	0.08	
tons waste per day in unincorp territory	26.47	130.79	104.32	111.17	84.70	
tons waste per day in cities	119.48	590.34	470.86	501.79	382.31	
Total tons waste for whole county	145.94	721.13	575.18	612.96	467.02	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
kg waste per 9000 liters groceries	4.76	4.37	-0.39	0.66	-4.10	
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
kg waste per bag	0.01	0.01	0.00	0.00	-0.01	
kg waste per day per store	37.02	33.99	-3.03	5.10	-31.92	
tons waste per day per store	0.04	0.04	0.00	0.01	-0.04	
tons waste per day in unincorp territory	41.79	38.37	-3.42	5.75	-36.03	
tons waste per day in cities	188.62	173.17	-15.45	25.98	-162.65	
Total tons waste for whole county	230.41	211.53	-18.88	31.73	-198.68	

based on 3 uses

based on 20 uses

Solid Waste - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
kg waste per 9000 liters groceries	4.76	12.14	7.38	10.32	5.56	
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	
kg waste per bag	0.01	0.03	0.02	0.02	0.02	
kg waste per day per store	37.02	94.42	57.40	80.26	43.24	
tons waste per day per store	0.04	0.10	0.06	0.09	0.05	
tons waste per day in unincorp territory	41.79	106.58	64.79	90.59	48.80	
tons waste per day in cities	188.62	481.07	292.45	408.91	220.29	
Total tons waste for whole county	230.41	587.65	357.24	499.50	269.09	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

2007 recycle rate - plastic bags and sacks	11.9
2007 recycle rate - paper bags and sacks	36.8

Solid Waste - Ecobilan Data	Adjusted for 2007 EPA Recycle Rates			Adjusted for 2007 EPA Recycle Rates		
	Plastic LCA	Paper LCA	Difference	Plastic LCA	Paper LCA	Difference
kg waste per 9000 liters groceries	4.19	7.67	3.48	4.19	6.52	2.33
kg waste per 1 liter groceries	0.00	0.00	0.00	0.00	0.00	0.00
kg waste per bag	0.01	0.02	0.01	0.01	0.01	0.01
kg waste per day per store	32.62	59.67	27.06	32.62	50.72	18.11
tons waste per day per store	0.04	0.07	0.03	0.04	0.06	0.02
tons waste per day in unincorp territory	36.82	67.36	30.54	36.82	57.26	20.44
tons waste per day in cities	166.18	304.04	137.86	166.18	258.43	92.25
Total tons waste for whole county	202.99	371.40	168.40	202.99	315.69	112.69

based on 100% conversion from plastic to paper

based on 85% conversion from plastic to paper

Energy Consumption - Ecobilan Data	Adjusted for 2007 EPA Recycle Rates			Adjusted for 2007 EPA Recycle Rates	
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
MJ per 9000 liters groceries	286.00	295.00	9.00	250.75	-35.25
MJ per 1 liter groceries	0.03	0.03	0.00	0.03	0.00
MJ per bag	0.44	0.67	0.23	0.57	0.13
MJ per day per store	2224.44	2294.44	70.00	1950.28	-274.17
kWh per day per store	617.90	637.35	19.44	541.74	-76.16
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.63	0.65	0.02	0.55	-0.08
Million kWh per day in cities	2.86	2.95	0.09	2.50	-0.35
Total million kWh for whole county	3.49	3.60	0.11	3.06	-0.43

based on 100% conversion from plastic to paper

based on 85% conversion from plastic to paper

Energy Consumption - Ecobilan Data					
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference
MJ per 9000 liters groceries	286.00	268.33	-17.67	40.25	-245.75
MJ per 1 liter groceries	0.03	0.03	0.00	0.00	-0.03
MJ per bag	0.44	0.61	0.17	0.09	-0.35
MJ per day per store	2224.44	2087.04	-137.41	313.06	-1911.39
kWh per day per store	617.90	579.73	-38.17	86.96	-530.94
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.63	0.59	-0.04	0.09	-0.54
Million kWh per day in cities	2.86	2.68	-0.18	0.40	-2.45
Total million kWh for whole county	3.49	3.27	-0.22	0.49	-3.00

based on 3 uses

based on 20 uses

Energy Consumption - Boustead Data					
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
MJ per 1000 bags	763.00	2622.00	1859.00	2228.70	1465.70
MJ per bag	0.51	2.62	2.11	2.23	1.72
MJ per day per store	2543.33	8961.91	6418.58	7617.63	5074.29
Million kWh per day per store	0.00	0.00	0.00	0.00	0.00
Million kWh per day in unincorp territory	0.72	2.55	1.83	2.17	1.44
Million kWh per day in cities	3.27	11.51	8.24	9.78	6.51
Total Million kWh for whole county	3.99	14.06	10.07	11.95	7.96

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Conversion Factors	
liters to gallons	0.26417205
kg to short tons	0.00110231
MJ to kWh	0.27777778

Stores in unincorp territory □10,000 sq ft	1091
Stores in cities □ 10,000 sq ft	5084

Eutrophication - Ecobilan Data						
	Plastic LCA	Paper LCA□	Difference□	Paper LCA□	Difference□□	
kg phosphate per day in unincorp territory	1.79	21.16	19.37	17.99	16.19	
kg phosphate per day in cities	8.59	101.35	92.75	86.14	77.55	
Total kg phosphate for whole county	10.39	122.51	112.12	104.13	93.74	
□based on 100□ conversion from plastic to paper						
□based on 85□ conversion from plastic to paper						

Eutrophication - Ecobilan Data						
	Plastic LCA	Reusable LCA□	Difference□	Reusable LCA□	Difference□□	
kg phosphate per day in unincorp territory	1.79	1.65	-0.15	0.25	-1.55	
kg phosphate per day in cities	8.59	7.89	-0.70	1.18	-7.41	
Total kg phosphate for whole county	10.39	9.54	-0.85	1.43	-8.96	
□based on 3 uses						
□based on 20 uses						

Water Consumption - Ecobilan Data						
	Plastic LCA	Paper LCA□	Difference□	Paper LCA□	Difference□□	
MGD per day in unincorp territory	0.13	0.41	0.29	0.35	0.22	
MGD per day in cities	0.60	1.97	1.37	1.68	1.08	
Total MGD for whole county	0.72	2.38	1.66	2.03	1.30	
□based on 100□ conversion from plastic to paper						
□based on 85□ conversion from plastic to paper						

Water Consumption - Ecobilan Data						
	Plastic LCA	Reusable LCA□	Difference□	Reusable LCA□	Difference□□	
MGD per day in unincorp territory	0.13	0.11	-0.02	0.02	-0.11	
MGD per day in cities	0.60	0.52	-0.08	0.08	-0.52	
Total MGD for whole county	0.72	0.63	-0.10	0.09	-0.63	
□based on 3 uses						
□based on 20 uses						

Water Consumption - Boustead Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
MGD per day in unincorp territory	0.22	3.97	3.75	3.38	3.15	
MGD per day in cities	1.07	19.03	17.96	16.18	15.10	
Total MGD for whole county	1.30	23.01	21.71	19.55	18.26	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Wastewater Generation - Ecobilan Data					
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference
MGD per day in unincorp territory	0.12	0.11	-0.01	0.02	-0.10
MGD per day in cities	0.57	0.52	-0.05	0.08	-0.49
Total MGD for whole county	0.69	0.63	-0.06	0.09	-0.59

based on 3 uses

based on 20 uses

Wastewater Generation - Ecobilan Data					
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
MGD per day in unincorp territory	0.12	0.31	0.19	0.26	0.15
MGD per day in cities	0.57	1.49	0.92	1.27	0.70
Total MGD for whole county	0.69	1.80	1.11	1.53	0.84

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Boustead Data					
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference
tons waste per day in unincorp territory	29.93	147.90	117.97	125.72	95.79
tons waste per day in cities	143.36	708.36	565.00	602.10	458.74
Total tons waste for whole county	173.29	856.26	682.97	727.82	554.53

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Solid Waste - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
tons waste per day in unincorp territory	47.26	43.39	-3.87	6.51	-40.75	
tons waste per day in cities	226.33	207.79	-18.54	31.17	-195.16	
Total tons waste for whole county	273.59	251.17	-22.42	37.68	-235.91	

based on 3 uses
 based on 20 uses

Solid Waste - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
tons waste per day in unincorp territory	47.26	120.53	73.27	102.45	55.19	
tons waste per day in cities	226.33	577.24	350.91	490.66	264.32	
Total tons waste for whole county	273.59	697.77	424.18	593.10	319.51	

based on 100 conversion from plastic to paper
 based on 85 conversion from plastic to paper

Solid Waste - Ecobilan Data						
	Adjusted for 2007 EPA Recycle Rates			Adjusted for 2007 EPA Recycle Rates		
	Plastic LCA	Paper LCA	Difference	Plastic LCA	Paper LCA	Difference
tons waste per day in unincorp territory	41.63	76.17	34.54	41.63	64.75	23.11
tons waste per day in cities	199.40	364.82	165.42	199.40	310.09	110.70
Total tons waste for whole county	241.03	440.99	199.96	241.03	374.84	133.81

based on 100 conversion from plastic to paper
 based on 85 conversion from plastic to paper

Energy Consumption - Ecobilan Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Million kWh per day in unincorp territory	0.72	0.74	0.02	0.63	-0.09	
Million kWh per day in cities	3.43	3.53	0.11	3.00	-0.42	
Total million kWh for whole county	4.14	4.27	0.13	3.63	-0.51	

based on 100 conversion from plastic to paper
 based on 85 conversion from plastic to paper

Energy Consumption - Ecobilan Data						
	Plastic LCA	Reusable LCA	Difference	Reusable LCA	Difference	
Million kWh per day in unincorp territory	0.72	0.67	-0.04	0.10	-0.61	
Million kWh per day in cities	3.43	3.22	-0.21	0.48	-2.94	
Total million kWh for whole county	4.14	3.89	-0.26	0.58	-3.56	

based on 3 uses

based on 20 uses

Energy Consumption - Boustead Data						
	Plastic LCA	Paper LCA	Difference	Paper LCA	Difference	
Million kWh per day in unincorp territory	0.82	2.88	2.06	2.45	1.63	
Million kWh per day in cities	3.92	13.81	9.89	11.74	7.82	
Total Million kWh for whole county	4.74	16.69	11.95	14.19	9.45	

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

Stores in unincorp territory	67		
Stores in cities	462		
Plastic bag size (liters)	14		
Paper bag size (liters)	20.48	Resuable Bag Size	37
Number of plastic bags per store per day	10000	Ratio of Reusable	
Ratio of Paper Bags to Plastic Bags	1.5	to Plastic Bags	2.6
Population in the County in 2010	10,615,700		

Ecobilan Data - VOCs	Plastic Bags	Paper Bags	Reusable Bag (1 Use)
	g output	g output	g output
(a) Hydrocarbons (unspecified)	4.01E-01	6.16E+00	1.40E+00
(a) VOC (Volatil Organic Compounds)	5.38E-01	0.00E+00	0.00E+00
(a) VOC (Volatile Organic Compounds)	2.25E+01	2.65E-01	1.58E+01
(a) Acetaldehyde	-2.80E-04	1.08E-01	-1.61E-03
(a) Acetylene	2.30E-03	-1.15E-02	-2.26E-03
(a) Alcohol	7.02E-02	7.21E-01	0.00E+00
(a) Aldehyde	2.06E-03	4.61E-04	5.96E-03
(a) Alkane	1.35E-02	1.19E+00	-3.39E-02
(a) Aromatic Hydrocarbons	3.04E-01	7.55E-01	3.47E-01
(a) Benzaldehyde	5.65E-11	2.51E-09	-6.48E-11
(a) Benzene	5.06E-03	1.50E-02	-4.65E-03
(a) Butane	4.23E-03	2.03E-01	-2.13E-02
(a) Butene	4.23E-03	2.23E-03	1.72E-04
(a) Ethanol	-5.69E-04	3.11E-03	-3.21E-03
(a) Ethyl Benzene	1.70E-04	1.16E-02	1.96E-04
(a) Ethylene	7.89E-02	2.75E+00	-8.47E-02
(a) Formaldehyde	-2.63E-04	7.39E-03	-5.72E-03
(a) Heptane	1.59E-03	2.20E-02	1.72E-03
(a) Hexane	3.17E-03	4.32E-02	3.42E-03
(a) Hydrocarbons (except methane)	1.40E+01	1.58E+01	3.03E+01
(a) Methanol	-9.67E-04	5.28E-03	-5.45E-03
(a) Propane	-1.97E-03	2.29E-01	-7.41E-02
(a) Propionaldehyde	1.55E-10	6.92E-09	-1.78E-10
(a) Propylene	2.69E-03	-6.70E-03	-2.14E-03
(a) Tetrachloroethylene	2.40E-06	1.18E-02	6.61E-06
(a) Toluene	2.42E-03	9.00E-02	-7.63E-04
Total VOCs	37.9294734	28.37487101	47.61867161

Ecobilan Plastic Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions (grams) per 9,000 liters groceries	37.9294734	27.1	48.2	23.4	19.2
Emissions (grams) per 1 liter groceries	0.004214386	0.003011111	0.005355556	0.0026	0.002133333
Emissions per bag (grams)	0.06	0.04	0.07	0.04	0.03
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	1.30	0.93	1.65	0.80	0.66
Emissions in the unincorp territory (pounds)	87	62	111	54	44
Emissions in the cities (pounds)	601	429	764	371	304

Ecobilan Paper Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	28.37487101	72.6	9.34	26.1	4.72
Emissions (grams) per 1 liter groceries	0.003152763	0.008066667	0.001037778	0.0029	0.000524444
Emissions per bag (grams)	0.06	0.17	0.02	0.06	0.01
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.97	2.49	0.32	0.90	0.16
Emissions in the unincorp territory (pounds)	65	167	21	60	11
Emissions in the cities (pounds)	450	1,150	148	414	75

Ecobilan Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-32	80	-93	-3	-35
Cities	-219	548	-638	-19	-241

Ecobilan Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-22	105	-89	6	-33
Cities	-151	721	-616	43	-229

Ecobilan Plastic Bag LCA - Just end-of-life - All bags disposed			Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx		NOx	
Emissions (grams) per 9,000 liters groceries	0.97			
Emissions (grams) per 1 liter groceries	0.000107778			
Emissions per bag (grams)	0.00			
Emissions per bag (pounds)	0.00			
Emissions per store (pounds)	0.03		0.03	
Emissions in the unincorp territory (pounds)	2		2	
Emissions in the cities (pounds)	15		14	

Ecobilan Paper Bag LCA - Just end-of-life - All bags disposed			Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx		NOx	
Emissions per 9,000 liters of groceries (in grams)	5.74			
Emissions (grams) per 1 liter groceries	0.000637778			
Emissions per bag (grams)	0.01			
Emissions per bag (pounds)	0.00			
Emissions per store (pounds)	0.20		0.12	
Emissions in the unincorp territory (pounds)	13		8	
Emissions in the cities (pounds)	91		57	

Ecobilan Emission differences caused by an 85% conversion from plastic to paper			Adjusted for 2007 Recycle Rates	
Unincorporated territory	9			5
Cities	62			35

Ecobilan Emission differences caused by a 100% conversion from plastic to paper			Adjusted for 2007 Recycle Rates	
Unincorporated territory	11			6
Cities	76			44

Ecobilan Reusable Bag LCA -- 4 Uses					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	11.9046679	19.125	7	17.475	13.35
Emissions (grams) per 1 liter groceries	0.001322741	0.002125	0.000777778	0.001941667	0.001483333
Emissions per bag (grams)	0.05	0.08	0.03	0.07	0.05
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.41	0.66	0.24	0.60	0.46
Emissions in the unincorp territory (pounds)	27	44	16	40	31
Emissions in the cities (pounds)	189	303	111	277	212

Boustead Plastic Bag LCA					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions (miligrams) per 1,000 bags	994	45,400	67,400	50,500	14,300
Emissions (grams) per 1,000 bags	0.994	45.4	67.4	50.5	14.3
Emissions per bag (grams)	0.00	0.05	0.07	0.05	0.01
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.02	1.00	1.49	1.11	0.32
Emissions in the unincorp territory (pounds)	1	67	100	75	21
Emissions in the cities (pounds)	10	462	686	514	146

Boustead Paper Bag LCA					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	2	264,000	121,000	579,000	128,000
Emissions (grams) per 1,000 bags	0.002	264	121	579	128
Emissions per bag (grams)	0.00	0.26	0.12	0.58	0.13
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.00	3.98	1.82	8.73	1.93
Emissions in the unincorp territory (pounds)	0	267	122	585	129
Emissions in the cities (pounds)	0	1,838	842	4,031	891

Boustead Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-1	160	4	422	89
Cities	-10	1,100	30	2,912	612

Boustead Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-1	200	23	510	108
Cities	-10	1,376	156	3,517	746

Ecobilan Data - Greenhouse Gas Emissions	Reusable Bag (1 Use)		
	GWP (IPCC)	g output	g CO2e
(a) Carbon Dioxide (CO2, fossil)	1	2.65E-04	2.65E-04
(a) Methane	23	8.76E-01	2.01E-03
(a) Nitrous Oxide	296	7.10E-02	2.10E-01
(a) Carbon Tetrafluoride	5700	-5.21E-08	-2.97E-04
(a) Halon 1301	6900	1.95E-05	1.35E-01
Total			2.85E-04

□GWP □ Global Warming Potential

Ecobilan Data - Greenhouse Gas Emissions	GWP (IPCC)	Plastic Bags		Paper Bags	
		g output	g CO2e	g output	g CO2e
(a) Carbon Dioxide (CO2, fossil)	1	1.01E-04	1.01E-04	1.67E-04	1.67E-04
(a) Methane	23	3.37E-01	7.75E-02	1.58E-02	3.63E-03
(a) Nitrous Oxide	296	6.63E-02	1.96E-01	6.46E-01	1.91E-02
(a) Carbon Tetrafluoride	5700	4.54E-08	2.59E-04	2.02E-06	1.15E-02
(a) Halon 1301	6900	1.83E-05	1.26E-01	2.71E-04	1.87E-00
Total			1.09E-04		2.05E-04

□GWP □ Global Warming Potential

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	20527.0974	9632.2461	3515769.821	0.331
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0205	0.0096	3.516	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.011	0.000
Emissions (metric tons) per store	0.1695	0.3193	0.1498	54.690	0.000
Emissions in the unincorp territory (metric tons)	11.35	21.39	10.04	3,664	0.000
Emissions in the cities (metric tons)	78.30	147.52	69.22	25,267	0.002
Total Emissions in the County	89.65	168.92	79.26	28,931	0.003

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 85 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	17448.0328	6553.1815	2391911.236	0.225
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0174	0.0066	2.392	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.008	0.000
Emissions (metric tons) per store	0.1695	0.2714	0.1019	37.208	0.000
Emissions in the unincorp territory (metric tons)	11.35	18.18	6.83	2,493	0.000
Emissions in the cities (metric tons)	78.30	125.39	47.10	17,190	0.002
Total Emissions in the County	89.65	143.58	53.93	19,683	0.002

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Reusable Bags Used Three Times	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Reusable	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	9511.9834	-1382.8679	-504746.788	-0.048
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0095	-0.0014	-0.505	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.008	0.000
Emissions (metric tons) per store	0.1695	0.1480	-0.0215	-7.852	0.000
Emissions in the unincorp territory (metric tons)	11.35	9.91	-1.44	-526	0.000
Emissions in the cities (metric tons)	78.30	68.36	-9.94	-3,627	0.000
Total Emissions in the County	89.65	78.27	-11.38	-4,154	0.000

Boustead GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0400	0.0800	0.0400	14.600	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.0001	0.019	0.000
Emissions (metric tons) per store	0.2667	0.5469	0.2802	102.276	0.000
Emissions in the unincorp territory (metric tons)	17.87	36.64	18.77	6,852	0.001
Emissions in the cities (metric tons)	123.20	252.66	129.46	47,252	0.004
Total Emissions in the County	141.07	289.30	148.23	54,104	0.005

Boustead GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0400	0.0800	0.03	10.220	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.00	0.015	0.000
Emissions (metric tons) per store	0.2667	0.5469	0.20	72.335	0.000
Emissions in the unincorp territory (metric tons)	17.87	36.64	13.28	4,846	0.000
Emissions in the cities (metric tons)	123.20	252.66	91.56	33,419	0.003
Total Emissions in the County	141.07	289.30	104.84	38,265	0.004

ExcelPlas GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
kilograms for 520 bags	6.0800	30.5000	19.85	7243.425	0.001
Emissions (metric tons) per bag	0.0000	0.0001	0.0000	0.014	0.000
Emissions (metric tons) per store	0.1169	0.5865	0.3816	139.297	0.000
Emissions in the unincorp territory (metric tons)	7.83	39.30	25.57	9,333	0.001
Emissions in the cities (metric tons)	54.02	270.98	176.32	64,355	0.006
Total Emissions in the County	61.85	310.28	201.88	73,688	0.007

ExcelPlas GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase with 100 Percent Conversion from Plastic to Paper	per year	per year per capita
kilograms for 520 bags	6.0800	30.5000	24.4200	8913.300	0.001
Emissions (metric tons) per bag	0.0000	0.0001	0.0000	0.017	0.000
Emissions (metric tons) per store	0.1169	0.5865	0.4696	171.410	0.000
Emissions in the unincorp territory (metric tons)	7.83	39.30	31.46	11,484	0.001
Emissions in the cities (metric tons)	54.02	270.98	216.96	79,191	0.007
Total Emissions in the County	61.85	310.28	248.43	90,676	0.009

Greenhouse Gas Emissions due to Mobile Sources			
	CO ₂ Emissions (Pounds/Day)*	CO ₂ Emissions (Metric Tons/Year)	CO ₂ Emissions per Capita (metric tons/Year)
4 Delivery Truck Trips in the Unincorporated Territory of Los Angeles	65.51	10.85	0.000001
26 Delivery Truck Trips in the Incorporated Cities of Los Angeles	425.84	70.50	0.000007
Total Emissions	491.35	81.35	0.000008

*Numbers from URBEMIS 2007

Conversion Factors	
grams to pounds	0.002204623
pounds to metric tons	0.000453592

2007 recycle rate - plastic bags and sacks	11.9 □
2007 recycle rate - paper bags and sacks	36.8 □

Ecobilan Data - Greenhouse Gas Emissions		Plastic Bags		Paper Bags	
Just End of Life	GWP (IPCC)	g output	g CO2e	g output	g CO2e
(a) Carbon Dioxide (CO2, fossil)	1	8.70E+01	8.70E+01	5.15E+02	5.15E+02
(a) Methane	23	2.60E-01	5.98E+00	4.96E+02	1.14E+04
(a) Nitrous Oxide	296	1.00E-02	2.96E+00	7.00E-02	2.07E+01
(a) Carbon Tetrafluoride	5700	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(a) Halon 1301	6900	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total			9.59E+01		1.19E+04

□GWP □ Global Warming Potential

Ecobilan Plastic Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO2e	CO2e	Annual CO2e	Per Capita
Emissions (grams) per 9,000 liters groceries	9.59E+01			
Emissions (grams) per 1 liter groceries	0.01066			
Emissions per bag (grams)	0.15			
Emissions per bag (metric tons)	0.00			
Emissions per store (metric tons)	0.00	0.00		
Emissions in the unincorp territory (metric tons)	0	0	32	0.0000
Emissions in the cities (metric tons)	1	1	222	0.0000

Ecobilan Paper Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO2e	CO2e	Annual CO2e	Per Capita
Emissions per 9,000 liters of groceries (in grams)	1.19E+04			
Emissions (grams) per 1 liter groceries	1.327591111			
Emissions per bag (grams)	27.19			
Emissions per bag (metric tons)	0.00			
Emissions per store (metric tons)	0.19	0.12		
Emissions in the unincorp territory (metric tons)	12	8	2873	0.0003
Emissions in the cities (metric tons)	86	54	19808	0.0019

Ecobilan Emission differences caused by an 85% conversion from plastic to paper		Adjusted for 2007 Recycle Rates		
Unincorporated territory			2,410	0.00023
Cities			16,615	0.00157

Ecobilan Emission differences caused by a 100% conversion from plastic to paper		Adjusted for 2007 Recycle Rates		
Unincorporated territory			2,840	0.00027

Cities			19,586	0.00185
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Boustead GHG emissions - Just end of life	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0030	0.0500	0.0470	17.155	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.0000	0.018	0.000
Emissions (metric tons) per store	0.0200	0.3418	0.3218	117.456	0.000
Emissions in the unincorp territory (metric tons)	1.34	22.90	21.56	7,870	0.00074
Emissions in the cities (metric tons)	9.24	157.91	148.67	54,265	0.00511
Total Emissions in the County	10.58	180.81	170.23	62,134	0.00585

Boustead GHG emissions - Just end of life	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0030	0.0500	0.04	14.418	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.00	0.015	0.000
Emissions (metric tons) per store	0.0200	0.3418	0.27	98.742	0.000
Emissions in the unincorp territory (metric tons)	1.34	22.90	18.13	6,616	0.00062
Emissions in the cities (metric tons)	9.24	157.91	124.98	45,619	0.00430
Total Emissions in the County	10.58	180.81	143.11	52,235	0.00492

Emission Sources	Air Pollutants (Pounds/Day)					
	VOCs	NO _x	CO	SO _x	PM _{2.5}	PM ₁₀
4 delivery truck trips in the unincorporated territory of the County	0.04	0.08	0.5	0	0.02	0.09
26 delivery truck trips in the incorporated cities of the County	0.22	0.51	3.25	0	0.12	0.61
Total Emissions	<1	1	4	0	<1	1
SCAQMD Threshold	55	55	550	150	55	150
AVAQMD Threshold	137	137	548	137	-	82

Exceedance of Significance?	No	No	No	No	No	No
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Stores in unincorp territory	1024		
Stores in cities	4622		
Plastic bag size (liters)	14		
Paper bag size (liters)	20.48	Resuable Bag Siz	37
Number of plastic bags per store per day	5000	Ratio of Reusable	
Ratio of Paper Bags to Plastic Bags	1.5	to Plastic Bags	2.6
Population in the County in 2010	10,615,700		

Ecobilan Data - VOCs	Plastic Bags	Paper Bags	Reusable Bag (1 Use)
	g output	g output	g output
(a) Hydrocarbons (unspecified)	4.01E-01	6.16E+00	1.40E+00
(a) VOC (Volatil Organic Compounds)	5.38E-01	0.00E+00	0.00E+00
(a) VOC (Volatile Organic Compounds)	2.25E+01	2.65E-01	1.58E+01
(a) Acetaldehyde	-2.80E-04	1.08E-01	-1.61E-03
(a) Acetylene	2.30E-03	-1.15E-02	-2.26E-03
(a) Alcohol	7.02E-02	7.21E-01	0.00E+00
(a) Aldehyde	2.06E-03	4.61E-04	5.96E-03
(a) Alkane	1.35E-02	1.19E+00	-3.39E-02
(a) Aromatic Hydrocarbons	3.04E-01	7.55E-01	3.47E-01
(a) Benzaldehyde	5.65E-11	2.51E-09	-6.48E-11
(a) Benzene	5.06E-03	1.50E-02	-4.65E-03
(a) Butane	4.23E-03	2.03E-01	-2.13E-02
(a) Butene	4.23E-03	2.23E-03	1.72E-04
(a) Ethanol	-5.69E-04	3.11E-03	-3.21E-03
(a) Ethyl Benzene	1.70E-04	1.16E-02	1.96E-04
(a) Ethylene	7.89E-02	2.75E+00	-8.47E-02
(a) Formaldehyde	-2.63E-04	7.39E-03	-5.72E-03
(a) Heptane	1.59E-03	2.20E-02	1.72E-03
(a) Hexane	3.17E-03	4.32E-02	3.42E-03
(a) Hydrocarbons (except methane)	1.40E+01	1.58E+01	3.03E+01
(a) Methanol	-9.67E-04	5.28E-03	-5.45E-03
(a) Propane	-1.97E-03	2.29E-01	-7.41E-02
(a) Propionaldehyde	1.55E-10	6.92E-09	-1.78E-10
(a) Propylene	2.69E-03	-6.70E-03	-2.14E-03
(a) Tetrachloroethylene	2.40E-06	1.18E-02	6.61E-06
(a) Toluene	2.42E-03	9.00E-02	-7.63E-04
Total VOCs	37.9294734	28.37487101	47.61867161

Ecobilan Plastic Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions (grams) per 9,000 liters groceries	37.9294734	27.1	48.2	23.4	19.2
Emissions (grams) per 1 liter groceries	0.004214386	0.003011111	0.005355556	0.0026	0.00213333
Emissions per bag (grams)	0.06	0.04	0.07	0.04	0.03
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.65	0.46	0.83	0.40	0.33
Emissions in the unincorp territory (pounds)	666	476	846	411	337
Emissions in the cities (pounds)	3,006	2,148	3,820	1,855	1,522

Ecobilan Paper Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	28.37487101	72.6	9.34	26.1	4.72
Emissions (grams) per 1 liter groceries	0.003152763	0.008066667	0.001037778	0.0029	0.00052444
Emissions per bag (grams)	0.06	0.17	0.02	0.06	0.01
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.49	1.24	0.16	0.45	0.08
Emissions in the unincorp territory (pounds)	498	1,275	164	458	83
Emissions in the cities (pounds)	2,249	5,754	740	2,069	374

Ecobilan Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-242	608	-707	-21	-267
Cities	-1,095	2,743	-3,191	-96	-1,204

Ecobilan Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-168	799	-682	47	-254
Cities	-757	3,606	-3,080	214	-1,148

Ecobilan Plastic Bag LCA - Just end-of-life - All bags disposed		Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx	NOx	
Emissions (grams) per 9,000 liters groceries	0.97		
Emissions (grams) per 1 liter groceries	0.000107778		
Emissions per bag (grams)	0.00		
Emissions per bag (pounds)	0.00		
Emissions per store (pounds)	0.02	0.01	
Emissions in the unincorp territory (pounds)	17	15	
Emissions in the cities (pounds)	77	68	

Ecobilan Paper Bag LCA - Just end-of-life - All bags disposed		Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx	NOx	
Emissions per 9,000 liters of groceries (in grams)	5.74		
Emissions (grams) per 1 liter groceries	0.000637778		
Emissions per bag (grams)	0.01		
Emissions per bag (pounds)	0.00		
Emissions per store (pounds)	0.10	0.06	
Emissions in the unincorp territory (pounds)	101	64	
Emissions in the cities (pounds)	455	288	

Ecobilan Emission differences caused by an 85% conversion from plastic to paper		Adjusted for 2007 Recycle Rates	
Unincorporated territory	69		39
Cities	310		177

Ecobilan Emission differences caused by a 100% conversion from plastic to paper		Adjusted for 2007 Recycle Rates	
Unincorporated territory	84		49
Cities	378		220

Ecobilan Reusable Bag LCA -- 4 Uses					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	11.9046679	19.125	7	17.475	13.35
Emissions (grams) per 1 liter groceries	0.001322741	0.002125	0.000777778	0.001941667	0.00148333
Emissions per bag (grams)	0.05	0.08	0.03	0.07	0.05
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.20	0.33	0.12	0.30	0.23
Emissions in the unincorp territory (pounds)	209	336	123	307	234
Emissions in the cities (pounds)	943	1,516	555	1,385	1,058

Boustead Plastic Bag LCA					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions (milligrams) per 1,000 bags	994	45,400	67,400	50,500	14,300
Emissions (grams) per 1,000 bags	0.994	45.4	67.4	50.5	14.3
Emissions per bag (grams)	0.00	0.05	0.07	0.05	0.01
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.01	0.50	0.74	0.56	0.16
Emissions in the unincorp territory (pounds)	11	512	761	570	161
Emissions in the cities (pounds)	51	2,313	3,434	2,573	729

Boustead Paper Bag LCA					
Emissions Sources	VOCs¹	NOx	CO	SOx	Particulates
Emissions per 9,000 liters of groceries (in grams)	2	264,000	121,000	579,000	128,000
Emissions (grams) per 1,000 bags	0.002	264	121	579	128
Emissions per bag (grams)	0.00	0.26	0.12	0.58	0.13
Emissions per bag (pounds)	0.00	0.00	0.00	0.00	0.00
Emissions per store (pounds)	0.00	1.99	0.91	4.36	0.96
Emissions in the unincorp territory (pounds)	0	2,037	934	4,468	988
Emissions in the cities (pounds)	0	9,195	4,214	20,166	4,458

Boustead Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-11	1,219	33	3,227	678
Cities	-51	5,502	148	14,568	3,061

Boustead Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-11	1,525	173	3,898	826
Cities	-51	6,882	780	17,593	3,729

Ecobilan Data - Greenhouse Gas Emissions	GWP (IPCC)	Reusable Bag (1 Use)	
		g output	g CO2e
(a) Carbon Dioxide (CO2, fossil)	1	2.65E-04	2.65E-04
(a) Methane	23	8.76E-01	2.01E-03
(a) Nitrous Oxide	296	7.10E-02	2.10E-01
(a) Carbon Tetrafluoride	5700	-5.21E-08	-2.97E-04
(a) Halon 1301	6900	1.95E-05	1.35E-01
Total			2.85E-04

□GWP □ Global Warming Potential

Ecobilan Data - Greenhouse Gas Emissions	GWP (IPCC)	Plastic Bags		Paper Bags	
		g output	g CO2e	g output	g CO2e
(a) Carbon Dioxide (CO2, fossil)	1	1.01E-04	1.01E-04	1.67E-04	1.67E-04
(a) Methane	23	3.37E-01	7.75E-02	1.58E-02	3.63E-03
(a) Nitrous Oxide	296	6.63E-02	1.96E-01	6.46E-01	1.91E-02
(a) Carbon Tetrafluoride	5700	4.54E-08	2.59E-04	2.02E-06	1.15E-02
(a) Halon 1301	6900	1.83E-05	1.26E-01	2.71E-04	1.87E-00
Total			1.09E-04		2.05E-04

□GWP □ Global Warming Potential

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	20527.0974	9632.2461	3515769.821	0.331
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0205	0.0096	3.516	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.011	0.000
Emissions (metric tons) per store	0.0847	0.1597	0.0749	27.345	0.000
Emissions in the unincorp territory (metric tons)	86.77	163.49	76.72	28,001	0.003

Emissions in the cities (metric tons)	391.66	737.93	346.27	126,388	0.012
Total Emissions in the County	478.43	901.41	422.98	154,389	0.015

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 85 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	17448.0328	6553.1815	2391911.236	0.225
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0174	0.0066	2.392	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.008	0.000
Emissions (metric tons) per store	0.0847	0.1357	0.0510	18.604	0.000
Emissions in the unincorp territory (metric tons)	86.77	138.96	52.19	19,050	0.002
Emissions in the cities (metric tons)	391.66	627.24	235.58	85,987	0.008
Total Emissions in the County	478.43	766.20	287.77	105,037	0.010

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Reusable Bags Used Three Times	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Reusable	per year	per year per capita
Emissions (grams) per 9,000 liters groceries	10894.8513	9511.9834	-1382.8679	-504746.788	-0.048
Emissions (metric tons) per 9,000 liter groceries	0.0109	0.0095	-0.0014	-0.505	0.000
Emissions (metric tons) per 1 liter groceries	0.0000	0.0000	0.0000	0.000	0.000
Emissions (metric tons) per bag	0.0000	0.0000	0.0000	0.008	0.000
Emissions (metric tons) per store	0.0847	0.0740	-0.0108	-3.926	0.000
Emissions in the unincorp territory (metric tons)	86.77	75.76	-11.01	-4,020	0.000
Emissions in the cities (metric tons)	391.66	341.95	-49.71	-18,145	-0.002
Total Emissions in the County	478.43	417.70	-60.73	-22,165	-0.002

Boustead GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0400	0.0800	0.0400	14.600	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.0001	0.019	0.000
Emissions (metric tons) per store	0.1333	0.2734	0.1401	51.138	0.000
Emissions in the unincorp territory (metric tons)	136.53	280.00	143.47	52,365	0.00493
Emissions in the cities (metric tons)	616.27	1263.83	647.56	236,360	0.02227
Total Emissions in the County	752.80	1543.83	791.03	288,725	0.02720

Boustead GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0400	0.0800	0.03	10.220	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.00	0.015	0.000
Emissions (metric tons) per store	0.1333	0.2734	0.10	36.167	0.000
Emissions in the unincorp territory (metric tons)	136.53	280.00	101.47	37,035	0.00349
Emissions in the cities (metric tons)	616.27	1263.83	457.99	167,165	0.01575
Total Emissions in the County	752.80	1543.83	559.45	204,201	0.01924

ExcelPlas GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase with 100 Percent Conversion from Plastic to Paper	per year	per year per capita
kilograms for 520 bags	6.0800	30.5000	24.4200	8913.300	0.001
Emissions (metric tons) per bag	0.0000	0.0001	0.0000	0.017	0.000
Emissions (metric tons) per store	0.0585	0.2933	0.2348	85.705	0.000
Emissions in the unincorp territory (metric tons)	59.86	300.31	240.44	87,762	0.00827
Emissions in the cities (metric tons)	270.21	1355.49	1085.28	396,128	0.03732
Total Emissions in the County	330.07	1655.80	1325.72	483,889	0.04558

Greenhouse Gas Emissions due to Mobile Sources			
	CO ₂ Emissions (Pounds/Day)*	CO ₂ Emissions (Metric Tons/Year)	CO ₂ Emissions per Capita (metric tons/Year)
29 Delivery Truck Trips in the Unincorporated Territory of Los Angeles	474.98	78.64	0.000007
131 Delivery Truck Trips in the Incorporated Cities of Los Angeles	2,145.60	355.23	0.000033
Total Emissions	2,620.58	433.87	0.000041

*Numbers from URBEMIS 2007

Conversion Factors	
grams to pounds	0.002204623
pounds to metric tons	0.000453592

2007 recycle rate - plastic bags and sacks	11.9%
2007 recycle rate - paper bags and sacks	36.8%

Ecobilan Data - Greenhouse Gas Emissions	GWP (IPCC)	Plastic Bags		Paper Bags	
		g output	g CO _{2e}	g output	g CO _{2e}
(a) Carbon Dioxide (CO ₂ , fossil)	1	8.70E-01	8.70E-01	5.15E-02	5.15E-02
(a) Methane	23	2.60E-01	5.98E-00	4.96E-02	1.14E-04

(a) Nitrous Oxide	296	1.00E-02	2.96E+00	7.00E-02	2.07E+01
(a) Carbon Tetrafluoride	5700	0.00E+00	0.00E+00	0.00E+00	0.00E+00
(a) Halon 1301	6900	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total			9.59E+01		1.19E+04

□GWP □ Global Warming Potential

Ecobilan Plastic Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO2e	CO2e	Annual CO2e	Per Capita
Emissions (grams) per 9,000 liters groceries	9.59E+01			
Emissions (grams) per 1 liter groceries	0.01066			
Emissions per bag (grams)	0.15			
Emissions per bag (metric tons)	0.00			
Emissions per store (metric tons)	0.00	0.00		
Emissions in the unincorp territory (metric tons)	1	1	246	0.0000
Emissions in the cities (metric tons)	3	3	1109	0.0001

Ecobilan Paper Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO2e	CO2e	Annual CO2e	Per Capita
Emissions per 9,000 liters of groceries (in grams)	1.19E+04			
Emissions (grams) per 1 liter groceries	1.327591111			
Emissions per bag (grams)	27.19			
Emissions per bag (metric tons)	0.00			
Emissions per store (metric tons)	0.09	0.06		
Emissions in the unincorp territory (metric tons)	95	60	21952	0.0021
Emissions in the cities (metric tons)	430	271	99084	0.0093

Ecobilan Emission differences caused by an 85% conversion from plastic to paper		Adjusted for 2007 Recycle Rates		
Unincorporated territory			18,413	0.00173
Cities			83,112	0.00783

Ecobilan Emission differences caused by a 100% conversion from plastic to paper		Adjusted for 2007 Recycle Rates		
Unincorporated territory			21,706	0.00204
Cities			97,975	0.00923

Boustead GHG emissions - Just end of life	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0030	0.0500	0.0470	17.155	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.0000	0.018	0.000
Emissions (metric tons) per store	0.0100	0.1709	0.1609	58.728	0.000
Emissions in the unincorp territory (metric tons)	10.24	175.00	164.76	60,137	0.00566
Emissions in the cities (metric tons)	46.22	789.89	743.67	271,440	0.02557
Total Emissions in the County	56.46	964.89	908.43	331,578	0.03123

Boustead GHG emissions - Just end of life	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
metric tons for 1,000 paper or 1,500 plastic bags	0.0030	0.0500	0.04	14.418	0.000
Emissions (metric tons) per bag	0.0000	0.0001	0.00	0.015	0.000
Emissions (metric tons) per store	0.0100	0.1709	0.14	49.371	0.000
Emissions in the unincorp territory (metric tons)	10.24	175.00	138.51	50,556	0.00476
Emissions in the cities (metric tons)	46.22	789.89	625.19	228,194	0.02150
Total Emissions in the County	56.46	964.89	763.70	278,750	0.02626

Emission Sources	Air Pollutants (Pounds/Day)					
	VOCs	NO _x	CO	SO _x	PM _{2.5}	PM ₁₀
29 delivery truck trips in the unincorporated territory of the County	0.24	0.57	3.63	0	0.14	0.68
131 delivery truck trips in the incorporated cities of the County	1.08	2.59	16.4	0.02	0.62	3.05
Total Emissions	1	3	20	<1	1	4

SCAQMD Threshold	55	55	550	150	55	150
AVAQMD Threshold	137	137	548	137	-	82
Exceedance of Significance?	No	No	No	No	No	No

Stores in unincorp territory □ 10,000 sq ft	1091
Stores in cities □ 10,000 sq ft	5084

Ecobilan Plastic Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions in the unincorp territory (pounds)	753	538	957	465	381
Emissions in the cities (pounds)	3,607	2,577	4,584	2,225	1,826

Ecobilan Paper Bag LCA					
Emissions Sources	VOCs	NOx	CO	SOx	Particulates
Emissions in the unincorp territory (pounds)	563	1,442	185	518	94
Emissions in the cities (pounds)	2,698	6,904	888	2,482	449

Ecobilan Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-274	687	-799	-24	-302
Cities	-1,313	3,291	-3,829	-116	-1,444

Ecobilan Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-190	903	-772	54	-288
Cities	-909	4,327	-3,695	257	-1,377

Ecobilan Plastic Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx	NOx	
Emissions in the unincorp territory (pounds)	19	17	
Emissions in the cities (pounds)	92	81	

Ecobilan Paper Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates	
Emissions Sources	NOx	NOx	
Emissions in the unincorp territory (pounds)	114	72	
Emissions in the cities (pounds)	546	345	

Ecobilan Emission differences caused by an 85% conversion from plastic to paper			Adjusted for 2007 Recycle Rates	
Unincorporated territory	78		44	
Cities	372		212	

Ecobilan Emission differences caused by a 100% conversion from plastic to paper		Adjusted for 2007 Recycle Rates	
Unincorporated territory	95		55
Cities	454		264

Ecobilan Reusable Bag LCA -- 4 Uses					
Emissions Sources	VOCs ¹	NOx	CO	SOx	Particulates
Emissions in the unincorp territory (pounds)	-517	-158	-818	-118	-116
Emissions in the cities (pounds)	-2,475	-758	-3,918	-563	-556

Boustead Plastic Bag LCA					
Emissions Sources	VOCs ¹	NOx	CO	SOx	Particulates
Emissions in the unincorp territory (pounds)	13	580	860	645	183
Emissions in the cities (pounds)	61	2,775	4,120	3,087	874

Boustead Paper Bag LCA					
Emissions Sources	VOCs ¹	NOx	CO	SOx	Particulates
Emissions in the unincorp territory (pounds)	0	2,304	1,056	5,052	1,117
Emissions in the cities (pounds)	0	11,033	5,057	24,197	5,349

Boustead Emission differences caused by an 85% conversion from plastic to paper					
Unincorporated territory	-13	1,379	37	3,650	767
Cities	-61	6,602	178	17,480	3,673

Boustead Emission differences caused by a 100% conversion from plastic to paper					
Unincorporated territory	-13	1,724	195	4,408	934
Cities	-61	8,257	936	21,110	4,475

Ecobilan GHG emissions	CO _{2e} Emissions from Plastic Bags	CO _{2e} Emissions from Paper Bags	CO _{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions in the unincorp territory (metric tons)	98.13	184.88	86.75	31,665	0.003
Emissions in the cities (metric tons)	469.96	885.45	415.49	151,655	0.014
Total Emissions in the County	568.08	1070.33	502.25	183,320	0.017

Ecobilan GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase Caused by 85 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions in the unincorp territory (metric tons)	98.13	157.15	59.02	21,543	0.002
Emissions in the cities (metric tons)	469.96	752.63	282.68	103,176	0.010
Total Emissions in the County	568.08	909.78	341.70	124,720	0.012

Ecobilan GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Reusable Bags Used Three Times	CO_{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Reusable	per year	per year per capita
Emissions in the unincorp territory (metric tons)	98.13	85.67	-12.46	-4,546	0.000
Emissions in the cities (metric tons)	469.96	410.30	-59.65	-21,773	-0.002
Total Emissions in the County	568.08	495.98	-72.11	-26,319	-0.002

Boustead GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase Caused by 100 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions in the unincorp territory (metric tons)	154.40	316.64	162.24	59,218	0.00558
Emissions in the cities (metric tons)	739.47	1516.48	777.02	283,611	0.02672
Total Emissions in the County	893.87	1833.13	939.26	342,829	0.03229

Boustead GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase with 85 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions in the unincorp territory (metric tons)	154.40	316.64	114.74	41,882	0.00395
Emissions in the cities (metric tons)	739.47	1516.48	549.55	200,584	0.01890

Total Emissions in the County	893.87	1833.13	664.29	242,466	0.02284
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ExcelPlas GHG emissions	CO_{2e} Emissions from Plastic Bags	CO_{2e} Emissions from Paper Bags	CO_{2e} Emission Increase with 100 Percent Conversion from Plastic to Paper	per year	per year per capita
Emissions in the unincorp territory (metric tons)	67.70	339.61	271.91	99,246	0.00935
Emissions in the cities (metric tons)	324.23	1626.47	1302.24	475,319	0.04478
Total Emissions in the County	391.93	1966.08	1574.15	574,565	0.05412

Greenhouse Gas Emissions due to Mobile Sources			
	CO₂ Emissions (Pounds/Day)*	CO₂ Emissions (Metric Tons/Year)	CO₂ Emissions per Capita (metric tons/Year)
33 Delivery Truck Trips in the Unincorporated Territory of Los Angeles	540.49	89.48	0.000008
157 Delivery Truck Trips in the Incorporated Cities of Los Angeles	2571.44	425.73	0.000040
Total Emissions	3,111.93	515.21	0.000049

*Numbers from URBEMIS 2007

Ecobilan Plastic Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO_{2e}	CO_{2e}	Annual CO_{2e}	Per Capita
Emissions in the unincorp territory (metric tons)	1	1	278	0.0000
Emissions in the cities (metric tons)	4	4	1331	0.0001

Ecobilan Paper Bag LCA - Just end-of-life		Adjusted for 2007 Recycle Rates		
Emissions Sources	CO_{2e}	CO_{2e}	Annual CO_{2e}	Per Capita
Emissions in the unincorp territory (metric tons)	108	68	24825	0.0023
Emissions in the cities (metric tons)	515	326	118892	0.0112

Ecobilan Emission differences caused by an 85% conversion from plastic to paper		Adjusted for 2007 Recycle Rates		
Unincorporated territory			20,823	0.00196

From: Lisa Foster [mailto:LisaFoster@1bagatotime.com]
Sent: Wednesday, December 09, 2009 4:44 PM
To: Skye, Coby
Subject: RE: EIR for plastic bags

Coby—

I hope you can please include these issues. They do not seem to be included as yet, but the exemptions seem to be a fait accompli.

It would be an amazing thing to have a study to see what the plastic bag disposal rate becomes when a bag ban with these kinds of exceptions is implemented say in Santa Monica or San Francisco. Rates of 2.5 mil bags should be counted before and after, or at least after to see if they are indeed "reused" as the plastic industry says they are. We really need research on that. It would be a great thing!

I can't take part in these scoping meetings, much as I would like to. The closest one to me is Calabasas which is about 1.5 to 2 hours in traffic to get to at 6 pm. I just can't do it though I wish I could. I wish a meeting were held in downtown LA. Why wasn't there a scoping meeting in Los Angeles? These all seem to be pretty outlying.

Thanks
Lisa

Lisa Foster
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"The Earth is what we all have in common." Wendell Barry

From: Skye, Coby [mailto:CSKYE@dpw.lacounty.gov]
Sent: Wednesday, December 09, 2009 4:02 PM
To: Lisa Foster
Cc: Alva, Paul; Chong, Suk; Gemeniano, Nilda; TBarranda@sapphosenvironmental.com
Subject: RE: EIR for plastic bags

Hi Lisa,
Yes, both of these issues will be evaluated in the EIR, and the results will inform the ultimate Ordinance considered by the Board. I am ccing our environmental document consultant to ensure that your comments below will be incorporated as a part of the formal record. Will you also be participating in any of the scoping meetings?

From: Lisa Foster [mailto:LisaFoster@1bagatatime.com]
Sent: Friday, December 04, 2009 3:27 PM
To: Skye, Coby
Cc: Alva, Paul
Subject: EIR for plastic bags

Hi Coby and Paul—

I'm delighted the county is moving toward banning bag. I have two serious issues regarding the ordinance as written:

1. The definition of a reusable bag as a plastic bag 2.25 mils thick
2. The exemption for stores less than 10,000 sq feet in size

Given that the major objective (as stated) is to encourage more reusable bag use, these exemptions seem to be serious weaknesses in the legislation proposed. I hope you can answer a few questions for me regarding this issue.

- Has there ever been a study that shows 2.25 mils bags are reused and actually reduce single-use bags? I.e., How does this exemption achieve the goal you desire?
- How does this proposal address the problem of bag litter hot-spots, where most the garbage is generated but the retail landscape is dominated by smaller vendors?
- Has a bag ban with these exemptions (which have been enacted in China, SF, Santa Monica, and elsewhere) been shown to reduce single use bags?
- What about the effects on grocery store prices for low income groups when grocery stores factor in the higher price of thicker bags for give-away, which will remain the most attractive option since every small seller can still offer a plastic bag for free?

I've been impressed with your thoroughness and thoughtfulness in this matter. Your first report and this report both recommend reusable bags as the best solution. You are unlikely to get a second chance at this issue, and it seems your legislation is too weak to address your goals in the real world, and more likely to lead to worse results—more plastic thrown away not less, higher prices for groceries and environmental damage not less, little or no abatement of litter or other polluting impacts of bags.

I'll be calling you next week. I hope we can discuss it. If you have good reason that these exemptions will achieve the goal you state, I hope you will share your insights.

Thanks
Lisa

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"The Earth is what we all have in common." Wendell Barry



South Coast Air Quality Management District

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900 S. FREMONT AVE.
ALHAMBRA, CA 91803

Mr. Coby Skye
County of Los Angeles Department of Public Works
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, CA 91803

Dear Mr. Skye:

Notice of Preparation of a Draft Environmental Impact Report (Draft EIR) for the Ordinances to Ban Plastic Carryout Bags in Los Angeles County Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft environmental impact report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality analysis and electronic versions of all air quality modeling and health risk assessment files. Electronic files include spreadsheets, database files, input files, output files, etc., and does not mean Adobe PDF files. Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, the lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2007 Model. This model is available on the SCAQMD Website at: www.urbemis.com.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has developed a methodology for calculating PM_{2.5} emissions from construction and operational activities and processes. In connection with developing PM_{2.5} calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM_{2.5} emissions and compare the results to the recommended PM_{2.5} significance thresholds. Guidance for calculating PM_{2.5} emissions and PM_{2.5} significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

In addition to analyzing regional air quality impacts the SCAQMD recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized significance analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at <http://www.aqmd.gov/ceqa/handbook/LST/LST.html>.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis") can be found on the SCAQMD's CEQA web pages at the following internet address: http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additional mitigation measures can be found on the SCAQMD's CEQA web pages at the following internet address: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: <http://www.aqmd.gov/prdas/aqguide/aqguide.html>. In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's Air Quality and Land Use Handbook: A Community Perspective, which can be found at the following internet address: <http://www.arb.ca.gov/ch/handbook.pdf>. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (<http://www.aqmd.gov>).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. Please call Daniel Garcia, Air Quality Specialist, CEQA Section, at (909) 396-3304 if you have any questions regarding this letter.

Sincerely,



Susan Nakamura
Planning Manager
Planning, Rule Development and Area Sources

SN:DG:AK
LAC091201-10AK
Control Number



December 22, 2009

County of Los Angeles Department of Public Works
Attn: Mr. Coby Skye
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, CA 91803
Sent via e-mail (cskye@dpw.lacounty.gov)

RE: Ordinance to Ban Plastic Carryout Bags in Los Angeles County – Initial Study and EIR Scoping Comments

Dear Mr. Skye:

On behalf of Heal the Bay and our 13,000 members, we thank you for giving us the opportunity to provide written comments on Los Angeles County's proposed Environmental Impact Review ("EIR") and initial study for an ordinance to ban plastic carryout bags. For over 20 years we have worked to make Southern California's watersheds, including Santa Monica Bay, safe, healthy and clean through science, education, research and advocacy.

From our own cleanups in Los Angeles County, plastic single-use bags have been one of the top five most abundant items of plastic debris found on Santa Monica Bay beaches.¹ Despite both voluntary and statewide efforts to implement recycling programs, less than 5% of plastic bags are actually recycled²; the majority ends up in our landfills and litter stream, polluting our inland and coastal communities. We provide detailed comments below regarding the Initial Study and EIR scoping for the proposed plastic bag ban policy.

The Program Objectives Should Be Strengthened

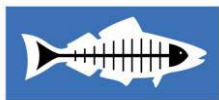
Given the magnitude of the plastic bag pollution problem, Heal the Bay believes that these objectives need to be strengthened to adequately address this issue. The Initial Study currently includes the following areas in the program objectives³:

- Reduce the Countywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007, to fewer than 800 plastic bags per household in 2013.

¹ Coastal Conservancy's Adopt-A-Beach Program, Santa Monica Trash Totals since 1999. Data compiled from Heal the Bay's Marine Debris Database available at: www.healthebay.org/mddb

² California Integrated Waste Management Board (Available at: www.zerowaste.ca.gov/PlasticBags/default.htm); US EPA 2005 Characterization of Municipal Solid Waste, Table 7.

³ Sapphos Environmental, Inc., "Ordinances to Ban Plastic Carryout Bags in Los Angeles County INITIAL STUDY." Prepared for: County of Los Angeles Department of Public Works Environmental Programs Division, December 1, 2009.



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- Reduce the Countywide contribution of plastic carryout bags to litter that blights public spaces Countywide by 50 percent.

Approximately six billion plastic carryout bags are consumed in Los Angeles County each year. A 50 percent reduction in the status quo would result in the distribution of three billion plastic carryout bags annually throughout the County and would not yield a sufficient reduction in plastic bag pollution. Supermarkets, pharmacies, and convenience stores are the largest providers of plastic carryout bags in the County, therefore banning plastic bags at these retailers would likely generate a much larger reduction of their distribution than 50 percent. Therefore, we urge the County to set stronger, yet realistic objectives, and aim for a minimum of a 90 percent reduction in plastic bag distribution to adequately address this issue.

Impacts of Single-Use Plastics on Biological Resources

Designed only for single-use, plastic bags have a high propensity to become litter and marine debris. These lightweight bags are easily carried great distances by wind when littered or blown from trash receptacles. As plastic debris makes its way into the ocean via stormdrain systems it becomes a persistent threat to marine life. Plastic, unlike paper or other materials, photodegrades, or breaks into smaller pieces when exposed to sunlight, but never completely biodegrades.⁴ Over 267 species have been affected by plastic debris, including plastic bags, by ingesting this debris or becoming entangled in it.⁵

In addition to harming wildlife through physical entanglement and ingestion, plastic debris in the marine environment has been known to adsorb and transport polychlorinated biphenyls (PCBs), phthalates, and certain classes of persistent organic pollutants (POPs).^{6,7} Phthalates and bisphenol-A have also been shown to impair development in crustaceans, mollusks, and amphibians at concentration levels that are already present in some marine environments.⁸ While the majority of existing research documents the effects of these chemicals on human health, the effects of toxic plastic on the marine environment is an emerging area of research. The Office of Environmental Health Hazards Assessment is conducting studies of fish that have been collected from the North Pacific Gyre, a convergence zone where most of this plastic debris can be found,

⁴ Thompson, R. C. (2004-05-07). "[Lost at Sea: Where Is All the Plastic?](#)". *Science* **304** (5672): 843.

⁵ Laist, D. W. (1997). "Impacts of Marine Debris: Entanglement of Marine Life in Marine Debris Including a Comprehensive List of Species with Entanglement and Ingestion Records." In: Coe, J. M. and D. B. Rogers (Eds.), *Marine Debris -- Sources, Impacts and Solutions*. Springer-Verlag, New York, pp. 99-139.

⁶ Mato, Y., Isobe, T., Takada, H., et al. (2001) "Plastic Resin Pellets as a Transport Medium for Toxic Chemicals in the Marine Environment." *Environ. Sci. Technol.* **35**, 308-324.

⁷ Moore, C.J.; Lattin, G.L., A.F. Zellers. (2005). "A Brief Analysis of Organic Pollutants Absorbed to Pre- and Post-Production Plastic Particles from the Los Angeles and San Gabriel River Watersheds," *Presentation at Plastic Debris Rivers To Sea Conference*, Long Beach, CA, 2005.

⁸ Thomson, R. et al. (2009). "[Plastics, the Environment and Human Health: Current Consensus and Future Trends](#)", *Phil. Trans. R. Soc. B* **27**, 364 (1526): 2153-2166.



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to investigate the potential for plastics to release adsorbed chemicals to wildlife when ingested.⁹ There is also research suggesting that plastics may be important agents in the transport of these contaminants to sediment-dwelling organisms.¹⁰ Trash and other debris, especially suspended plastic solids, have also been known to transport invasive species to the aquatic environment.¹¹ Thus, we strongly agree with the conclusion in the Initial Study that the proposed ordinance to reduce litter associated with plastic bags would have the potential to result in a beneficial effect to species.

We further urge you to broaden the scope of your determination of potential biological impacts and benefits to marine species that live in the Los Angeles area. Approximately 80 percent of marine debris comes from land-based sources, yet the some of the largest wildlife impacts are on marine species. Accounting for the benefits of a single-use carryout bag reduction policy to the marine environment is critical to the overall environmental evaluation. We recommend you expand Table 3.4-1 and the associated analysis to include special status marine species that occur in the Los Angeles County area, such as the Green sea turtle (*Chelonia mydas*, Federally Threatened), Leatherback sea turtle (*Dermochelys coriacea*, Federally Endangered), Short-tailed albatross (*Phoebastria albatrus*, Federally Endangered) Blue whale (*Balaenoptera musculus*, Federally Endangered), Humpback whale (*Megaptera novaeangliae*, Federally Endangered), Steller sea lion (*Eumetopias jubatus*, Federally Threatened), Guadalupe fur seal (*Arctocephalus townsendi*, Federally Threatened), and others.¹²

Impacts of Single-Use Plastics on Water Quality

The Initial Study raises the question of whether a policy banning plastic bags may have a significant impact on water quality based on industry concerns, and specifically states, “certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts that could result in violations of water quality standards due to the increased reliance on paper bags during the period required for consumers to transition to using reusable bags.”¹³ These concerns are unsubstantiated and unnecessary to

⁹ Gassell, M. “Human Health and Water Quality Impacts of Marine Debris.” Office of Environmental Health Hazards Assessment. Presentation to the California Assembly Committees on Environmental Safety & Toxic Materials and Natural Resources. *Informational Hearing on Marine Debris, Its Impacts, and Strategies for Its Reduction*, November 15, 2009. Available at: <http://www.oehha.org/fish/pdf/GasselTestimony17Nov09.pdf>. Data samples were collected between August 4-31, 2009.

¹⁰ Teuten, E.L., Rowland, S.J., Galloway, T.S., et al. (2007). “Potential for Plastics to Transport Hydrophobic Contaminants.” *Environ. Sci. Technol.* 41, 7759–7764.

¹¹ Barnes, D.K.A. (2002). “Invasions by Marine Life on Plastic Debris.” *Nature*, 416 (25), 808–809.

¹² California Department of Fish And Game, Biogeographic Data Branch. California Natural Diversity Database “State & Federally Listed Endangered & Threatened Animals of California,” October 2009. Available at: <http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf> (accessed 18 Dec 09).

¹³ Sapphos Environmental, Inc., “Ordinances to Ban Plastic Carryout Bags in Los Angeles County INITIAL STUDY.” Prepared for: County of Los Angeles Department of Public Works Environmental Programs Division, December 1, 2009.



address because of the Trash Total Maximum Daily Load (TMDL) requirements.¹⁴ Los Angeles County is using full capture devices to comply with TMDL requirements for the Los Angeles River and Ballona Creek, which prevent all trash of 5mm in diameter or greater from entering a catch basin. These devices will prevent both paper and plastic bags from getting into the stormdrain system. Furthermore, the introduction of a plastic bag ban in Los Angeles County will actually improve water quality impacts, as plastic bags have a high propensity to become litter. If an analysis of potential water quality impacts from policies banning plastic bags is included in the EIR, we also urge the County to incorporate an investigation of the benefits to water quality associated with such policies.

Impacts of Other Types of Single-Use Bags

While paper bags are less likely to become persistent marine debris when disposed in the environment, serious negative environmental impacts occur during the production of these bags. The production of paper bags made from virgin materials contributes to deforestation, greenhouse gas emissions, and additional waterborne wastes.^{15,16,17} Thus, it is important that the County's action and environmental review consider an associated ban or fee on single-use paper bags. In addition, Heal the Bay supports the inclusion of a ban on bio-plastic bags in the scope of this action and environmental review. Plastics claiming to be "biodegradable" or "compostable" have not proven to degrade in the ocean and may pose the same serious threats to marine life as petroleum-based plastic bags.^{18,19} These bags require conditions only present in large-scale composting facilities to properly degrade. As pointed out in the County's August 2007 staff report, Los Angeles has very few composting facilities available to responsibly collect and dispose of these bags.²⁰ In addition, the lack of standard labeling of these bags makes it

¹⁴ List of Trash Total Maximum Daily Loads in Los Angeles County: Malibu Creek (effective July 2009); Los Angeles River Watershed (effective Sept 2008); Legg Lake, San Gabriel River Watershed (effective Mar 2008); San Gabriel River (effective April 2001); Revolon Slough & Beardsley Wash, Calleguas Creek Watershed (effective Mar 2008); Machado Lake, Dominguez Channel Watershed (effective March 2008); and Ballona Creek (effective Aug 2002). Note that on Dec 12, 2009 the Los Angeles Regional Water Quality Control Board incorporated the Los Angeles River Trash TMDL as part of the Municipal Separate Storm Sewer System (MS4) permitting process.

¹⁵ Australian Department of the Environment and Heritage Plastic Shopping Bags – Analysis of Levies and Environmental Impacts Final Report, prepared by Nolan-ITU, December 2002, Page 33.

¹⁶ U.S. Energy Information Administration, U.S. Department of Energy, "Energy-Related Carbon Emissions in the Paper Industry, 1994." Available at: www.eia.doe.gov/emeu/efficiency/carbon_emissions/paper.html (Retrieved 12/31/08).

¹⁷ U.S. EPA Toxic Release Inventory 2008 data for Paper Industry-NAICS code 322. (Retrieved 12/14/09).

¹⁸ California Integrated Waste Management Board (June 2007), "Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Food Service Ware: Final Report," pp. 38-39.

¹⁹ Galbraith, K. "F.T.C. Sends Stern Warning on 'Biodegradable' Market Claims" *New York Times*, 11 June 2009. Available at: greeninc.blogs.nytimes.com/2009/06/11/ftc-sends-stern-warning-on-biodegradable-marketing-claims (Accessed on 12/11/09).

²⁰ County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. "An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of



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difficult for consumers to distinguish these types of bags from other bags and thus avoid contaminating the recycling stream.²¹

In order for a ban on plastic bags to be effective, the County's ordinance must address all types of single-use bags. Heal the Bay supports a ban on plastic and compostable bags with a fee of at least \$0.25 on all paper carryout bags to further drive consumers away from other types of environmentally damaging single-use bags and encourage greater use of reusable bags. State law currently prohibits municipalities from placing fees on plastic bags but does not currently preclude cities from imposing fees on paper bags.²² As proven in Ireland, a 33-cent fee was successful in deterring consumers from using single-use bags by over 90% and has dramatically decreased bag liter.²³

Definition of Reusable Bags Must Be Modified

The current definition for "reusable bag" in the definitions section of the Initial Study may create a loophole to allow slightly thicker and heavier plastic bags from being sold or distributed in lieu of more durable cloth-like or woven polypropylene bags as was the case in San Francisco according to news reports.²⁴ The types of bags allowed under this proposed law are the thickness of a boutique bag and may not be designed or intended for multiple reuse. We recommend modifying the definition of "reusable bag" to account for this current loophole. An example of a more appropriate definition is the following:

"Reusable bag" means a bag that is made of cloth or other durable material specifically designed and manufactured for multiple reuse, and has a lifespan of at least 100 uses.

An alternative standard for reusable bags is offered by Green Seal™, an independent, non-profit certification organization, which recommends reusable bags have a minimum lifespan of 300 uses and must be durable enough to withstand typical loads under wet conditions.²⁵

Scope of Ordinance and Environmental Review Must Be Expanded to Include a Wider Range of Retailers

Supervisors," Page 31. Alhambra, CA. Available at: dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

²¹ *Ibid.*, Biodegradable Products Institute. *Fact sheet*. "Biodegradable' Plastic Bags Make Sense For Your Community, When Integrated with Composting." Available at: www.bpiworld.org (Accessed 12/14/09).

²² CA Public Resources Code § 42254 (Assembly Bill 2449, statutes of 2006).

²³ Ireland Department of the Environment, Heritage & Local Government. Available at: www.environ.ie/en/Environment/Waste/PlasticBags

²⁴ Gorn, D. "San Francisco's Plastic Bag Ban Interests Other Cities," *National Public Radio*, March 27, 2008. <http://www.npr.org/templates/story/story.php?storyId=89135360> (Retrieved October 26, 2009).

²⁵ Green Seal GS-16 Standard for Reusable Utility Bags. Available at: http://www.green Seal.org/certification/standards/reusable_utility_bags_gs-16.pdf



The proposed ordinance is currently limited to supermarkets, retail pharmacies and chain convenience stores over 10,000 combined square feet. However, the Initial Study states that "... the County is considering extending the jurisdiction of the proposed ordinances to stores that are part of a chain of convenience food stores, including franchises primarily engaged in retailing a limited line of goods that includes milk, bread, soda, and snacks, that have a total combined area of 10,000 square feet or greater within the County."²⁶ We strongly support this approach. In addition, we encourage the County to expand the scope of the ordinance and environmental review to include all retail stores, restaurants, liquor stores, and food vendors that distribute single-use carryout bags since these types of establishments also contribute to the plastic bag proliferation problem.²⁷ A similar approach was taken by the City of Malibu and the City of Santa Monica (currently drafting an ordinance banning plastic bags), where the ordinance applies to all retail stores, regardless of size.²⁸ Thus, we strongly urge the incorporation of a broader set of retailers within the scope of the EIR.

Applicability of LA County EIR to Other Municipalities Must Be Clarified, and Coordination across Local Governments is Encouraged

At a minimum, we urge the County to clarify what ordinance alternatives will be reviewed in the EIR. We understand that this EIR will be based on the Board of Supervisors' last motion to direct staff to investigate a plastic bag ban; however a range of alternatives that achieve the objective of the project must be analyzed in the environmental review process. Therefore, the EIR should include a wide range of options that would reduce single use carryout bag distribution in the County of Los Angeles including: 1) A Ban on plastic and compostable bags with a fee on paper bags; 2) Ban on all plastic, paper, and compostable bags; and 3) Fees on all plastic, paper, and compostable bags. This will also help provide sufficient analysis for policy options to be considered by the 88 cities in the County.

In addition, we suggest that the EIR include an analysis of the varying environmental impact for different fee levels. For example, testing a range of fees from \$0.10 to \$0.25 would be appropriate and is consistent with other published cost-benefit studies.^{29,30,31} As demonstrated in

²⁶ Sapphos Environmental, Inc., "Ordinances to Ban Plastic Carryout Bags in Los Angeles County INITIAL STUDY." Prepared for: County of Los Angeles Department of Public Works Environmental Programs Division, December 1, 2009.

²⁷ S. Lopez. "Awash in the Muck of a Single-Use Society" *Los Angeles Times*, September 12, 2007. Steve Lopez observed wrappers and plastic bags from stores such as 7-Eleven and Circle K floating in Compton Creek. Clearly, convenience stores and other retailers are part of the problem.

²⁸ The Santa Monica City Council draft ordinance (13 January 2009), which includes a plastic carryout bag ban at all retail establishments citywide, with some exceptions made for take-out food from restaurants. The staff report and ordinance is available at: <http://www01.smgov.net/cityclerk/council/agendas/2009/20090113/s2009011307-D.htm>

²⁹ City of Seattle Public Utilities (Jan 2008) "Alternatives to Disposable Shopping Bags and Food Service Items," Prepared by Herrera Environmental Consultants, Inc. Available at: www.seattle.gov/mayor/issues/bringYourBag/docs/Report_Executive_Summary.pdf



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these studies, placing a high enough fee on consumers rather than on manufacturers and retailers results in the greatest shift in use of reusable bags and increases overall environmental benefit.^{32,33}

Local momentum is building throughout the state to ban or place fees on single-use bags. We encourage the County to continue to coordinate with other cities that are in the process of conducting environmental assessments of potential policy action to reduce the distribution of single-use bags. Specifically, we encourage the County to coordinate with the City of San José, which has proposed to ban both plastic and paper bags, and the City of Santa Monica, which has proposed to ban plastic and compostable bags and charge a fee on paper bags. These cities have already started the CEQA process and expect to have their final EIRs before their councils next year.

Conclusion

We urge the County to adopt these recommendations to strengthen the scope of the EIR. The urgency for local government to take action has never been greater. Many local governments are recognizing the great environmental and economic costs associated with single-use bags and are taking action to curb their use. As zero trash TMDLs and waste diversion requirements draw near, it is even more imperative that the County move expeditiously to implement this critical policy.

Sincerely,

Sarah Sikich
Director of Coastal Resources

Sonia Díaz
Legislative Associate

³⁰ Cadman, J. et al. (2005). "Proposed Plastic Bag Levy – Extended Impact Assessment Final Report." Prepared for the Scottish Executive Environment and Rural Affairs Department by AEA Technology Environment.

³¹ Australia Department of the Environment and Heritage (Dec 2002). "Plastic Shopping bags - Analysis of Levies and Environmental Impacts." Prepared by Nolan-ITU Pty Ltd.

³² Convery, F., McDonnell, S. et al. (2007). "The Most Popular Tax in Europe? Lessons from the Irish Plastic Bag Levy," *Environmental Resource Economics*, 38:1-11.

³³ Pearce D.W., Turner R.K. (1992) "Packaging Waste and the Polluter Pays Principle: A Taxation Solution." *Journal of Environmental Management Planning* 35(1):5-15.

SAVE THE PLASTIC BAG COALITION

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January 4, 2010

County of Los Angeles
Department of Public Works
Attn: Mr. Coby Skye
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, CA 91803

**RE: Project Title: “Ordinances to Ban Plastic Carryout Bags in Los Angeles County”
Submission to County of Los Angeles regarding Notice of Preparation of Draft EIR
and scope of EIR**

INTRODUCTION

Save The Plastic Bag Coalition (“STPB”) hereby submits these comments to the County of Los Angeles (the “County”) to ensure that the EIR on the proposed plastic carryout bag ordinance (i) makes clear and unambiguous findings on all environmental impacts and (ii) is based exclusive on substantial evidence.

On March 8, 2008, *The Times* of London stated in an editorial:

There is a danger that the green herd, in pursuit of a good cause, stumbles into misguided campaigns....

Analysis without facts is guesswork. Sloppy analysis of bad science is worse. Poor interpretation of good science wastes time and impedes the fight against obnoxious behavior. There is no place for bad science, or weak analysis, in the search for credible answers to difficult questions....

Many of those who have demonized plastic bags have enlisted scientific study to their cause. By exaggerating a grain of truth into a larger falsehood they spread misinformation, and abuse the trust of their unwitting audiences.

www.timesonline.co.uk/tol/comment/leading_article/article3508113.ece

The above extract from *The Times* of London explains why STPB was formed. STPB’s mission is (i) to provide the facts about the environmental impacts of plastic bags and the alternatives (including paper bags and reusable bags) to decision-makers and the public; and (ii) to provide corrective information in response to the myths, misinformation and exaggerations

that have been disseminated about the environmental impacts of plastic bags.

In California, people are bombarded with messages about plastic bags being bad for the environment. Consequently, there is a high level of public awareness that plastic bags present an environmental issue. By now, a large number of people have formed a negative opinion about plastic bags by dint of the repetitious one-sided messaging and sound bites, particularly in Los Angeles County. They believe that paper bags are better for the environment. However, very few people have more than a superficial understanding of the subject. Most people just accept what they are told.

Many people want to make the right environmental choice when they choose paper or plastic, assuming that they do not have a reusable bag with them. They are collectively making decisions about environmental impacts millions of times each day at the checkout. STPB believes that they have been fed a diet of myths, selective facts, misinformation and exaggerations about plastic bags. They should know, and have a right to know, the truth.

One of the most egregious examples of misinformation is the heavily publicized and widely held belief that 100,000 marine mammals and a million seabirds die each year as a result of ingesting plastic bags. That allegation has caused great consternation among decision makers and the general public. However, it is untrue. It is based upon a typographical error. The Canadian study on which the assertion is based reported that the deaths resulted from discarded fishing tackle. The study did not mention plastic bags at all. (“Series of blunders turned the plastic bag into global villain.” *The Times* of London, March 8, 2008, www.timesonline.co.uk/tol/news/environment/article3508263.ece)

The media has spread the false allegation by copying and pasting it without checking the facts. It is impossible to purge it from the Internet because it is repeated thousands of times, as a Google search will show. However, when an EIR is completed and publicized, articles on the Internet pointing out that the allegation has been confirmed to be false should eventually predominate.

Another example of a myth is the idea that paper bags are better for the environment than plastic bags. They are not, especially regarding greenhouse gas emissions, as discussed herein.

STPB is determined to ensure that lawmakers arrive at their decisions about plastic and paper bags with the benefit of accurate and comprehensive environmental information. We hope that an EIR prepared in accordance with the strict requirements of CEQA will be seen as an authoritative document that will put an end to the myths and misinformation about plastic bags.

An EIR must be based on “substantial evidence.” CEQA Guidelines §15064(f) states:

Argument, speculation, unsubstantiated opinion or narrative, or evidence that is clearly inaccurate or erroneous, or evidence that is not credible, shall not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.

CEQA Guidelines §15144 states:

Drafting an EIR or preparing a Negative Declaration necessarily involves some degree of forecasting. While foreseeing the unforeseeable is not possible, an agency must use its best efforts to find out and disclose all that it reasonably can.

STPB will be vigilant in enforcing the “substantial evidence” requirement. Every statement and source cited in the EIR, without exception, will be thoroughly scrutinized by STPB. If there is any deviation from the substantial evidence standard including §15064(f), STPB will not hesitate to litigate the issue. Regrettably, we believe that we need to emphasize this point to the County because the plastic bag issue has been plagued with environmental misinformation, including by the County. See for example:

www.savetheplasticbag.com/ReadContent676.aspx

We will object to the cherry-picking of facts.

We will object to selective photographs.

We will object when context is not provided.

We will object to anything that is misleading.

We will object to vague or ambiguous statements or terminology.

We will object to sweeping statements.

We will object when sources cited in footnotes do not support statements.

We will object to bias and sensationalism.

Context is crucially important. Showing a photograph of a litter hotspot without showing adjacent clean areas is a misrepresentation to decision-makers and the public. If there is an accumulation of litter in one hotspot, photographs of clean areas should be shown too. It should be explained in the EIR that the photograph is an isolated area and not representative or typical of conditions anywhere else. Sensationalism can turn a molehill into a mountain.

One of the most egregious examples of ambiguity and misinformation is the following statement in the Los Angeles County staff report, *An Overview of Carryout Bags in Los Angeles County*, August 2007:

Several studies have reported that up to 90 percent of marine debris is plastic, with plastic carryout bags making up a portion of the litter. [Footnote] It is estimated that over 267 species of wildlife have been affected by plastic bag litter, including birds, whales, turtles and many others. [Footnote.]

The first quoted sentence is highly ambiguous and grossly misleading. What portion of marine debris is plastic carryout bags? 0.001%? 75%? We would strongly object to any such statement in the EIR.

The second quoted sentence is simply a misrepresentation. Greenpeace issued a report entitled: "Plastic Debris in the World's Oceans," which is original source of the 267 figure. The Greenpeace report states at page 5:

At least 267 different species are known to have suffered from entanglement or ingestion of marine debris including seabirds, turtles, seals, sea lions, whales and fish. (Emphasis added.)

http://oceans.greenpeace.org/raw/content/en/documents-reports/plastic_ocean_report.pdf

The Greenpeace report does not say that 267 species of wildlife have been affected by "plastic bag litter." It does not even say "plastic" litter." It is think kind of gross misrepresentation by the County that has made STPB so insistent on a truthful and comprehensive EIR.

We are concerned by the statement in the Initial Study (at page 1-6) that plastic carryout bags have "adverse effects on marine wildlife." This kind of sweeping statement is objectionable in an EIR.

We caution the County to be ultra-careful about the terms "marine debris" and "plastic debris." They do not mean plastic bags. STPB will litigate any attempt to misrepresent or cloud the facts to fit the County's predetermined objective to ban plastic bags.

We will object to any attempt to whitewash the environmental impacts of paper bags or reusable bags. We see numerous signs of that in the Initial Study, such as at pages 1-8 to 1-9.

We call the County's attention to the following statement of law in *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 311, which is particularly important regarding reusable bags:

The agency [will] not be allowed to hide behind its own failure to gather relevant data.... CEQA places the burden of environmental investigation on government rather than the public. If the local agency has failed to study an area of possible environmental impact, a fair argument may be based on the limited facts in the record. Deficiencies in the record may actually enlarge the scope of fair argument by lending a logical plausibility to a wider range of inferences.

In *People v. County of Kern* (1974) 39 Cal. App. 3d 830, 842, the court stated:

Only by requiring [an agency] to fully comply with the letter of the law can a subversion of the important public purposes of CEQA be avoided, and only by this process will the public be able to determine the environmental and economic values of their elected and appointed officials, thus allowing for appropriate action come election day should a majority of the voters disagree.

THE INITIAL STUDY AND THE PROSPECT OF LITIGATION

STPB strongly hopes that litigation against the County regarding the EIR will not be necessary. We can avoid litigation over the EIR if the EIR is totally honest, objective, scientific, reliable, forthright, non-argumentative, non-politicized, unambiguous, comprehensive, and based only on substantial evidence and good faith. The County has nothing to gain from spinning a trumped up case against plastic bags in the EIR. If that happens, we will take the County to court and demand that it produce serious science and hard evidence to back up its assertions and solid environmental and scientific justifications for its omissions.

Accordingly, we urge and strongly recommend that the County abandon the anti-plastic bag bias that is clearly evident in the Initial Study, including blatantly misrepresenting and exaggerating the impacts of plastic bags and understating and concealing the environmental impacts of paper bags and reusable bags (including CO₂ emissions). The County cannot ignore data that does not conform to its predetermined objective to ban plastic bags.

The purpose of the EIR is not to make *arguments* to support the proposed ordinance. The purpose of the EIR is to describe and disclose the environmental impacts to the County Board of Supervisors and the voters in an objective way and in *good faith*.

For example, asserting in the EIR that up to 25% of all litter in the County is plastic carryout bags is *ridiculous* and *guarantees* a lawsuit. (Initial Study at pages 1-3 and 3.9-5.) The San Francisco Department of the Environment litter [audit](#) conducted before plastic bags were banned in that city showed that plastic retail bags were 0.6% of all litter. The [Florida](#) figure is 0.72%. The [Toronto](#) figure is 1%.

The worst figure that we have found is in the Keep America Beautiful litter [audit](#). That figure is 5%. The figure in that audit for plastic bags at storm drains is 0.9%. However, the definition of plastic bags in that audit (at page A-2) is as follows: “Plastic trash bags, and plastic grocery, and other merchandise shopping bags used to contain merchandise to transport from the place of purchase, given out by the store with the purchase (including dry cleaning bags). This category includes full bags....”

Another example of bias and misinformation in the Initial Study (at pages 1-9 and 3.17-4) is the assertion that paper bags have the “potential to biodegrade” when exposed to oxygen or sunlight, and “quickly biodegrade, even if littered.” We say to the County open your eyes and see if paper is disappearing when exposed to air or the sun. This kind of lame and *absurd* proposition is not acceptable in an EIR. We have fought in the courts for truthful EIRs by cities and counties on the plastic bag issue and we will not settle for statements such as that.

Let us be clear. We are not saying that plastic bags have no negative environmental impacts. They do, just as all manufactured products do. We *want* the actual negative environmental impacts of plastic bags to be *fully and accurately disclosed*. But we expect and demand exactly the same for paper bags and reusable bags.

We suggest that the County rethink its approach to the EIR immediately, before proceeding along its present track which leads directly to the courthouse. All rights are reserved.

We will gladly provide all the cooperation that we possibly can to make sure that the County has all of the information that it needs.

CALCULATING AND DISCLOSING GREENHOUSE GAS EMISSIONS
(CEQA Guidelines §15064.4 adopted January 1, 2010)

The CEQA Guidelines have been amended, effective January 1, 2010, pursuant to SB 97 (enacted in 2007). New CEQA Guidelines §15064.4, which is retroactive (see SB 97), states:

The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project.

In accordance with §15064.4, the Board of Supervisors and the voters have the right to know that the life cycle of paper bags produces *at least* 2.0 (Boustead report) to 3.3 times (Scottish report) more greenhouse gas emissions than plastic bags.



The Weyerhaeuser pulp and paper mill
Longview, Washington State

Both the Scottish report (see page 22) and the Boustead report (see page 7) are based on equivalent carrying capacity. The ratio in the Boustead report (see page 7) is 1,500 plastic bags = 1,000 paper bags. In fact, the impact of paper bags is actually *even greater* than shown in the Boustead report because:

- Paper bags are frequently double bagged as they have weak glued inelastic paper handles. Double bagging means double greenhouse gas emissions.



- When there are low volumes are placed in bags, carrying capacity is irrelevant and the ratio is 1 plastic bag = 1 paper bag. For example, when there are two items in a paper bag as in the photo below, it is replacing one plastic bag.



Despite the fact that the 1500 plastic = 1,000 paper ratio does not take into account the frequent double bagging of paper bags and the fact that carrying capacity is irrelevant when bags are not filled, we will use the 1500 plastic = 1,000 paper ratio in our calculations. (However, we believe the true ratio is closer to 1,100 plastic = 1,000 paper.)

The recycling assumptions in the Boustead report (at page 46) are 5.2% for plastic bags and 21% for paper bags. The plastic bag recycling rate in the Initial Study (at page 1-9) is 5% which the County describes as a “conservative” estimate.

Recycling is a major collection, transportation, washing and reprocessing operation with major environmental impacts. A 21% recycling rate for paper bag does not mean a 21% reduction in environmental impacts of paper bags. In fact, recycling may create *more* adverse environmental impacts than not recycling. It must not be assumed that recycling is environmentally benign.

The County says that 6 billion plastic bags are used in the County each year. Replacing 6 billion plastic bags with 4 billion paper bags (i.e. 1500 plastic = 1,000 paper) would have the following results.

Based on a 2.0 times worse greenhouse gas (GHG) impact (i.e. the best case least environmentally damaging scenario in the Boustead report), the GHG equivalencies of the increase are as follows:

- Increase in GHG per 1,000 paper bags = 0.04 CO₂ equivalent tons
- 4 billion paper bags divided by 1,000 = 4 million
- 4 million x 0.04 = 160,000 added CO₂ equivalent tons

According to the U.S. Environmental Protection Agency, that is equivalent to:

- **Annual CO₂ emissions from 27,753 passenger vehicles**
- **Annual CO₂ emissions from 16,327,284 gallons of gasoline consumed**
- **Annual CO₂ emissions from 337,557 barrels of oil consumed**
- **Annual CO₂ emissions from 1,938 tanker truck’s worth of gasoline**
- **Annual CO₂ emissions from the *total electricity* use of 18,851 homes**
- **Annual CO₂ emissions from the *total energy* use of 12,948 homes**

www.epa.gov/RDEE/energy-resources/calculator.html

The equivalencies of the increase based on the 3.3 ratio in the Scottish report are:

- Increase in GHG per 1,000 paper bags = 0.092 CO₂ equivalent tons
- 4 billion paper bags divided by 1,000 = 4 million
- 4 million x 0.092 = 368,000 added CO₂ equivalent tons

According to the U.S. Environmental Protection Agency, that is equivalent to:

- Annual CO₂ emissions from 63,832 passenger vehicles
- Annual CO₂ emissions from 37,552,752 gallons of gasoline consumed
- Annual CO₂ emissions from 776,381 barrels of oil consumed
- Annual CO₂ emissions from 4,458 tanker truck's worth of gasoline
- Annual CO₂ emissions from the *total electricity* use of 43,356 homes
- Annual CO₂ emissions from the *total energy* use of 29,781 homes

www.epa.gov/RDEE/energy-resources/calculator.html

The fact that plastic bags do not degrade in landfills “for a thousand years” is an environmental benefit. Why? *Because the carbon is trapped in the bags.* The U.S. Government is trying to find ways to trap carbon. Plastic does it automatically. When paper decomposes in a landfill, it emits methane which is a greenhouse gas with 23 times the global warming power of CO₂. http://en.wikipedia.org/wiki/Carbon_sequestration

The fact that plastic bags do not degrade in landfills “for a thousand years”, and therefore do not emit methane, must be noted in the EIR as an environmental benefit. The carbon is trapped in the bags. The U.S. Government is trying to find ways to trap carbon. Plastic does it automatically. When paper decomposes in a landfill, it emits methane which is a greenhouse gas with 23 times the global warming power of CO₂.
http://en.wikipedia.org/wiki/Carbon_sequestration

CO₂ emissions have a major impact on ocean acidification and marine life, which must be stated in the EIR. The County will do far more harm than good to marine life by banning plastic bags. <http://news.bbc.co.uk/2/hi/science/nature/8411135.stm>.

The County cannot take action that would increase greenhouse gas emissions to such a massive degree without advising and *strongly warning* the Board of Supervisors and the voters in the clearest possible terms in the EIR. In order to serve as an information and disclosure document as CEQA requires, the EPA equivalencies must be stated in the EIR because this will make the data meaningful to decision-makers and the public. Any attempt to manipulate data to cover up the extent of increased greenhouse gas emissions, or the use of ambiguous language to belittle or underplay the extent or significance of the increase, will certainly result in litigation.

In addition, as acknowledged in the Initial Study (at page 3.7-5), the County must state how the banning of plastic bags will conform to the (California) Global Warming Solutions Act of 2006, the California and Federal Clean Air Acts, and California Executive Order S-3-05. An ordinance to ban plastic bags cannot be enacted or enforced if it is unlawful.

www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.html

www.arb.ca.gov/cc/cc.htm

STPB is deeply concerned that the County will try to avoid addressing the increase in greenhouse gas emissions in the EIR. At page 3.7-6 of the Initial Study, the County states:

Direct reductions in GHG emissions would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag litter along roadways and water channels. In addition, reductions in GHG emissions would be expected to result from the expected reduction in production of plastic carryout bags.

STPB strongly objects that there is no mention in the quoted statement that reducing plastic bags means an increase in the number of paper bags, which will lead to *increased* greenhouse gas emissions. The County is attempting to bush aside or conceal the impacts of greenhouse gases from increasing the number of paper bags.

There must be a *separate, specific and unambiguous* finding regarding greenhouse gas emissions in the EIR. Any attempt to cover up the increase in greenhouse gas emissions in the EIR will be met with litigation.

All rights are reserved, including the right to challenge whether the County has the legal power to pass an ordinance that would significantly increase greenhouse gas emissions.

SUBJECTS THAT MUST BE ADDRESSED IN THE EIR

In order to comply with CEQA, the foregoing and following issues and questions must be addressed in the EIR. *Each question and issue must be the subject of a separate finding.* This list is not exhaustive and no waivers are intended by any omissions.

(When addressing environmental impacts, mitigation and alternatives, the term “County” includes incorporated and unincorporated areas as the Initial Study encompasses both. Initial Study §1.4. Note that all environmental impacts must be disclosed and described, within and outside the County.)

The term “plastic bag” when used herein is broken down into two categories:

- **TYPE 1 BAGS**: Plastic bags that would be banned under the ordinance.
- **TYPE 2 BAGS**: Plastic bags that would not be banned under the ordinance. For example, produce bags, restaurant take-out bags, dry cleaning bags, newspaper bags and trash bags.

In this document, the bag type will be indicated by number in parentheses. For example, plastic bag (1,2) means type 1 and 2 bags using the above definitions.

The EIR should *always* indicate which category of plastic bags is being referred to rather than using generic and ambiguous terms such as “plastic bags” or “plastic carryout bags.” Whenever possible, the EIR should provide separate statements or answers for each of the two categories of plastic bags.

1. Objective and consequences of the proposed ordinance

- A. State in as much detail as possible how the proposed ordinance(s) would achieve the Program Goals and Countywide Objectives described in the Initial Study §1.10. Cite substantial evidence and credible verifiable sources.
- B. State in as much detail as possible how the proposed ordinance(s) would achieve the \$4 million in reduced spending stated in the Initial Study (at page 1-12). Cite substantial evidence and credible verifiable sources.

Making one product disappear from the litter stream does not make other items disappear. Cleanup crews will still have to clean up the other items. Moreover, paper bags become litter too and the proposed ordinance will increase the number of free paper bags provided by stores, notwithstanding wishful thinking about reusable bags. See the video at www.californians4epr.com/Litter-reduction.html.

- C. State in as much detail as possible the meaning of “greener” practices in the Initial Study (at page 1-5) and whether it includes reducing greenhouse gas emissions.
- D. State in as much detail as possible alternative ways to achieve the Program Goals and Countywide Objectives without adopting the proposed ordinance and the costs of each such alternative. Cite substantial evidence and credible verifiable sources.
- E. State in as much detail as possible the unintended environmental consequences of the proposed ordinance, including but not limited to increased paper bag litter and (based on a cumulative analysis) increased CO₂ and methane emissions resulting from paper bag production and disposal.

2. Number of plastic bags (1) used in the County each year

- A. The Initial Study in §1.8 states as follows: “According to research conducted by the Los Angeles County Department of Public Works (LACDPW), each year approximately 6 billion plastic carryout bags are consumed in the County, which is equivalent to approximately 1,600 bags per household per year.” Citing CIWMB June 12, 2007 Board Meeting Agenda, Resolution: Agenda Item 14 and U.S. Census Bureau figure of almost three people per household.

It must be pointed out in the EIR that based on the Census Bureau figure of three persons per household, that is just 1.48 bags per person per day. That is *all* plastic carryout bags (1,2).

- B. How many *paper* carryout bags are used in the County each year?
- C. How many paper carryout bags would replace the plastic bags in the County if the County bans plastic bags (1)?

3. Extent and causes of the carryout bag litter issue

- A. Based on surveys and audits, how much plastic bag (1) litter has there been and is there in the County? To the extent possible, break down the response into types of bags and give percentages for each. Cite substantial evidence and credible verifiable sources, including but not limited to County litter surveys and audits.

In the Initial Study (at page 1-3), the following statement is made: It is estimated that litter from plastic carryout bags that are designed for single use accounts for as much as 25 percent of the litter stream.” The following sources are cited:

- City of Los Angeles, 10 June 2004, *Waste Characterization Study*, Los Angeles CA.
- County of Los Angeles Department of Public Works, Environmental Programs Division, October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program - Program Resource Packet*, Alhambra, CA

The October 2008 County program resource packet uses the 25% figure, but cites only the City of Los Angeles June 10, 2004 study as the basis for the figure, so it is not a separate source.

The City of Los Angeles June 10, 2004 study apparently determined that 19% of trash by weight and 25% by volume in *30 catch basins* along a one mile stretch of North Figueroa Street between Cypress Avenue and Avenue 43 was “plastic bags.” Catch basins are not the same as roads, sidewalks, parks, and other areas.

According to another study by the City of Los Angeles, the area surveyed on June 10, 2004 is part of the central part of the city which

contributes disproportionately more trash per unit area. The central part of the City is characterized with higher population density, has more commercial and industrial areas, and has more pedestrian traffic than other areas of the City.

Watershed Quality Compliance Master Plan For Urban Runoff, Watershed Protection Division, Bureau of Sanitation, Department of Public Works, City of Los Angeles, May 2009 at page 4-2.

www.lacitysan.org/wpd/Siteorg/download/pdfs/tech_docs/WQCMURChapters.pdf

The term “plastic bags” is not defined in the City of Los Angeles June 10, 2004 study, so it could include produce bags, food packaging in the form of bags, restaurant take out bags, dry cleaning bags, newspaper bags, trash bags, and other plastic bags.

We have requested, but not received from the County, Attachments A and B to the June 10, 2004 study. The attachments include photographs of the June 10, 2004 survey. We will object to any reference to the June 10, 2004 study in the EIR unless the attachments are produced.

The Keep America Beautiful study discussed below showed that a mere 0.9% of storm drain litter is plastic bags. It is impossible to reconcile the 25% and 0.9% figures.

The purpose of a catch basin is to catch litter. Obviously, the catch basins are *successful* at catching plastic bags, which is the true conclusion of the June 10, 2004 study.

The picture below is tons of garbage that swept down the Los Angeles River after a storm which has been corralled by a boom in Long Beach. It is simply wrong to say that 25% of the litter in the picture is “plastic bags.”



Los Angeles River trash: *not* 25% plastic bags
Source: <http://www.yudulife.com/acleanlife>



The LA River: not 25% plastic bags

The Initial Study §1.9 states that various studies have concluded that “plastic film (including plastic bag litter) comprises between 7% and 30% by mass and 12% to 34% of the total litter collected.” The Initial Study does not state how much of the “plastic film” is plastic bags, so the statement is irrelevant and misleading in a study about *plastic bags*, not plastic film. Moreover, the studies cited in support of these figures did not even mention plastic bags, except for the June 10, 2004 Waste Characterization study which surveyed 30 catch basins. Here is a table from the County staff report summarizing all of the cited studies:

Table 5 -- Summary of Litter Studies

	All Plastic Film		Plastic Bags	
	Weight %	Volume %	Weigh %	Volume %
Caltrans Litter Management Pilot Study (1998-2000)	7	12		
Great Los Angeles River Clean Up (4/30/04)		34		
City of Los Angeles Catch Basin Cleaning (6/10/04) (Note, plastic carryout bags listed separately; not included under All Plastic Film)	30	24	25	19
Hamilton Bowl Project-Street Sweeping (2006)	20			
Hamilton Bowl Project-Trash Capture Devices (Feb. 2007)	30			

STPB objects to the citation of those studies for any proposition regarding plastic bags, other than the City of Los Angeles June 10, 2004 study, and that study is only potentially the basis for an assertion about 30 catch basins in a particular location. It is misleading to decision-makers and the public.

In the San Francisco litter audit conducted in 2007, before plastic bags (1) at large stores were banned in that city, plastic bags of all kinds were just 0.6% of total litter. (Audit at page 29.) www.sfenvironment.org/downloads/library/rolitterstudy12june07final.pdf

Reports by the Washington State Department of Ecology found that plastic bags accounted for a much smaller percentage of urban and rural litter than we are often led to believe.

<http://www.ecy.wa.gov/pubs/0007023.pdf>

<http://www.ecy.wa.gov/pubs/0507029.pdf>

The Florida Litter Study 2001 shows plastic retail bags in 32nd place among littered items, constituting just 0.72% of litter.

www.hinkleycenter.com/publications/Litter2001.pdf.

The Toronto Litter Survey shows plastic retail bags in 25th places among littered items, constituting just 1% of all litter.

www.cpia.ca/anti-litter/pdf/Litter%20Survey-final.pdf

One of the alternatives that must be addressed in the EIR is the alternative of the County banning items higher up on the Florida and Toronto lists.

This is a compilation of the Washington State reports results regarding *all* plastic bags

and film by weight:

Source	1999	2000-1	2004-5
All Roadways	4.5%	3.4%	2.9%
Interstates	NR	1.8%	1.9%
Interchanges (Urban)	3.9%	3.0%	3.1%
State and County Parks	NR	2.9%	NR
Fish wildlife and DNR Sites	NR	1.9%	NR
Rest areas	NR	3.0%	NR

Keep America Beautiful has also conducted a litter survey. Keep America Beautiful, *National Litter Study 2009*. “Plastic bags” are defined in the study as follows: “Plastic trash bags, and plastic grocery, and other merchandise shopping bags used to contain merchandise to transport from the place of purchase, given out by the store with the purchase (including dry cleaning bags). This category includes full bags; bags will not be opened for the study.” The following charts and tables are extracted from the study: www.kab.org/site/DocServer/Final_KAB_Report_9-18-09.pdf?docID=4561

Figure 3-27 Plastic and Other Materials at Storm Drains

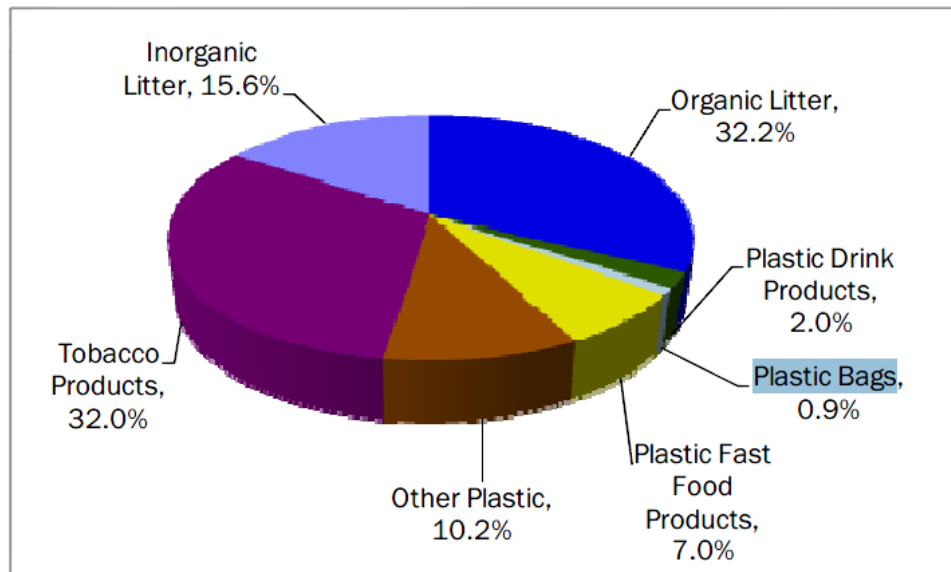


Figure 3-30 Top 10 Most Common Litter Items at Retail Areas (Items/1,000 sq ft)

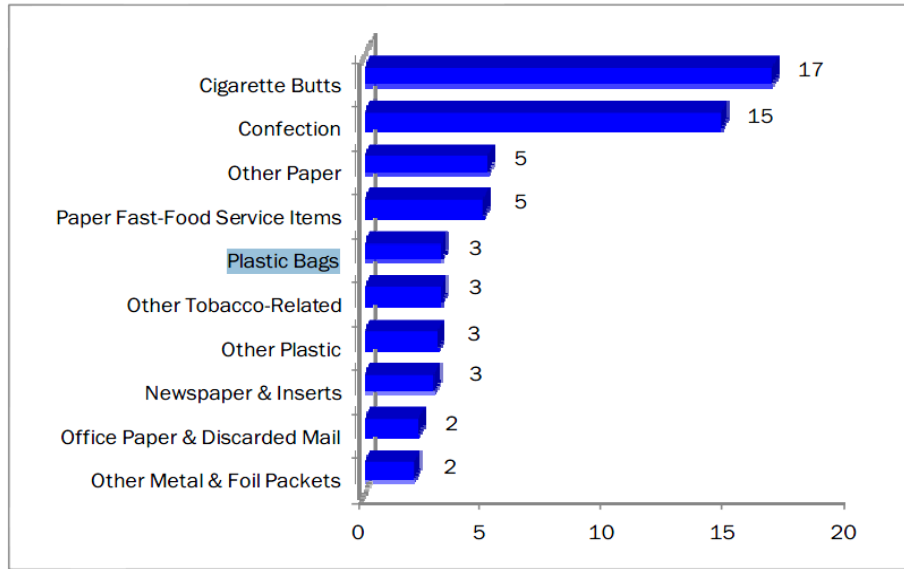


Table ES-3 Top 5 Most Common Litter Items at Non-Roadway Sites (Items/1,000 sq ft)

Ranking	Transition Points	Loading Docks	Storm Drains	Retail Areas	Recreational Areas	Construction Sites
1	Confection Litter	Cig. Butts	Cig. Butts	Cig. Butts	Cig. Butts	Cig. Butts
2	Cig. Butts	Other Metal and Foil	Confection Litter	Confection Litter	Confection Litter	Other Paper
3	Vehicle Debris	Wooden Pallets	Other Paper	Other Paper	Other Paper	Other Plastic
4	Broken Glass or Ceramic	Other Plastic	Broken Glass or Ceramic	Paper Fast Food Service	Food Waste	Confection Litter
5	Other Paper	Other Paper	Other plastic	Plastic Bags	Other Plastic	Other Metal and Foil

Table 6. Type and Frequency of Disposed Objects

	<u>Proper</u>	<u>Improper</u>	<u>% Littered</u>
Cigarette Butt	146	194	57%
Combo/Mixed Trash	325	12	4%
Paper	251	20	7%
Beverage Cup	180	5	3%
Napkin/Tissue	110	9	8%
Beverage Bottle: Plastic	100	5	5%
Food Remnants	65	16	20%
Food Wrapper	85	14	14%
Beverage Can	59	8	12%
Food Container	57	1	2%
Plastic Bag	38	2	5%
Beverage Bottle: Glass	11	0	0%
Unknown	116	10	8%
Other	77	46	37%
TOTAL	1,620	342	17%

The June 10, 2004 study is not substantial evidence for the assertion that 25% of the entire litter stream in all parts of the County consists of plastic bags. The assertion is totally inconsistent and irreconcilable with all litter characterization studies. The figure is also absurd on its face. Anyone can see that plastic carryout bags do not comprise one-fourth of all litter. STPB strongly objects to this gross and biased misrepresentation in the Initial Study and will litigate this issue if it is not expressly retracted. It is exactly this kind of misinformation that gets copied and pasted into other reports and websites and misleads decision-makers and the public.

- B. Based on surveys and audits, how much *paper* carryout bag litter has there been and is there in and near to the County? To the extent possible, break down the response into types of paper carryout bag and give percentages for each. Cite substantial evidence and credible verifiable sources, including but not limited to County litter surveys and audits.

Obviously, paper bag litter will increase if plastic bags are banned and continued distribution of free paper bags is permitted.

- C. What are the exact locations of the highest concentrations or “hotspots” of plastic bag (1) and paper carryout bag litter in and near to the County? Cite substantial evidence and credible verifiable sources.
- D. Other than “hotspots,” what other locations in and near to the County tend to accumulate concentrations of plastic bag (1) litter? Cite substantial evidence and credible verifiable sources.

- E. To what extent is plastic bag (1) and paper carryout bag litter caused by such bags flying off the back of trucks, including but not limited to garbage and recycling haulage trucks? Quantify. Cite substantial evidence and credible verifiable sources. What steps can be taken to address this problem, including equipment changes or additions?

According to Caltrans research, a significant amount of trash ends up on highways by “flying out” the back of pickup trucks, either from loads that are not tied down or from the occasional piece of trash in the truck bed that becomes airborne when the truck travels on the highway. www.dot.ca.gov/hq/paffairs/news/pressrel/06pr6.htm.

- F. To what extent are plastic bags (1) and paper carryout bags being carried by the wind as a result of refuse collection and transportation practices? Quantify. Cite substantial evidence and credible verifiable sources. Can improvements be made to refuse collection practices and vehicles to address this problem?
- G. What are the other sources and causes of plastic bag (1) and paper carryout bag litter in the County? Cite substantial evidence and credible verifiable sources, including litter audits.
- H. To what extent are plastic bags (1) and paper carryout bags blocking or entering the County’s storm drains? Quantify. Once in the storm drains, where do the bags go?
- I. What regulatory requirements (including stormwater permitting) does the County have to comply with as a result of plastic bags (1) and paper carryout bags being provided to consumers in the County?
- J. What are the locations of the highest concentrations or “hotspots” of plastic bag (1) litter in and near to the County? Cite substantial evidence and credible verifiable sources. STPB plans to visit the location, so precise locations and addresses are requested. It is not sufficient to state “LA River” for example. STPB needs to know where along the LA River.
- K. What are the alternative solutions to the plastic bag (1) and paper carryout bag litter issue other than the proposed ordinance?

4. Environmental impacts of plastic bags on the marine environment

If, and only if, there is substantial evidence that plastic bags (1) from the County reach the Pacific Ocean, then the issue of the impact of such bags on the marine environment must be addressed. This issue has been the subject of egregious myths, misinformation, speculation, and exaggeration. It is not legally sufficient for the EIR to state that plastic bags have “other adverse effects on marine wildlife” as stated in the Initial Study (at page 1-6).

The following questions must be addressed:

- A. Is there a concentration or island of plastic debris in the North Pacific Gyre? Cite substantial evidence and credible verifiable sources.

Note that the Project Kaisei log states as follows:

And what we are discovering through all of our tests is that the Ocean's surface is covered in these minute particles of broken down plastic. I came out thinking we would find an island, but instead what we found could be potentially worse, bits of broken down plastic that covers the surface of the ocean, just like plastic soup.

<http://newhorizonprojectkaisei.wordpress.com/>

We have just passed through the convergence zone, leaving the gyre, after two weeks in only one area of a large water mass, known as the North Pacific Gyre. Our findings made believers out of doubters, if there were any before we set out. We found bits of plastic debris, consistently, in over 100 sample nets, towed on the surface, over 900 miles of water. These samples were random in their location, but scheduled in their intervals.

I too was surprised. I knew we would not find an "island" out here, but I also didn't expect to find the mass-existence of so much smaller debris. Now the question is "how deep does it go?" How fast does the material break down into this small, "confetti" state, after being at sea in the form of a large object from the beginning of its journey to the gyre?

We only scratched the surface. That is sad, because there is a lot of ocean that we did not survey, and the water characteristics in the gyre suggest that there is much more than what we witnessed in just a two-week period.

<http://newhorizonprojectkaisei.wordpress.com/>

- B. What is the quantity and concentration of plastic "confetti" in the North Pacific Gyre? Cite substantial evidence and credible verifiable sources.

The "Junk" voyage is discussed at www.savetheplasticbag.com/ReadContent684.aspx. It appears that the amount of plastic debris gathered during a 24 hour trawl over about 50 miles in the Gyre is insignificant. This should be addressed in the EIR. We have provided evidence on the cited webpage that one of the videos contains a clip from another time and place and is therefore doctored.

- C. What are the sizes of the plastic "confetti" pieces in the North Pacific Gyre? Cite substantial evidence and credible verifiable sources.

D. Is there any substantial evidence that the “confetti” consists of plastic bag fragments?

We have inspected fragments collected from the Gyre. All of them appear to be too thick to be from plastic carryout bags. They appear to be hard plastic fragments.

E. Is there plastic debris below the surface of the water in the North Pacific Gyre? Is so, how far below the surface and in what quantities and concentrations? Cite substantial evidence and credible verifiable sources.

F. Are there any intact plastic bags (1) in the North Pacific Gyre? Quantify. Cite substantial evidence and credible verifiable sources.

G. What is the debris in the North Pacific Gyre composed of? Provide details and percentages. Cite substantial evidence and credible verifiable sources, including analysis of samples collected from the ocean.

The following article appeared in the *Seattle Times*:

I figured if anyone would jump for joy at Seattle’s crusade against plastic bags, it would be the flotsam guy.

Maybe you've heard of Curt Ebbesmeyer. He's considered one of the world's leading oceanic garbologists (though, as he jokes, how many can there be?). From his basement in Ravenna, he uses beachcomber reports to track the comings and goings of floating sea trash. Like dozens of rat-poison canisters that washed onto Washington shores this spring. Or computer monitors, which “always float screen up, eyes peering out of the waves.”

An oceanographer, he also named the Earth's most shameful man-made feature, the “great Eastern garbage patch.” That's a Texas-sized soup of plastic junk, swirling in floating clouds across the Pacific between us and Hawaii.

It’s such a huge and indestructible soiling of the sea that Ebbesmeyer feels bad he dubbed it only a “patch.”

“It’s trash that will never go away, stretching across the water farther than you can see,” Ebbesmeyer says. “It would absolutely horrify you to see it.”

So when I asked him what he thought of Seattle's plan to crack down on disposable grocery bags, I was surprised when he sort of shrugged.

“It's OK, but plastic bags are not the real problem,” he said. “It's one little battle out of a million. Go look at what the ocean carries in on a given day. You'll see what I mean.”

Last month, Ebbesmeyer held a “Dash for Trash” in Ocean Shores.

In two hours, 50 people collected an astonishing 2,000 pounds of junk from the beach. Almost all of it was plastic -- from fishing floats to shotgun shells to dolls from Japan. Yet very little of it was the plastic bags targeted by Seattle.

I did my own garbology "dig" at low tide in Seattle's Myrtle Edwards Park. In half an hour poking along 300 yards of shoreline, I found a demoralizing 173 pieces of trash.

Take out the wood (paintbrush), the metal (beer cans, foil wrappers) and the miscellaneous (earplugs, nicotine patches, ropes, a corncob, an orange traffic cone), and I was left with 137 pieces of plastic.

Top item, by far: Plastic bottles. Followed by plastic bottle caps. Then plastic lids and plastic cups. Plus a slew of plastic food packaging.

Number of plastic grocery or drugstore bags? One.

The plan is to levy a 20-cent-per-bag fee on both plastic and paper bags, in hopes we'll all stop using them. That's fine, Ebbesmeyer told me. But it's such a tiny slice of the global plastic problem it's scarcely worth commenting on.

"If the mayor really wants to get on the stick, he should go after plastic bottles. Or plastic wrapping of food products. Or how about a tax or a ban on petroleum-based plastic, period?"

Now some of you have written to say the mayor, for proposing even this mild intrusion into our lives, is an eco-fascist who'll pry your bags only from your cold, dead fingers.

But take it from the flotsam guy. He has seen a seabird with 700 bits of plastic in its stomach. He has sampled seawater in which plastic particles outnumber plankton six to one. He has gazed into the planet's plasticizing heart of darkness.

From out there, this bag flap is a drop in the ocean.

http://seattletimes.nwsourc.com/html/dannywestneat/2004336327_danny09.html

- H. Do plastic bags (1) break down in the North Pacific Gyre? If so, to what extent do they break down? What causes them to break down? How long does it take for them to break down? Cite substantial evidence and credible verifiable sources.
- I. If it is believed that any of the plastic debris in the North Pacific Gyre is from plastic bags (1) in the County, describe in detail the basis for this belief, including testing of samples collected from the North Pacific Gyre. Cite substantial evidence and credible verifiable sources.

- J. What percentage of any plastic bag (1) debris in the North Pacific Gyre comes from Asia or other Pacific Rim countries such as China, Australian and New Zealand? Cite substantial evidence and credible verifiable sources.
- K. Are inadequate litter cleanup practices in other Pacific Rim countries, including along beaches, the source of some, most or all of the (alleged) plastic bags (1) in the Pacific Ocean, including but not limited to the North Pacific Gyre? Quantify with percentages. Cite substantial evidence and credible verifiable sources.
- L. Are ships vessels the source of some of the plastic bag (1) debris in the Pacific Ocean? Quantify with percentages. Cite substantial evidence and credible verifiable sources.
- M. If it is asserted that marine mammals, marine animals, and seabirds in the Pacific Ocean (including but not limited to the North Pacific Gyre) ingest or become entangled in plastic bags (1) and die as a result, state in detail the basis for the belief. Quantify annual ingestion and deaths per species. Cite substantial evidence and credible verifiable sources.

The Initial Study (at page 1-6) states: “Plastic carryout bags ... have other adverse effects on marine wildlife” (Citing UNEP study at: www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf and CIWMB June 12, 2007 Board Meeting Agenda item 14, and County staff report.)

The UNEP study does not include any surveys of the Pacific Gyre or anywhere that would be affected by a County plastic bag (1) ban. At page 199 of the study, it is stated that 71.9% of total entanglements were accounted for by fishing line, ropes and nets. In the table on the same page, the ***global*** results for marine entanglements by plastic bags were as follows:

Invertebrates	2 plastic bags
Fishes	3 plastic bags
Reptiles	0 plastic bags
Birds	12 plastic bags
Mammals	5 plastic bags
Amphibian	0 plastic bags

There must be no reference to the UNEP report in the EIR without disclosing the numbers in the table above, the fact that the Pacific Gyre was not surveyed, and that there is no indication in the study where in the world the entanglements occurred.

This is an extract from *The Times* of London article entitled “Series of blunders turned the plastic bag into global villain.”
www.timesonline.co.uk/tol/news/environment/article3508263.ece

Scientists and environmentalists have attacked a global campaign to ban plastic bags which they say is based on flawed science and exaggerated claims.

The widely stated accusation that the bags kill 100,000 animals and a million seabirds every year are false, experts have told The Times. They pose only a minimal threat to most marine species, including seals, whales, dolphins and seabirds....

Campaigners say that plastic bags pollute coastlines and waterways, killing or injuring birds and livestock on land and, in the oceans, destroying vast numbers of seabirds, seals, turtles and whales. However, The Times has established that there is no scientific evidence to show that the bags pose any direct threat to marine mammals.

They “don’t figure” in the majority of cases where animals die from marine debris, said David Laist, the author of a seminal 1997 study on the subject. Most deaths were caused when creatures became caught up in waste produce. “Plastic bags don’t figure in entanglement,” he said. “The main culprits are fishing gear, ropes, lines and strapping bands. Most mammals are too big to get caught up in a plastic bag.”

He added: “The impact of bags on whales, dolphins, porpoises and seals ranges from nil for most species to very minor for perhaps a few species. For birds, plastic bags are not a problem either.”

The central claim of campaigners is that the bags kill more than 100,000 marine mammals and one million seabirds every year.

However, this figure is based on a misinterpretation of a 1987 Canadian study in Newfoundland, which found that, between 1981 and 1984, more than 100,000 marine mammals, including birds, were killed by discarded nets. The Canadian study did not mention plastic bags.

Fifteen years later in 2002, when the Australian Government commissioned a report into the effects of plastic bags, its authors misquoted the Newfoundland study, mistakenly attributing the deaths to “plastic bags”.

The figure was latched on to by conservationists as proof that the bags were killers. For four years the “typo” remained uncorrected. It was only in 2006 that the authors altered the report, replacing “plastic bags” with “plastic debris”. But they admitted: “The actual numbers of animals killed annually by plastic bag litter is nearly impossible to determine.”

In a postscript to the correction they admitted that the original

Canadian study had referred to fishing tackle, not plastic debris, as the threat to the marine environment.

Regardless, the erroneous claim has become the keystone of a widening campaign to demonise plastic bags.

David Santillo, a marine biologist at Greenpeace, told The Times that bad science was undermining the Government's case for banning the bags. "It's very unlikely that many animals are killed by plastic bags," he said. "The evidence shows just the opposite. We are not going to solve the problem of waste by focusing on plastic bags.

"It doesn't do the Government's case any favours if you've got statements being made that aren't supported by the scientific literature that's out there. With larger mammals it's fishing gear that's the big problem. On a global basis plastic bags aren't an issue. It would be great if statements like these weren't made...."

A 1968 study of albatross carcasses found that 90 per cent contained some form of plastic but only two birds had ingested part of a plastic bag.

Professor Geoff Boxshall, a marine biologist at the Natural History Museum, said: "I've never seen a bird killed by a plastic bag. Other forms of plastic in the ocean are much more damaging. Only a very small proportion is caused by bags...."

The Australian Government's correction of the typographical error is at: www.environment.gov.au/settlements/publications/waste/plastic-bags/analysis.html.

This is a table from the Ocean Conservancy report on marine debris on a *worldwide* basis:

MARINE WILDLIFE FOUND ENTANGLED IN MARINE DEBRIS

	BALLOONS	BEVERAGE BOTTLES	BEVERAGE CANS	BUILDING MATERIALS	CRAB, LOBSTER, FISH TRAPS	FISHING HOOKS	FISHING LINE	FISHING NETS	PLASTIC BAGS	RIBBON/STRINGS	ROPE	SIX-PACK RINGS	TIRES	WIRES	TOTAL WILDLIFE
Amphibians	0	1	0	0	0	0	2	1	0	1	1	1	0	0	7
Birds	1	4	1	0	0	3	57	4	9	5	13	1	0	1	99
Fish	0	16	10	0	21	4	70	33	24	2	9	4	1	3	197
Invertebrates	0	12	4	1	35	1	12	24	11	4	9	3	4	2	122
Mammals	0	2	0	0	0	0	2	2	0	1	1	0	0	0	8
Reptiles	0	0	0	0	0	0	2	2	2	0	3	1	0	0	10
Total Debris Items	1	35	15	1	56	8	143	67	47	12	36	10	6	6	443

Source: Ocean Conservancy 2008 International Coastal Cleanup

Source: www.oceanconservancy.org/pdf/A_Rising_Tide_full_hires.pdf.

- N. What are the environmental impacts of plastic bags (1) in the Pacific Ocean to the extent not addressed above? Quantify. Cite substantial evidence and credible verifiable sources.

5. Costs of the plastic bag issue

- A. What is the annual cost to the County of cleaning up plastic bag (1) litter? What would be the annual cost to the County of maximizing the cleanup of all plastic bag (1) litter by dedicating more manpower and resources for this purpose? Provide a complete detailed breakdown of all costs and expenditures, including man-hours. Make a reasonable allocation of cost between plastic bag types 1 and 2 and state the basis for the allocation. Include and identify any funding received from the state. Cite substantial evidence and credible verifiable sources.
- B. The Initial Study (at page 1-3) states: “The County of Los Angeles Flood Control District alone spent more than \$18 million annually for prevention, clean up, and enforcement efforts to reduce litter, of which plastic bags are a component.” The cited source for this assertion is the County’s August 2007 staff report on plastic bags. That report states (at page 25):

The Los Angeles County Department of Public Works, as the lead County agency responsible for implementing litter reduction and education programs, implements a variety of programs to reduce the impact of litter on our communities. This includes litter collection along roadways, channel inverts, street sweeping, emptying public trash containers, catch basin cleanouts, flood

control channel cleanups, stormwater pollution prevention activities, capital improvement projects, implementing best management practices, and implementing public education and outreach activities. The County of Los Angeles Department of Public Works and the Flood Control District spends approximately \$18 million per year to carry out these responsibilities.”

The County staff report does *not* say that the *Flood Control District* spends \$18 million on litter cleanup. It is stated to be the entire County litter budget.

- C. Provide a detailed and complete breakdown and explanation of how the \$18 million (or updated amount) is spent.
- D. How much of that \$18 million (or updated amount) will be saved if plastic bags (1) are banned? Explain exactly how it will be saved? Cite substantial evidence and credible verifiable sources.
- E. What is the annual cost to the County of all of the environmental problems that plastic bags (1,2) cause (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? Provide a detailed and complete breakdown and explanation of the costs. Make a reasonable allocation of cost between bag types 1 and 2 and state the basis for the allocation. Include and identify any funding received from the state or state agencies. Cite substantial evidence and credible verifiable sources.
- F. As an alternative to a ban, if plastic bag (1,2) manufacturers or suppliers were to be asked to pay money to the County each year to solve the environmental problems caused by plastic bags (1,2) (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much money would that be? Provide a detailed and complete breakdown of the basis and justification for the figure. Make a reasonable allocation between bag types 1 and 2 and state the basis for the allocation. Cite substantial evidence and credible verifiable sources.
- G. As an alternative to the proposed ordinance, if plastic bag (1) manufacturers or suppliers were to be asked to pay money to a statewide fund each year to solve the environmental problems caused by plastic bags (1) statewide (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much of that money would the County need to solve those problems? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.
- H. If the proposed ordinance is adopted, would the County save any money as a result of the solving of any environmental problems (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? If the answer is yes, provide a detailed and complete breakdown and explanation of the savings. Cite substantial evidence and credible verifiable sources.

- I. What changes and improvements can be made to prevent plastic bags (1) from blocking or entering the County's storm drains? For example, storm drain screens or "Gross Pollutant Traps." What is the cost of such changes and improvements? Provide a detailed and complete breakdown of such costs. Cite substantial evidence and credible verifiable sources. See:

www.wordconstructions.com/articles/technical/gpt.html

www.hydro-international.biz/us/stormwater_us/nettech.php

www.lbpost.com/ryan/7415

The City of Los Angeles determined in a pilot study that catch basin screen covers would achieve an 86% effectiveness rate.

www.san.lacity.org/wpd/Siteorg/program/poll_abate/PilotStudyCovers.pdf



The possibility of installing storm drain screens such as these must be addressed in the EIR.

- J. Is the County receiving or has it requested funding for storm drain improvements such as that received by the City of Long Beach as described in the following article?

www.lbpost.com/ryan/7415

6. Costs of the paper bag issue

- A. What is the annual cost to the County of cleaning up paper carryout bag litter? What would be the annual cost to the County of maximizing the cleanup of all paper carryout bag litter by dedicating more manpower and resources for this purpose? Provide a complete detailed breakdown of all costs and expenditures, including man-hours. Cite substantial evidence and credible verifiable sources.
- B. What is the annual cost to the County of all of the environmental problems that paper carryout bags cause (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? Provide a complete detailed breakdown of the costs and expenditures. Include and identify any funding received from the state or state agencies. Cite substantial evidence and credible verifiable sources.
- C. If paper carryout bag manufacturers or suppliers were to be asked to pay money to the County each year to solve the environmental problems caused by paper carryout bags (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much money would that be? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.
- D. If paper carryout bag manufacturers or suppliers were to be asked to pay money to a statewide fund each year to solve the environmental problems caused by paper carryout bags statewide (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much of that money would the County need to solve those problems? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.

7. Acknowledging and quantifying the increase in the number of paper bags if only plastic bags are banned.

Will the banning of plastic bags (1) result in an increase in the number of paper carryout bags provided by stores in the County? Quantify. Cite substantial evidence and credible verifiable sources.

[Use-less-stuff.com](http://www.use-less-stuff.com) (“ULS”) conducted a survey on the effect of the plastic bag (1) ban in San Francisco on paper carryout bag usage. ULS found that paper bag (3,4) use increased significantly. There is no fee on paper carryout bags in San Francisco.

<http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf>

STPB objects to the statement in the Initial Study (at page 3.3-2) that “a net increase in

the use of reusable bags would be expected.” It is a sweeping statement and speculation based on wishful thinking that is not permitted in an EIR. It is not a basis for minimizing the description and disclosure of the environmental impacts of paper bags in the EIR. As long as the County permits stores to give away free paper bags as in San Francisco, no such increase can be expected. People do not buy what they are given for free.

8. Environmental impacts of plastic versus paper bags.

Would an increase in the number of paper carryout bags provided to customers in the County result in significant negative environmental impacts? Describe all of those impacts in detail, including but not limited to impacts in other parts of the United States, Canada and other countries. Cite substantial evidence and credible verifiable sources.

Paper comes from trees. The process to get that paper bag to the grocery store is long and exacts a heavy environmental toll. First, the trees are felled in a process that often involves clear-cutting, resulting in massive habitat destruction and long-term ecological damage.

Large machinery comes in to remove the logs from what used to be forest, either by logging trucks or even helicopters in more remote areas. This machinery requires fossil fuel to operate and roads to drive on, and, when done unsustainably, logging even a small area has a large impact on the entire ecological chain in surrounding areas.

Once the trees are collected, they must dry at least three years before they can be used. More machinery is used to strip the bark, which is then chipped into one-inch squares and cooked under tremendous heat and pressure. This wood stew is then “digested,” with a chemical mixture of limestone and acid, and after several hours of cooking, what was once wood becomes pulp. It takes approximately three tons of wood chips to make one ton of pulp.

The pulp is then washed and bleached; both stages require thousands of gallons of clean water. Coloring is added to more water, and is then combined in a ratio of 1 part pulp to 400 parts water, to make paper. The pulp/water mixture is dumped into a web of bronze wires, and the water showers through, leaving the pulp, which, in turn, is rolled into paper.

Chlorine and compounds of chlorine are used in the bleaching of wood pulp, especially chemical pulps produced by the kraft process or sulfite process. Plants using elemental chlorine produce significant quantities of dioxins. Dioxins are persistent organic pollutants that are generally recognized among the most toxic human-released pollutants in existence. Elemental chlorine has largely been replaced by chlorine dioxide in some and dioxin production. However, as of 2005, only 5-6% of kraft pulp is bleached without chlorine chemicals.

The used process water from a pulp mill contains a lot of organic material such as lignin and other organic material from the trees (including chlorinated organic material)

resulting in high biological oxygen demand (BOD) and dissolved organic carbon (DOC). It also contains alcohols, and chelating agents and inorganic materials like chlorates and transition metal compounds. Recycling the effluent and burning it, using bioremediation ponds and employing less damaging agents in the pulping and bleaching processes can help reduce water pollution.

Sulfur-based compounds are used in both the kraft process and the sulfite process for making wood pulp. Sulfur is generally recovered, with the exception of ammonia-based sulfite processes, but some is released as sulfur dioxide during combustion of black liquor, a byproduct of the kraft process, or “red liquor” from the sulfite process. Sulfur dioxide is of particular concern because it is water soluble and is a major cause of acid rain.

Air emissions of hydrogen sulfide, methyl mercaptan, dimethyl sulfide, dimethyl disulfide, and other volatile sulfur compounds are the cause of the odor characteristic of pulp mills utilizing the kraft process. Other chemicals that are released into the air and water from most paper mills include the following: carbon dioxide, carbon monoxide, ammonia, nitrogen oxide, mercury, nitrates, methanol, and benzene.

This all requires huge energy inputs and create air and water pollution.

To recycle paper bags, the paper must first be re-pulped, which usually requires a chemical process involving compounds like hydrogen peroxide, sodium silicate and sodium hydroxide, which bleach and separate the pulp fibers. The fibers are then cleaned and screened to be sure they are free of anything that would contaminate the paper-making process, and are then washed to remove any leftover ink before being pressed and rolled into paper, as before.

The County must consider the following reports:

The 1990 Franklin report: This report is a life cycle assessment of plastic bags (1) and paper carryout bags used in the United States. It shows that plastic bags (1) are substantially better for the environment than paper carryout bags for the following reasons: (see Conclusions section of report):

- The energy requirements for plastic bags are between 20% and 40% less than for paper carryout bags at zero percent recycling of both kinds of bags. Assuming paper carryout bags carry 50% more than plastic bags (1), the plastic bag (1) continues to require 23% less energy than paper bags even at 100% recycling.
- Plastic bags (1) contribute between 74% and 80% less solid waste than paper carryout bags at zero percent recycling. Plastic bags (1) continue to contribute less solid waste than paper carryout bags at all recycling rates.
- Atmospheric emissions for plastic bags (1) are between 63% and 73% less than for paper carryout bags at zero percent recycling. Plastic bags (1) continue to contribute less atmospheric emissions than paper carryout bags at all recycling rates.

- At a zero percent recycling rate, plastic bags (1) contribute over 90% less waterborne wastes than paper carryout bags. This percentage actually increases as the recycling rate increases.
- The landfill volume occupied by plastic bags (1) is 70% to 80% less than the volume occupied by paper carryout bags (2) based on 10,000 uses.

The 2005 Scottish report: www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf.

This report was published by the Scottish Government. It is an environmental impact assessment of the effects of a proposed plastic bag (1) levy in Scotland. The report (at page 22) takes into account the fact that a paper carryout bag holds more than a plastic bag (1) and makes appropriate adjustments. The report includes the following findings:

- Page vi: “If only plastic bags were to be levied..., then studies and experience elsewhere suggest that there would be some shift in bag usage to paper bags (which have worse environmental impacts).”
- Page 31: “[A] paper bag has a more adverse impact than a plastic bag for most of the environmental issues considered. Areas where paper bags score particularly badly include water consumption, atmospheric acidification (which can have effects on human health, sensitive ecosystems, forest decline and acidification of lakes) and eutrophication of water bodies (which can lead to growth of algae and depletion of oxygen).”
- Page 31: “Paper bags are anywhere between six to ten times heavier than lightweight plastic carrier bags and, as such, require more transport and its associated costs. They would also take up more room in a landfill if they were not recycled.”
- Page 23: Paper carryout bags result in:
 - 1.1 times more consumption of nonrenewable primary energy than plastic bags (1).
 - 4.0 times more consumption of water than plastic bags (1).
 - 3.3 times more emissions of greenhouse gases than plastic bags (1).
 - 1.9 times more acid rain (atmospheric acidification) than plastic bags (1).
 - 1.3 times more negative air quality (ground level ozone formation) than plastic bags (1).
 - 14.0 times more water body eutrophication than plastic bags (1).
 - 2.7 times more solid waste production than plastic bags (1).

The 2007 Boustead report:

www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212

This report is an extremely thorough and detailed life cycle assessment of the environmental impacts of plastic bags (1) and paper carryout bags in the United States. It is packed with data. It studied the types of plastic bags (1) and paper carryout bags commonly used in the United States. It takes into account that a paper carryout bag holds more than a plastic bag (1) and applies an adjustment factor.

The Boustead report (at page 4) includes the following findings *based on carrying capacity equivalent to 1000 paper bags*:

- Total energy use: Paper carryout bags = 2622 megajoules. Plastic bags (1) = 763 megajoules.
- Fossil fuel use: Paper carryout bags = 23.2 kilograms. Plastic bags (1) = 14.9 kilograms.
- Municipal solid waste: Paper carryout bags = 33.9 kilograms. Plastic bags (1) = 7.0 kilograms.
- Greenhouse gas emissions: Paper carryout bags = 0.08 CO₂ equivalent tons. Plastic bags (1) = 0.04 CO₂ equivalent tons.
- Fresh water usage: Paper carryout bags = 1004 gallons. Plastic bags (1) = 58 gallons.

The Boustead report studied paper bags with 30% post consumer recycled content. The Initial Study (at page 1-6) defines a “Recyclable Paper Bag” as having 40% post-consumer recycled content. Recycling is a collection, transportation, washing and industrial operation with environmental impacts, so an extra 10% of recycled content would not result in a 10% improvement in environmental impacts. (Obviously, a paper carryout bag with 100% post consumer recycled content would not have zero environmental impacts.) However, if we take optimism to the extreme and assume that an extra 10% of recycled content would decrease all environmental impacts of paper carryout bags by 10%, paper carryout bags are still far worse than plastic bags (1) in every environmental category. For example, instead of consuming 2622 megajoules of total energy, 1000 paper carryout bags would consume 2360 megajoules. Plastic bags (1) with the same carrying capacity consume 763 megajoules.

The Boustead report was commissioned by Progressive Bag Affiliates, a plastic bag industry organization. It was peer reviewed by an independent third party, a Professor of Chemical Engineering at North Carolina State University. (Boustead report at pages 63-64.) He is an expert on life cycle analysis with extensive experience in the field. He commented that the Boustead report “provides both a sound technical descriptions (sic) of the grocery bag products and the processes of life cycle use.... Whatever the goals of the policy makers, these need to be far more explicit that general environmental improvement, since the life cycle story is consistent in favor of recyclable plastic bags.”

(Boustead report at page 63.)

The professor reviewed every single one of the figures in the report and disagreed with some of them. The Boustead report was amended to the extent that the Boustead report author agreed with the professor's comments. For example, the figure "103" for electricity in Table 9B was corrected to "154." (Boustead report at pages 64 and 19.)

The March 2008 ULS report:

<http://use-less-stuff.com/Paper-and-Plastic-Grocery-Bag-LCA-Summary-3-28-08.pdf>

This report addresses the impact of San Francisco's ordinance banning plastic bags (1) at large stores. San Francisco defines acceptable paper carryout bags as containing "no old growth fiber...100% recyclable... contains a minimum of 40% post-consumer recycled content." San Francisco Environment Code, Chapter 17, §1702(j). The report contains the following findings (at pages 3-4):

- Plastic bags (1) generate 39% less greenhouse gas emissions than uncomposted paper carryout bags.
- Plastic bags (1) consume less than 6% of the water needed to make paper carryout bags.
- Plastic bags (1) consume 71% less energy during production than paper carryout bags.
- Plastic bags (1) generate approximately only one-fifth of the amount of solid waste that is generated by paper carryout bags.

The March 2008 ULS report concludes as follows (at page 5):

Legislation designed to reduce environmental impacts and litter by outlawing grocery bags based on the material from which they are produced will not deliver the intended results. While some litter reduction might take place, it would be outweighed by the disadvantages that would subsequently occur (increased solid waste and greenhouse gas emissions) [from paper bags]. Ironically, reducing the use of traditional plastic bags would not even reduce the reliance on fossil fuels, as paper and biodegradable plastic bags consume at least as much non-renewable energy during their full life cycle.

The evidence is *unanimous* that paper carryout bags are worse for the environment than plastic bags (1).

The Initial Study (at pages 3.3-2 and 3.7-3) states:

However, any increases [in negative environmental impacts of paper bags] would be offset to some extent due to the fact that

paper bags can contain a larger volume of groceries than plastic bags. In addition, a net increase in the use of reusable bags would be expected and would further reduce the potential for increased use of paper carryout bags utilized.

(See also Initial Study at page 3.7-7.)

The Franklin report, the Scottish report, and the Boustead report, all of which are discussed in the next section of this paper, *take into account* the fact that paper bags hold more than plastic bags. The Scottish report (at page 23) states that the calculations are “normalized against the volume of shopping carried.” The Boustead report (at page 4) shows the impact of bag types based on “carrying capacity equivalent to 1,000 paper bags.” The ratio in the Boustead report (see page 7) is 1,500 plastic bags = 1,000 paper bags.

All of the reports show, *based on the equivalent carrying capacity*, that paper bags have much worse environmental impacts than plastic bags. STPB objects to the County’s statement which clearly implies that the reports are not based on equivalent carrying capacity.

The EIR must describe and quantify all of the environmental impacts of increased paper carryout bag usage wherever they occur, not just in and around the County. Climate change and the other impacts of paper bags are *global*.

In *Massachusetts v. EPA*, 549 U.S. 497 (2007), the U.S. Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The U.S. Environmental Protection Agency has made a finding under the Clean Air Act that carbon dioxide (CO₂) and methane (CH₄) (and other greenhouse gases) in the atmosphere “threaten the public health and welfare of current and future generations.”

<http://epa.gov/climatechange/endangerment.html>

There is one report that the County must *not* rely upon in determining whether paper carryout bags are worse for the environment than plastic bags (1). That is the CIT Ekologik report issued in 2000 that was prepared on behalf of European paper bag producers Eurosac and CEPI Eurokraft. The Cities of Manhattan Beach and Berkeley have inappropriately referred to this report as support for the proposition that paper carryout bags are better for the environment than plastic bags (1). However, the CIT Ekologik report studied *55 lb capacity animal feed distribution sacks*. STPB will strongly object to any reference in the EIR to this totally irrelevant report. It is not substantial evidence for the proposition that paper carryout bags are better for the environment than plastic bags (1) and its inclusion in the EIR would be misleading to the County Board of Supervisors, other decision-makers, and the public.

There appears to be an error in the Initial Study. On page 3.7-1, it is stated that OPR recommends that *two* questions be considered regarding greenhouse gases. However, only one question is stated.

9. Impacts on air quality

(SEE ALSO SECTION OF THESE COMMENTS ENTITLED: “CALCULATING AND DISCLOSING GREENHOUSE GAS EMISSIONS”

A. The Initial Study (at page 3.3-2) states:

The manufacture and transport of plastic and paper carryout bags is a regulated industry that does not represent a measureable contribution to emissions *in the County*. Therefore, the proposed ordinance would not be expected to have the potential to result in indirect significant impacts to air quality related to conformance with the applicable air quality plans. [Emphasis added.]

The EIR must determine describe and disclose the impacts of air quality in the County and beyond to other areas, including any locations where paper bags are produced in the United States and Canada and other countries. If the County is going to create negative environmental impacts outside the County, the Board of Supervisors and the voters in the County must be fully informed in the EIR. STPB objects to the failure to consider, describe and disclose negative environmental impacts outside the County.

B. The Initial Study (at page 3.3-2) states:

Direct beneficial impacts to air quality would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and litter collection along roadways and water channels.

Describe and quantify such impacts. Cite substantial evidence and credible verifiable sources.

The Scottish report noted at page 23: “Paper bags are anywhere between six to ten times heavier than lightweight plastic carrier bags and, as such, require more transport and its associated costs.” STPB objects to the failure to describe and quantify such impacts.

Plastic bag (1) litter would be replaced with paper carryout bag litter. STPB objects to the failure to describe and quantify such impacts.

C. The Initial Study (at page 3.3-2) states:

In addition, beneficial impacts to air quality would be expected to result from the reduced demand for the production of plastic carryout bags.

STPB objects to the failure to describe and quantify the negative impacts on air quality that would be expected to result from the increased demand for the production of paper bags.

- D. The Initial Study (at page 3.3-2) states that ozone (O₃) would be reduced as a result of the production of plastic bags. According to the Scottish report (at page 23), the life cycle of paper carryout bags (with equivalent carrying capacity) creates 1.3 times more negative air quality (ground level ozone formation) than plastic bags (1). STPB objects to the failure to mention and address this point in the Initial Study. In fact, ozone would *increase* if plastic bags are banned. If this is contended that this is not correct, state in detail the basis for the contention and cite substantial evidence and credible verifiable sources.

10. The effect of CO₂ emissions on the marine environment

The issue of the effect of CO₂ emissions on the oceans must be considered and addressed in the EIR, because paper carryout bags create significantly more CO₂ emissions than plastic bags (1). See:

www.nytimes.com/2009/11/14/science/earth/14turtles.html

www.timesonline.co.uk/tol/news/uk/article4092822.ece

<http://news.bbc.co.uk/2/hi/science/nature/7498502.stm>

<http://news.bbc.co.uk/2/hi/science/nature/8411135.stm>

11. Biodegradability of plastic bags

- A. Will plastic bags (1) degrade or biodegrade in certain conditions such as when exposed to oxygen and sunlight? Cite substantial evidence and credible verifiable sources.
- B. There are different additives available that will make plastic bags (1) biodegrade or degrade in different environments and various conditions. Are such additives effective? Cite substantial evidence and credible verifiable sources.
- C. In what ways do such additives lessen the negative environmental impacts of plastic (1) bags? Cite substantial evidence and credible verifiable sources.
- D. Should such additives be required as an alternative to banning plastic bags (1)? Cite substantial evidence and credible verifiable sources.

The Initial Study (at page 1-5) states: “Biodegradable carryout bags are not a practical solution to this issue in Los Angeles County because there are no local commercial composting facilities able to process the biodegradable carryout bags at this time.” ***This statement shows a failure to understand, or even to be aware of, biodegradable additives that are used to make plastic bags biodegradable.***

To be perfectly clear, there are two types of bags:

- “Compostable” bags designed to turn into compost in an industrial composting facility; and
- “Biodegradable” bags, that is plastic bags that have a biodegrading additive added. (There are two kinds of additive: the kind produced by ECM and the kind produced by Symphony. See below.)

“Biodegradable” bags are designed to biodegrade in the open environment, not in a composting facility. Biodegradation in the environment is not the same thing as composting. Industrial composting is an artificial process operated to a much shorter timescale than the processes of nature.

ASTM D6400 is designed for compostable plastics and is not applicable to plastics with an additive that are designed to self-destruct if they get into the environment. (Section 1.1 of ASTM D6400 states: “This specification covers plastics and products made from plastics that are designed to be composted in municipal and industrial aerobic composting facilities.”)

The authors of the EIR are requested to contact the following two companies that have additives available that will effectively cause plastic bags to biodegrade. *The companies provide different types of additives so both should be contacted.* The representatives of those companies have agreed to provide information for the EIR. As the EIR must address all available alternatives, these two companies must be contacted as they are ready with the information, including the results of research and scientific papers. Of course, any other companies providing biodegradability additives may be contacted too.

The Initial Study (at page 1-6) states that the Biodegradable Product Institute (BPI) is a recognized verification entity. STPB objects to this incorrect characterization. Despite its name, BPI is merely a lobbying group for the *compostable* bag industry. BPI is working against biodegradable additives which it regards as an industry competitor. **BPI is not a recognized verification entity regarding biodegradable bags, that is the type of bags that biodegrade in the open environment as a result of an biodegrading additive.**

ECM BIOFILMS, INC.

1 Victoria Square, Suite 304, Painesville, OH 44077.

Phone: (440) 350-1400. Fax: (440) 350-1444.

Website: www.ecmbiofilms.com.

Contact persons:

Alan Poje alan.poje@ecmbiofilms.com

Robert Sinclair robert.sinclair@ecmbiofilms.com.

The ECM MasterBatch technology is delivered in the form of a pellet that may be added to many conventional plastic resins. The pellet is blended into the resin at a loading of not less than one percent. Bags can be produced from the resin with little or no process changes and the physical/structural properties of the resultant bags are virtually unchanged.

Biodegradation of plastic bags (1) produced with the ECM MasterBatch technology is initiated when the bag is exposed to other organic materials that are biodegrading. The components of the additive allow for the creation of communities, or biofilms, composed of microorganisms such as bacteria, fungi and algae. As these communities grow, acids, enzymes and other compounds, capable of breaking the polymer chemical bonds, are created. As the microbes consume the polymer, bonds are broken and more organics are available for food, strengthening the community and the process continues. Since the microorganisms exist in aerobic, anaerobic and marine conditions, the bags produced with ECM technology will biodegrade above ground, underground and in marine environments.

ECM's additive is fully available today and is being used in plastic bags (1).

SYMPHONY ENVIRONMENTAL TECHNOLOGIES

Elstree House, Elstree Way, Borehamwood, Herts, WD6 1LE, England.

Phone: Tel: +44 20 8207 5900. Fax: +44 20 8207 5960.

Website: www.symphonyplastics.com.

Contact persons:

Michael Laurier: michael.laurier@d2w.net, michael@symphonyplastics.com.

Michael Stephen: michael.stephen@degradable.net and kkryz@gmail.com.

Oxo-biodegradation is degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively. Symphony's oxo-biodegradation additive breaks the molecular chains within the polymer and makes it degrade and then biodegrade in the presence of air, on land or at sea, in the light or the dark, in heat or cold, leaving no methane, no toxic dust, and no other harmful residues. Oxo-bio can be tested according to American Standard 6954. Plastics with Symphony's additive can be recycled and made from recycle, and there is little or no additional cost.

See www.biodeg.org/position-papers/recycling/?domain=biodeg.org.

Symphony's d2w additive has been independently tested to prove degradation, biodegradation and non eco-toxicity. and is certified safe for food-contact.

Symphony's additive is fully available today and is being used in plastic bags (1) around the world.

Oxo-biodegradable plastic is not a disposal option. It is a low cost insurance if all else fails. These plastics have been in use now for more than five years and are available in more than 80 countries. There is no evidence that degradable plastics (whether oxo-biodegradable or hydro-biodegradable) are more likely to be littered than any other packaging material.

12. Superfast oxo-biodegradable bags

Are superfast oxo-biodegradable bags a viable alternative to the proposed ordinance? Cite substantial evidence and credible verifiable sources.

Superfast oxo-biodegradable bags degrade and disappear very quickly. The bags are vacuum packed so that they will not biodegrade before they are handed out by stores. The bags will biodegrade in a few days or a few weeks. The speed of biodegradation can be controlled by the manufacturer by changing the amount of the biodegrading additive and anti-oxidants and making other adjustments.

Upon exposure to the environment the molecular weight is be rapidly reduced by an oxidative process and the bag disintegrates into small pieces. Because the pieces are no longer composed of long entangled molecular-chains, they are no longer a plastic and they are bioassimilated by naturally-occurring micro-organisms. They leave no fragments, no methane, and no harmful residues.

The bags will be *very conspicuously* marked so that consumers will know that the bags will disappear very quickly.

The bags will not be a litter problem because they will vanish in the open air and in water within a very short period of time.

Contact SYMPHONY ENVIRONMENTAL TECHNOLOGIES for samples and further information. (See section 11 above.)

13. Water soluble bags

Are water soluble bags a viable alternative to the proposed ordinance? Cite substantial evidence and credible verifiable sources.

Water soluble bags made of polyvinyl alcohol dissolve and disappear very quickly when they come into contact with water. The bags would be *very conspicuously* marked so that consumers would know that the bags should not come into contact with water as they will dissolve. The bags will not be a problem in storm drains, the LA River or the oceans.

STPB has such bags available to demonstrate to the County. The demonstration consists of placing the bag in tap water or seawater. The Bag disappears in about 30 seconds without leaving any particles.

The bags can be made more or less soluble and more or less rapidly soluble.

Bags can also be made that will dissolve only in hot water.

In Los Angeles County's dry summer climate, the bags would be completely practical. They simply have to withstand the journey from the store to the home, most of which would be in a car or on public transportation. The only time not to use them is when it is

raining. When it rains, plastic or paper carryout bags or reusable bags can be used.

Contact SYMPHONY ENVIRONMENTAL TECHNOLOGIES for samples and further information. (See section 11 above.)

14. Biodegradability of paper bags

The Initial Study (at page 1-9) states: “However, paper bags have the potential to biodegrade when exposed to oxygen, sunlight, moisture, soil, and microorganisms (such as bacteria....”

- A. Do paper carryout bags biodegrade in landfills, the open air, or in water? Cite substantial evidence and credible verifiable sources.
- B. Over what period of time do paper carryout bags fully degrade? Cite substantial evidence and credible verifiable sources.
- C. What chemicals, particles or residues remain after such full biodegradation? Cite substantial evidence and credible verifiable sources.
- D. Do such particles or residues absorb or serve as a vehicles for PCB, DDT, and other toxic substances in the ocean or elsewhere? Cite substantial evidence and credible verifiable sources.

Polyethylene consists of two elements of carbon and hydrogen. These two elements are strongly bonded together, which means that they cannot bond with molecules of PCBs, DDT or any other chemicals in the ocean at ocean temperatures. Consequently, the allegation that is frequently heard that PCBs, DDT and other chemicals in the ocean bond with plastic bag debris is physically impossible and false. Such chemicals will simply wash off plastic film in the water.

Organic materials such as paper contain oxygen, nitrogen, sulfur and phosphorus. These are elements that have a weaker bond with carbon and/or each other and therefore can easily bond with chemicals such as DDT and PCBs.

15. Verification and environmental impacts of recycled content in paper bags

The Initial Study (at page 1-6) defines a Recyclable Paper Bag as having a minimum of 40 percent post-consumer recycled content and containing no old growth fiber. However, the term is not used again in the Initial Study. It is not clear why the term is defined if it is not used. On the *assumption* that the County may require that paper carryout bags be Recycled Paper Bags as defined, then this section applies.

- A. How will the County verify that Recyclable Paper Bags actually contain 40% post-consumer recycled content, including but not limited to in imported bags? Cite substantial evidence and credible verifiable sources.

- B. If Recyclable Paper Bags are not permitted to contain old growth fibers, how will that be verified? Cite substantial evidence and credible verifiable sources.
- C. To what extent does the inclusion of post-industrial scrap reduce the environmental impacts of paper carryout bags? Quantify. Cite substantial evidence and credible verifiable sources.
- D. To what extent does the inclusion of post-consumer recycled content reduce the environmental impacts of paper carryout bags? Quantify. Cite substantial evidence and credible verifiable sources.

The EIR must make no assumptions regarding the “green” nature of paper carryout bags with 40% “recycled” content. Paper carryout bag recycling is an operation that involves collection, transportation, washing, and reprocessing. This all needs to be taken into account and addressed in the EIR.

The following article appeared in the Sacramento Bee on November 9, 2009:
<http://www.sacbee.com/capitolandcalifornia/story/2314229.html>.

Bee exclusive: State's recycled paper trail not so green for climate

Near Mark Oldfield’s desk at the California Department of Conservation sits a ream of copy paper that is more than a routine office commodity.

Made in part from recycled fiber, it is a symbol of the state's green spirit, one ream among thousands backing the department's claim that it is a champion of the environment -- and complies with state law requiring it to buy recycled paper.

There is a dark side to those sheets of bright, white paper: the part that isn't recycled comes from trees logged in the biologically rich but endangered forests of Indonesia.

Oldfield, a public affairs officer, was not aware of the connection until contacted by The Bee. Now that he knows, Oldfield said his office will not buy anymore and may try to return the unused reams.

“We're required to buy this type of paper,” he said. “And that's what we did.”

California has a worldwide reputation as a leader in global warming, more so than any other state. But an ongoing Bee investigation has found some of the state's choices -- such as

failing to evaluate environmental costs of printer ink cartridge recycling and allowing its employees to travel on the dime of energy companies -- raise questions about the effectiveness of its efforts.

The state law requiring agencies to buy large quantities of paper with a minimum of 30 percent recycled content is another seemingly green choice that may be backfiring on the climate.

Over the past two decades, that mandate has helped achieve one of the bedrock missions of the environmental movement: keeping as much scrap paper from piling up in landfills as possible. But the state makes no effort to track the carbon footprint of its policies.

In fact, records obtained by The Bee through the California Public Records Act indicate the state -- which purchases about 6 million pages of office copy paper a day and recycles much of it -- actually knows little about the full impact of recycled paper.

“There is on-going controversy regarding...post-consumer recycled content in paper products,” says a June 24 Department of General Services memo. “We do not understand the process...or its environmental impact.”

Wisdom of mandate argued

Like offices everywhere, the state consumes a blizzard of copy paper. About 3.2 million reams, each containing 500 sheets -- 1.6 billion in all -- were bought last year, state officials estimate. Lay those pages end-to-end and they would reach around the world 11 times.

One of the largest worries is that relying on recycled paper without reducing consumption will hasten climate change because the paper is shipped in from distant locations, increasing greenhouse gas pollution. Nearly all of the paper the state recycles, in turn, is shipped back out again, generating still more greenhouse gas.

“The world is going to fry because we want to buy recycled fiber from the wrong sources around the world and ignore the transportation impacts,” said Stan Rhodes, president of Scientific Certification Systems, a Bay Area company that verifies green standards for Starbucks, Home Depot and other companies.

Yalmaz Siddiqui, director of environmental strategy for Office

Depot, a major supplier of recycled paper to California from sources in the southern United States and Wisconsin, has urged the state to be skeptical about Rhodes' concerns.

“It's very dangerous to open up the notion that ‘recycled is not good’ to the marketplace,” Siddiqui wrote in an April 27 e-mail to the Department of General Services.

“Yes, Stan will be able to find specific examples where recycling loops cause additional carbon,” Siddiqui added. “We need to be very careful that these examples do not confuse the marketplace and force people to simply give up buying green altogether because they don't know what the right 'green' thing to do is.”

Currently, about \$7 out of every \$10 state agencies spend on paper buys paper with 30 percent or higher recycled content -- exceeding the legal requirement that half of such spending be for recycled paper. Some agencies -- including California Environmental Protection Agency, the state Integrated Waste Management Board and the Department of General Services -- even buy 100 percent recycled-content paper.

Conservation focus shifting

California's State Agency Buy Recycled Campaign grew out of legislation passed in 1989, when times were simpler. Garbage was the enemy. Almost no one talked about global warming.

Now that the state is a leader in the war against climate change and seeking to shrink its carbon footprint, some say it's time to adapt and measure the effort's climate impact.

“You can't automatically assume recycled content is good,” said Robert Tetz, former manager of the state's environmentally preferable purchasing program at a conference this spring.

“You have to be careful about the energy and environmental impacts we incur in the process of recycling,” he continued. “When we talk about what's green, a lot of the 100 percent-recycled paper we're buying in California is not green.”

Chris Peck, director of the office of public affairs at the California Integrated Waste Management Board, which oversees the Buy Recycled campaign, said agency staffers are interested but must remain focused on their legislative mission.

“Because of our statutory responsibility, which is to keep material out of the landfill, we have to filter what we see and learn through that lens,” Peck said.

Tetz convened a June meeting on the subject with paper specialists.

“There is growing debate regarding the wisdom of our many choices,” he said in an April e-mail invitation.

At the meeting, Rhodes -- the green certification specialist - displayed slides and data suggesting the state's carbon footprint actually grows larger when it buys recycled paper from distant mills.

“Is the (recycled content) law counterproductive for global warming?” Rhodes asked in an interview. “Yes. It's insane. ... It has ignored the fact we're in a climate crisis. And stubbornly the state of California refuses to deal with it.”

Others challenge his assertions. “Some of the information doesn't make sense,” said Susan Kinsella, executive director of Conservatree, a nonprofit that promotes the purchase of recycled-content paper.

“When you produce recycled paper, you're reducing the amount of energy overall that's used; you reduce what goes into landfills,” said Kinsella, who attended the June meeting. “If paper goes into landfills, it produces methane, which is 25 times the strength of carbon dioxide.”

Minutes of the June session show that interest was high: “Scott Harvey, DGS chief deputy director...commented on the importance of the topic of discussion and expressed strong support for our efforts from the Director all the way to the Governor's office.”

The minutes also note that Tetz hoped that in-depth study – known as a life-cycle impact analysis – would grow from the meeting, to sort out competing claims and scrutinize all of the environmental impacts of recycled paper.

Instead, Tetz was transferred to another job in September after complaining that a state printer ink cartridge recycling program was less eco-friendly than refilling and re-using them. At the time,

his boss said the transfer was not related to his criticism.

“I did not have the necessary support here at the Department of General Services,” he wrote in an e-mail to meeting participants apologizing for the lack of action. “At least we tried.”

Jeffrey Young, deputy director for public affairs at General Services, said officials would like to have an in-depth paper study done -- and actually solicited bids for one earlier this year -- but were unable to proceed because of the state's budget crisis.

Conserving and recycling

There is a far more certain way for state employees to help forests, landfills and climate, according to Rhodes: Don't hit the print button.

“Don't use paper,” he said. “Only use paper when you want to archive.”

Indeed, some e-mails sent by state employees now contain a green logo that says: “Please consider the environment before printing.”

Nonetheless, thousands of tons of scrap paper find their way every month from state recycling bins and loading docks to a 3-acre industrial site in south Sacramento, where it is sorted and bundled for shipment to China on fossil fuel-powered ocean tankers.

What happens once it gets to China is not clear, but paper industry officials say little comes back to California as recycled office paper. Instead, they said, much of it is made into cardboard, tissue paper and paper plates, at paper mills powered by polluting coal-fired power plants.

Dave Kuhnen, general manager of the Sacramento facility, Recycling Industries, recently walked through gigantic mounds and bales of paper speckled with state trash, from a Department of Fish and Game manual on waterfowl and upland game hunting regulations to unused Department of Motor Vehicles change of address forms.

“Recycling is always better,” said Kuhnen. “Anytime you can reduce the demand for the Earth's resources, and keep material out of the landfill, I think we are better off.”

It is not a panacea, however. Some pulp from trees always will be a necessary part of the paper-making process because the microscopic fibers that bind it together eventually break down.

“One hundred percent post-consumer recycled content paper isn't sustainable,” said Andrew Hurst, a waste management specialist at the California Integrated Waste Management Board. “If everybody did it...we wouldn't have paper.

“A piece of fiber is only good for about seven turns,” Hurst said. “And then it is so short, it comes out in the wash and is part of the sludge.”

Paper's sources questioned

Dwelling on the recycled content of paper overlooks other critical issues, according to Jim Butler, director of procurement at the Department of General Services.

“There is nothing inherently wrong with 100 percent, or 30 percent,” Butler said. “We have to get beyond what percent recycled it is (to) where the source is, and what are the feed stocks that are contributing to this.”

Interviews and records obtained by The Bee show that the state buys recycled paper from at least two companies that environmentalists say are logging in destructive ways.

One is International Paper, which operates across the American South. Last year, dozens of state agencies, departments and other jurisdictions, from the California Conservation Corps to the Governor's Office, bought at least 20,000 reams of paper -- or 10 million pages -- made in IP mills.

“IP is known for some of the most egregious practices in the region, including large-scale clear-cutting and conversion of natural forests to plantations,” said Scott Quaranda, campaign director for the Dogwood Alliance, a North Carolina environmental group.

Kathleen Bark, an IP spokeswoman, disputed that. “International Paper has a long history of responsible forest practices,” she said in an e-mail. “When we owned forest lands, we continually balanced the growing and harvesting of trees with protecting biodiversity. ... Although we no longer own forest lands, we have continued our

commitment to sustainable forestry.”

The other company targeted by environmentalists is Asia Pulp and Paper, which has extensive operations in Indonesia and manufactures the 30 percent recycled content paper called Exceedo purchased in June by the Department of Conservation.

When those five boxes of paper – containing 50 reams – arrived in the state office wrapped in greenish paper with a leafy motif, they certainly looked eco-friendly.

But Lafcadio Cortesi, forest campaign director for the Rain Forest Action Network in San Francisco, said the company's logging practices are so harmful that his organization and others have persuaded major U.S. retailers to stop selling its paper.

“It's some of the worst forest destruction in the world,” said Cortesi, who has visited Indonesia several times. Because carbon-rich peat lands are logged and converted to plantations – releasing greenhouse gases into the atmosphere in the process – it is bad for global warming, too, he said.

Asked about the state's purchase, Cortesi said: “They need to do their due diligence. If you do any homework at all, Indonesia pops up with a big red flag.”

Oldfield, the Department of Conservation spokesman, said his office was focusing instead on recycled content.

“We were consuming a paper with certain guidelines -- 30 percent recycled content -- without knowing the background of the manufacturer,” he said. “It's not something we would typically look into.”

They also were focusing on price. Each case cost the department \$32.98 -- the lowest of four bids solicited.

Now, Oldfield said, the office is debating what to do with the 30 or so reams of paper that remain.

“We are going to see if we can return it,” he said.

That would mean contacting Burkett's Office Supplies on Younger Creek Drive in Sacramento where owner Randy Mael said he also sold some of the paper to the Department of Health Services.

Mael said he was not aware of any problem with it.

“We buy 50,000 different products,” Mael said. “We are a company with 30 people. Unfortunately, we just don't have the time to research all the products that we buy.”

But, he added, “I don't have any interest in harming the environment. ... If it was found that this was something that -- according to reliable standards -- was harming the environment, we wouldn't sell it.”

In addition, there has been a recycled paper fraud scandal in Japan. See: <http://wildsingaporenews.blogspot.com/2008/01/recycled-paper-scandal-in-japan.html>

The County is on notice that there are serious issues regarding the accuracy of claims that paper contains recycled content. There is no certification program to verify recycled content in paper bags. This must be addressed in the EIR.

16. The issue of what materials are used in the manufacture of plastic bags

- A. It is often alleged that plastic bags (1,2) are made of oil and that we import 12 million barrels of oil into the United States each year to make plastic bags. (Google: “plastic bags 12 million barrels”.) Is the allegation true? What are the true facts? Cite substantial evidence and credible verifiable sources.

In fact 85% of plastic bags (1) used in the United States are made in the United States. Plastic bags are made out of polyethylene. Polyethylene is made of ethylene. In the United States, ethylene is made of ethane which is extracted from *domestically* produced natural gas. As a result, plastic bags (1) manufactured in the United States are not made out of oil.

Ethane must be removed from the natural gas anyway to lower the BTU value of the natural gas to an acceptable level. Ethane burns too hot to be allowed to remain in high levels in natural gas that is delivered to homes and businesses for fuel. There is nothing else that the ethane can be used for except to make ethylene. If ethane is not used to make plastic, it will have to be burned off, resulting in greenhouse gas emissions.

Using the ethane to make plastic does not in any way reduce the amount of fuel available for transportation or power generation or increase our energy imports.

Some *imported* bags are made from naphtha which is a *waste by-product* of oil. As long as the world refines crude oil there will be a naphtha residue after the petroleum has been extracted. Naphtha needs a secondary use such as plastics. At the present time, too much is being produced so the need for secondary uses is more pressing.

www.poten.com/Opinion.aspx?id=4030.

Domestic plastic bag (1) manufacturers say that it would be economically absurd to make

plastic bags from oil. The price of oil is presently \$77 per barrel and in July 2008 reached per barrel. At those prices, the plastic bags (1) would be much more expensive.

The myth about plastic bags (1) being made out of oil has become one of the major justifications for banning plastic bags (1).

Far more oil (and non-renewable energy) is used to make paper carryout bags as the Scottish and Boustead reports show.

- B. The County asserted in the staff report, *An Overview of Carryout Bags in Los Angeles County*, August 2007 (at page 30) that “plastic carryout bags contain many different additives such as PCBs, DDT and nonylphenols which can seep into marine animals that inadvertently ingest them, which endangers their health.” If it alleged in the EIR that the allegation is true, cite substantial evidence and credible verifiable sources.

In fact, plastic bags (1,2) in the United States contain no such additives. Such additives are illegal and are not used in bags in this country. If they are used in any other country, we are not aware of it.) There is no reason for such additives to be used. It should be obvious that DDT, which is a pesticide, would not be used as an additive in a plastic bag.

Polyethylene consists of two elements of carbon and hydrogen. These two elements are strongly bonded together, which means that they cannot bond with molecules of PCBs, DDT or any other chemicals in the ocean at ocean temperatures. Consequently, the allegation that PCBs, DDT and other chemicals in the ocean bond with plastic bag debris is physically impossible and false. Such chemicals will simply wash off plastic film in the water.

Organic materials such as paper contain oxygen, nitrogen, sulfur and phosphorus. These are elements that have a weaker bond with carbon and/or each other and therefore can easily bond with chemicals such as DDT and PCBs.

17. Environmental impacts of cockroach infestation

Would an increase in the number of paper carryout bags result in a greater number of cockroaches in the County, including increased infestation of apartment blocks? Will such infestation result in the need for increased spraying of harmful insecticides in homes and workplaces? Cite substantial evidence and credible verifiable sources.

Here is an extract from a commercial website regarding cockroach infestation:

The German cockroach loves grocery bags. This roach will infest a stack of paper grocery bags at the grocery store and then sneak home in between the flaps in the bottom of the bag. You will not even know that the roaches are there until the bag is put away or used. The roach may stay hidden until it is dark and then come out to infest your home. The best way to prevent this type of intrusion

is to keep your paper grocery bags stored outside or in a sealed container.

www.gettingridofroaches.net/How-To-Prevent-Roaches-In-Cardboard-and-Paper-Grocery-Bags.html

Orkin advises as follows: “Disposing of cardboard boxes and paper grocery bags, which provide shelter sites for cockroaches.” www.orkin.com/press-room/article-1059

Terminix gives similar advice: “In homes, do not store paper bags under the sink or elsewhere in the kitchen.” [Click on the "Tips for Control" tab on the Terminix website.] www.terminix.com/Information/Pest-Identification/Cockroaches/Brown_Banded_Cockroach/

The U.S. Environmental Protection Agency states advises that in order to prevent roach infestation: “Get rid of stacks of newspapers, paper bags, and cardboard boxes.” www.epa.gov/opp00001/kids/roaches/english/keepthem/index.html

http://www.acsh.org/healthissues/newsID.1692/healthissue_detail.asp

18. Environmental impact of the loss of plastic bag recycling bins at stores.

Plastic bags are 100% recyclable. However, in the County, plastic bags may not be placed in curbside recycling bins.

http://www.sjrecycles.org/residents/special_stuff.asp#bags

Consequently, the *only* plastic bag (1,2) recycling infrastructure in the County is the plastic bag (1,2) recycling bins required by Pub. Res. Code §42251(a) and §42252(b).

All stores that are (i) supermarkets or (ii) occupy over 10,000 square feet and have a licensed pharmacy are required to install those bins and arrange for the recycling of the contents, if the store “provides plastic carryout bags.” Pub. Res. Code §42250(e). If the store does not “provide plastic carryout bags” it is not required to install a plastic bag recycling bin.

The effect of banning plastic bags (1) is that stores will be free to remove every single plastic bag recycling bin in the County. The County is not permitted to require the stores to retain the bins because Pub. Res. Code §42254b)(1) states that cities and counties may not “require a store that is in compliance with this chapter to collect, transport, or recycle plastic carryout bags.” Therefore, one of the environmental impacts of the proposed ordinance will be the destruction of the County’s only plastic bag recycling infrastructure.

It is not just plastic grocery bags that are deposited in the bins. *Newspaper bags, dry cleaning bags, and plastic film are deposited in the bins and recycled. Such bags and film would not be banned under the proposed ordinance but would lose their recycling infrastructure.* Therefore all such bags and film would be sent to landfills.

Virtually every plastic bag (1,2) and the plastic film deposited in store recycling bins is recycled. The major recycling customers for the contents of the bins are Trex and AERT, which use them instead of wood for plastic and composite lumber. They buy the contents of the bags from stores, sometimes for 25 cents per lb or more.

Many plastic bags contain recycled post-industrial and post-consumer material, but that fact has not been well advertised. The paper industry has done a far better job of marketing its products as “recycled.” For example, the largest manufacturer of plastic bags (1), Hilex Poly, picks up used plastic bags (1), transports them to its recycling facility, and turn them into new bags. Hilex is in the process of doubling its recycling capacity. See:

<http://hilexpoly.com/going-green/bag-2-bag.html>.

<http://hilexpoly.com/going-green/recycling-plant.html>

<http://hilexpoly.com/news/single/article/hilex-poly-announces-plan-to-double-recycling-capacity-37//nbp/194.html>

19. Environmental impacts on landfills.

- A. Would an increase in the number of paper carryout bags as a result of the proposed ordinance result in a greater volume and weight of paper carryout bags in landfills? Would this cost the County more in tipping fees (which are determined by weight)? Cite substantial evidence and credible verifiable sources.

We often hear in the media and from anti-plastic bag activists that plastic bags (1,2) “clog up” landfills. However, in a Statewide Waste Characterization Study conducted in 2004 for the California Integrated Waste Management Board, it was determined that plastic bags (1,2) constitute a mere 0.4% of the content of landfills. Paper carryout bags constitute 1.0%. The tonnage is about the same despite the facts that retailers provide far more plastic bags (1) than paper carryout bags. Paper carryout bags are bigger, thicker and heavier. Tipping fees are based on weight.

<http://www.ciwmb.ca.gov/Publications/LocalAsst/Extracts/34004005/ExecSummary.pdf>.

- B. What are the environmental impacts of increasing the number of paper carryout bags in landfills? Cite substantial evidence and credible verifiable sources.

This is discussed in an Environmental Paper Network (“EPN”) report: “The State of the Paper Industry.” www.environmentalpaper.org/stateofthepaperindustry/confirm.htm. The EPN report states (at page v):

If paper is landfilled rather than recycled, it decomposes and produces methane, a greenhouse gas with 23 times the heat-trapping power of carbon dioxide. More than one-third of municipal solid waste is paper, and municipal landfills account for

34 percent of human related methane emissions to the atmosphere, making landfills the single largest source of such emissions. The U.S. Environmental Protection Agency has identified the decomposition of paper as among the most significant sources of landfill methane.

An article in the *Ecocycle Times* states:

Methane is produced in a landfill when the organic materials like paper, yard debris, wood, and food waste undergo anaerobic decomposition—a process that shouldn't be confused with the oxygen-dependent aerobic process that breaks down the fruit rinds and leaves in your backyard composter. As a result of anaerobic decomposition, the methane gas seeps to the surface, enters the lower atmosphere, and in concert with carbon dioxide and other gases, creates a warming blanket that retains solar infrared radiation and warms the earth.

<http://www.ecocycle.org/TimesSpring2002/NewEvidence.cfm>

20. Environmental impacts of reusable bags.

What would be the environmental impacts of an increased number of reusable bags? Cite substantial evidence and credible verifiable sources.

Like any other manufactured product, reusable bags have a negative environmental impact. The following information and metrics must be addressed in the EIR:

- Metrics of consumption of nonrenewable energy to produce reusable bags. (An article in the *Wall Street Journal* (“An Inconvenient Bag,” Sep 26, 2008, states: “Many of the cheap, reusable bags that retailers favor are produced in Chinese factories and made from nonwoven polypropylene, a form of plastic that requires about 28 times as much energy to produce as the plastic used in standard disposable bags and eight times as much as a paper sack, according to Mr. Sterling, of Natural Capitalism Solutions.”
<http://online.wsj.com/article/SB122238422541876879.html>
(The *Wall Street Journal* website requires a password. STPB will provide a copy of the article if requested.)
- Metrics on emissions of greenhouse gases in the production of reusable bags.
- Metrics on consumption of water to produce reusable bags.
- Metrics on creation of acid rain (atmospheric acidification) in the production of reusable bags.
- Metrics on creation of negative air quality in the production of reusable bags

- Metrics on water pollution or eutrophication in the production of reusable bags.
- Metrics on the consumption of nonrenewable energy to transport reusable bags. (Most reusable bags are made in China and have to be shipped to the United States and then transported by truck. Reusable bags are more voluminous and heavier than plastic bags, thereby requiring more diesel fuel to transport.)
- Recyclability of reusable bags. (Most reusable bags are made from nonwoven polypropylene, which is not recyclable.)
- Metrics on solid waste production caused by disposal of reusable bags.
- Metrics on the extent to which reusable bags are actually reused. (The above-mentioned *Wall Street Journal* article states: “Earlier this year, KPIX in San Francisco polled 500 of its television viewers and found that more than half -- 58% -- said they almost never take reusable cloth shopping bags to the grocery store.”)



We can't always anticipate what we will need.
Sometimes we need carryout bags as well as reusable bags.

21. Environmental impacts of lead and other toxics in reusable bags

- A. To what extent are lead and heavy metals present in reusable bags? Cite substantial evidence and credible verifiable sources.
- B. What is the environmental impact of the presence of such amounts of lead and heavy metals in reusable bags? Cite substantial evidence and credible verifiable sources.
- C. Has the County determined whether any of the reusable bags that it has been providing to the public contain lead or heavy metals?
- D. What steps must the County take to *ensure* that all retailers covered by the proposed ordinance comply with Health and Safety Code [§§25214.11-25214.26](#), including obtaining Certificates of Compliance?

www.dtsc.ca.gov/toxicsinpackaging/index.cfm

www.dtsc.ca.gov/ToxicsInPackaging/upload/TIP_FS_Bags_Totes.pdf

22. Hygiene of reusable bags

- A. To what extent are reusable bags actual or potential carriers of dangerous or unhealthy bacteria? Cite substantial evidence and credible verifiable sources.

www.cpia.ca/epic/media/default.php?ID=2054

www.cpia.ca/files/files/A_Microbiological_Study_of_Reusable_Grocery_Bags_May2009.pdf

<http://network.nationalpost.com/np/blogs/theappetizer/archive/2009/05/20/back-to-plastic-reusable-grocery-bags-may-pose-public-health-risk.aspx>

- B. There is substantial evidence that some reusable bags are manufactured in grossly unhygienic conditions, including an eyewitness report with photographs in the Scottish Sunday Express on February 10, 2008. This must be addressed in the EIR. What steps will the County take to prevent such bags from being distributed, sold or used in the County? See:

<http://www.google.com/url?sa=t&source=web&ct=res&cd=2&ved=0CBMQFjAB&url=http%3A%2F%2Fwww.carrierbagtax.com%2Fdownloads%2FSunday%2520Express%252010%2520feb.pdf&ei=KNMrS7KPFouMswPJ5oHXAw&usg=AFQjCNHGZR6R2PgPA-lmsv30-xKmo3-ZMA&sig2=4z2ove15MZSTeVZaFealDw>

- C. Plastic bag (1) manufacturers have obtained “No Objection Letters” from the U.S. Food and Drug Administration, permitting plastic bags (1) including supermarket/grocery checkout bags to come into contact with food. To what extent have reusable bag manufacturers complied with FDA regulations and standards regarding food contact?

Cite substantial evidence and credible verifiable sources.

www.fda.gov/Food/FoodIngredientsPackaging/FoodContactSubstancesFCS/default.htm



Hygiene of reusable bags is an important issue that must be addressed in the EIR.

23. The reusability and reuse of plastic bags.

- A. STPB objects to the use of the term “single-use” plastic bags. Plastic bags (1) are reused for many purposes such as bin liners and animal waste pickup. The metrics of plastic bag (1) and paper carryout bag reuse must be factored into all aspects of the EIR. Cite substantial evidence and credible verifiable sources.
- B. If plastic bags (1) are not available for reuse, will consumers buy plastic bags to replace them for bin liners and other uses? This would reduce any environmental benefits from banning plastic bags. Cite substantial evidence and credible verifiable sources. See: <http://archives.tcm.ie/irishexaminer/2003/01/29/story651891687.asp>

24. The alternative of improving plastic bag litter prevention and cleanup

- A. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter *abatement* in the County?
- B. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter *cleanup* in the County?
- C. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter cleanup at the *litter hotspots* in the County?

25. The Los Angeles County “Plastic Litter Patrol” would make banning plastic bags unnecessary

In 2001, STPB’s counsel Stephen Joseph and a colleague developed a “Green Patrol” concept in San Francisco. The sole purpose of the Green Patrol was to clean up litter and graffiti in North Beach. The San Francisco Department of Public Works hired personally for the Green Patrol and Mayor Brown launched the program in 2001. The program was successful and proved the concept, but ultimately it was the victim of budget cuts. Stephen Joseph received a commendation from the Board of Supervisors. www.californians4epr.com/Green_Patrol_resolution.pdf

The Green Patrol consisted of two full time San Francisco Department of Public Works employees with special T-shirts and baseball caps and a dedicated van with the Green Patrol logo. The principle was that they would become familiar with the area and take pride in keeping it clean. They would also be accountable. North Beach went from litter and graffiti-strewn to litter and graffiti-free virtually overnight and remained that way as long as the Green Patrol existed.

STPB is *considering* creating a Los Angeles County Plastic Litter Patrol (“PLP”) along the lines of the San Francisco Green Patrol. PLP will be a separate entity. The PLP will manage the operation and employ its own personnel. Plastic bag, film and other plastic product manufacturers and retailers will make direct payments to the PLP. No government funds or personnel will be used.

The PLP will employ full-time personnel to search the County on a regular basis looking for littered plastic bags (1,2), plastic film, plastic packaging and (possibly) plastic bottles. The search locations will include the coast and beaches, streets, highways, stormwater drains, creeks, rivers, landfills, and trees, etc. They will clean the cleanable bags and film (and possibly bottles) and deposit them in store plastic bag recycling bins or deliver them directly to recyclers such as Trex, AERT, Hilex and TieTek.

The frequency of visits will be reviewed after determining the rate of the accumulation of such litter. The objective will be to keep the areas clean of all plastic bags (1,2), plastic film, plastic packaging, and possibly plastic bottles. The PLP will perform special cleanups of storm drains, creek and rivers following storms.

The PLP will maintain a website at www.plasticlitterpatrol.com. Photographs of “before and after” cleanups will be posted. Anyone noticing plastic bags or film caught in tree or at any other location will be able to report them by e-mail to the PLP and personnel will be sent to remove them.

The PLP will work in conjunction with the County “adopt-a” programs and the CalTrans adopt-a-highway program.

<http://adopt-a-highway.dot.ca.gov>.

The PLP will submit its cleanup plan to the County for comments. The PLP is not

dependent on the County's cooperation.

It is easy to keep the County free of plastic bag (1,2) litter without banning bags. All that is required is to stop talking about the problem and actually do something about it. Banning a product to prevent litter is an absurd overkill solution to an easily solvable problem.

The EIR must take the PLP into account in determining the environmental impacts of the proposed ordinance. If the County is truly incapable of cleaning up plastic bags as it claims, the industry will take matters into its own hands.



San Francisco Mayor Willie Brown cuts the ribbon launching the Green Patrol in 2001.



The first San Francisco Green Patrol. Note the tarnished Italian flag painted on the North Beach lamp post. The Green Patrol kept the area 100% litter free on a daily basis.



The tarnished Italian flags on the North Beach lamp posts were eventually restored by the Green Patrol.

26. The alternative of legislating mandatory best practices for stores.

What would be the environmental benefits of legislating the following program instead of the proposed ordinance?

- Store cashiers or baggers would be *required by law* to ask customers purchasing a single item whether they need a carryout bag. Note that Pub. Res. Code §42252(e) requires stores (as defined) to make reusable bags (as defined) available to customers.
- Double bagging of plastic bags (1) and paper carryout bags would be *prohibited by law*.
- Store cashiers or baggers would be *required by law* to ask all customers to return plastic bags (1,2) to the store for recycling and point out the location of plastic bag recycling bins. This should result in a huge increase in the number of plastic bags (1,2) deposited in bins by consumers. Note that Pub. Res. Code §42252(b) requires stores (as defined) to make plastic bag recycling bins available to customers.
- Uniform signage and a logo would be *required by law* for all plastic bag recycling bins.
- See photograph of Tesco recycling bin at: www.californians4epr.com/Waste-reduction.html. Bins as prominent and well-marked as the Tesco bins should be placed in stores in the County.
- Encourage stores to fill the maximum item count or weight per carryout bag.
- Encourage stores not to give carryout bags to customers to hold a single item, subject to appropriate exceptions.
- Encourage stores to ensure that the required plastic bag recycling bins are placed in highly visible locations and clearly marked with a uniform logo.
- Encourage stores to print their logo and commercial messages on only one side of plastic bags (1) and use the opposite side only for prominent messages to request and encourage customers to use the plastic bag recycling bins.
- Encourage stores to ask customers to bring *clean* plastic (1,2) and paper carryout bags back to the store for future shopping rather than asking for new bags. Plastic bags (1,2) can be reused many times and can fit into a glove compartment when not in use. (See the wording on the Tesco bin: www.californians4epr.com/Waste-reduction.html.)

The major British stores achieved a 48% reduction of plastic carryout bags in three years based on best practices. (There is some disagreement about how the calculation of the percentage but the raw numbers speak for themselves: 870 million plastic bags in May 2006; 418 million plastic bags in May 2009.) American stores can achieve similar results. www.retail-week.com/in-business/responsible-retail/grocers-slash-plastic-bag-usage-by-48/5004605.article.

27. The alternative of legislating mandatory percentage reductions for stores.

As an alternative to the ordinance, what would be the environmental benefits of legislating mandatory percentage reductions of the number of plastic bags (1) and paper carryout bags provided by stores? For example, stores as defined in Pub. Res. Code §42250(e) might be required to reduce such bags by x% using 2011 as the baseline and 2013 as the goal. The goal could be enforced by sanctions.

Under Pub. Res. Code §42252(d) and California Integrated Waste Management Board regulations, store (as defined) are required to report plastic bag (1) usage. See: www.ciwmb.ca.gov/RuleArchive/2008/PlasticBags/default.htm. The collected data is being made available to the County. The County could legislate a similar reporting requirement for paper carryout bags at stores as defined in Pub. Res. Code §42250(e).

28. Cumulative environmental impacts.

What are the cumulative environmental impacts of the proposed ordinance? Quantify. Cite substantial evidence and credible verifiable sources.

CEQA Guidelines §15130(a) states that an EIR “shall discuss cumulative impacts of a project when the project’s incremental effect is cumulatively considerable, as defined in section 15065(a)(3).

CEQA Guidelines §15065(3) states that an EIR must be prepared if “the project has possible environmental effects that are individually limited but cumulatively considerable.” CEQA Guidelines §15065(3) states that “cumulatively considerable” means that the “incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

CEQA Guidelines §15355 defines “cumulative impacts” as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.” CEQA Guidelines §15355(b) states that “[c]umulative impacts can result from individually minor but collectively significant projects taking place over a period of time.”

In *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, the court stated:

At 114: Cumulative impact analysis is necessary because the full environmental impact of a proposed project cannot be gauged in a vacuum. [Footnote] One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact.

At 118: From *Kings County and Los Angeles Unified*, the guiding criterion on the subject of cumulative impact is whether *any* additional effect caused by the proposed project should be considered significant given the existing cumulative effect. (Emphasis added.)

At 119: However, under CEQA section 21083, under the Guidelines section 15355 definition of cumulative impacts, and under the *Kings County/Los Angeles Unified* approach, the need for an EIR turns on the impacts of *both* the project under review and the relevant past, present and future projects. [Emphasis by court.]

Based on the foregoing, the EIR must consider the impact of the proposed County ordinance together with the following projects:

- The San Francisco plastic bag (1) ban ordinance adopted in 2007.
- The City of Los Angeles resolution to ban plastic bags (1) in 2010 if no plastic bag fee bill is enacted by the state by that time.
- The City of Malibu plastic bag (1) ban ordinance adopted in 2008.
- The City of Manhattan Beach plastic bag (1) ban ordinance adopted in 2008 (if it is not invalidated).
- The City of San Jose proposed plastic bag ban (and probable paper bag fee).
- The Palo Alto plastic bag (1) ban ordinance adopted in 2009.
- The proposed City of Santa Monica plastic bag (1) ban ordinance.
- The proposed City of Berkeley plastic bag (1) ban ordinance.
- All plastic bag (1) ban ordinances and reduction projects that are being considered or may be or have been implemented in California and outside California.

In *San Franciscans for Reasonable Growth v. City and County of San Francisco*, (1984) 151 Cal.App.3d 61, 75, the court stated:

[W]e must reject the argument that, because some of the projects under review might never be built, it was reasonable for the Commission not to consider any of them in its cumulative analyses. Such argument is without merit. The fact that the EIR's

subject project itself might be built, rather than the fact that it might not be built, creates the need for an EIR. Similarly, the fact that other projects being reviewed are as close to being built as the subject project makes it reasonable to consider them in the cumulative analyses.

REQUEST FOR NOTICES

I request that you send me by e-mail and regular mail any future public notices regarding the proposed ordinance and the EIR.

CONTACT PERSON

I am the designated contact person for the Save The Plastic Bag Coalition.

CONCLUSION

STPB is available to provide information, documents, contacts, and research regarding the EIR. We want to help in every possible way to ensure the whole truth is described and disclosed to the Board of Supervisors and the voters.

All rights are reserved, including the right to challenge the validity of a plastic bag ban based on the preemptive effect of Pub. Res. Code §42250-57. See:

http://gov.ca.gov/pdf/press/ab_2449_sign.pdf.

Nothing is waived by any statement or omission herein. Strict compliance with all the applicable provisions of CEQA is hereby demanded.

Dated: January 4, 2010



STEPHEN L. JOSEPH
Counsel, Save The Plastic Bag Coalition



**Surfrider
Foundation.**

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Alhambra, CA 91803
Sent via e-mail (cskye@dpw.lacounty.gov)

Re: Ordinance to Ban Plastic Carryout Bags in Los Angeles County- Initial Study and EIR Scoping Documents

Dear Mr. Skye,

On behalf of the Surfrider Foundation (“Surfrider”) and our over 55,000 members, we would like to thank you for providing us with the opportunity to submit comments on the Los Angeles County’s proposed Environmental Impact Review (EIR) and Initial Study for an ordinance to ban plastic carryout bags. Through our collaborations with environmental groups and local government entities, as well as our own “Rise Above Plastics” campaign, The Surfrider Foundation continuously works to address what is potentially the most harmful threat to our oceans today – the ubiquitous and destructive presence of ocean litter polluting our marine environment.

Plastic currently comprises 60 to 80 percent of all marine debris, and 90 percent of floating debris.¹ The prevalence of this plastic pollution results in both direct and indirect negative impacts to marine wildlife. Seabirds, sea turtles, fish, and marine mammals often ingest marine debris after mistaking it for food, or become entangled in the debris which can suffocate them or interfere with their growth.² Other substantial impacts include ecosystem alterations, clean-up

¹ Resolution of the California Ocean Protection Council on Reducing and Preventing Marine Debris, (February 8, 2007, November 20, 2008) Implementation Strategy to Reduce and Prevent Ocean Litter. <http://resources.ca.gov/copc/>

² U.S. Environmental Protection Agency, Marine Debris impacts. (Available at http://www.epa.gov/owow/oceans/debris/md_impacts.html)

costs, and aesthetic impacts which may affect California's tourism industry. Reducing the amount of single-use plastic grocery bags, 6 billion of which are used each year in Los Angeles County alone³, will save the County money in clean-up costs as well as help us to achieve our mission of protecting our oceans, waves, and beaches. We are extremely supportive of Los Angeles County's initiatives to reduce the consumption of single-use plastic carryout bags, and we have included in this comment letter constructive suggestions regarding the Initial Study and EIR Scoping document for the proposed bag ban.

The Proposed Ordinance Should Be Expanded to Include a Greater Number of Stores

The proposed ordinance would only apply to stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. The initial study also indicates that the County is considering extending the jurisdiction of the proposed County ordinance to stores within the unincorporated territories of the County that are part of a chain of convenience food stores, including franchises primarily engaged in retailing a limited line of goods that includes milk, bread, soda, and snacks, that have a total combined area of 10,000 square feet or greater within the County.

We urge the County to expand the jurisdiction of the proposed ordinance to include chains of convenience stores and franchises, as these establishments contribute significantly to the level of plastic bag pollution in Los Angeles County. This would be similar to the plastic bag ban enacted in San Francisco, which in May 2008 was broadened to include not only large grocery stores and pharmacies, but also chain pharmacies with 5 or more locations in the city⁴. Furthermore, we believe that the ordinance should also include retail stores in addition to supermarkets, as well as facilities that have less than 10,000 square feet of retail space. Enacting a ban on plastic bags which will cover a broad range of stores will result in a further reduction of clean-up costs to the County of Los Angeles ("the County") and the state of California, and go further than the currently proposed policy towards protecting marine life and the ocean environment.

The County Should Establish More Ambitious Program Objectives

The program objectives discussed in the initial study, although capable of producing a positive environmental impact, are not strong enough to encourage an adequate level of plastic carryout bag litter reduction and should be strengthened to include more ambitious goals that will

³ Ordinances to Ban Plastic Carryout Bags in Los Angeles County, Initial Study. Contribution of Plastic Carryout bags to the litter stream.

⁴ <http://www.sfgov.org/site/uploadedfiles/bdsupvrs/ordinances07/o0081-07.pdf>

more effectively support the policies behind the proposed ordinance. Included in the list of objectives are for the county to “Reduce the Flood Control District’s cost for prevention, clean-up, and enforcement efforts to reduce litter in the county by \$4 million,” and “Reduce Countywide disposal of plastic carryout bags from landfills by 50 percent from 2007 annual amounts.” Both of these objectives could be more readily achieved, and even exceeded, if the following other objectives were strengthened:

- Reduce the Countywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007, to fewer than 800 plastic bags per household in 2013.
- Reduce the Countywide contribution of plastic carryout bags to litter that blight public spaces Countywide by 50 percent.

If the ordinance enacted includes prohibiting large supermarkets and retailers from distributing single-use plastic bags, then these objectives would be easily achieved and further actions to reduce plastic bag litter may not be pursued by the state or individual distributors. Setting higher goals will encourage a more timely reduction of plastic litter, and will result in a corresponding decrease in cleanup costs to the County as well as a decrease in the adverse environmental impacts. Therefore, we urge the County to strengthen these objectives by aiming for the Countywide contribution of plastic carryout bags to be reduced by 90%, rather than the stated 50%. Furthermore, the County should aim to reduce the Countywide consumption of plastic carryout bags to fewer than 400 per household annually, rather than the less ambitious 800 bags per household contemplated by the current objectives.

Another of the program objectives is to “Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 50,000 residents (5 percent of the population) with an environmental awareness message.” Educating the public about this issue is absolutely essential, and should be a great priority with regards to this proposed ordinance. Few citizens are aware of the numerous negative biological impacts caused by plastic bag pollution, and even fewer are likely aware of great costs to themselves, as taxpayers, that must go towards the clean-up of this pollution. We therefore encourage the County to aspire to reach at least 100,000 residents, if not more, with an environmental awareness message. We believe that this will help substantially in the furtherance of the County’s other goals and objectives.

Biological Impacts of Single-Use Plastic Carryout Bags

We urge the County to take into consideration the following additional information, and to enact strict plastic bag prohibitions in order to benefit not only the citizens of the County and the State, but the United States as a whole.

Increased Dependency on Fossil Fuels

It is estimated that about 1 trillion of these plastic bags are used each year world-wide. Over 100 billion of these petroleum-based bags are used in the United States annually and in addition to the harm caused to the marine environment, the production of these bags requires 12 million barrels of oil per year.⁵ Given the difficult state that our economy is in, and the mounting crisis regarding the limited supply of fossil fuel energy available to us, decreasing the unnecessary use of the petroleum-based plastic bags will help to reduce the United States' dependency on foreign oil supplies and serve as a step on the way towards utilizing clean, renewable energy resources.

Harms Caused to Marine Life

It is estimated that more than 267 species have suffered a negative impact as a result of plastic marine debris, and it is estimated that this debris results in the deaths of thousands of marine mammals and turtles each year. Often these animals mistake the plastic (bags especially) for food, and consume the non-digestible materials⁶. One study found that out of 38 green turtles found and tested, 61 percent had ingested some form of marine debris including plastic bags, cloth, and rope or string (Bugoni et al., 2001)⁷. As described on the U.S. Environmental Protection Agency website:

Ingestion can lead to starvation or malnutrition when the marine debris collects in the animal's stomach causing the animal to feel full. Starvation also occurs when ingested marine debris in the animal's system prevents vital nutrients from being absorbed. Internal injuries and infections may also result from ingestion. Some marine debris, especially some plastics, contain toxic substances that can cause death or reproductive failure in fish, shellfish, or any marine life. In fact, some plastic particles have even been determined to contain certain chemicals up to one million times the amount found in the water alone (Moore, C., 2002).

There are many other statistics regarding the severe negative impacts that plastic bags can cause to the marine environment, several of which are very well discussed in the initial study prepared for the proposed ordinance. We urge you to take these concerns seriously, and we emphasize how important our marine ecosystems are to all of the members of the Surfrider Foundation.

The County Should Consider a Tax or Ban on Paper Bags in Addition to Plastic Bags in The Future

⁵ http://www.healthebay.org/assets/pdfdocs/actionalerts/2007_08_27_plasticbagban/staffreport.pdf

⁶ Californians Against Waste. The Problem With Plastic Bags. http://cawrecycles.org/issues/plastic_campaign/plastic_bags/problem

⁷ U.S. Environmental Protection Agency. Marine Debris Impacts. http://www.epa.gov/owow/oceans/debris/md_impacts.html

One major concern of plastic bag ban ordinances, and a large part of why an EIR is being considered for this Los Angeles County Ordinance, is that some consumers will opt to use paper bags as a substitute for plastic bags, rather than use reusable bags. The Initial Study states the following: “The County anticipates that a measurable percentage of affected consumers would subsequently use reusable bags (this percentage includes consumers currently using reusable bags) once the proposed ordinances take effect. The County further anticipates that some of the remaining consumers, those who choose to forgo reusable bags, may substitute plastic carryout bags with paper carryout bags.” While we recognize that evaluating the realistic environmental impacts of a plastic bag ban ordinance is essential, we believe that the county should take further measures in the future to further assure the transition to reusable bags and away from disposable, single use bagging options.

The City of Berkeley has recently proposed an ordinance that would ban the distribution of single-use plastic carryout bags at certain locations, and also place a 25 cent tax on paper bags in order to reduce the negative environmental impact of the ordinance⁸. Before declaring that the ordinance would result in no significant environmental impacts, the City released an initial study, part of which explained the following:

Life cycle analyses of the relative environmental impacts of manufacturing and transporting paper compared to plastic single use bags reach different conclusions. Some studies conclude that paper bags have more impact than plastic⁹, while a more recent study concludes that paper bags have substantially less impact than plastic¹⁰. The analyses differ in the specific pollutants measured, the manufacturer’s location, sources of raw materials and energy, manufacturing practices, and the degree of local recycling of the product¹¹¹²¹³

A 2005 study of various proposed plastic and paper bag levies in Scotland concludes that setting a fee on both plastic and paper bags results in improvement in all eight environmental indicators considered, because of the resulting shift to reusable bags.

⁸ City of Berkeley, Public Works Department. Proposed Bag Reduction Ordinance. <http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=44530>

⁹ “Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks”, Franklin Associate, Ltd., 1990.

¹⁰ “Distribution in Paper Sacks”, CIT Ekologik, Chalmers Industriteknik, 2000.

¹¹ Cadman, Evans, Holland and Boyd; AEA Technology Environment: Environment Group Research Report: Proposed Plastic Bag Levy – Extended Impact Assessment; produced for the Scottish Executive, August 2005. (www.scotland.gov.uk/publications)

¹² Fridge: “Socio-economic Impact Assessment of Proposed Plastic Bag Regulations”

¹³ Alternatives to Disposable Shopping Bags and Food Service Items, Appendix N. Prepared for Seattle Public Utilities by Herrera Environmental Consultants, Inc., January 29, 2008, (http://www.seattle.gov/util/Services/Recycling/Reduce,_Reuse_&_Exchange/ProposedGreenFee/index.htm)

There is general agreement that a shift to reusable bags has less environmental impact than any single use bag system. Therefore, to minimize possible negative impacts of conversion to paper bags, the Ordinance is designed to reduce total bag use, whether paper or plastic, and to minimize the impact of those paper bags that are used....

In 2008 the City of Seattle commissioned a study of the environmental, economic and social impacts of various programs to reduce the use of single-use carryout bags¹⁴. As part of this study, the contractor prepared a sensitivity analysis, which predicts the shift from single use to reusable bags at various fee levels. It concluded that a fee on both paper and plastic would result in reduced bag use as follows:

60% bag reduction at 10 cents
70% reduction at 20 cents
80% reduction at 25 cents.

As this information makes clear, placing a tax on paper bags in addition to plastic could serve as an effective part of a comprehensive plan to achieve the goals that the county of Los Angeles has set out in this proposed bag ban ordinance.

Conclusion

We thank the County of Los Angeles for taking the initiative to protect our precious and valuable marine resources from the threat of plastic pollution. We are greatly concerned with the ongoing detriment to our ocean ecosystems and wasteful use of our natural resources posed by the unregulated use of plastic bags. We strongly urge the County to accept our recommendations and take into account our recommended considerations, and thank you for the opportunity to comment on this issue.

Sincerely,

Rachel E. Dorfman, Esq.

Surfrider Foundation

San Diego Chapter Executive Committee, Surfrider Rise Above Plastics Program Contact

Phone: (770) 630- 6956

Rachel@surfridersd.org

¹⁴ Alternatives to Disposable Shopping Bags and Food Service Items, Appendix N. Prepared for Seattle Public Utilities by Herrera Environmental Consultants, Inc., January 29, 2008, (http://www.seattle.gov/util/Services/Recycling/Reduce,_Reuse_&_Exchange/ProposedGreenFee/index.htm)

MARIE C. CAMPBELL
PRINCIPAL



Ms. Marie Campbell is principal of Sapphos Environmental, Inc. She is an environmental compliance specialist with more than 20 years of experience in project management of all aspects of environmental compliance and resource management planning. As principal of Sapphos Environmental, Inc., she has served as project manager on more than 100 projects, including state and federal environmental compliance documents, technical reports, mitigation monitoring plans, resource management plans, and consensus planning efforts. During her tenure as president of Sapphos Environmental, Inc. she has overseen the firm's successful performance pursuant to 13 open-end contracts for environmental services. Typically, these projects involve coordination of a multidisciplinary team with the project design and engineering team. In addition, Ms. Campbell has extensive experience with capital improvement projects undertaken by the County of Los Angeles. Ms. Campbell has served in the role as project coordinator representing clients in the public and private sectors, including not-for-profits, on environmental compliance matters pursuant to the regulatory oversight of the California Environmental Protection Agency, Department of Toxic Substances Control.

Project Management

Since establishing Sapphos Environmental, Inc., Ms. Campbell has served as project manager on open-end contracts for environmental services, as well as numerous high-profile, complex environmental documents. Under Ms. Campbell's direction, Sapphos Environmental, Inc. has provided open-end environmental services to numerous public agencies: Caltrans, Metropolitan Water District of Southern California, Southgate Recreation and Park District, Great Basin Unified Air Pollution Control District, County of Los Angeles Chief Executive Office, County of Los Angeles Department of Public Works, County of Los Angeles Department of Parks and Recreation, and City of Los Angeles Bureau of Engineering. In the performance of services under these open-end contracts, she has managed multidisciplinary teams consisting of geologists, registered environmental assessors, health risk assessment professionals, biologists, archaeologists, paleontologists, land use planners, air and water quality specialists, acoustical engineers, traffic engineers, and civil engineers. As many as 15 simultaneous delivery orders (during a one-month period) have been managed during the course of these contract efforts. As project manager, Ms. Campbell's responsibilities included preparation of individual scopes of service for each delivery order (including schedules and estimated costs), client and project team coordination, project staffing, supervision of all work efforts, timely submission of all work products, provision of technical input and graphics for internal and external project briefings, and quality control. Ms. Campbell has managed the preparation of environmental compliance and public involvement efforts for a variety of projects where hazards and hazardous materials were a key issue:

- Long Beach Memorial Medical Center Expansion and 2010 Master Plan Environmental Impact Report (EIR)
- South Coast Golf Course (at Palos Verdes Landfill) EIR
- Victoria County Golf Course Rehabilitation EIR and Supplemental EIR
- Victoria Cricket Fields Rehabilitation EIR
- Biological Resources Technical Report, Oak Tree Report, and Expert Witness for Puente Hills Landfill EIR

- Huntington Regional Park Complex EIR (closed Landfill and active petroleum extraction field)
- Kenneth Hahn Ballfield Complex EIR (closed petroleum extraction and storage field)

Environmental Compliance

National Environmental Protection Agency / California Environmental Quality Act Documents

Ms. Campbell has prepared all types of environmental compliance documents for state and federal lead agencies, including categorical exclusions, negative declarations, mitigated negative declarations, environmental assessments, EIRs, environmental impact statements (EISes), and joint environmental documents (EIRs/EISes). Ms. Campbell served as project manager for the National Environmental Protection Agency (NEPA) input to the EIS/EIR in support of the Berth 97–109 Container Terminal Project (China Shipping I, II, and III) project at the Port of Los Angeles. Ms. Campbell also served as a strategic consultant for the EIS/EIR for the Los Angeles International Airport Expansion for all issues related to biological resources, threatened and endangered species, wetlands, and related regulatory permits. Ms. Campbell served in a similar capacity on the recently completed EIR for the 2003 Owens Lake Demonstration of Attainment for PM₁₀ State Implementation Plan that addresses a 38-square mile study area requiring implementation of a variety of dust control measures. Ms. Campbell completed joint NEPA / California Environmental Quality Act (CEQA) documents for several other projects: Categorical Exclusion / EIR for the Grand Avenue Environs Project, Programmatic Negative Declaration / Environmental Assessment (Los Angeles County Department of Public Works and U.S. Army Corps of Engineers), Environmental Assessment / Mitigated Negative Declaration for the R-Line Interstate Transmission Corridor, Mitigated Negative Declaration and Environmental Assessment / Finding of No Significant Impact (FONSI) for the Bosque del Rio Hondo Riverfront Park Project (Mountains Recreation and Conservation Authority, Los Angeles County Department of Parks and Recreation, and U.S. Army Corps of Engineers, and Joint Environmental Assessment and Mitigated Negative Declaration for the Lake Mathews Ecological Reserve (U.S. Fish and Wildlife Service and The Metropolitan Water District of Southern California).

Public Outreach

Effective communication and public and agency outreach is fully integrated into the technical approach and scope of services for all work efforts undertaken by Sapphos Environmental, Inc. Ms. Campbell has successfully completed the federal government training for Negotiating, Bargaining, and Conflict Resolution. In addition, Ms. Campbell has taught at the collegiate level. Ms. Campbell has the ability to assist clients and regulatory oversight personnel in developing a strategy to address complex environmental issues and the related public outreach program to ensure that the goals of NEPA and CEQA are fulfilled. Ms. Campbell has extensive experience preparing and delivering oral presentations that effectively convey technical information in a manner that is understandable for the layperson. Ms. Campbell developed the technical training program used to train all technical staff at Sapphos Environmental, Inc. in effective listening and facilitation of community and agency meetings and workshops. Ms. Campbell has made numerous presentations to Special District Boards, County Boards of Supervisors, and City Councils and Planning Commission for a variety of high-profile capital projects.

Legal Defensibility

As principal of Sapphos Environmental, Inc., Ms. Campbell developed the standard work approach to minimize exposure to litigation and maximize protection in the limited cases where a plaintiff pursues litigation. In this approach, the project manager initiates each project with the assumption that the potential for litigation is always present. Therefore, the work plan consists of the necessary efforts to build a comprehensive and defensible administrative record to support the lead agency's decision-making process. Sapphos Environmental, Inc. has prepared numerous environmental documents, including negative declarations, mitigated negative declarations, and various types of EIRs for public- and private-sector clients under the threat of potential litigation. Of the hundreds of environmental documents prepared, legal challenges pursuant to the CEQA were ultimately filed in only nine instances. Each of these documents successfully withstood all legal challenges:

- **Hollywood Bowl Shell Rehabilitation Project and Acoustical Improvements EIR**
Prepared for the Los Angeles Philharmonic Orchestra and County of Los Angeles Chief Executive Office
On August 20, 2002, the appellate court upheld the adequacy of the EIR. The project was completed in 2004 for the new season.
- **Owens Valley PM₁₀ Planning Area Demonstration of Attainment State Implementation Plan EIR**
Prepared for the Great Basin Unified Air Pollution Control District
On July 28, 1998, the superior court upheld the adequacy of the EIR. The project has been successfully completed.
- **Frank G. Bonelli Regional Park Master Plan EIR**
Prepared for the County of Los Angeles Department of Parks and Recreation
On February 24, 1998, litigation was withdrawn as a result of a Negotiated Settlement Agreement.
- **Longden Reservoir No. 1, Van Nuys Reservoir, Van Nuys Booster Pump Station and 24-inch Parallel Pipeline Project EIR**
Prepared for the San Gabriel County Water District
On October 31, 1997, the superior court upheld the adequacy of the EIR. The project has been completed.
- **Deane Dana Friendship Community Regional County Park EIR**
Prepared for County of Los Angeles Department of Parks and Recreation
On November 15, 1996, the superior court of the County of Los Angeles ruled to deny writ of mandate.
- **Los Angeles International Airport Master Plan EIR/EIS**
As a subcontractor to CDM and URS, Sapphos Environmental, Inc. prepared the biological resources, threatened and endangered species, and wetlands components of the EIR/EIS.
In December 2005, litigation was withdrawn as a result of a Negotiated Settlement Agreement.
- **Symantec Office Development 800-900 Corporate Pointe EIR**
Sapphos Environmental, Inc. worked in concert with Century Housing's legal team on the CEQA writ and mandate against the City of Culver City. Century Housing

received their requested mitigation as compensation as a result of a Negotiated Settlement Agreement.

- **EIR for Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Development Project Area**

Prepared for the City of Chino and the State Department of Health Services.

Litigation was withdrawn as a result of a Negotiated Settlement Agreement. Project construction initiated January 2005.

- **Hyundai Annexation, Detachment, Sphere of Influence, Amendment, Redevelopment Area Expansion, General Plan Update for the Automotive Test Course Project EIR**

Prepared for the City of California City and Hyundai Motor America

Defenders of Wildlife and the Center for Biological Diversity filed a lawsuit against the U.S. Fish and Wildlife Service over permits issued to Hyundai Motor Company and California City to build an automotive test track near California City. On February 27, 2004, the lawsuit was settled in favor of the project applicant as a result of a Settled Arbitration Agreement, Case Number CV04-01073TJH (AJMx).

Regulatory Permitting

Regulatory permitting has been undertaken by Ms. Campbell in support of a variety of infrastructure projects. Ms. Campbell served as the principal-in-charge, representing the City of Carson, in after-the-fact Section 404 permit from the U.S. Army Corps of Engineers, water quality certification with the Regional Water Quality Control Board, and Streambed Alteration Agreement with the California Department of Fish and Game for the Del Amo Boulevard overcrossing. Ms. Campbell prepared the Mitigation Plan Biological Assessment for the Proposed Erosion Protection Facilities for the Valencia Water Reclamation Plant Solids Processing Plant, Los Angeles County, California, for the County Sanitation Districts of Los Angeles County. Regulatory permitting included documentation for a Pre-discharge Notification for use of Nationwide Permit submitted to the U.S. Army Corps of Engineers (including formal consultation with the U.S. Fish and Wildlife Service), Streambed Alteration Agreement submitted to the California Department of Fish and Game), and Request for Waiver of Water Quality Certification to the Regional Water Quality Control Board. Similar efforts were undertaken for two projects for the Metropolitan Water District of Southern California, emergency pipeline repairs and recurring maintenance for the Box Springs Feeder Project, and emergency debris removal and routing channel maintenance for the Weldon Canyon Creek tributary to Bull Creek at the Jensen Filtration Plant.

Hazards and Hazardous Materials

Ms. Campbell has served as project coordinator for a number of high-profile projects involving redevelopment of closed landfill and active or closed petroleum extraction fields. Most recently, Ms. Campbell served as the project coordinator representing Memorial Health Services and the City of Long Beach in relation to the proposed redevelopment of the Long Beach Memorial Medical Center Campus. Ms. Campbell worked with the clients and the Department of Toxic Substances Control to negotiate a Voluntary Clean-up Agreement that provided for assessing the Campus as three operable units. Assessment of two of the operable units was successfully completed; the investigation of the third operable unit is ongoing. Ms. Campbell served in a similar capacity, representing Meritage Partners and the County of Los Angeles, in relation to the proposed

redevelopment of the closed Palos Verdes Landfill as a public golf course. Ms. Campbell has represented public agencies, including the Mountains Restoration and Conservation Authority, the County of Los Angeles, the County Sanitation Districts of Los Angeles County, and the City of Huntington Beach in the redevelopment of brownfield properties to accommodate public benefit land uses, including the Bosque del Rio Hondo community park, Kenneth Hahn Ballfield Complex, Puente Hills Landfill, and Huntington Regional Sports Complex.

Resource Management

Ms. Campbell has extensive experience conducting Section 7 consultations on behalf of federal agencies, including the U.S. Army Corps of Engineers, USDA Bureau of Land Management, and the USDOT Federal Aviation Administration, and USDOT Federal Highway Administration with the US Fish and Wildlife Service. Similarly, Ms. Campbell has overseen the negotiation and environmental documentation related to federal Section 10(a) permits and State 2081 permits for incidental take of endangered species. All these projects have involved the preparation and implementation of long-term habitat management and conservation plans:

- Long-term Habitat Management Plan for the Red Tail Golf and Equestrian Project
- Long-term Habitat Management Plan for Los Angeles Airport / El Segundo Dunes
- Lake Mathews Fire Management Plan, Riverside County, California
- Habitat Restoration Program for Palos Verdes Blue Butterfly at Deane Dana Friendship Community Regional County Park,
- Revegetation Plan in Support of the Bosque del Rio Hondo Project
- Habitat Restoration Program in Support of the Valencia Water Reclamation Plant Solids Processing Expansion Project
- Biological Assessment, Negotiated Settlement Agreement, and Biological Resources Evaluation for the East Orange General Plan Amendment EIR

Construction Monitoring

Numerous construction monitoring projects have been supervised by Ms. Campbell to ensure compliance with mitigation programs defined in environmental compliance documents and as part of regulatory permitting programs. She prepared a construction monitoring and wildlife relocation program for the Cascades Golf Course project. Previously, she served as the in-field supervisor for construction monitoring of the repair and rehabilitation of the Orange County Feeder Extension and Related Protective Improvements, Newport Back Bay, California. Construction monitoring was required to ensure compliance with permit conditions established by the U.S. Fish and Wildlife Services (California gnatcatcher), U.S. Army Corps of Engineers (Nationwide Permit), Regional Water Quality Control Board (Water Quality Certification), California Department of Fish and Game (Streambed Alteration Agreement), and California Coastal Commission (Coastal Development Permit).

Professional History

- Sapphos Environmental, Inc., Principal, October 1992–Present
- Michael Brandman Associates, Associate, Manager of Environmental Protection Services, 1989–1992
- U.S. Army Corps of Engineers, Environmental Protection Specialist, 1984–1989

- University of California at Los Angeles, Teaching Assistant / Research Analyst, 1982–1985

Education

- Master of Arts, Geography (Geomorphology/Biogeography), University of California, Los Angeles, 1988
- Bachelor of Arts, Ecosystems: Conservation of Natural Resources, University of California, Los Angeles, 1982

Professional Affiliations

- American Planning Association
- Association of Environmental Professionals
- Association of American Geographers
- UCLA Alumni Association

Selected Publications

Campbell, Marie. 1990. *Mitigation Monitoring AB 3180: The NEPA Perspective*. California Chapter of the American Planning Association. AB 3180 Revisited Workshops. March 16, 23, and 30, 1990.

Campbell, Marie. 1990. *Mitigation Monitoring AB 3180: The NEPA Perspective*. California Chapter of the American Planning Association. AB 3180 Revisited Workshops. March 16, 23, and 30, 1990.

Campbell, M.C. 1988. Rill Erosion in a Post-Burn Chaparral Environment. Unpublished master's thesis. Department of Geography, University of California, Los Angeles.

Mackey, Ellen, R. Green, B. Newby, D. Matis, J. Bradley, D. Karavidas, and M. Campbell. 11 August 1994. *Integrating Fire Management Plans and Conservation of Endangered Species*. Poster session. Ecological Society of America Conference, Knoxville, Tennessee.

Mackey, Ellen (Metropolitan Water District of Southern California, Los Angeles), and Marie C. Campbell (Sapphos Environmental, Inc., Pasadena, CA). 1995. *Using Integrated Pest Management Approach to Ensure Conservation of Endangered Species*. Ecological Society of America Conference, Snow.

LAURA R. KAUFMAN, AICP
DIRECTOR OF ENVIRONMENTAL COMPLIANCE



Ms. Kaufman is the Director of Environmental Compliance overseeing Sapphos Environmental, Inc.'s Environmental Assessment and Planning/GIS programs. Experienced in environmental assessment and planning, Ms. Kaufman has provided technical and administrative direction and management to a multitude of projects in both the public and private sectors. In particular, she has developed a well-balanced expertise in environmental compliance for development and re-development projects, specializing in California Environmental Quality Act and National Environmental Policy Act (CEQA/NEPA) compliance.

Project Management and Oversight

Ms. Kaufman has provided consulting services meeting the standards of a wide array of southern California city, regional, state, and federal agencies, and accepted by public and private sector legal counsel. Ms. Kaufman has provided CEQA/NEPA guidance for varied development teams on large, complex and controversial projects. Past projects for which she provided consulting services include the Pasadena Art Center Master Plan for the City of Pasadena; the Malibu Bay Company Development Agreement project for the City of Malibu (12 development sites in three separate geographic areas, evaluated by site, by geographic area and cumulatively), Douglas Ranch Planning Unit #5 for the City of Simi Valley; the East Branch Extension Project for the state Department of Water Resources, and several projects for the Port of Long Beach and Port of Los Angeles; the City of Coachella General Plan Update for the City of Coachella; JMBM's high rise office building (now MGM Plaza) in Century City for JMBM and the City of Los Angeles as lead agency; several redevelopment projects for the Community Redevelopment Agency of Los Angeles (CRA/LA); the Burbank Hydrogen Refueling Station for the City of Burbank, US DOE and BP; Devers Mirage Transmission Line/Substation Improvement Project EIR for the CPUC; Fogarty Substation Project Proponent's Environmental Assessment (EA) for Southern California Edison (SCE); Tosco Oil Tank and Pipeline Relocation Project and Tank Site Redevelopment Project for Tosco; several environmental consulting for industrial and energy-related projects (both in the preparer and peer review capacity) for the Port of Long Beach; and three Sand and Gravel Mining EIRs located in Grimes Canyon for the County of Ventura, among others. Ms. Kaufman has also prepared CEQA instructional materials as project manager for the City of Los Angeles CEQA Thresholds Guide.

Ms. Kaufman has prepared or overseen preparation of joint CEQA/NEPA documents for the Federal Emergency Management Agency (FEMA), U.S. Department of Veterans Affairs (VA), U.S. Department of Energy (DOE), and the Army Corps of Engineers (ACOE); served as consulting project manager for the City of Los Angeles Threshold Guide under direction from the Los Angeles Department of Environmental Affairs; has participated in long range general plan, community plan, and specific plan processes; and has provided development counseling regarding local government zoning and permitting requirements.

The following list is a sampling of Ms. Kaufman's project experience in various development sectors:

Capital Improvement/Educational/Institutional

- Martin Luther King, Jr. Medical Center Campus Redevelopment, Willowbrook, CA.
- County of Los Angeles Data Center, Downey, CA.

- Los Angeles Unified School District (LAUSD) 9th Street K-8 Span School Redevelopment, Los Angeles (City Center), CA.
- Art Center College of Design Development Master Plan EIR, Pasadena, CA.
- West Los Angeles College Master Plan EIR, Los Angeles, CA.
- Los Angeles Unified School District, Ambassador Hotel Conversion SEIR, Los Angeles, CA.
- VA Sepulveda Buildings Renovation (Veterans Housing) MND/EA, Los Angeles (Sepulveda), CA.

Energy/Industrial

- CPUC/SCE Devers Mirage Transmission Line/Substation Improvement Project MND. Palm Springs, CA.
- SCE Fogarty Substation Project PEA, Lake Elsinor, CA.
- Port of Long Beach On-call Master Services for CEQA/NEPA Peer Review (various projects including pier/terminal improvement projects, bridges, tank farm/storage facilities), Long Beach, CA.
- Port of Long Beach On-call Master Services for CEQA/NEPA Document Preparation (various projects including pier/terminal improvement projects, aggregate and cement import facilities, rail upgrades), Long Beach, CA.
- Port of Los Angeles On-call Master Services for CEQA/NEPA Document Preparation (various projects including pier/terminal modification/upgrades), Los Angeles, CA.
- Port of Los Angeles San Pedro Waterfront Economic Analysis, Los Angeles, CA.
- Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) EIR, SCAG region, Southern California, CA.
- Tosco Oil Tank and Pipeline Relocation Project and Tank Site Redevelopment Project Entitlement and CEQA counseling, Los Angeles County, CA.
- US DOE, BP, Chrysler & Burbank Hydrogen Fuel Station MND/EA, Burbank, CA.

Water Resources

- CA DWR Lake Perris Dam Renovation Project EIR/EIS, Perris, CA.
- Las Virgenes Municipal Water District (various CEQA projects, including recycled water pipeline extensions and pump stations, Unincorporated Los Angeles County, Calabasas and Los Angeles, CA.

Plans/Planning/Entitlement Application/Sustainability

- City of Coachella General Plan EIR, Coachella, CA.
- Port of Los Angeles Sustainability Plan, Los Angeles, CA.
- Port of Los Angeles Sustainability Plan, Los Angeles, CA. (noted above, as well)
- Baldwin Park Specific Plan and EIR, City of Baldwin Park, CA.
- Santa Clarita Valley Areawide General Plan and EIR, Unincorporated Los Angeles County, CA.
- County of Los Angeles Development Project Entitlement, Unincorporated Los Angeles County, CA.
- City of Los Angeles CEQA Threshold Guide, Los Angeles, CA.
- Holiday Harbor Courts Mixed Use Development Entitlement Applications and MND, Unincorporated Los Angeles County (Marina del Rey), CA.
- Oceana Retirement Facility Housing Project Entitlement Applications and MND, Unincorporated Los Angeles County (Marina del Rey), CA.
- *Community Development (Residential, Commercial, Parks)*
- Luxe Mixed Use Project (commercial/residential) MND, Los Angeles, CA.
- Andalusia Senior Housing Project MND, Los Angeles, CA.

- Caruso Burton Way Mixed Use Project (commercial/residential) MND, Los Angeles, CA.
- Palazzo Westwood Mixed Use Project (commercial/residential) EIR, Los Angeles (Westwood), CA.
- Constellation Place (MGM Tower) Office High-rise EIR, Los Angeles (Century City), CA.
- Sorensen County Park Gymnasium/Community Building Project EIR/EA.
- Agua Dulce Residential Project Supplemental EIR, No. LA County Unincorporated Area, CA.
- Bee Canyon Manufactured Housing Project EIR, No. LA County Unincorporated Area, CA.
- Rancho Malibu Hotel Project CEQA analysis, Malibu, CA.
- Malibu Bay Development Agreement Projects EIR, Malibu, CA.
- City of Los Angeles/US ACOE - Field of Dreams Ball Field MND/EA, Los Angeles (Bielensen Park), CA.
- Documentation for expert witness testimony (various projects, regarding environmental and planning factors affecting the valuation of land)

Professional History

- Sapphos Environmental, Inc., Director of Environmental Compliance (2009–Present)
- Environmental Science Associates (ESA), (Senior Director I) Director Community Development/Office Director Woodland Hills (2006-2009)
- Envicom Corporation, Vice President and Director of Environmental Services (2000-2006)
- Christopher A Joseph & Associates (CAJA), Senior Project Manager (1999-2000)
- PCR Services Corporation, Project Manager/Principal Planner (1995-1999)
- Sikand Engineering, Project Manager (1988-1995)
- County of Los Angeles Department of Regional Planning, Associate Planner (1980-1987)

Education

- B.S., Social Science/Urban Planning, Michigan State University (1979)
- Attendance at Conferences or Seminars: AEP Conferences and Workshops, APA Conferences, UCLA Land Use Law Conference, CELSOC/ACEC and HAIC Events

Professional Affiliations and Achievements

- Member, American Planning Association (APA)
- Member, American Institute of Certified Planners (AICP)
- Member, Association of Environmental Professionals (AEP)
- Board Member, Los Angeles Chapter Association of Environmental Professionals (Channel Counties Chapter 2007, 2008) (Los Angeles County Chapter 2009, 2010)
- Moderator, Advanced CEQA Workshop, Ventura, CA, 2008
- Evaluation Juror, California AEP statewide environmental document awards (2005, 2006)
- Lecturer for Los Angeles Chapter AEP for "California Environmental Quality Act (CEQA) Basics Workshop," 2009
- Member, Southern California Planning Congress

LAURA A. WATSON, PhD
ENVIRONMENTAL COMPLIANCE SPECIALIST



Dr. Laura Watson, environmental compliance specialist for Sapphos Environmental, Inc., holds a PhD in atmospheric chemistry, with an emphasis on computer modeling of urban air pollution. Dr. Watson also holds a master's degree in Chemistry and is a LEED Accredited Professional. Her experiences cover the broad areas of chemistry and environmental science, but her specialization is in air quality.

Since joining Sapphos Environmental, Inc., Dr. Watson has been involved in numerous California Environmental Quality Act (CEQA) projects. Most recently, she has been the project manager for a project that includes a data center facility and a specific plan for a 123-acre redevelopment project, including public participation, environmental impact report, and project-level air quality and greenhouse gas emissions technical analysis. Dr. Watson has also performed air quality impact analyses and prepared environmental documentation for several projects, including the proposed development of a 10-story courthouse building, a recreational facility, and a wind energy farm.

Before joining Sapphos Environmental, Inc., Dr. Watson served as a chemist for the South Coast Air Quality Management District (SCAQMD). Her responsibilities included preparing equipment for use at air quality monitoring stations throughout Southern California, using state-of-the-art laboratory techniques to quantify pollutants in air samples, and compiling and analyzing air quality data.

Dr. Watson focused her PhD thesis on the photochemical reactions that occur in the urban atmosphere to produce secondary pollutants, such as ozone. She developed an efficient code to describe gas-phase atmospheric reactions. This code has recently been implemented in several global atmospheric models that will be used for research purposes in the United Kingdom and the United States. Using dispersion modeling, Dr. Watson tracked the chemical evolution of air parcels traveling across the Atlantic Ocean and the European continent. In addition to her thesis and dissertation research, she also supervised undergraduate students, published several papers in scientific journals, and participated in conferences on air quality and global warming. For her undergraduate studies, Dr. Watson spent one year working in the research and development department of ICI Paints, developing water-based wood stain to comply with volatile organic compound (VOC) emission standards.

Professional History

- Sapphos Environmental, Inc., Environmental Compliance Analyst, 2008–present
- South Coast Air Quality Management District, 2008
- ICI Paints, 2002–2003

Education

- PhD, Atmospheric Chemistry, University of Bristol, Bristol, United Kingdom, 2008
- MS, Chemistry, University of Bristol, Bristol, United Kingdom, 2004

Conferences/Workshops/Training

- AEP Spring CEQA Workshop, Los Angeles, 2010
- Navigating the American Carbon World Conference, Santa Barbara, 2010
- Air & Waste Management Association's Specialty Conference: Guideline on Air Quality Models: Next Generation of Models, Raleigh, North Carolina, 2009
- Introduction to the CALPUFF Modeling System, Raleigh, North Carolina, 2009
- Introduction to AERMOD, Raleigh, North Carolina, 2009
- Navigating the American Carbon World Conference, San Diego, 2009
- International Seminar on Energy and Resource Productivity, Santa Barbara, 2008
- AEP CEQA Basics Workshop, Los Angeles, 2008
- One Planet Agriculture: Preparing for a post-peak oil food and farming future, Cardiff, Wales, 2007
- American Geophysical Union, Fall Meeting, San Francisco, 2005

Publications

- Watson, Laura. March 2009. *CEQA Approach to Addressing AB32*. Association of Environmental Professionals Interchange, Los Angeles, CA.
- Watson, L.A.; Shallcross, D.E.; Utembe, S.R.; Jenkin, M.E. 2008. "A Common Representative Intermediates (CRI) Mechanism for VOC Degradation. Part 2." In *Atmospheric Environment*, Volume 42, Issue 31, pp. 7196-7204.
- Watson, L.A. 2007. *Energy Efficiency and Production Elan Valley Case Study*. Soil Association, Bristol, UK.
- Watson, L.A.; Wang, K.Y.; Hamer, P.D.; Shallcross, D.E. 2006. "The Potential Impact of Biogenic Emissions of Isoprene on Urban Chemistry in the United Kingdom." In *Atmospheric Science Letters*, Volume 7, Issue 4, pp. 96-100.

Professional Affiliations

- Association of Environmental Professionals
- Leadership in Energy and Environmental Design (LEED) Accredited Professional
- Air and Waste Management Association

EIMON RAOOF
SENIOR ENVIRONMENTAL COMPLIANCE COORDINATOR



Ms. Eimon Raof, senior environmental compliance coordinator at Sapphos Environmental, Inc., holds a master's degree in public policy from the University of Southern California. With more than five years of experience in the field of consulting, Ms. Raof's experience has involved developing, evaluating, and implementing projects and plans that comply with local and national policies for both the private and public sector. Her work has included project management, environmental compliance assessments, and environmental and economic analysis for organizations in Southern California; New Haven, Connecticut; and Chicago, Illinois. Ms. Raof has evaluated environmental events and policies as they relate to urban life and has considered methods to reduce undesired impacts. In addition, Ms. Raof's efforts are supported by her bachelor of science degree in Environmental Engineering from Yale University. Ms. Raof has conducted a significant amount of research pertaining to environmental compliance that has strengthened her work with environmental regulations, including the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), and sustainable development.

Ms. Raof currently serves as the Legislative Liaison for the Association of Environmental Professionals (AEP) Los Angeles Chapter board. Additionally, Ms. Raof has collaborated with a team of consultants to develop a standards-setting environmental agenda for planning in the City of Los Angeles, specifically assessing current development practices and presenting advice on sustainable methods, standards, and implementation. Ms. Raof has served as a liaison to various agencies during projects that required her to assess their compliance with state and national environmental policies and standards. Ms. Raof has researched specific environmental areas of interest to contribute to programs and projects located throughout California. She has also led and provided additional support to staff conducting site assessments and evaluating potential opportunities for mediation, program, and site development.

Ms. Raof's project management expertise and ability to plan, develop, and execute activities, and other agency events has led to the successful completion of a significant number of projects over the years. Currently, Ms. Raof is the project manager for a wind energy project located in County of Kern, California, as well as for a project for the County of Los Angeles Department of Public works. Ms. Raof has recently completed a project for the development of the Kroc Community Center in the City of Long Beach; a second wind energy project located in Kern County; and a school project located in Los Angeles, California. She has also successfully managed the evaluation of various project scenarios and site locations for various projects, including work with the Long Beach Memorial Medical Center and a redevelopment project for improvements at the Martin Luther King Jr. hospital facilities located in the Community of Willowbrook, in the County of Los Angeles, California. Ongoing projects in the County of Los Angeles and throughout Southern California are representative of Ms. Raof's project management experience and have allowed her the opportunity to successfully coordinate interagency activities; complete costs analyses; write environmental, technical, and legal documents; perform environmental assessments; and continue to grow in her work and knowledge of the environmental compliance and consulting fields.

Professional History

- Sapphos Environmental, Inc., Environmental Compliance Coordinator, 2007–present
- Resource Opportunities Consulting, Consultant, 2007-2005
- Los Angeles Unified School District, Program Coordinator, 2004 – 2006

Education

- Master Public Policy, Environmental Policy, Economic Development, University of Southern California, 2007
- Bachelor of Science, Environmental Engineering, Yale University, 2004

Conferences/Workshops/Training

- U.S. Green Building Conference, Boston, MA, 2008
- Retrofitting Green, Los Angeles, CA, 2008
- Association of Environmental Professionals Advanced CEQA Workshop, Los Angeles, CA, 2008
- University of California Los Angeles Project Management Extended Learning Course, Pasadena, CA 2007
- U.S. Green Building Conference, Chicago, IL, 2007
- Association of Environmental Professionals CEQA Workshop and Advanced CEQA Workshop, Pasadena, CA 2007

Professional Affiliations

- Association of Environmental Professionals (AEP), Los Angeles Chapter Board Member, Legislative Liaison
- US Green Building Council(USGBC), Los Angeles Chapter, Member
- Western Center on Law and Poverty (WCLP), Advisory Board



Mr. Tony Barranda is currently pursuing his PhD in Geography at UCLA, with concentrations in cultural, sociopolitical, and urban geography. He holds a master's degree in Geography, with an emphasis in transportation planning, environmental analysis, and architectural perception. Mr. Barranda is attempting to frame his dissertation around the reconfigured spatiality of the modern day airport terminal, using LAX as the basis for his research. He intends to investigate how the airport experience has changed given the heightened security measures after September 11 and to determine whether such measures have come to deter terrorist attacks and alter passenger perception of the terminal as a place. His knowledge and professional experience straddles the disciplines of geography, architecture and urban design, and urban planning. Mr. Barranda's role at Sapphos Environmental, Inc. is balanced between the preparation and the coordination of environmental compliance documents such as Environmental Impact Reports (EIRs), Mitigated Negative Declarations, Environmental Assessments, Initial Studies, and preparation of regulatory permits.

Since joining Sapphos Environmental, Inc., Mr. Barranda has been involved in numerous California Environmental Quality Act (CEQA) projects. Mr. Barranda's recent efforts as project manager have included projects for the 2008 Owens Valley PM₁₀ Planning Area Demonstration of Attainment State Implementation Plan, a Right-of-Way Grant for Wind Energy Development in San Bernardino County, an adaptive reuse for Descanso Gardens, and for an Addendum EIR for the Rancho Los Amigos Medical Center. He has also been involved in various projects including a proposed interpretive center for Vasquez Rocks Natural Area Park, a proposed County of Los Angeles Fire Station, Long Beach Memorial Center Miller Children's Hospital, and policy for Marina del Rey.

Prior to joining Sapphos Environmental, Inc., Mr. Barranda served as a teaching associate at UCLA and Arizona State University. His teaching experience includes both the physical and cultural fields of geography, especially issues of urbanization, community, demography and population, climatology, biogeography, and geology. He also served as book review editorial assistant for the academic journal *Ethics, Place, and Environment*. During his master's work, Mr. Barranda took an internship with the City of Phoenix, Water Services department, analyzing water and sewer coordinates to update the city's geographic information system (GIS) database. His master's thesis evaluated the architectural perceptions of the historic Art Deco District in Miami Beach, Florida, comparing architectural perceptions by residents and aesthetic practitioners working in the city. Mr. Barranda also had the opportunity to study the historical and geographic contexts of the British Landscape during his study abroad experience at the University of Oxford.

Professional History

- Sapphos Environmental, Inc., environmental specialist, 2006–present
- UCLA, undergraduate advisor, College of Letters and Science, 2005–2007
- UCLA, teaching associate, Department of Geography, 2004–2005
- UCLA, graduate research assistant and book review editorial assistant, 2003–2004
- Arizona State University, research and teaching assistant, Department of Geography, 2001–2003

Education

- PhD (in progress), Geography, University of California, Los Angeles, 2003–present
- MA, Geography, Arizona State University, Tempe, Arizona, 2001–2003
- BA, Geography and Psychology, University of Texas, Austin, Texas, 1996–2001

Conference Presentations

- Transgressing the Airport Terminal: Are We There Yet? Presented at the 101st Annual Meeting of the Association of American Geographers, Denver, Colorado, April 2005.
- Places of Remembrance: American Commemoration of the Jewish Holocaust. Presented at the 100th Annual Meeting of the Association of American Geographers, Philadelphia, Pennsylvania, March 15, 2004.
- Cracking the Architectural Codes of Miami Beach: Postmodern Space and Place. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4–8, 2003.
- A Regression Model of Passenger Boardings at Light-Rail Stations in the U.S. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4–8, 2003 (with M. Kuby and C. Upchurch).
- Combining Raster and Vector Data Models for Generating Mutually Exclusive Network-Based Service Areas. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4–8, 2003 (with C. Upchurch, M. Kuby, and M. Zoldak).
- Stratified Architectural Preferences: Sense of Place in Miami Beach. Presented at the 4th Annual Graduate Earth, Life and Social Sciences Research Symposium, Arizona State University, February 2003.

Professional Affiliations

- Association of Environmental Professionals
- Association of American Geographers

Publications

- Kuby, M., A. Barranda, and C. Upchurch. 2004. A Regression Model of Passenger Boardings at Light-Rail Stations in the U.S. *Transportation Research Part A*, 38 (3): 223–247.
- Upchurch, C., M. Kuby, M. Zoldak, and A. Barranda. 2004. Using GIS to Generate Mutually Exclusive Service Areas Linking Travel on and off a Network. *Journal of Transport Geography*, 12:23–33.

- Barranda, A. 2003. Essentials of Geography: Understanding Scale and Direction. *Introductory Physical Geography Laboratory Manual*, ed. E.M. Saffell. Plymouth, MI: Hayden-McNeil. 174 pp.

Stephanie W. Watt, MPP

*MPP, Public Policy,
University of California,
Los Angeles, 2007*

*BA, Economics, University of
California, Berkeley*

*Environmental Compliance
Coordinator*

- *CEQA compliance assessment and document preparation for Fatal Flaw Analysis, Initial Study, Environmental Impact Report, Addendum Environmental Impact Report*
- *Environmental impact analysis*
- *Project initiation, management, coordination, and facilitation of project development*
- *Coordination and facilitation of project development and meetings with regulatory agencies*

Years of Experience: 1.5

Relevant Experience:

- *Applied policy analysis*
- *Knowledge in California carbon dioxide emission and alternative fuel policies*
- *Qualitative data collection*
- *Technical report writing in support of Alternative Fuel Vehicles in California*
- *Project planning and management*
- *Client management*

Ms. Stephanie Watt, environmental compliance coordinator for Sapphos Environmental, Inc., received her master's degree in public policy in 2007 from the University of California, Los Angeles. During her graduate studies, she developed an interest in sustainability, urban planning and design, ecology, and conservation. Sapphos Environmental, Inc. has allowed her to apply her skills of environmental and policy analysis, technical report writing, and project management, and has given her exposure to the complexities of environmental regulation.

While at Sapphos Environmental, Inc., Ms. Watt has supported the work efforts for the Vasquez Rocks Natural Area Park Interpretive Center project, with the incorporation of the Escondido Canyon Road-widening effort. Her larger project work efforts include contributing environmental analysis to the Environmental Impact Report for the Kroc Community Center, helping to prepare the Marina del Rey Affordable Housing Policy Handbook, and contributing analysis to the Pacific Wind Energy Project Initial Study. Most recently, Ms. Watt oversaw the preparation of an Addendum Environmental Impact Report for LA Plaza de Cultura y Artes and the Fatal Flaw Analysis for the Avalon I Wind Energy Project. She is currently overseeing the completion of the geology and hydrology technical reports for the Pacific Wind and Avalon I Wind Energy Projects. Her work across these projects also involved preparing visibility analyses for the various wind energy projects.

Prior to working at Sapphos Environmental, Inc., Ms. Watt's interest in "green" technology brought her to work at Larta Institute as a programs associate. There, she was responsible for management of the IP Review Panels program, which involved the coordination of technology-specific professionals to provide their review and analysis of university research aiming to be patented and entered into the mainstreamed market. Her primary duties included daily communication and scheduling with clients, familiarity with the IP technologies, coordination of written materials for the review panel meetings, coordination of completed reviews, and preparation of IP Review Panel meetings.

As the project lead for her master's thesis group project, Ms. Watt performed short-term and long-term planning and management over the project's eight-month duration, including coordination with team members, the client, and faculty advisors. Her primary responsibilities included research and study of California state regulations for carbon dioxide emission reductions and alternative fuel and alternative fuel vehicle support; data collection via interview from legislative, industry, and nonprofit representatives; project scheduling and planning of the policy problem, objectives, background information, data analysis, recommendations, and criteria for choosing alternatives; and report writing.

Donna M. Grotzinger, MS

*Master of Science,
Environmental Science
and Engineering,
Virginia Tech, 1984*

*Master of Education, Boston
College, 2000*

*Bachelor of Science
Biology, Gannon
University, 1982*

*Senior Environmental
Compliance
Coordinator*

Years of Experience: 10

Relevant Experience:

- *Conduct remedial investigations and feasibility studies of hazardous waste sites*
- *Conduct predesign studies of contaminated groundwater*
- *Conduct subsurface investigations, including soil and groundwater sampling*
- *Historical records review of waste management and disposal activities*
- *Evaluation of water quality and hazards issues for CEQA and NEPA*
- *Perform postconstruction restoration assessment*

Ms. Donna Grotzinger, senior environmental compliance coordinator for Sapphos Environmental, Inc., has 10 years of experience in managing remedial investigations and feasibility studies at hazardous waste sites and in participating in environmental assessments and impact statements. Specifically, she has been involved with investigations of contamination at Superfund sites, in public-supply aquifers and former coal gasification facilities, feasibility studies for remedial action of groundwater contamination, and assessment of potential construction impacts on water quality.

Ms. Grotzinger has managed several remedial investigations at hazardous waste sites involving organic and inorganic contamination of surface and subsurface soils, surface water, and groundwater. She has been responsible for project planning with clients and federal, state, and local authorities; project scoping and development; preparation of proposals; work plans and reports; and coordination and supervision of project personnel, field activities, and subcontractors.

Ms. Grotzinger's responsibilities at Superfund sites span a wide range of activities, from project initiation to the final Record of Decision. Specifically, she has been accountable for initial project development for investigating groundwater contamination, management of soil and groundwater sampling activities and data analysis, risk assessment preparation, identification and evaluation of potential cleanup remedies, and client support for community relations and preparation of the Record of Decision. She also managed an enforcement oversight of Potentially Responsible Parties' remedial investigation and feasibility study activities and a predesign study of groundwater treatment. In addition to these federal projects, Ms. Grotzinger was responsible for oversight of subcontractors conducting remedial actions at two sites that involved removal of contaminated soils. She has also conducted a Phase I Environmental Site Assessment for a wind energy project in Kern County, California.

Ms. Grotzinger has provided technical support for preparation of environmental assessments and environmental impact statements for gas pipeline projects in the Northeast, Midwest, and Northwest, United States, providing an assessment of the impacts of natural gas pipeline installation on water resources. She has also conducted postconstruction visits to sensitive right-of-way areas to evaluate restoration progress. Ms. Grotzinger has provided technical evaluation of water quality and hazards impacts on several California Environmental Quality Act (CEQA) projects.

CRISTINA V. YAMASAKI
TECHNICAL EDITOR



Ms. Cristina Yamasaki earned a Bachelor of Arts degree in English from the University of California at Los Angeles (UCLA) in 2007 and has three years of editing and writing experience for both print and web-based media.

Prior to working at Sapphos Environmental, Inc., Ms. Yamasaki worked as the office manager for Pauley Pavilion at UCLA, where she produced a variety of documents, including memoranda, correspondences, notices, schedules, invoices, timesheets, and maintenance requests. In addition, she oversaw three student clerks and handled facility and personnel scheduling. In this capacity, Ms. Yamasaki became the primary person responsible for answering all editing and proofreading questions from office personnel.

Ms. Yamasaki's prior work also includes editorial internships at print and web-based publications based in El Segundo and North Hollywood, California, respectively. At these positions, Ms. Yamasaki researched and edited stories, reviewed products, and generated content for a web-based community. In addition, as an assistant editor for one installment in a series of print books, she was responsible for editing, proofreading, managing, and generating material. It was in these positions that she became familiar with the magazine and book publishing process, including web-based and print media.

Ms. Yamasaki also worked as a bilingual transcriber and technical editor at a UCLA research center focused on family life. There, she interpreted and transcribed discourse from more than 100 hours of video footage and produced technical documents used for a variety of university research purposes. Ms. Yamasaki oversaw the editing, proofreading, and formatting of bilingual text in line with precise technical specifications. Ms. Yamasaki is also a volunteer associate editor for the UCLA campus-based publication Bruin Business Review.

At Sapphos Environmental, Inc., Ms. Yamasaki verifies the accuracy and consistency of environmental technical reports and other materials for publication and distribution. Responsibilities include ensuring correct grammar and spelling, recasting sentences to ensure readability, formatting documents for consistency, incorporating comments made by project team members, and verifying content and references. She is familiar with the AP, MLA, and Chicago style guides. Her experience in earth and biological sciences includes university courses completed in geography, life sciences, oceanography, landscape architecture, and physics.

In addition, Ms. Yamasaki has worked on various projects as a technical editor while at Sapphos Environmental, Inc.: the proposed Vasquez Rocks Natural Area Park Interpretive Center project, which encompassed a large document consisting of more than 1,000 pages of text and high-quality graphics; the Addendum Environmental Impact Report for the LA Plaza de Cultura y Artes project in El Pueblo de Los Angeles Historic District; the proposed One Carter Avenue Project for the City of Sierra Madre, entailing a cultural resources construction monitoring report; and Initial Studies, Environmental Impact Reports, and other California Environmental Quality Act-related documentation for various projects, among others. Ms. Yamasaki has also edited and produced thousands of pages of documents, including, but not limited to, proposals and statements of qualifications, environmental documents, memoranda for the record, and monthly status reports, and has also coordinated the design and production of high-quality images and graphics.

Professional History

- Sapphos Environmental, Inc., Pasadena, California—Technical Editor
- Bruin Business Review, Los Angeles, California—Associate Editor
- UCLA Department of Recreation, Event Facilities Management Office, Los Angeles, California—Office Manager
- Savvy Miss, LLC, Los Angeles, California—Editorial Intern
- UCLA SLOAN Center on the Everyday Lives of Families, Los Angeles, California—Transcriber
- Better Nutrition Magazine / Vegetarian Times Magazine, El Segundo, California—Editorial Intern
- The Guide to Laughing Institute (Shawn Gold, Author), Los Angeles, California—Assistant Editor

Education

- BA, English, University of California, Los Angeles
- Professional Certificate in Copyediting, University of California, San Diego (in progress)

Christine Safriet
Senior Associate

Education

MBA, Anderson School at the University of California, Los Angeles
MA, Urban Planning, University of California, Los Angeles
BS, Geophysics, Boston College

Affiliations

Member, Urban Land Institute
Member, American Planning Association

Lectures + Instruction

Adjunct Faculty, SCIARC Urban Futures Initiative, Geographic Information Systems, 2008-present

Professional History

2006 - Present
Economics at AECOM
(formerly Economics Research Associates or ERA)

Christine Safriet provides real estate and urban planning consulting services to both private industry and public sector clients. Her work focuses on analyzing market support and determining the feasibility of real estate projects, as well as quantifying the fiscal and economic impacts of such projects. She is skilled in the use of mapping technology to analyze spatial and temporal changes in land use and demographics.

Ms. Safriet is a core member of the Geographic Information Systems (GIS) team in the Economics Practice at AECOM, and has wide experience in optimizing GIS applications for land use economics analysis.

Select Project Experience

Fiscal and Economic Impacts of Proposed Solar Farm, Unincorporated Imperial County

Fiscal & economic impact analysis of proposed solar facility on Imperial County (2010)

The Economics practice at AECOM was retained by a confidential client to provide net fiscal analysis of a proposed 50 megawatt, 320-acre photovoltaic solar farm on the Imperial County General Fund and select special revenue funds (fire, police). In addition, we estimated the economic impacts of annual facility operations and one-time construction to the regional economy. Christine served as the project manager for this analysis and worked closely with Amitabh Barthakur and Lance Harris, key members of the project team.

On-Call Peer Review Services, Sarasota County, Florida

Peer review of numerous fiscal neutrality impact analyses for Sarasota County Government (2009 & 2010)

The Economics practice at AECOM has been retained on an on-call basis by the Sarasota County Planning Department to provide statutorily-required peer reviews of fiscal neutrality reports (fiscal impact analyses) provided by private developers as part of the development review process. Christine has served as the project manager for three fiscal neutrality reviews provided in 2009 and 2010, for projects ranging in size from 500 to 2500 residential units, with additional hotel, retail, and commercial office components. For each peer review, AECOM reviews the developer's fiscal neutrality report and analysis and provides a memorandum presenting our observations and comments on issues related to methodology and assumptions, and how those issues may impact the analytical outcomes.

Economic Impact of USC , City of Los Angeles, CA

Impact analysis of programs and operations at University of Southern California on regional economy, 2006 baseline and 2008 update

In 2006, we were retained by University of Southern California to develop a baseline analysis of the direct, indirect, and induced economic impacts of activities at USC based on four core sets of activities and agents: students, visitors, general University operations, and capital expenditures. The analysis was published online and widely distributed to funders, local and regional politicians, and others to demonstrate the impact of the University in the local economy. In 2008, the University re-engaged us to complete a two-year update of economic impacts and provide a comparison to the earlier report.

Fiscal and Economic Impacts of Proposed NFL Stadium, Confidential Location

Economic & fiscal impact of proposed NFL stadium on host city and other local municipalities

We were retained by a confidential client to conduct economic and fiscal impact analyses of a proposed NFL stadium and surrounding mixed-use development on approximately 600 acres of undeveloped land in a large metropolitan area. The stadium facility is proposed as part of a larger, master-planned development that will include retail and office space and an entertainment complex. We analyzed the economic and fiscal impacts of the master plan program on the host city and surrounding municipalities under a regular season scenario and a Super Bowl scenario. The results were also compared to the impacts of the original master plan for the site, which did not include stadium uses.

Land Swap Valuation Matrix, City of Chula Vista, CA

Analysis of the incremental value of land use options at varying densities to inform pricing for a land swap between the City and private developers

We estimated the economic value of potential land-use entitlement allocations in order to assist the City of Chula Vista in evaluating a land acquisition strategy for the University Park and Research Center by entering into a land swap and/or land dedication arrangement with private landowners in exchange for potentially higher value entitlements. In the course of this assignment, we examined land market and residential sales to benchmark the relationship between use/density and values; analyzed the potential impact of land use category changes from non-residential to residential; and analyzed the incremental value impacts from density changes under alternative scenarios for the University area.

Laguna Caren Master Plan, Santiago, Chile

Market feasibility analysis and financial performance estimates for 1,800-acre mixed use master plan development

The 1,800 acre Laguna Caren site, located on the outskirts of western Santiago, is currently undeveloped grassland with several lakes and streams running from the foothills. The site is controlled by a local university

via a permanent land lease from the government, and will be developed through a public/private partnership. Overall project components will include a university campus, office, retail, entertainment, and residential land uses.

We were sought out by the private developer partner and design team (project team) to assess market demand for a wide variety of potential land uses. Our results informed the development of a market-based program for the master plan, with appropriate density and product positioning to support active use. Based on our recommendation, the project will be anchored by two recreational components (a waterpark and amphitheater) and an outlet retail center. In phase 2 of the study, we were brought back to analyze the financial performance of the master plan in order to confirm the sizing and product mix for presentation to the University and other investment partners.

**Economic Strategy for Los Angeles State
Historic Park (Cornfields), City of Los
Angeles, CA**

*Market support, attendance projections, and
governance options for the Los Angeles State
Historic Park*

ERA conducted a comprehensive market and comparable facilities review for the Los Angeles State Historic Park (also known as the Cornfields) in downtown Los Angeles. In conjunction with a physical plan provided by the park architect and a set of core values provided by the CA Department of Parks and Recreation, ERA developed park attendance projections, estimated earned revenue capacity and operating expenditures, and developed strategic options for the park's governance structure.