County of Santa Barbara

Single-Use Plastic Bag Ban Ordinance

Draft

Environmental Impact Report

December 2013

rincon

Environmental Scientists Planners Engineers

County of Santa Barbara
Single-Use Plastic Bag Ban Ordinance

Draft
Environmental Impact Report

Prepared by:

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Single-Use Plastic Bag Ban Ordinance EIR

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EXECUTIVE SUMMARY

This section summarizes the characteristics of the Proposed Ordinance and the significant environmental impacts, mitigation measures, and residual impacts associated with the proposed Singe-Use Plastic Bag Ban Ordinance.

PROJECT SYNOPSIS

Project Sponsor

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Project Characteristics

The proposed Single-Use Plastic Bag Ban Ordinance ("Proposed Ordinance") would regulate the use of paper and plastic carryout bags within the geographical limits of unincorporated Santa Barbara County. The geographical limits of unincorporated Santa Barbara County are referred to as the "Study Area" in this Environmental Impact Report (EIR). The Proposed Ordinance, which is similar to the model ordinance considered in the Final EIR prepared by BEACON and completed in May 2013 (see Section 1.0, *Introduction*, for further discussion of the BEACON model ordinance and associated EIR), (1) prohibits the free distribution of single-use carryout paper and plastic bags; and (2) requires retail establishments to charge customers for paper bags at the point of sale. Regulated retail establishments would be allowed to sell reusable bags or distribute them free of charge. The Proposed Ordinance sets the minimum charge for recyclable paper bags at ten cents ($0.10). Plastic carryout bags are defined in the Proposed Ordinance as any bag made predominately of plastic derived from either petroleum or biologically-based sources, such as corn or other plant sources, which is provided to a customer at the point of sale. Regulated bags would not include reusable bags, produce bags, or product bags (as defined).

The Proposed Ordinance would apply to two categories of retail establishments that are located within the limits of the Study Area. These include:

1. A store of at least 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 (Part 1.5 (commencing with Section 7200) of Division 2 of the Revenue and Taxation Code) which sells a line of dry grocery or canned goods, or non-food items and some perishable food items for sale or a store that has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code; or
2. A drug store, pharmacy, supermarket, grocery store, convenience food store, food mart, liquor store, or other similar retail store or entity engaged in the

retail sale of a limited line of grocery items. Grocery items typically include, but are not limited to, milk, bread, soda, and snack foods.

The Proposed Ordinance would not apply to restaurants, fast food providers, or other food establishments (unless specified in the Proposed Ordinance). Thus, restaurant owners, and other food establishments would be able to continue to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises. In addition, the Proposed Ordinance exempts wine/beer tasting rooms operating under a Type 20 or 21 liquor license. Retail establishments would be required to keep complete accurate records of the sale of both recyclable paper bags and reusable bags for annual reporting to the governing jurisdiction for three (3) years after this ordinance goes into effect.

The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single-use carryout bags. It is anticipated that by prohibiting plastic carryout bags and requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of reusable bags by retail customers, while reducing the number of single-use plastic and paper bags used within the Study Area.

PROJECT OBJECTIVES

The County of Santa Barbara's objectives for the Proposed Ordinance include:

- *Reducing the environmental impacts related to plastic carryout bags, such as impacts to biological resources (including marine environments), water quality and utilities (solid waste equipment and facilities)*
- *Deterring the use of paper bags by retail customers*
- *Promoting a shift toward the use of reusable carryout bags by retail customers*
- *Reducing the amount of single-use bags in trash loads to reduce landfill volumes*
- *Reducing litter and the associated adverse impacts to stormwater systems, aesthetics and marine and terrestrial environments*

ALTERNATIVES

As required by CEQA, the EIR examines a range of alternatives to the proposed project that feasibly attain most of the basic project objectives. These alternatives are described and evaluated in Section 6.0, *Alternatives*. Studied alternatives include:

- ***Alternative 1: No Project*** *- The no project alternative assumes that the Single-Use Plastic Bag Ban Ordinance would not occur. The existing retail establishments would continue to provide single-use bags free of charge to the customers.*

- ***Alternative 2: Ban on Single-use Plastic Bags at all Retail Establishments, Except Restaurants*** *- This alternative would prohibit all retail establishments in the Study Area from providing plastic carryout bags to customers at the point of sale, but restaurants and other food establishments would still be excluded from the Proposed Ordinance.*

- ***Alternative 3: Mandatory Charge of $0.25 for Paper Bags*** *- This alternative would continue to prohibit retail establishments (except restaurants) in the Study Area from providing plastic carryout bags to customers at the point of sale, but would increase the mandatory charge for single-use paper bags from $0.10 to $0.25.*

- ***Alternative 4: Ban on Both Single-use Plastic and Paper Carryout Bags*** *– This alternative would prohibit all retail establishments (except restaurants) in the Study Area from providing plastic and paper carryout bags to customers at the point of sale.*

- ***Alternative 5: Mandatory Charge of $0.10 for Plastic and Paper Carryout Bags*** *– This alternative would continue to allow Study Area retail establishments to provide plastic and paper carryout bags to customers at the point of sale, but would create a mandatory charge for both plastic and paper bags of $0.10.*

- ***Alternative 6: Delayed Implementation in the North Portion of the County -*** *Under this alternative, the ordinance would only apply to southern Santa Barbara County areas in the first twelve months and would apply to the northern portion of Santa Barbara County (all areas north of the Santa Ynez mountains using East and West Camino Cielo Roads as the dividing line) after the first twelve months.*

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Table ES-1 includes a brief description of the environmental issues relative to the Proposed Ordinance, the identified significant environmental impacts, proposed mitigation measures, and residual impacts. Impacts are categorized by classes. Class I impacts are defined as significant, unavoidable adverse impacts which require a statement of overriding considerations to be issued pursuant to the *CEQA Guidelines* §15093 if the project is approved. Class II impacts are significant adverse impacts that can be feasibly mitigated to less than significant levels and which require findings to be made under Section 15091 of the *CEQA Guidelines.* Class III impacts are considered less than significant impacts, and Class IV impacts are beneficial impacts.

Table ES-1
Summary of Significant Environmental Impacts,
Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
AIR QUALITY		
Impact AQ-1 With a shift toward reusable bags, the Proposed Ordinance is expected to reduce the number of plastic carryout bags, thereby reducing the total number of bags manufactured and the overall air pollutant emissions associated with bag manufacture, transportation and use. Therefore, air quality impacts related to alteration of processing activities would be Class IV, *beneficial.*	Mitigation is not required.	The impact would be beneficial without mitigation.

Table ES-1
Summary of Significant Environmental Impacts, Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
Impact AQ-2 With an expected increase in the use of recyclable paper and reusable carryout bags, the Proposed Ordinance would generate air pollutant emissions associated with an incremental increase in truck trips to deliver recyclable paper and reusable carryout bags to local retailers. However, emissions would not exceed SBCAPCD operational significance thresholds. Therefore, operational air quality impacts would be Class III, *less than significant*.	Mitigation is not required.	Impacts would be less than significant without mitigation.
BIOLOGICAL RESOURCES		
Impact BIO-1 The Proposed Ordinance would incrementally increase the number of recyclable paper and reusable carryout bags within the Study Area. However, the reduction in the number of plastic carryout bags used would be expected to reduce the overall amount of litter entering the creeks and coastal habitat, thus reducing litter-related impacts to sensitive wildlife species and sensitive habitats. This is a Class IV, *beneficial*, effect.	Mitigation is not required.	The impact would be beneficial without mitigation.
GREENHOUSE GAS EMISSIONS		
Impact GHG-1 The Proposed Ordinance would increase the number of recyclable paper and reusable carryout bags used in the County and would therefore incrementally increase GHG emissions compared to existing conditions. However, emissions would not exceed thresholds of significance. Impacts would be Class III, *less than significant.*	Mitigation is not required.	The impact would be less than significant without mitigation.
Impact GHG-2 The Proposed Ordinance would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Impacts would be Class III, *less than significant.*	Mitigation is not required.	The impact would be less than significant without mitigation.
HYDROLOGY/WATER QUALITY		
Impact HWQ-1 The Proposed Ordinance would incrementally increase the number of recyclable paper and reusable bags used in the Study Area, but the reduction in the overall number of plastic carryout bags used in the Study Area would reduce the amount of litter and waste entering storm drains. This would improve local surface water quality, a Class IV, *beneficial*, effect.	Mitigation is not required.	The impact would be beneficial without mitigation.
Impact HWQ-2 A shift toward reusable bags and potential increase in the use of recyclable paper bags could increase the use of chemicals associated with their	Mitigation is not required.	Impacts would be less than significant without mitigation.

Table ES-1
Summary of Significant Environmental Impacts,
Mitigation Measures, and Residual Impacts

Impact	Mitigation Measures	Significance After Mitigation
production, which could degrade water quality in some instances and locations. However, bag manufacturers would be required to adhere to existing regulations, including NPDES Permit requirements and the California Health and Safety Code. Therefore, impacts to water quality from increasing recyclable paper and reusable bag processing activities would be Class III, *less than significant*.		
UTILITIES AND SERVICE SYSTEMS		
Impact U-1 The increase of reusable bags within the Study Area as a result of the Proposed Ordinance would incrementally increase water demand due to washing of reusable bags. However, sufficient water supplies are available to meet the demand created by reusable bags. Therefore, water supply impacts would be Class III, *less than significant.*	Mitigation is not required.	Impacts would be less than significant without mitigation.
Impact U-2 Water use associated with washing reusable carryout bags within the Study Area would incrementally increase wastewater generation. However, projected wastewater flows would remain within the capacity of Study Area wastewater collection and treatment systems and would not exceed applicable wastewater treatment requirements. Impacts would be Class III, *less than significant*.	Mitigation is not required.	Impacts would be less than significant without mitigation.
Impact U-3 The Proposed Ordinance would alter the solid waste generation rates in the Study Area due to an increase in recyclable paper and reusable carryout bag use and a reduction in plastic carryout bag use. However, projected future solid waste generation would remain within the capacity of regional landfills. Impacts would therefore be Class III, *less than significant*.	Mitigation is not required.	Impacts would be less than significant without mitigation.

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1.0 INTRODUCTION

This document is an Environmental Impact Report (EIR) for the proposed Single-Use Plastic Bag Ban Ordinance (the Proposed Ordinance). The Proposed Ordinance would prohibit retail establishments engaged in the sale of groceries (excluding restaurants and wine/beer tasting rooms) in Santa Barbara County from distributing single-use plastic carryout bags ("plastic carryout bags"). It would also create a mandatory minimum charge of ten cents ($0.10) for each recyclable paper bag provided to a customer. The intent of the Proposed Ordinance is to reduce waste by decreasing the use of single-use carryout bags.

The Proposed Ordinance would apply to retail establishments, including, but not limited to, drug stores, pharmacies, supermarkets, grocery stores, convenience food stores, food marts, liquor stores or other similar retail stores or entities engaged in the retail sale of grocery items; and is located within the geographical limits of unincorporated Santa Barbara County.

For the purposes of this EIR, the geographical limits of unincorporated Santa Barbara County (excluding Vandenberg Air Force Base, the Chumash Reservation and UCSB) shall be known as the "Study Area." The Proposed Ordinance is described in greater detail in Section 2.0, *Project Description*. This section discusses:

- *The project background;*
- *The legal basis for preparing an EIR;*
- *The scope and content of the EIR;*
- *Type of EIR*
- *Lead, responsible, and trustee agencies; and*
- *The environmental review process required under the California Environmental Quality Act (CEQA).*

1.1 PROJECT BACKGROUND

On Behalf of its member agencies, The Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), a California Joint Powers agency established in 1992 to address coastal erosion, beach nourishment and clean oceans within the Central California Coast from Point Conception to Point Mugu, prepared a Program EIR (SCH # 2012111093) for a proposed model ordinance regulating single-use plastic bags throughout the incorporated and unincorporated areas of Santa Barbara and Ventura counties. BEACON completed the Final Program EIR in May 17, 2013 and has provided the Final EIR to the member agencies (including the County of Santa Barbara) for their use as CEQA Lead Agencies in adopting a Single-Use Plastic Bag Ban Ordinance applicable to their respective jurisdictions.

The BEACON Final EIR (SCH # 2012111093) is incorporated by reference for this EIR and can be accessed online at: http://www.beacon.ca.gov/assets/PDFs/Bag-Ordinance/BEACON%20Single%20Use%20Carryout%20Bag%20Ordinance%20Final%20EIR_updated%20May1.pdf

Santa Barbara County has now prepared a project-specific EIR (utilizing information from the Program EIR) to analyze environmental impacts associated with the adoption of a County-

specific ordinance which, as described in Section 2.0, *Project Description*, differs slightly from the model ordinance analyzed in the BEACON Program EIR. The intent of the ordinance is to reduce the environmental impacts related to the use of plastic carryout bags and promote a shift toward the use of reusable bags.

In order to reduce the environmental impacts related to the use of single-use carryout bags, Santa Barbara County has prepared a proposed County Single-Use Plastic Bag Ban Ordinance (see Draft Ordinance in Appendix B). Adoption of the Proposed Ordinance is a discretionary action subject to the environmental review requirements of the California Environmental Quality Act (CEQA). Therefore, in accordance with CEQA, this EIR has been prepared to examine the Ordinance's potential environmental impacts.

The analysis of the Proposed Ordinance in this EIR considers a single-use bag ordinance that would be adopted within the unincorporated region of Santa Barbara County. As described above, for this EIR, the geographical limits of unincorporated Santa Barbara County defines the "Study Area."

According to Californian's Against Waste, as of November 6th, 2013, 66 similar ordinances have been enacted across the state of California that affects 87 local jurisdictions. This currently covers close to a third of the state population.
(http://www.cawrecycles.org/issues/plastic_campaign/plastic_bags/local)

Nearby jurisdictions that have enacted a similar ordinance include the County and all cities of San Luis Obispo, the City of Santa Barbara, the City of Carpinteria, and the Vity of Ojai.

The County of Santa Barbara prepared a Notice of Preparation (NOP) of an EIR for the Proposed Ordinance, published legal ads regarding the availability of the NOP in both the Santa Barbara News Press and Santa Maria Times, submitted the NOP to the State Clearinghouse, and distributed the NOP for agency and public review for a 30-day review period beginning November 5, 2013. The County received two letters in response to the NOP. The County also conducted a public scoping meeting during the NOP comment period. This meeting took place in Santa Barbara (November 21, 2013). To be as concise as possible and as allowed by CEQA, the EIR identifies common environmental topics of concern expressed in the scoping comments. Table 1-1 summarizes these environmental topics of concern. Only the comments pertinent to CEQA have been summarized. Comments related to the merits of the proposed project are outside the purview of CEQA analysis and are therefore excluded from this list. The NOP prepared for the project as well as the comment letters received are presented in Appendix A.

Table 1-1
Summary of Written Scoping Comments and
Comments Provided at Public Scoping Sessions

Topic of Concern Index	Comment Received	Response, including Reference to Where Comment is Addressed in the EIR
Topic No. 1	A comment suggested that the impact analysis and quantification of impact areas from the BEACON EIR Appendix needs to be updated and corrected in this EIR.	The impact analysis for Santa Barbara County's proposed Ordinance utilized the BEACON EIR but, the impact analysis was reviewed and updated accordingly (and is contained in the Appendices of this EIR). The quantification of bag use and associated impacts of the proposed Ordinance in this EIR are specific to the proposed Santa Barbara County Ordinance and the analysis is specific to impacts within the Study Area.
Topic No. 2	Landfill impacts from reusable bags need to be accurately quantified.	The solid waste associated with reusable bags is discussed and quantified in Section 4.5, *Utilities and Service Systems*. For this analysis it is assumed that reusable bags are used 52 times in one year and then disposed of in a landfill (thus it is assumed that all reusable bags are disposed of in a landfill). See Impact U-3 Section 4.5, *Utilities and Service Systems*.
Topic No. 3	Recycling plastic bags and reuse of plastic bags.	As noted in Section 2.0, *Project Description*, plastic carryout bags can be reused by customers and are recyclable, though the rate of recycling that actually occurs depends on market and other factors.

1.2 PURPOSE AND LEGAL AUTHORITY

The proposed Single-Use Plastic Bag Ban Ordinance requires the discretionary approval of the County of Santa Barbara. Therefore, it is subject to the requirements of CEQA. In accordance with Section 15121 of the *CEQA Guidelines,* the purpose of this EIR is to serve as an informational document that:

> *...will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project.*

This EIR is to serve as an informational document for the public and the decision-makers of the County of Santa Barbara. The County of Santa Barbara will review and consider the information in the EIR, along with any other relevant information, in considering whether to adopt the Proposed Ordinance (Section 15121 of the *CEQA Guidelines*). The environmental review process will culminate with a County Board of Supervisors hearing to consider certification of the Final EIR and separately, whether to adopt the Proposed Ordinance amending the County Code. Section 2.6 in Section 2.0, *Project Description,* provides a detailed description of approvals that may be necessary for the Proposed Ordinance.

As noted above, The BEACON Final EIR (SCH # 2012111093) is incorporated by reference for this EIR and can be accessed online at: http://www.beacon.ca.gov/assets/PDFs/Bag-Ordinance/BEACON%20Single%20Use%20Carryout%20Bag%20Ordinance%20Final%20EIR_updated%20May1.pdf

1.3 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The *CEQA Guidelines* define lead, responsible and trustee agencies. For the purposes of this EIR, the County of Santa Barbara is acting as the lead agency for the certification of the Final EIR and approval of the project as it has jurisdictional authority to adopt the Proposed Ordinance that would apply to the unincorporated areas of Santa Barbara County.

A responsible agency refers to a public agency other than the lead agency that has discretionary approval over a project, and a trustee agency refers to a state agency having jurisdiction by law over natural resources affected by a project. There are no responsible or trustee agencies for the Proposed Ordinance.

1.4 TYPE OF EIR

This EIR has been prepared as a Project EIR pursuant to Section 15161 of the *CEQA Guidelines.* A Project EIR is appropriate for a specific project. As stated in the *CEQA Guidelines:*

> *This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project, including planning, construction, and operation.*

The degree of specificity required in this EIR corresponds to the degree of specificity involved in the underlying activity (the Proposed Ordinance) which is described in the EIR. The *CEQA Guidelines* provide the standard for the degree of specificity on which this document is based. Section 15146 of the *CEQA Guidelines* states:

> *(a) An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy.*
>
> *(b) An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.*

The analysis provided in this EIR is intended to provide sufficient information to understand the environmental impacts of the Proposed Ordinance at a planning level and to permit a reasoned choice among alternatives. The EIR is intended to permit informed decision making and public participation. As an EIR that considers a study area that includes all of unincorporated Santa Barbara County, this document focuses on the broad changes to the environment that would be expected to result from implementation of the Proposed Ordinance within the county.

1.5 EIR SCOPE AND CONTENT

This EIR addresses the potentially significant effects that the County of Santa Barbara has determined could result from adoption of the Proposed Ordinance. The issues addressed in this EIR include:

- *Air Quality*
- *Biological Resources*
- *Greenhouse Gas Emissions*
- *Hydrology/Water Quality*
- *Utilities and Service Systems*

The EIR references pertinent policies and guidelines of Santa Barbara County, certified EIRs and other adopted CEQA documents, and background documents prepared by the County and other relevant agencies (such as BEACON) in preparing the Proposed Ordinance. A full reference list is contained in Section 7.0, *References and Report Preparers*.

The alternatives section of the EIR (Section 6.0) was prepared in accordance with Section 15126.6 of the *CEQA Guidelines.* The alternatives discussion evaluates the CEQA-required "no project" alternative and five alternative scenarios for the Proposed Ordinance. It also identifies the environmentally superior alternative among the alternatives assessed.

The level of detail contained throughout this EIR is consistent with the requirements of CEQA and applicable court decisions. The *CEQA Guidelines* provide the standard of adequacy on which this document is based. The *CEQA Guidelines* state:

> *An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure. (Section 15151)*

1.6 ENVIRONMENTAL REVIEW PROCESS

The major steps in the environmental review process, as required under CEQA, are outlined below. The steps are presented in sequential order.

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency must file an NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing *(CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days.

2. **Draft Environmental Impact Report (DEIR).** The DEIR must contain:

   a) Table of contents or index;
   b) Summary;
   c) Project description;
   d) Environmental setting;
   e) Discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts);
   f) Discussion of alternatives;
   g) Mitigation measures; and
   h) Discussion of irreversible changes.

3. **Notice of Completion/Notice of Availability of Draft EIR.** A lead agency must file a Notice of Completion with the State Clearinghouse when it completes a Draft EIR and prepare a Public Notice of Availability for the Draft EIR. The lead agency must place the Notice in the County Clerk's office for 45 days (Public Resources Code Section 21092) and send a copy of the Notice to anyone requesting it *(CEQA Guidelines* Section 15087). Additionally, public notice of DEIR availability must be given through at least one of the following procedures: a) publication in a newspaper of general circulation; b) posting on and off the project site; and c) direct mailing to owners and occupants of contiguous properties. The lead agency must solicit input from other agencies and the public, and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a DEIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the Clearinghouse (Public Resources Code 21091) approves a shorter period.

4. **Final EIR.** A Final EIR must include: a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.

5. **Certification of FEIR.** Prior to making a decision on a proposed project, the lead agency must certify that: a) the FEIR has been completed in compliance with CEQA; b) the Final EIR was presented to the decision-making body of the lead agency; and c) the decision-making body reviewed and considered the information in the Final EIR prior to approving a project *(CEQA Guidelines* Section 15090).

6. **Lead Agency Project Decision.** A lead agency may: a) disapprove a project because of its significant environmental effects; b) require changes to a project to reduce or avoid significant environmental effects; or c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted *(CEQA Guidelines* Sections 15042 and 15043).

7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead or responsible agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible *(CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant

environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.

8. **Mitigation Monitoring Reporting Program.** When an agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.

9. **Notice of Determination.** An agency must file a Notice of Determination after deciding to approve a project for which an EIR is prepared *(CEQA Guidelines* Section 15094). A local agency must file the Notice with the County Clerk. The Notice must be posted for 30 days and sent to anyone previously requesting notice. Posting of the Notice starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).

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2.0 PROJECT DESCRIPTION

This section describes the Proposed Single-Use Plastic Bag Ban Ordinance ("Proposed Ordinance"), including information about the project proponent, the project location, major project characteristics, project objectives, and discretionary approvals needed for project approval.

2.1 PROJECT SPONSOR

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2.2 PROJECT LOCATION

The Proposed Ordinance applies to specified retail establishments selling grocery items, including, but not limited to, drug stores, pharmacies, supermarkets, grocery stores, convenience food stores, food marts, liquor stores, or other similar retail stores or entities, that are located within the unincorporated areas of Santa Barbara County.

The areas within the geographical limits of Santa Barbara County where the Proposed Ordinance would apply are referred to as the "Study Area" in this EIR. Figure 2-1 illustrates the Study Area.

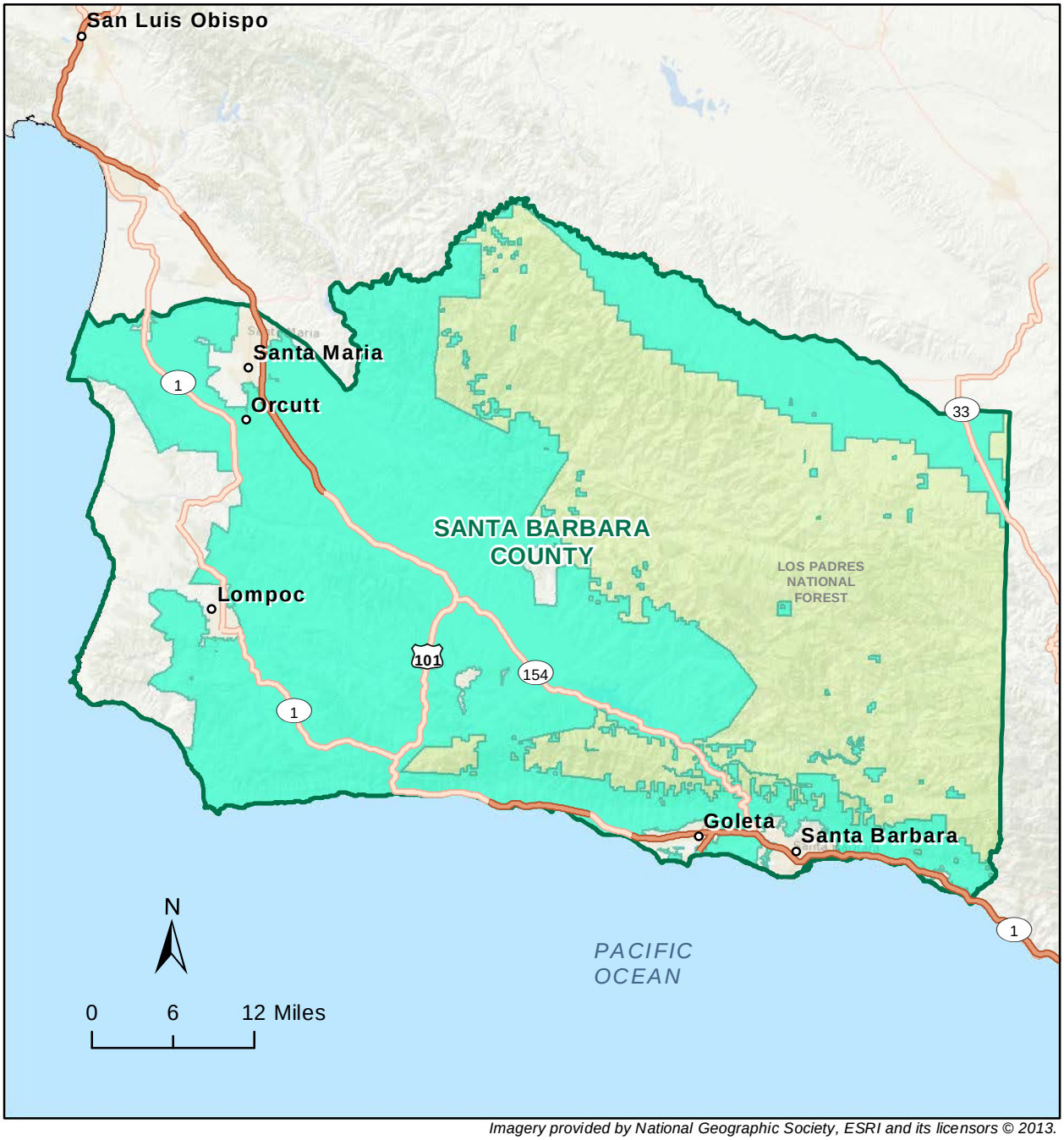
2.3 EXISTING CHARACTERISTICS

2.3.1 Carryout Bags in the Study Area

The types and amounts of carryout bags currently used within the Study Area are discussed below.

a. Types of Carryout Bags.

Plastic Carryout Bags. Single-use disposable plastic grocery bags ("plastic carryout bags") are typically made of thin, lightweight high density polyethylene (HDPE) (Hyder Consulting, 2007). For consumers, they offer a hygienic, odorless, water resistant and sturdy carrying sack, but are generally intended for one use before disposal. Currently, almost 20 billion of these plastic grocery bags are consumed annually in California (San Mateo County Final EIR, October 2012; Green Cities California MEA, 2010; and CIWMB, 2007). Studies suggest that conventional plastic carryout bags are manufactured by independent manufacturers who purchase virgin resin from petrochemical companies or obtain non-virgin resin from recyclers or other sources and that 69.3% of plastic carryout bags used in the United States are made in the United States (Stephen L. Joseph, May 17, 2013). The HDPE bag cycle begins with the



Single-Use Plastic Bag
Ban Ordinance Study Area

Figure 2-1

waste-byproducts of oil (imported bags) or natural gas (domestic bags) into hydrocarbon monomers, which are then further processed into polymers (Herrera et al, 2008; County of Los Angeles, 2009; Stephen L. Joseph, May 17, 2013).These polymers are connected with heat to form plastic resins, which are then blown through tubes to create the air pocket of the bag. Once cooled, the plastic film is stretched to the desired size of the bag and cut into individual bags. Typical single-use plastic bags are approximately five to nine grams in weight, and can be purchased in bulk for approximately two to five cents per bag (AEA Technology, 2009).

Plastic carryout bags can be reused by customers and are recyclable, though the rate of recycling that actually occurs depends on market and other factors. Approximately 11.1% of plastic carryout bags in the United States are recycled (US EPA, May 2013). In addition, customers sometimes reuse plastic carryout bags in place of other types of bags, for example as small trash can liners or to pick up/transport pet waste. A study from Great Britain (British Environment Agency, February 2011) provided some estimates from England and Wales of the percentage of customers that were provided a plastic carryout bag and reused the bag for other purposes. However, these estimates are specific to behavior in Great Britain. There is no such estimate for reuse of plastic carryout bags by customers in the United States or more specifically for customers in Santa Barbara County. While it can be reasonably assumed that a portion of customers in unincorporated Santa Barbara County that receive plastic carryout bags at a store where they made a purchase actually reuse the bag for other uses, it would be speculative to assume that the exact same number of customers in Santa Barbara County reuse plastic carryout bags as in England and Wales. Since there are not specific statistics for reuse in Santa Barbara County, it would be speculative to account for such behavior in our analysis. Nevertheless, some customers reuse their plastic carryout bags after using them to transport purchases from a store to home.

Paper Bags. Like plastic grocery shopping bags, paper bags are usually distributed free of charge to customers at grocery stores, and are intended for one use before disposal. Paper bags are recyclable and can be reused by customers. Approximately 49.5% of paper bags nationwide are recycled (US EPA, May 2013). Reports indicate that consumers nationally recycle paper products at a rate of 50 percent (International Paper, 2012). Paper grocery bags are typically produced from kraft paper and weigh between 50 and 100 grams, depending on whether or not the bag includes handles (AEA Technology, 2009). These bags can be purchased in bulk for approximately 15 to 25 cents per bag (City of Pasadena, 2008). Kraft paper bags are manufactured from a pulp that is produced by digesting a material into its fibrous constituents via chemical and/or mechanical means (FRIDGE, 2002). Kraft pulp is produced by chemical separation of cellulose from lignin (Environmental Paper Network, 2007). Chemicals used in this process include caustic sodas, sodium hydroxide, sodium sulfide, and chlorine compounds (Environmental Paper Network, 2007). The paper bags are typically made from trees (paper) and corn (glue) which are both re-planted and re-grown (International Paper, 2012). Processed and then dried and shaped into large rolls, the paper is formed into bags, baled, and then distributed to grocery stores. Paper bags have many other uses outside of grocery stores, including use as recycling and composting containers, school book covers, gift wrap, and other craft projects, and use for picnics or sporting events (International Paper, 2012).

Biodegradable Bags. Multiple types of single-use biodegradable bags are currently available, distinguished by their material components. Biodegradable bags are composed of

thermoplastic starch-based polymers, which are made with at least 90% starch from renewable resources such as corn, potato, tapioca, or wheat, or from polyesters, manufactured from hydrocarbons, or starch–polyester blends (James and Grant, 2005). These bags are approximately the same size and weight as HDPE plastic bags, but are more expensive and only biodegrade if they are sent to commercial composting facilities (World Centric, 2013). They can be purchased in bulk for approximately 12 to 30 cents per bag (www.ecoproducts.com, 2009).

Reusable Bags. Reusable bags can be made from plastic or a variety of cloths such as vinyl or cotton. These bags differ from the single-use bags in their weight and longevity. Built to withstand many uses, they typically weigh at least ten times what an HDPE plastic bag weighs and two times what a paper bag weighs, and require greater material consumption on a per bag basis than HDPE plastic bags (ExcelPlas Australia, 2004; City of Pasadena, 2008). Many types of reusable bags are available today. These include: (1) non- woven polypropylene ranging from $1-$2.50 per bag; (2) cotton canvas bags, which are approximately $5.00 per bag; (3) bags made from recycled water/soda bottles, which are approximately $6.00 per bag; (4) polyester and vinyl, which are approximately $10.00 per bag; and (5) 100% cotton, which are approximately $5.00 to $10.00 per bag.

The production stages in reusable bag life cycles depend on the materials used. Once used, these bags are reused until worn out through washing or regular use, and then typically disposed either in the landfill or recycling facility (if recyclable).

b. Carryout Bag Use in the Study Area. Statewide, almost 20 billion plastic carryout bags (or approximately 531 bags per person) are consumed annually in California (San Mateo County Final EIR, October 2012; Green Cities California MEA, 2010; and CIWMB, 2007). Based on this per capita bag use, retail customers within the Study Area currently use about 71.6 million plastic bags per year (see Table 2-1).

Table 2-1
Estimated Plastic Carryout Bag Use in the Study Area

Area	Population*	Total Plastic Carryout Bags Used Annually**
Unincorporated Santa Barbara County	134,890	71,626,590

** California Department of Finance, "City/County Population and Housing Estimates" (May 2012).*
***Based on annual statewide estimates of plastic bag use of 531 bags per person = 20 billion bags used statewide per year (CIWMB, 2007) / 37,678,563 people statewide (California's current population according to the State Department of Finance, 2012).*

The customer base of retailers located within the Study Area may include residents of communities located within or outside of the Study Area. Customers who live outside the Study Area may include residents of one of the incorporated cities in Santa Barbara County or visitors/tourists from outside the County. Likewise, study area residents may shop outside of Santa Barbara County or within one of the incorporated cities. In order to estimate the current number of plastic bags used per year in the Study Area, the EIR applies the rate discussed above (531 bags used per person/per year) to the number of residents in the Study Area. This estimate is considered reasonable and conservative for the purposes of this analysis.

2.3.2 Regulatory Setting

In 2006, California enacted AB 2449 (Chapter 845, Statutes of 2006) and it became effective on July 1, 2007. The statute states that stores providing plastic carryout bags to customers must provide at least one plastic bag collection bin in an accessible location to collect used bags for recycling. The store operator is also required to make reusable bags available to shoppers for purchase. AB 2449 applies to retail stores of over 10,000 square feet that include a licensed pharmacy and to supermarkets with gross annual sales of $2 million or more that sell dry groceries, canned goods, nonfood items or perishable goods. Stores are also required to maintain records of their AB 2449 compliance and make them available to the California Integrated Waste Management Board (now CalRecycle) or local jurisdiction.

AB 2449 further requires the manufacturers of plastic carryout bags to develop educational materials to encourage the reducing, reusing, and recycling of plastic carryout bags, and to make the materials available to stores. Manufacturers are also required work with stores on their at-store recycling programs to help ensure the proper collection, transportation and recycling of the plastic bags.

Finally, AB 2449 restricted the ability of cities (including charter cities) and counties to regulate single-use plastic grocery bags through imposition of a fee. Public Resources Code Section 42254(b) provided as follows:

> *Unless expressly authorized by this chapter, a city, county, or other public agency shall not adopt, implement, or enforce an ordinance, resolution, regulation, or rule to do any of the following:*
>
> *(1) Require a store that is in compliance with this chapter to collect, transport, or recycle plastic carryout bags.*
> *(2) Impose a plastic carryout bag fee upon a store that is in compliance with this chapter.*
> *(3) Require auditing or reporting requirements that are in addition to what is required by subdivision (d) of Section 42252, upon a store that is in compliance with this chapter.*

Though AB 2449 expired under its own terms on January 1, 2013, it was extended to January 1, 2020 by the adoption of SB 1219 on September 9, 2012. However, the provision listed above that preempts local regulatory action was not extended and thus expired on January 1, 2013.

There are no other California statutes that directly focus on grocery bags.

2.4 PROPOSED ORDINANCE CHARACTERISTICS

In response to concerns regarding the environmental impact of plastic bags, the County of Santa Barbara has prepared a Single-Use Plastic Bag Ban Ordinance. The Proposed Ordinance, which is similar to the model ordinance considered in the Final EIR prepared by BEACON and completed in May 2013 (see Section 1.0, *Introduction*, for further discussion of the BEACON model ordinance and associated EIR), prohibits the free distribution of single-use carryout

paper and plastic bags; and (2) requires retail establishments to charge customers for paper bags at the point of sale. Regulated retail establishments would be allowed to sell reusable bags or distribute them free of charge. The Proposed Ordinance sets the minimum charge for recyclable paper bags at ten cents ($0.10). Plastic carryout bags are defined in the Proposed Ordinance as any bag made predominately of plastic derived from either petroleum or biologically-based sources, such as corn or other plant sources, which is provided to a customer at the point of sale. Regulated bags would not include reusable bags, produce bags, or product bags (as defined).

The Proposed Ordinance would apply to two categories of retail establishments that are located within the limits of the Study Area. These include:

1. A store of at least 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 (Part 1.5 (commencing with Section 7200) of Division 2 of the Revenue and Taxation Code) which sells a line of dry grocery or canned goods, or non-food items and some perishable food items for sale or a store that has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code; and
2. A drug store, pharmacy, supermarket, grocery store, convenience food store, food mart, liquor store, or other similar retail store or entity engaged in the retail sale of a limited line of grocery items. Grocery items typically include, but are not limited to, milk, bread, soda, and snack foods.

The Proposed Ordinance would not apply to restaurants, fast food providers, or other food establishments (unless specified in the Proposed Ordinance). Thus, restaurant owners, and other food establishments would be able to continue to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises. In addition, the Proposed Ordinance exempts wine/beer tasting rooms including those operating under a Type 20 or 21 liquor license. Retail establishments would be required to keep complete accurate records of the sale of both recyclable paper bags and reusable bags for annual reporting to the governing jurisdiction for three (3) years after this ordinance goes into effect.

The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single-use carryout bags. It is anticipated that by prohibiting plastic carryout bags and requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of reusable bags by retail customers, while reducing the number of single-use plastic and paper bags used within the Study Area.

The complete County Draft Ordinance is contained in Appendix B.

In summary, the County's Proposed Ordinance includes the following specific changes to BEACON's model ordinance:

- *Reformatted to fit in the County Code as Chapter 16-B.*
- *Section J. 2: This section was re-worded for clarity. Liquor stores are specifically identified, but the reference to ABC Type 20 and 21 licenses was dropped.*

- *Section J. 3: This is a new section which exempts wine/beer tasting rooms.*
- *Section 16B-3 Permitted Bags: This section was modified to clarify that stores that do not hand out single-use bags of any sort would not be required to sell reusable bags.*
- *Section 16B-4 E and 16B-7 A: These sections were modified to identify that the County Public Works Department would be the primary agency responsible for implementing and enforcing the County Ordinance (as opposed to the Finance Department as stated in the model ordinance). This change is reflected in other sections of the Proposed Ordinance as well.*

2.5 ANTICIPATED CHANGES IN BAG USE AS A RESULT OF THE PROPOSED ORDINANCE

The analysis in this EIR assumes that as a result of the Proposed Ordinance, 95% of the total existing volume of plastic carryout bags currently used in the Study Area (71,626,590 plastic carryout bags per year) would be replaced by recyclable paper bags (approximately 30%) and reusable bags (approximately 65%), as shown in Table 2-2. It is assumed that 5% of the existing plastic carryout bags used in the Study Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute plastic bags (e.g., restaurants, food establishments and beer/wine tasting rooms) and these retailers would continue to distribute plastic carryout bags after the Proposed Ordinance is implemented. Thus, the EIR analysis assumes that approximately 3,581,330 plastic bags would continue to be used annually within the Study Area after implementation of the Proposed Ordinance. It also assumes that an estimated 21,487,977 paper bags would replace approximately 30% of the plastic bags currently used in Study Area[1]. This 1:1 replacement ratio is considered conservative, because the volume of a single-use paper carryout bag (20.48 liters) is generally equal to approximately 150% of the volume of a single-use plastic bag (14 liters), such that fewer paper bags would ultimately be needed to carry the same number of items.

In order to estimate the number of reusable carryout bags that would replace 46,557,284 plastic carryout bags (65% of the existing number of plastic carryout bags used annually in the Study Area), this analysis assumes that a reusable carryout bag would be used by a customer once per week for one year (52 times). According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more; therefore the estimate of 52 uses per year for reusable bags is conservative. Based on the estimate of 52 uses, 46,557,284 plastic carryout bags that would not be used as a result of the Proposed Ordinance would be replaced by 895,332 reusable bags. This amounts to about seven reusable bags per person per year based on a Study Area population of 134,890. Based on these assumptions, implementation of the Proposed Ordinance would reduce the approximately 71.6 million plastic carryout bags currently used in the Study Area annually to approximately 25.96 million total bags (combined plastic carryout bags (5%), recyclable paper bags (30%) and reusable bags (65%).

[1] At recent hearings for the City of Santa Barbara plastic bag ban ordinance held on October 1st and 15th , 2013, it was suggested that tourists in the Santa Barbara County region may be more likely to purchase paper bags than to bring their own reusable bags. This may be accurate, but the assumption that 30% of the currently used plastic carryout bags would be replaced by paper bags accounts for this possibility.

Table 2-2
Existing Plastic Bag Replacement Assumptions in the Study Area

Type of Bag	Replacement Assumption	Bags used Post-Ordinance	Explanation
Plastic Carryout Bag	5% (remaining)[1]	3,581,330	Because the Proposed Ordinance does not apply to all retailers (e.g. restaurants), some plastic carryout bags would remain in circulation.
Recyclable Paper Bag	30%[2]	21,487,977	Although the volume of a paper carryout bag is generally 150% of the volume of a plastic carryout bag, such that fewer paper bags would be needed to carry the same number of items, it is conservatively assumed that paper would replace plastic at a 1:1 ratio.
Reusable Bag	65%[2]	895,332	Although a reusable bag is designed to be used up to hundreds of times (Green Cities California MEA, 2010; Santa Monica Single-Use Carryout Bag Ordinance Final EIR, 2011), it is conservatively assumed that a reusable bag would be used by a customer once per week for one year, or 52 times.
	Total	**25,964,639**	

[1] Rate utilized in the City of Sunnyvale Final EIR, SCH # 2011062032, November 2011.
[2] Rates utilized in the City of San Jose Final EIR, SCH # 2009102095, October 2010.

2.6 PROJECT OBJECTIVES

The County of Santa Barbara's objectives for the Proposed Ordinance include:

- *Reducing litter and associated environmental impacts related to plastic carryout bags, such as impacts to aesthetics, biological resources (including marine environments), stormwater systems, water quality and utilities (solid waste equipment and facilities);*
- *Deterring the use of paper bags by retail customers ;*
- *Promoting a shift toward the use of reusable carryout bags by retail customers; and*
- *Reducing the amount of single-use bags in trash loads to reduce landfill volumes.*

2.7 REQUIRED APPROVALS and PERMITS

For the County of Santa Barbara, functioning as lead agency for preparation of the EIR, the following actions would be required.

- *Certification of the Final EIR (Board of Supervisors)*
- *Adoption of an Ordinance amending the County Code (Board of Supervisors)*

Subsequent to adoption of the Proposed Ordinance, the County would need to file a Notice of Determination (NOD) per the *CEQA Guidelines* (Section 15094).

3.0 ENVIRONMENTAL SETTING

This section provides a general overview of the environmental setting for the Proposed Ordinance Study Area. More detailed descriptions of the environmental setting germane to each environmental issue area can be found in Section 4.0, *Environmental Impact Analysis*.

3.1 REGIONAL SETTING

The proposed Single-Use Plastic Bag Ban Ordinance (Proposed Ordinance) would regulate the use of paper and plastic single-use carryout bags within the Study Area, which encompasses unincorporated Santa Barbara County but does not include other than such areas as Vandenberg Air Force Base, the Chumash Reservation and UCSB.

3.1.1 County of Santa Barbara

Unincorporated Santa Barbara County is located in the central coastal area of California and has a population of 134,890 (California Department of Finance, May 2012). Santa Barbara County occupies approximately 2,739 square miles and is bounded by San Luis Obispo County to the north, Ventura County to the east, Kern County to the northeast, and the Pacific Ocean to the south and the west. The County has approximately 110 miles of coastline. The geographic center of the County is about 300 miles south of San Francisco and 100 miles north of Los Angeles.

The County has a Mediterranean climate characterized by warm, dry summers, and cooler, relatively damp winters. Mild temperatures occur throughout the year, particularly near the coastline. Maximum summer temperatures average 70 degrees Fahrenheit near the coast and in the high 80s to low 90s inland. During winter, average minimum temperatures range from the 40s along the coast to the 30s inland. Although precipitation is confined primarily to the winter months, occasional, tropical air masses result in rainfall during summer months. Santa Barbara County is located within the South Central Coast Air Basin and is in the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD).

The County contains four principal watersheds: Santa Maria, which includes the Cuyama and Sisquoc watersheds; San Antonio Creek; Santa Ynez; and South Coast, which is composed of approximately 50 short, steep watersheds. Water supplies in Santa Barbara County are provided by groundwater, surface water, imported State Water Project water, and recycled water.

The transportation system in Santa Barbara County consists of a series of highways, major roads, bikeways, bus systems, rail lines, and five airports. U.S. Highway 101 is the backbone of the regional road system, providing access to the County's major urban areas as well as points north and south of the County. Other important components of the County road system include Highway 154, Route 1, and Route 246. Transit service systems within the County include: Santa Barbara Metropolitan Transit District, Santa Maria Area Transit, City of Lompoc Transit, Santa Ynez Valley Transit, Guadalupe Transit, Cuyama Transit, the Clean Air Express, and the Coastal Express.

3.2 CUMULATIVE PROJECTS SETTING

CEQA defines cumulative impacts as two or more individual actions that, when considered together, are considerable or will compound other environmental impacts. Cumulative impacts are the changes in the environment that result from the incremental impact of development of the proposed project and other nearby projects. For example, traffic impacts of two nearby projects may be insignificant when analyzed separately, but could have a significant impact when analyzed together. Cumulative impact analysis allows the EIR to provide a reasonable forecast of future environmental conditions and can more accurately gauge the effects of a series of projects.

Although CEQA analysis typically lists development projects in the vicinity of a project site, this document analyzes the environmental impacts associated with a proposed countywide ordinance and does not include development or construction activity. As such, the cumulative significance of the proposed Single-Use Plastic Bag Ban Ordinance has been analyzed within the context of other carryout bag ordinances that are approved or pending throughout California. As described in Section 1.0, the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON) prepared a Program EIR (SCH # 2012111093) for a proposed model ordinance regulating single-use plastic bags throughout the incorporated and unincorporated areas of Santa Barbara and Ventura counties. This Study Area included 18 municipalities including Santa Barbara County. BEACON completed the Final Program EIR in May 17, 2013 and has provided the Final EIR to the member agencies (including the County of Santa Barbara) for their use as CEQA Lead Agencies in adopting a Single-Use Plastic Bag Ban Ordinance applicable to their respective jurisdictions. This EIR considers the potential municipalities included in the BEACON Study Area as part of the cumulative analysis. In addition, Table 3-1 lists other current adopted and pending ordinances in California. These ordinances are considered in the cumulative analyses in Section 4.0, *Environmental Impact Analysis.* As shown in Table 3-1, there are currently approximately 42 (and more being added soon) adopted, proposed or pending carryout bag ordinances (including the County's proposed Single-Use Plastic Bag Ban Ordinance) located throughout California.

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
City of Calabasas	This ordinance bans the issuance of plastic carryout bags and imposes a ten (10) cent charge on the issuance of recyclable paper carryout bags at regulated stores.	Adopted February 2011 Effective July 2011
City of Capitola	This ordinance bans the issuance of plastic carryout bags at all retail establishments and imposes a 25 cent fee for paper bags at regulated retail establishments.	Adopted January 2013 Effective April 2013
City of Carmel-by-the-Sea	This ordinance is a plastic bag ban in all retail stores.	Adopted July 2012 Effective February 2013
City of Carpinteria	This ordinance is the first double bag ban in the state. Starting in July 2012, large retailers as specified are prohibited from distributing single-use paper and plastic bags. Starting in April 2013, plastic bags are banned in all other retail stores including restaurants.	Adopted March 12, 2012 Carpinteria's 2012 bag ban was challenged by the Save The Plastic Bag Coalition (STPBC)

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
		March 20, 2012. They settled out of court with the agreement that the City would exempt restaurant carryout bags from the ordinance.
City of Culver City	This ordinance bans the issuance of plastic carryout bags and imposes a ten (10) cent charge on the issuance of recyclable paper carryout bags at all supermarkets and other grocery stores, pharmacies, drug stores, convenience stores, and foodmarts, in Culver City. The ordinance requires a store to provide or make available to a customer only recyclable paper carryout bags or reusable bags.	Adopted May 2013
City of Dana Point	This ordinance places a ban on single-use plastic bags from all retail stores within city limits.	Adopted March 6, 2012 Effective in larger stores April 1, 2013, and all other stores October 1, 2013.
Town of Fairfax	This ordinance allows all stores, shops, eating places, food vendors and retail food vendors, to provide only recyclable paper or reusable bags as checkout bags to customers.	Adopted August 2007 After legal challenge, adopted by voter initiative November 2008
City of Fort Bragg	This ordinance bans plastic bags and requires a 10 cent paper bag charge in all retail stores.	Adopted May 14, 2012 Effective in large stores December 10, 2012 and all other stores December 2013.
City of Glendale	This ordinance is similar to the County of Los Angeles ordinance in that it bans plastic bags and places a 10 cent charge on paper bags in regulated retail establishments.	Adopted January 2013 Effective in larger stores and farmer's markets starting in July 2013 and expanded to other covered stores January 1, 2014.
City of Huntington Beach	This ordinance would prohibit distribution of plastic carry-out bags in commercial point of sale purchases within Huntington Beach, and establish a ten (10) cent charge on the issuance of recyclable paper carry-out bags at all stores that meet at least one of the criteria listed below.	Adopted March 2013 Effective To be determined
City of Laguna Beach	This ordinance requires a plastic bag ban in all retail stores. Grocery stores, pharmacies, and convenience/liquor stores must include a 10 cent minimum price requirement on paper bags distributed.	Adopted February 2012 Effective January 1, 2013
City of Long Beach	This ordinance bans plastic carryout bags at all supermarkets and other grocery stores, pharmacies, drug stores, convenience stores, food marts, and farmers markets and would place a ten (10) cent charge on the issuance of recyclable paper carryout bags by an affected store, as defined. The ordinance would also require a store to provide or make available to a customer recyclable paper carryout bags or reusable bags.	Long Beach passed this ordinance in May 2011. But unlike LAC, Long Beach did not issue a statement of overriding consideration for the likelihood of passing the GHG emission threshold of significance. The suit was settled after Long Beach agreed to adopt the County's Statement of Overriding Consideration in October 2011. Addendum to the County of Los Angeles Final EIR certified May 2011.

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
		The ordinance was also effective in larger stores starting August 2011, and will expand to others stores in 2012.
City of Los Angeles	The ordinance would prohibit provision of single-use plastic bags at supermarkets. Large markets are allowed to phase out plastic bags over 6 months and then provide free paper bags for 6 months. Smaller markets have a year to phase out plastic bags. After a year, paper bags would be allowed for a charge of 10 cents.	Approved May 2013
City of Malibu	This ordinance bans the use of non-compostable and compostable plastic shopping bags for point-of-sale distribution.	Adopted May 2008 Effective November 2009
City of Manhattan Beach	This ordinance bans the distribution of plastic bags at the point-of-sale for all retail establishments in Manhattan Beach.	Adopted July 2008 The California Supreme Court overturned a legal challenge to the ordinance in July 2011, ruling in favor of an appeal by the City of Manhattan Beach affirming the right of small local governments to phase out plastic grocery bags without an EIR.
City of Millbrae	This ordinance bans single-use bags and free paper carryout bags and would apply to all retailers. Stores can charge a minimum of 10 cents per bag, should a customer need to purchase one. Those paper bags sold must be comprised of at least 40 percent post-consumer recycled materials. Thicker reusable plastic bags are allowed but would also need to be imprinted showing the bag is made of at least 40 percent post-consumer recycled materials.	Adopted February 2012. Certified a Negative Declaration. Effective September 1, 2012.
City of Monterey	This ordinance bans plastic bags and places an initial 10 cent minimum price requirement on paper bags for the first year, and 25 cents after.	Adopted December 6, 2011 Effective January 2013
City of Ojai	A proposed ordinance would ban plastic shopping bags and impose a 10-cent fee on paper bags at grocery stores, supermarkets, convenience stores, liquor stores and gasoline mini-marts.	Adopted April 2012. Effective July 1, 2012.
City of Pacific Grove	The proposed ordinance would ban single-use plastic and paper bags and place a fee on recycled content paper bags.	Pending
City of Palo Alto	This ordinance bans large grocery stores in Palo Alto from distributing single-use plastic check out bags. Only reusable bags (preferred) or paper bags can be distributed. Single-use plastic bags can still be used in produce and meat departments. Pending expansion of the ordinance would apply the ban to all retailers including restaurants in the city. An EIR on the expanded ordinance is currently being prepared.	Adopted March 2009 Palo Alto's 2009 bag ban was challenged by the STPBC. They settled out of court with the agreement that the City would not expand its ban to other stores without an EIR. Effective September 2009

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
		An EIR for the expansion of the ordinance to all retailers including restaurants was prepared. The expanded ordinance was adopted by the City Council on May 6, 2013 and will become effective July 2013.
City of Pasadena	This ordinance bans plastic bags, and imposes a10 cent minimum price on paper bags.	Adopted November 2011 Effective July 1, 2012 for large stores and supermarkets and December 2012 for convenience stores.
City of San Francisco	Retail stores governed by the ordinance can only provide the following types of bags: a. compostable plastic b. recyclable paper c. reusable bag of any material In February 2012, the ordinance was expanded to all retail and food establishments within the City and requires a minimum 10 cent charge for reusable bags.	Adopted April 2007 In February 2012, San Francisco expanded its bag ban and was sued by the STPBC. The two causes of action are related to CEQA compliance and the bag ban for restaurants. A judge upheld the expansion in September 2012.
City of San Jose	This ordinance prohibits the distribution of single-use carryout paper and plastic bags at the point of sale (i.e., check-out) for all commercial retail businesses in San José except restaurants. An exception is made for "green" paper bags containing at least 40 percent recycled content, accompanied by a charge of 10 cents to the customer, with the charge retained by the retailer. For the first two years, paper bags will be sold under this ordinance at 10 cents each; after two years the minimum price per paper bag is 25 cents each.	Adopted January 2011 Effective January 2012
City of Santa Cruz	This ordinance bans plastic bags and places a 10 cent paper bag charge.	Adopted July 2012 Effective April 2013
City of Santa Monica	This ordinance: (1) prohibits retail establishments in Santa Monica from providing "single-use plastic carryout bags" to customers at the point of sale; (2) prohibits the free distribution of paper carryout bags by grocery stores, convenience stores, mini-marts, liquor stores and pharmacies; and (3) requires stores that make paper carryout bags available to sell recycled paper carryout bags to customers for not less than ten cents per bag.	Adopted January 2011 Effective September 2011
City of Solana Beach	This ordinance prohibits the provision of plastic bags (except at restaurants) and allows purchase of paper bags for 10 cents.	Adopted May 2012, amended July 2012
City of Sunnyvale	This ordinance prohibits specified retail establishments in Sunnyvale from providing single-use plastic carryout bags to customers at the point of sale, and creates a mandatory 10 cent ($0.10) charge for each paper bag distributed by these stores.	Adopted December 2011 Effective June 20, 2012 (grocery stores, convenience stores and large retailers) Effective March 2013 (all retailers)
City of Ukiah	This ordinance prohibits retail establishments (except	Adopted May 2012

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
	eating establishments) in Ukiah from providing single-use bags. Recycled-content paper bags or reusable bags could be provided at a minimum charge of 10 cents per bag.	Effective in large stores 180 days after adoption and 545 days for all other stores.
City of Watsonville	This ordinance prohibits retail establishments from providing non-recycled paper or plastic bags and allows sale of recycled and recyclable paper bags for a 10 cent charge.	Adopted May 2012
City of West Hollywood	This ordinance prohibits retail establishments from providing non-recycled paper or plastic bags and places a 10 cent recyclable paper bag charge.	Adopted August 2012
County of Alameda (Cities of Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City)	This ordinance prohibits the distribution of single-use carryout paper and plastic bags at the point of sale (i.e., check-out) for all commercial retail businesses in Alameda County. Exception would be made for recycled paper or reusable bags containing a specified minimum percentage of recycled content, which can only be provided to customers for a nominal charge (ten cents on or before January 1, 2015 and 25 cents on or after January 1, 2015) to cover the cost to the business of providing the bags.	Adopted January 2012 Effective January 1, 2013
County of Los Angeles	This ordinance bans the issuance of plastic carryout bags and imposes a ten (10) cent charge on the issuance of recyclable paper carryout bags at all supermarkets and other grocery stores, pharmacies, drug stores, convenience stores, and foodmarts, in unincorporated Los Angeles County. The ordinance requires a store to provide or make available to a customer only recyclable paper carryout bags or reusable bags. The ordinance would also encourage a store to educate its staff to promote reusable bags and to post signs encouraging customers to use reusable bags in the unincorporated areas of the County of Los Angeles.	Adopted November 2010 In October 2011, Hilex and some individuals filed a petition to void the LA County ordinance. They alleged that the 10-cent charge on paper bags is really a local special tax that requires voter approval as amended by Prop 26. In March 2012, the Court denied the petition and ruled that a paper bag charge was not a tax under Prop 26. Helix appealed the decision April 2012 and the case is still pending.
County of Marin[2]	This ordinance prohibits the distribution of plastic carryout bags and would charge at least $0.05 for a recycled paper bag.	Adopted January 2011 In September 2011, Marin County Superior Court found the ordinance “a reasonable legislative and regulatory choice” to protect the environment without causing a significant negative impact. The County had correctly determined the project to be exempt based on its actions to protect the environment and natural resources. STPBC filed an appeal of this decision on November 29, 2011 and the case is still pending.

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
County of Mendocino	This ordinance bans plastic bags with a 10 cent paper bag charge.	Adopted June 12, 2012 Effective in large stores January 2013, and all other retailers January 2014
County of Monterey	The proposed Ordinance would ban plastic bags and place a minimum charge of 10 cents on recycled paper bags.	Pending
County of San Luis Obispo (City and County of San Luis Obispo, Atascadero, Grover Beach, Morro Bay, Paso Robles, and Pismo Beach)	The San Luis Obispo County Integrated Waste Management Authority adopted a plastic bag ban with a 10 cent minimum price requirement on paper bags.	Adopted January 2012 It goes into effect on September 1, 2012 in all seven incorporated cities as well as unincorporated areas of the county. A petition was filed January 30, 2012. The SLO lawsuit had two causes of action, but the second cause was dropped in February. The first cause of action is CEQA compliance. On October 15, 2012 The San Luis Obispo Superior Court ruled in favor of the IWMA.
County of San Mateo (unincorporated) and 24 participating municipalities in San Mateo and Santa Clara Counties[1]	This ordinance prohibits the provision of single use plastic bags and places a 10 cent (up to 25 cents in January 2013) charge on recycled paper bags.	Approved by San Mateo County Board of Supervisors November 2012. Effective April 2013.
City of Santa Barbara	Utilizing the BEACON model ordinance, the City ordinance would regulate the distribution of single use plastic and paper carryout bags and would impose a 10 cent fee on recycled paper bags.	Certified the BEACON EIR and Adopted Ordinance October 2013 Effective April 2014
County of Santa Clara	This ordinance allows affected retail establishments to distribute either a 'green' paper bag or a reusable bag. Reusable bags may be given away or sold and are initially defined (until January 2013) as bags made of cloth or other machine washable fabric that has handles; or a durable plastic bag with handles that is at least 2.25 mils thick and is specifically designed and manufactured for multiple use. 'Green' paper bags may be sold to customers for a minimum charge of $0.15 and are defined as paper bags that are 100% recyclable and are made from 100% recycled material.	Adopted April 2011 Effective January 2012
County of Santa Cruz	The ordinance bans single-use plastic bags and places a 10 cent minimum price requirement on single-use paper bags throughout unincorporated county areas.	Adopted September 13, 2011 The STPBC filed a lawsuit in October 2011. The case was settled out of court and in February 2012 the City repealed the ban of plastic bags used at

Table 3-1
Adopted, Proposed and Pending Carryout Bag Ordinances in California

Ordinance Location	Proposed Action	Status
		restaurants.
County of Sonoma	The Sonoma County Waste Management Agency ordinance would ban single-use plastic bags and place a 10 cent minimum price requirement, that goes up to 25-cents, on single-use paper bags throughout the County.	Pending

Source: Californians Against Waste, http://www.cawrecycles.org/issues/plastic_campaign/plastic_bags/local , accessed May 2013 ; Save the Plastic Bag Coalition, http://savetheplasticbag.com, accessed December 2012; San Luis Obispo County, Alameda County, City of Oakland, City of San Jose, City of Calabasas, City of Capitola, City of Carpinteria, City of Dana Point, Town of Fairfax, City of Laguna Beach, City of Palo Alto, City of Los Angeles, County of Los Angeles, City of Malibu, City of Manhattan Beach, City of San Francisco, City of Solana Beach, City of Pasadena, Marin County, City of Santa Monica, Santa Clara County, Santa Cruz County, City of Long Beach, City of Ojai, City of Sunnyvale, City of Millbrae Homepages, May 2013.

[1]The City of Belmont adopted the County's Reusable Bag Ordinance in January 2013 and it became effective in April 2013. The City of Brisbane adopted the San Mateo County's Reusable Bag Ordinance on March 18, 2013 and it also became effective in April 2013. The city of Burlingame adopted the San Mateo County's Reusable Bag Ordinance on March 18, 2013 and it also became effective in April 2013. The City of Colma, Daly City, Menlo Park, Mountain View, Pacifica, Portola Valley, San Bruno, South San Francisco, and Foster City adopted the County's Ordinance January 2013 and both ordinances also became effective in April 2013. The City of Redwood City and San Carlos adopted the County's ordinance in March 2013 and it became effective in October 2013 and July 2013, respectively. The City of Cupertino adopted an amended ordinance, similar to the County's in March 2013 and it became effective in October 2013. The City of East Palo Alto adopted the County's ordinance in April 2013 and it became effective in October 2013. The City of Half Moon Bay adopted the County's ordinance in March 2013 and it became effective April 2013. The City of Los Altos adopted the County's ordinance in March 2013 and it will become effective July 4, 2013.

[2]This ordinance only applies to the unincorporated areas of Marin County, not the incorporated jurisdictions.

4.0 ENVIRONMENTAL IMPACT ANALYSIS

This section discusses specific resource/environmental issue areas that were identified through the BEACON EIR review process and NOP scoping process (see Appendix A) as having the potential to be significantly affected by implementation of the Proposed Ordinance. Significant effect" is defined by the *CEQA Guidelines §15382* as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment, but may be considered in determining whether the physical change is significant."

The assessment of each issue area begins with a discussion of the setting relevant to that issue area. Following the setting is a discussion of the Proposed Ordinance's impacts relative to the issue area. Within the impact analysis, the first subsection identifies the methodologies used and the "significance thresholds," which are those criteria adopted by the County, other agencies, universally recognized, or developed specifically for this analysis to determine whether potential impacts are significant. The next subsection describes each impact of the Proposed Ordinance, mitigation measures for significant impacts, and the level of significance after mitigation. Each impact under consideration for an issue area is separately listed in bold text, with the discussion of the impact and its significance following. Each bolded impact listing also contains a statement of the significance determination for the environmental impact as follows:

> ***Class I Impacts.*** *Significant unavoidable adverse impacts for which the decisionmaker must adopt a statement of Overriding Consideration.*
>
> ***Class II Impacts.*** *Significant environmental impacts that can be feasibly mitigated or avoided for which the decisionmaker must adopt Findings and recommended mitigation measures.*
>
> ***Class III Impacts.*** *Adverse impacts found not to be significant for which the decisionmaker does not have to adopt Findings under CEQA.*
>
> ***Class IV Impacts.*** *Impacts beneficial to the environment.*

Following each environmental impact discussion is a listing of recommended mitigation measures (if required) and the residual effects or level of significance remaining after the implementation of the measures. In those cases where the mitigation measure for an impact could have a significant environmental impact in another issue area, this impact is discussed as a residual/secondary effect.

The impact analysis concludes with a discussion of cumulative effects, which evaluates the impacts associated with the Proposed Ordinance in conjunction with other adopted and pending bag ordinances.

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4.1 AIR QUALITY

This section analyzes the Proposed Ordinance's long-term impacts to local and regional air quality. The analysis focuses on air quality impacts associated with bag manufacturing facilities and truck trips associated with bag distribution. Impacts related to global climate change are addressed in Section 4.3, *Greenhouse Gas Emissions*.

4.1.1 Setting

a. Characteristics of Air Pollutants. Santa Barbara County is located within the South Central Coast Air Basin (Basin). The Santa Barbara County Air Pollution Control District (SBCAPCD) is the regional government agency that monitors and regulates air pollution within Santa Barbara County. Pollutants that are monitored within the County and compared to State and Federal Standards include ozone, carbon monoxide, nitrogen dioxide and suspended particulates. The general characteristics of these pollutants are described below.

Ozone. Ozone (O_3) is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG). Nitrogen oxides are formed during the combustion of fuels, while reactive organic gases are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it occurs in concentrations considered serious primarily between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans, including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, persons with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide (CO) is a colorless, odorless, poisonous gas that is found in high concentrations only near the source. The major source of CO is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. CO's health effects are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. NO_2 is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. NO_2 absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are

directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions.

The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

b. Air Quality Standards. Federal and state standards have been established for six criteria pollutants: ozone, CO, NO_2, sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$, and lead (Pb). Table 4.1-1 lists the current federal and state standards for criteria pollutants. California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles.

Table 4.1-1
Current Federal and State Ambient Air Quality Standards

Pollutant	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.09 ppm (1-hr avg) 0.07 ppm (8-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	0.053 ppm (annual avg) 100 ppb (1-hr avg)	0.030 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	75 ppb (1-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1-hr avg)
Lead	1.5 $\mu g/m^3$ (30 day avg)	1.5 $\mu g/m^3$ (calendar qtr) 0.15 $\mu g/m^3$ (rolling 3-month avg)
Particulate Matter (PM_{10})	150 $\mu g/m^3$ (24-hr avg)	20 $\mu g/m^3$ (annual avg) 50 $\mu g/m^3$ (24-hr avg)
Particulate Matter ($PM_{2.5}$)	15 $\mu g/m^3$ (annual avg) 35 $\mu g/m^3$ (24-hr avg)	12 $\mu g/m^3$ (annual avg)

ppm= parts per million ppb= parts per billion $\mu g/m^3$ = micrograms per cubic meter
Source: California Air Resources Board (2012), www.arb.ca.gov/research/aaqs/aaqs2.pdf

The SBCAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment."

c. Current Air Quality. Several monitoring stations are located throughout Santa Barbara County. As an example of air quality conditions in the region, the following data was taken from the Las Flores Canyon #1 monitoring station near El Capitan. Table 4.1-2 indicates the number of days that each of the state and federal air quality standards has been exceeded at the station. As shown, there were some exceedances of federal or state standards for ozone from 2010 through 2012.

Table 4.1-2
Ambient Air Quality Data

Pollutant	2010	2011	2012
Ozone, ppm - Worst Hour	0.091	0.099	0.091
Number of days of State exceedances (>0.09 ppm)	0	1	0
Ozone, ppm – Worst 8 Hours	0.083	0.091	0.082
Number of days of State exceedances (>0.070 ppm)	4	2	4
Number of days of Federal exceedances (>0.075 ppm)	3	1	2
Particulate Matter <10 microns, $\mu g/m^3$ Worst 24 Hours	29	33	35
Number of samples of State exceedances (>50 $\mu g/m^3$)	0	0	0
Number of samples of Federal exceedances (>150 $\mu g/m^3$)	0	0	0
Particulate Matter <2.5 microns, $\mu g/m^3$ Worst 24 Hours*	10.1	18	32
Number of samples of Federal exceedances (>35 $\mu g/m^3$)	0	0	0

Data collected from the Las Flores Canyon #1 monitoring station
Source: CARB, 2010, 2011, & 2012 Air Quality Data Statistics, Top Four Summary, available at http://www.arb.ca.gov; Accessed November 2013
** No PM2.5 data was available at the Las Flores Canyon #1 station, so data from S anta Maria-906 S Broadway station was used for PM2.5.*

d. Air Quality Management. Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. Santa Barbara County is in non-attainment for the state ozone standard and the state standard for PM_{10}. The County is unclassified for the state $PM_{2.5}$ standard and the federal PM10 standard. The County is in attainment for all other standards.

Non-attainment status within Santa Barbara County is a result of several factors, primarily the natural meteorological conditions that limit the dispersion and diffusion of pollutants (surface and subsidence inversions), the limited capacity of the local airshed to eliminate pollutants from the air, and the number, type, and density of emission sources within the air basin. The potential health effects of pollutants for which the County is in nonattainment are described below.

The Santa Barbara County Clean Air Plan (CAP) was updated in 2010 from its previous update in 2007. The 2010 CAP incorporates new scientific data and notable regulatory actions that have occurred since adoption of the 2007 CAP. The 2010 CAP was adopted by the SBCAPCD Board

of Directors on January 20, 2011. The 2010 CAP was prepared to address both federal and state requirements. The federal requirements pertain to provisions of the Federal Clean Air Act that apply to the City's current designation as an attainment area for the federal 8-hour ozone standard. Areas that are designated as attainment for the federal 8-hour ozone standard and attainment for the previous federal 1-hour ozone standard with an approved maintenance plan must submit an 8-hour maintenance plan under section 110(a)(1). The California Clean Air Act, under Health and Safety Code sections 40924 and 40925, requires areas to update their clean air plans every three years with the goal of attaining the state 1-hour ozone standard. The 2010 Plan provides a three-year update to the SBCAPCD's 2007 CAP. The 2010 CAP also includes a climate protection chapter, with an inventory of carbon dioxide emissions in the County. More information on carbon dioxide emissions and climate change can be found in Section 4.6, Greenhouse Gas Emissions.

e. Air Quality and Bags. Carryout bags can affect air quality in two ways: through emissions associated with manufacturing processes and through emissions associated with truck trips for the delivery of carryout bags to retailers. Each is summarized below.

Manufacturing Process. The manufacturing process to make carryout bags requires fuel and energy consumption, which generates air pollutant emissions. These may include particulate matter, nitrogen oxides, hydrocarbons, sulfur oxides, carbon monoxide, and odorous sulfur (Green Cities California MEA, 2010). The level of emissions varies depending on the type and quantity of carryout bags produced. These emissions may contribute to air quality impacts related to acid rain (atmospheric acidification) or ground level ozone formation.

Although manufacturing facilities may emit air pollutants in the production of carryout bags, manufacturing facilities are subject to air quality regulations, as described below, that are intended to reduce emissions sufficiently to avoid violations of air quality standards. For this EIR, the analysis is focused on the South Central Coast Air Basin, the air basin in which the Study Area is located.

Truck Trips. Delivery trucks that transport carryout bags from manufacturers or distributors to the local retailers in the Study Area also contribute air emissions locally and regionally. Assuming 2,080,000 plastic bags per truck load (City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011) approximately 34 annual truck trips (an average of about 0.09 trips per day) would be needed to deliver the estimated 71,626,590 plastic carryout bags used in unincorporated Santa Barbara County.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material (ARB "Diesel & Health Research", 2011). The visible emissions in diesel exhaust are known as particulate matter, or PM, which are small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens and carcinogens. Diesel PM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk. In addition to these general risks, diesel PM can also be responsible for elevated localized or near-source exposures ("hot-spots").

Like manufacturing facilities, delivery trucks are also subject to existing regulations primarily related to diesel emissions, as described in Section f. *Regulations Applicable to Delivery Trucks*. These regulations are intended to reduce emissions associated with fuel combustion.

Ground Level Ozone and Atmospheric Acidification. Various studies have estimated air emissions for the different carryout bags (plastic, paper or reusable carryout bags) to determine a per bag emissions rate. In order to provide metrics to determine environmental impacts associated with the Proposed Ordinance, reasonable assumptions based upon the best available sources of information have been established and are utilized in this EIR. Specific metrics that compare impacts on a per bag basis are available for plastic carryout bags, recyclable paper bags and low-density polyethylene (LDPE) reusable bags. Air pollutant emissions associated with the manufacturing and transportation of one paper bag result in 1.9 times the impact on atmospheric acidification as air pollutant emissions associated with one single-use plastic bag. On a per bag basis, a reusable carryout bag that is made of LDPE plastic would result in 3 times the atmospheric acidification compared to a single-use plastic bag if the LDPE bag is only used one time. In addition, on a per bag basis, a single-use paper bag has 1.3 times the impact on ground level ozone formation of a single-use plastic bag. Finally, a reusable carryout bag that is made of LDPE plastic and only used one time would result in 1.4 times the ground level ozone formation of a single-use plastic bag (Stephen L. Joseph, 2010; Ecobilan, 2004; FRIDGE, 2002; and Green Cities California MEA, 2010, City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011).

The above statistics use the LDPE carryout bag as a representation of reusable bags in evaluating air quality impacts. There is no known available Life Cycle Assessment that evaluates all types of reusable bags (canvas, cotton, calico, etc.) with respect to potential air pollutant emissions. However, the overall emissions from all types of reusable bags are lower than plastic and recyclable paper carryout bags because reusable bags are used multiple times. This EIR assumes a total of 52[1] uses based on one use per week and a one-year lifespan.

Table 4.1-3 lists the emissions contributing to ground level ozone and atmospheric acidification using the per-bag impact rates discussed above and the estimated number of existing single-use paper and plastic bags used in the Study Area. As shown in Table 4.1-3, the manufacture and transport of plastic carryout bags currently used in the Study Area each year generates an estimated 1,647 kilograms (kg) of emissions associated with ground level ozone and 77,643 kg of emissions associated with atmospheric acidification.

[1] This represents a conservative estimate. According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more. Further the Proposed Ordinance would require that a reusable bag "has a minimum lifetime of 125 uses".

Table 4.1-3
Current Emissions from Ground Level Ozone and Atmospheric Acidification (AA) from Plastic Carryout Bags Used in Unincorporated Santa Barbara County

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag*	Ozone Emissions (kg) per 1,000 bags**	Ozone Emissions per year (kg)	AA Emission Rate per Bag*	AA Emissions (kg) per 1,000 bags***	AA Emissions per year (kg)
Plastic Carryout Bag	71,626,590	1.0	0.023	1,647	1.0	1.084	77,643
			Total	**1,647**		**Total**	**77,643**

Source: BEACON Final EIR (SCH#2012111093) May 2013.
** Impact rate per bag as stated in Stephen L. Joseph, 2010; Ecobilan, 2004; FRIDGE, 2002; and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*
*** Emissions per 1,000 bags from Ecobilan, 2004; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*
**** Emissions per 1,000 bags from FRIDGE, 2002 and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*

f. Regulations applicable to Manufacturing Facilities.

EPA Title V Permit. Title V is a federal program designed to standardize air quality permits and the permitting process for major sources of emissions across the country. The name "Title V" comes from Title V of the 1990 federal Clean Air Act Amendments, which requires the EPA to establish a national, operating permit program. Accordingly, EPA adopted regulations [Title 40 of the Code of Federal Regulations, Chapter 1, Part 70 (Part 70)], which require states and local permitting authorities to develop and submit a federally enforceable operating permit programs for EPA approval. Title V only applies to "major sources." EPA defines a major source as a facility that emits, or has the potential to emit (PTE) any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST). The MST for criteria pollutants may vary depending on the attainment status (e.g. marginal, serious, extreme) of the geographic area and the Criteria Pollutant or HAP in which the facility is located (EPA Title V, December 2008). Carryout bag manufacturing facilities that emit any criteria pollutant or HAP at levels equal to or greater than the MST of the local air quality management district would need to obtain, and maintain compliance with, a Title V permit.

Local Air Quality Management District Equipment Permits. Manufacturing facilities may also be required to obtain permits from the local air quality management district (the SBCAPCD). A local air quality management district permit is a written authorization to build, install, alter, replace, or operate equipment that emits or controls the emission of air contaminants, such as NOx, CO, PM_{10}, oxides of sulfur (SOx), or toxics. Permits ensure that emission controls meet the need for the local region to make steady progress toward achieving and maintaining federal and state air quality standards.

The SBCAPCD, the local air quality management district serving the Study Area, require operators that plan to build, install, alter, replace, or operate any equipment that emits or controls the emission of air contaminants to apply for, obtain and maintain equipment permits. Equipment permits ensure that operators make steady progress toward achieving and maintaining federal and state air quality standards (as shown in Table 4.1-1). Permits also ensure proper operation of control devices, establish recordkeeping and reporting mechanisms, limit toxic emissions, and control dust or odors. In addition, the SBCAPCD routinely inspects operating facilities to verify that equipment operates in compliance with their respective rules and regulations.

Regulations applicable to Delivery Trucks.

On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation. On December 12, 2008, the ARB approved a new regulation to reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements. Heavier trucks were required to be retrofitted with PM filters beginning January 1, 2012, and older trucks must be replaced starting January 1, 2015. By January 1, 2023 all vehicles must have a 2010 model year engine or equivalent. The regulation is intended to reduce emissions of diesel PM, oxides of nitrogen and other criteria pollutants (ARB "Truck and Bus Regulation, Updated March 22, 2012). All trucks making deliveries of carryout bags in California will be required to adhere to this regulation.

Diesel-Fueled Commercial Motor Vehicle Idling Limit. The regulation applies to diesel-fueled commercial motor vehicles that operate in the State of California with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. The in-use truck requirements require operators of both in-state and out-of-state registered sleeper berth equipped trucks to manually shut down their engines when idling more than five minutes at any location within California beginning in 2008 (ARB "Heavy-Duty Vehicle Idling Emission Reduction Program", updated March 2009). The purpose of this airborne toxic control measure is to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. All trucks making deliveries in the Study Area are required to comply with the no-idling requirements.

4.1.2 Impact Analysis

a. Methodology and Significance Thresholds. The Proposed Ordinance does not include any physical development or construction related activities; therefore, the analysis focuses on emissions related to carryout bag manufacturing processes and truck trips associated with delivering carryout bags to Study Area retailers. Operational emissions associated with truck trips to deliver carryout bags to Study Area retailers were calculated using the using the URBEMIS 2007 v. 9.2.4 computer program (Rimpo and Associates, 2007). The estimate of operational emissions by URBEMIS includes truck trips (assumed to be heavy trucks - 33,000 to 60,000 pounds) and utilizes trip generation rates based on the increase in truck trips resulting from implementation of the Proposed Ordinance.

Based on Appendix G of the *CEQA Guidelines*, the Proposed Ordinance would create a significant air quality impact if it would:

1. *Conflict with or obstruct implementation of the applicable air quality plan*
2. *Violate any air quality standard or contribute substantially to an existing or projected air quality violation*
3. *Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)*
4. *Expose sensitive receptors to substantial pollutant concentrations*
5. *Create objectionable odors affecting a substantial number of people*

The Initial Study from the BEACON Final Program EIR (May 2013) concluded that only the second and third criteria could be applicable to the project potentially resulting in a significant impact. The Proposed Ordinance would result in no impact with respect to applicable air quality plans, emissions from construction emissions, or odors. Hence, only impacts related to long-term emissions are addressed in this section.

The SBCAPCD has adopted significance thresholds for air pollution emissions. As described in the SBCAPCD *Scope and Content of Air Quality Sections in Environmental Documents* (December 2011), a project will have a significant air quality effect on the environment if operation of the project would:

- *Emit (from all sources, both stationary and mobile) more than 240 lbs/day for ROG and NO_X or more than 80 lbs/day for PM_{10}*
- *Emit more than 25 lbs/day of NO_X or ROG from motor vehicle trips only;*
- *Cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone);*

The SBCAPCD has a significance threshold of 25 lbs per day for ROG or NOx. The SBCAPCD has a threshold of 80 lbs/day for PM10. However, the SBCAPCD does not have a threshold for $PM_{2.5}$. Therefore, for this EIR, the County of Santa Barbara has determined that 25 lbs/day of ROG or NO_X and 80 lbs/day of PM_{10} is the most appropriate thresholds for use to determine air quality impacts of the Proposed Ordinance.

The Proposed Ordinance would result in a significant impact if emissions associated with implementation of the Ordinance would exceed any of the following thresholds:

- *25 pounds per day of ROG*
- *25 pounds per day of NO_x*
- *80 pounds per day of PM_{10}*

b. Project Impacts and Mitigation Measures.

Impact AQ-1 **With a shift toward reusable bags, the Proposed Ordinance is expected to reduce the number of plastic carryout bags, thereby reducing the total number of bags manufactured and the overall air pollutant emissions associated with bag manufacture, transportation and use. Therefore, air quality impacts related to alteration of processing activities would be Class IV, *beneficial*.**

The intent of the Proposed Ordinance is to reduce the environmental impacts of plastic carryout bags. The Proposed Ordinance would reduce the number of plastic carryout bags that are manufactured and used in the Study Area and would increase the number of recyclable paper and reusable bags manufactured and used in the Study Area compared to existing conditions.

As described in the *Setting*, on a per bag basis, emissions associated with recyclable paper bag production and transportation are equivalent to 1.9 times the impact on atmospheric acidification as the production and transportation of a single-use plastic bag. On a per bag basis, the production and transportation of a reusable carryout bag that is made of LDPE plastic results in three times the atmospheric acidification of the production and transportation of a single-use plastic bag. Reusable carryout bags may be made of various materials other than LDPE, including cloths such as cotton or canvas. However, there is no known available Life Cycle Assessment that evaluates all types of reusable carryout bags (canvas, cotton, calico, etc.) with respect to potential air pollutant emissions. Thus, by using the metrics associated with a LDPE reusable carryout bag for quantifying air quality emissions, this EIR utilizes the best available information regarding specific metrics on a per bag basis to disclose environmental impacts associated with the Proposed Ordinance. The overall emissions from all types of reusable carryout bags are generally lower than those of plastic carryout bags and paper carryout bags because reusable carryout bags are used multiple times. This analysis conservatively assumes a total of 52 uses based on one use per week and a one-year lifespan.[2]

On a per bag basis, the production and transportation of a recyclable paper bag has 1.3 times the impact on ground level ozone formation of the production and transport of a plastic carryout bag and the production and transport of a reusable carryout bag that is made of LDPE plastic would result in 1.4 times the ground level ozone formation of the production and transport of a plastic carryout bag (Stephen L. Joseph, 2010; FRIDGE, 2002; and Green Cities California MEA, 2010).

Each individual reusable bag results in greater impacts to ground level ozone formation and atmospheric acidification than each individual use plastic carryout bag on a per bag basis; however, unlike single-use plastic bags, reusable carryout bags are intended to be used multiple times (estimated to be at least 52 uses).[3] Therefore, fewer total carryout bags would need to be manufactured and transported as a shift toward the use of reusable bags occurs. As described in

[2] This represents a conservative estimate. According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more. Further the Proposed Ordinance would require that a reusable bag "has a minimum lifetime of 125 uses".

[3] For the purposes of this analysis, it is assumed that reusable bags would be used once per week for a year, or 52 times, before being replaced.

Section 2.0, *Project Description*, retail establishments making paper carryout bags available would be required to sell recyclable paper carryout bags that are made with a minimum 40% post-consumer recycled content to customers for $0.10 per bag. This mandatory charge would create a disincentive to customers to request recyclable paper bags when shopping at regulated stores and is intended to promote a shift toward the use of reusable bags by consumers in the Study Area. This analysis assumes that as a result of the Proposed Ordinance, 95% of the volume of plastic carryout bags currently used in the Study Area would be replaced by recyclable paper bags (approximately 30%) and reusable bags (approximately 65%) and 5% of the existing single-use plastic bags would remain in use (see Section 2.5 and Table 2.2 in Section 2.0, *Project Description*).

No known manufacturing facilities of carryout bags are located within the South Central Coast Air Basin. Nevertheless, for a conservative estimate, emissions associated with both manufacturing and transportation of carryout bags to retailers within the Study Area are estimated in this EIR. Table 4.1-4 estimates post-Ordinance air pollutant emissions from bag manufacturing and transportation that contribute to the development of ground level ozone and atmospheric acidification. As shown, the increased use of reusable carryout bags in the Study Area would reduce emissions that contribute to ground level ozone by approximately 891 kg per year and would reduce emissions that contribute to atmospheric acidification by approximately 26,584 kg per year.

As discussed in the *Setting*, air pollutant emissions from manufacturing facilities are regulated under the Clean Air Act and would be subject to requirements by the local air quality management district (the SBCAPCD). Both recyclable paper bag manufacturing facilities and reusable carryout bag manufacturing facilities that emit any criteria pollutant or hazardous air pollutant (HAP) at levels equal to or greater than the Major Source Thresholds (MST) of the local air quality management district would need to obtain and maintain compliance with a Title V permit. Adherence to permit requirements would ensure that a manufacturing facility would not violate any air quality standard. Manufacturing facilities would also be required to obtain equipment permits for emission sources through the local air quality management district which ensures that equipment is operated and maintained in a manner that limits air emissions in the region. Compliance with applicable regulations would ensure that manufacturing facilities would not generate emissions conflicting with or obstructing implementation of the applicable air quality plan, violate any air quality standard or contribute substantially to an existing or projected air quality violation or result in a cumulatively considerable net increase of any criteria pollutant.

Table 4.1-4
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Carryout Bags in Study Area

Carryout Bag Type	# of Bags Used per Year*	Ozone Emission Rate per Bag**	Ozone Emissions (kg) per 1,000 bags***	Ozone Emissions per year (kg)	AA Emission Rate per Bag**	AA Emissions (kg) per 1,000 bags****	AA Emissions per year (kg)
Plastic Carryout Bag	3,581,330	1.0	0.023	**82**	1.0	1.084	**3,882**
Recyclable Paper Bag	21,487,977	1.3	0.03	**645**	1.9	2.06	**44,265**
Reusable Bag	895,332	1.4	0.032	**29**	3.0	3.252	**2,912**
			Total	**756**		**Total**	**51,059**
			Existing	**1,647**		**Existing**	**77,643**
			Net Change (Total minus Existing)	**(891)**		**Net Change**	**(26,584)**

Source:
BEACON Final EIR (SCH#2012111093) May 2013.
** Refer to Table 2.2 in Section 2.0, Project Description.*
*** Impact rate per bag as stated in Stephen L. Joseph, 2009; Ecobilan, 2004; FRIDGE, 2002; and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*
**** Emissions per 1,000 bags from Ecobilan, 2004; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*
***** Emissions per 1,000 bags from FRIDGE, 2002 and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.*

As shown in Table 4.1-4, the Proposed Ordinance would reduce emissions that contribute to ozone formation and atmospheric acidification. Therefore, the Proposed Ordinance would have a beneficial effect in this regard.

Mitigation Measures. Mitigation is not necessary as impacts would be beneficial.

Significance After Mitigation. The impact would be beneficial without mitigation.

Impact AQ-2 **With an expected increase in the use of recyclable paper and reusable carryout bags, the Proposed Ordinance would generate air pollutant emissions associated with an incremental increase in truck trips to deliver recyclable paper and reusable carryout bags to local retailers. However, emissions would not exceed SBCAPCD operational significance thresholds. Therefore, operational air quality impacts would be Class III, *less than significant*.**

Long-term post-Ordinance emissions would include those emissions associated with truck trips to deliver carryout bags (recyclable paper and reusable) from manufacturing facilities or distributors to the Study Area retail establishments. The URBEMIS computer program was used to calculate mobile emissions resulting from the number of trips generated by the Proposed Ordinance. Using trip generation rates from the City of Santa Monica Single-use Carryout Bag Ordinance Final EIR (January 2011) (See Appendix C for full truck trip calculations), it is estimated that the change in truck traffic as a result of the Proposed Ordinance would be a net increase of 0.20 truck trips per day. Emissions associated with such truck trips are summarized in Table 4.1-5.

As indicated in Table 4.1-5, daily ROG emissions are estimated at less than 0.01 pounds, daily NO_X emissions are estimated at approximately 0.02 pounds, daily PM_{10} emissions would be less than 0.01 pounds. The incremental increases in ROG, NO_X, and PM_{10} emissions associated with the truck deliveries would be substantially less than the SBCAPCD thresholds of 25 pounds per day of ROG, and NOx, and 80 pounds per day of PM_{10}. Because long-term emissions would not exceed SBCAPCD thresholds, impacts would not be significant.

Table 4.1-5
Operational Emissions Associated with Truck Delivery Trips Generated by the Proposed Ordinance

Emission Source	Emissions (lbs/day)		
	ROG	NO_x	PM_{10}
Total Emissions	**<0.01**	**0.02**	**<0.01**
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: See Appendix C for calculations

Mitigation Measures. Operational emissions associated with the increase in truck traffic as a result of the Proposed Ordinance would not exceed SBCAPCD thresholds. Therefore, mitigation is not required.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use carryout bags, and promote a shift toward reusable carryout bags. Similar to the Proposed Ordinance, such ordinances would be expected to generally reduce the overall number of bags manufactured and associated air pollutant emissions, while existing and future manufacturing facilities would continue to be subject to federal and state air pollution regulations (see the *Setting* for discussion of applicable regulations). Similar to the Proposed Ordinance, other adopted and pending ordinances would also be expected to incrementally change the number

of truck trips associated with carryout bag delivery and associated emissions. In the South Central Coast Air Basin, the cities of Ojai and Carpinteria have adopted such ordinances. In addition, the BEACON EIR analyzed the air quality emissions associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, total emissions for all jurisdictions in the BEACON Study Area (including the County of Santa Barbara) did not exceed any thresholds of significance, and therefore was determined to be less than significant. Further, based on the incremental increase in air pollutant emissions associated with the Proposed Ordinance (increase of half of a pound per day or less of each criteria pollutant), the other ordinances are not expected to generate a cumulative increase in emissions that would exceed SBCAPCD thresholds or adversely affect regional air quality. Moreover, the increase in truck trips to deliver reusable bags would be at least partially offset by a reduction in trips to deliver plastic carryout bags. Therefore, cumulative air quality impacts would not be significant.

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4.2 BIOLOGICAL RESOURCES

This section analyzes the Proposed Ordinance's impacts to biological resources. Both direct impacts associated with the Proposed Ordinance and indirect impacts to off-site biological resources are addressed.

4.2.1 Setting

a. Terrestrial Habitat. The Proposed Ordinance would apply to the geographical limits of unincorporated Santa Barbara County (the Study Area). Santa Barbara County encompasses 2,739 square miles and is bounded by San Luis Obispo County to the north, Ventura County to the east, Kern County to the northeast, and the Pacific Ocean to the south and the west. The coastal zone spans 110 miles of coastline and includes approximately 184 square miles. Santa Barbara County is topographically diverse and its' shorelines, coastal dunes, bluffs, and terraces give way to interior valleys, foothills, and mountains. There are two main river valleys formed by the Santa Maria and Santa Ynez rivers. The primary habitat types found within the County are wetlands, oak woodland, riparian woodland, grassland, chaparral, and coastal sage scrub. Freshwater habitats include vernal pools, Zaca Lake, freshwater marshes and marine intertidal zones.

b. Special Status Species. Fish and wildlife resources are numerous and diverse due to the wide variety of habitats contained in Santa Barbara County, including wetlands and marshes, sensitive ecological communities, and the Pacific Ocean. The Goleta Slough habitat (which includes mudflats, tidal channels, and channel bank microhabitats) in Santa Barbara County supports a larger and more diverse fauna and flora than do any of the other three sloughs or closed bays in the County (Surf, Devereux, and Carpinteria). The Goleta Slough is a major resting point for migratory water-fowl using the Pacific Flyway, with approximately 26 resident bird species and several more nesting summer species. The Black Rail, the light-footed Clapper Rail, and the Belding's Race of the Savanna Sparrow, all rare and endangered birds, may be among the resident species.

The Study Area is host to numerous species of plants and animals that are *endangered, threatened, rare,* or considered to be a *candidate species* for one of those designations, including Santa Cruz Island bird's-foot trefoil, the California Condor, the Southern Rubber Boa, the California Least Tern, and the Tidewater Goby. Several special status plant and animal species are known to occur within the marine and nearshore environment throughout the Study Area and have the potential to occur where suitable habitat is present. These include western pond turtle (*Emys marmorata*), western snowy plover (*Charadrius alexandrines nivosus*), California red-legged frog (*Rana draytonii*), steelhead (*Oncorhynchus mykiss irideus*), and Coastal California gnatcatcher (*Polioptila californica californica*). Furthermore, Northern Coastal Salt Marsh, a sensitive natural community, has been documented along the shore of the Study Area.

While the coastal and marine habitat of the Pacific Ocean has been altered due to human disturbance, a number of additional sensitive species have the potential to occur in these environments. Sensitive species as listed on the California Natural Diversity Database (CNDDB) and the U.S. Fish and Wildlife Service (USFWS), which may inhabit the coastal and marine environment, are listed in Table 4.2-1 on the following page. Figure 4.2-1 shows the

locations of special-status species documented in the Study Area, as listed on the CNDDB. Figure 4.2-2 shows the locations of critical habitat within the Study Area.

Table 4.2-1
Coastal/Marine Special-Status Species

Scientific Name	Common Name	Current Federal/State Status
Reptiles		
Salvadora hexalepis virgultea	Coast patched-nose snake	-/SSC
Thamnophis hammondii	Two-striped garter snake	-/SSC
Thamnophis sirtalis ssp.	South coast garter snake	-/SSC
Anniella pulchra pulchra	Silvery legless lizard	-/SSC
Emys marmorata	Western pond turtle	-/SSC
Gambelia sila	Blunt-nosed leopard lizard	FE/SE
Phrynosoma blainvillii	Coast horned lizard	-/SSC
Xantusia riversiana	Island night lizard	FT/-
Amphibians		
Rana draytonii	California red-legged frog	FT/SSC
Ambystoma californiense	California tiger salamander	FT/ST/SSC
Rana boylii	Foothill yellow-legged frog	-/SSC
Anaxyrus californicus	Arroyo toad	FE/SSC
Birds		
Gymnogyps californianus	California condor	FE/SE
Charadrius alexandrinus nivosus	Western Snowy plover	FT/SSC
Sternula antillarum browni	California least tern	FE/SE
Athene cunicularia	Burrowing owl	-/SSC
Polioptila californica californica	Coastal California gnatcatcher	FT/SSC
Brachyramphus marmoratus	Marbled murrelet	FT
Synthliboramphus hypoleucus	Xantus' murrelet	FC/ST
Vireo bellii pusillus	Least Bell's vireo	FE/SE
Rallus longirostris levipes	Light-footed clapper rail	FE/SE
Empidonax traillii extimus	Southwestern willow fly-catcher	FE/SE
Coccyzus americanus occidentalis	Western yellow-billed cuckoo	FC/SE

Table 4.2-1
Coastal/Marine Special-Status Species

Scientific Name	Common Name	Current Federal/State Status
Crustaceans		
Streptocephalus woottoni	Riverside fairy shrimp	FE/-
Branchinecta lynchi	Vernal pool fairy shrimp	FT/-
Fish		
Gasterosteus aculeatus williamsoni	Unarmored Threespine stickleback	FE/SE
Oncorhynchus mykiss irideus	Southern Steelhead	FE/SSC
Eucyclogobius newberryi	Tidewater goby	FE/SSC
Mammals		
Enhydra lutris nereis	Southern sea otter	FT/MMPA
Arctocephalus townsendi	Guadalupe fur seal	FT/ST/MMPA
Perognathus alticolus inexpectatus	Tehachapi pocket mouse	-/SSC
Peromyscus maniculatus anacapae	Anacapa Island deer mouse	-/SSC
Chaetodipus californicus femoralis	Dulzura pocket mouse	-/SSC

FT = Federally Threatened
FC=Federally listed as Candidate species
SSC = California Species of Special Concern
FE = Federally Endangered
SE = California Endangered
ST= California Threatened
MMPA = Protected by the Marine Mammal Protection Act
- = no status but included in Rarefind database as deserving of concern

c. Regulatory Setting. Regulatory authority over biological resources is shared by federal, state, and local authorities under a variety of statutes and guidelines. Primary authority for general biological resources lies within the land use control and planning authority of local jurisdictions. The California Department of Fish and Wildlife (formerly California Department of Fish and Game) (CDFW) is a trustee agency for biological resources throughout the state under CEQA and also has direct jurisdiction under the California Fish and Game Code (CFGC). Under the State and Federal Endangered Species Acts, the CDFW and the USFWS also have direct regulatory authority over species formally listed as Threatened or Endangered. The U.S. Department of Army Corps of Engineers (USACE) has regulatory authority over specific biological resources, namely wetlands and waters of the United States, under Section 404 of the federal Clean Water Act (CWA). The USACE also has jurisdiction over rivers and harbors through Section 10 of the CWA. Waters of the State fall under the jurisdiction of the CDFW through the CFGC and the Regional Water Quality Control Board (RWQCB) through Section 401 of the CWA. The RWQCB also has jurisdiction over isolated waters and wetlands through the Porter-Cologne Water Quality Control Act.

Some plants or animals are given "special status" due to declining populations, vulnerability to habitat change, or restricted distributions. Special-status species are classified in a variety of ways, both formally (e.g. State or Federally Threatened and Endangered Species) and informally ("Special Animals"). The USFWS and the National Marine Fisheries Service (NMFS) share responsibility for implementation of the federal Endangered Species Act, with the USFWS focused on terrestrial and freshwater species and the NMFS focused on marine species. The USFWS is also responsible for regulation of bird species listed under the Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668).

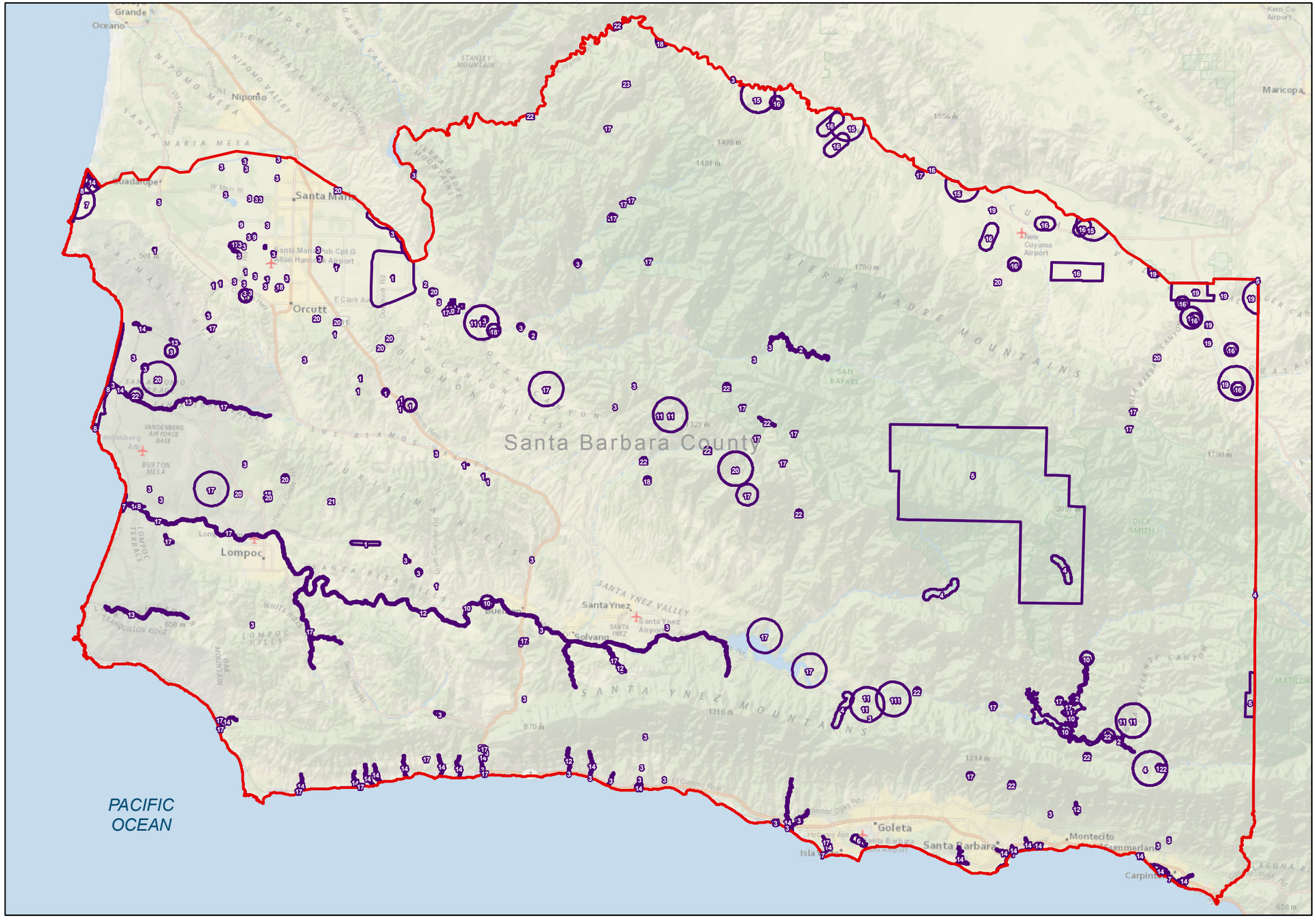
The CDFW protects a wide variety of special status species through the CFGC. Under the CFGC, species may be formally listed and protected as Threatened or Endangered through the California Endangered Species Act (Fish and Game Code Section 2050 *et. seq*.). The CFGC also protects Fully Protected species, California Species of Special Concern (CSC), all native bird species (Fish and Game Code sections 3503, 3503.5, and 3511), and rare plants under the Native Plant Protection Act (Fish and Game Code Section 1900 *et seq*.).

4.2.2 Impact Analysis

a. Methodology and Significance Thresholds. Chapter 1, Section 21001(c) of CEQA states that it is the policy of the state of California to: "Prevent the elimination of fish and wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities." Environmental impacts relative to biological resources may be assessed using impact significance criteria encompassing checklist questions from the *CEQA Guidelines* and federal, state, and local plans, regulations, and ordinances. Project impacts to flora and fauna may be determined to be significant even if they do not directly affect rare, threatened, or endangered species.

The Proposed Ordinance would create a significant impact to biological resources if it would:

1. *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (formerly Department of Fish and Game) or U.S. Fish and Wildlife Service*
2. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (formerly Department of Fish and Game) or U.S. Fish and Wildlife Service*
3. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means*
4. *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites*
5. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance*



1 - California tiger salamander
2 - arroyo toad
3 - California red-legged frog
4 - foothill yellow-legged frog
5 - California condor
6 - light-footed clapper rail
7 - western snowy plover
8 - California least tern
9 - burrowing owl
10 - southwestern willow flycatcher
11 - least Bell's vireo
12 - southern steelhead - southern California D
13 - unarmored threespine stickleback
14 - tidewater goby
15 - giant kangaroo rat
16 - San Joaquin kit fox
17 - western pond turtle
18 - silvery legless lizard
19 - blunt-nosed leopard lizard
20 - coast horned lizard
21 - coast patch-nosed snake
22 - two-striped garter snake
23 - vernal pool fairy shrimp

Additional suppressed records reported by the CNNDB known to occur or potentially occur within this search radius include: California Condor, Kern Primrose Sphinx Moth, Monarch Butterfly, Prairie Falcon, Swainson's Hawk, and California Red-Legged Frog

County Boundary
CNDDB Special Status Species

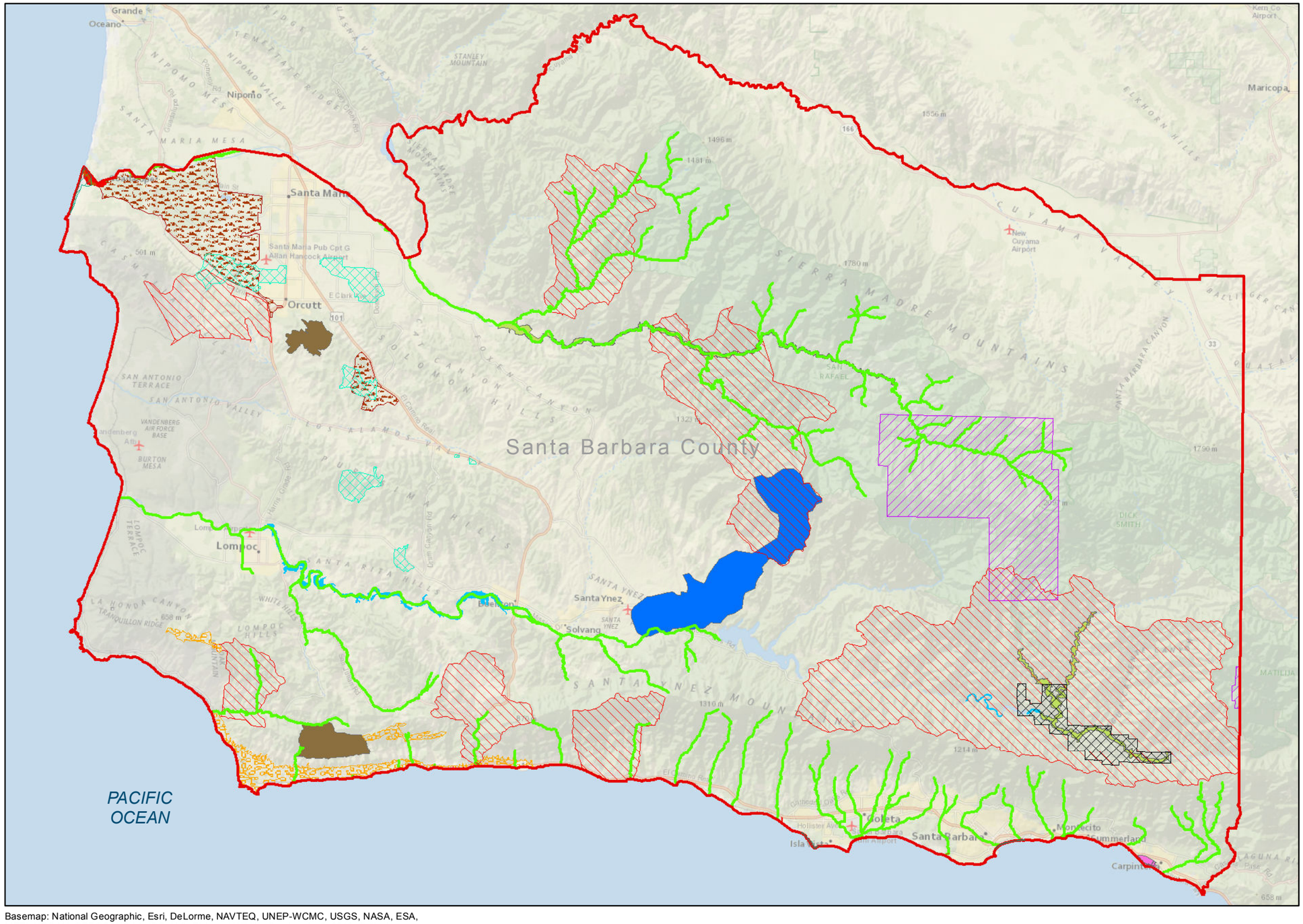
N

0 3 6 Miles

Special Status Species in the Study Area

Basemap: National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC, California Natural Diversity Database, December, 2012.

Figure 4.2-1



Basemap: National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, iPC, U.S. Fish and Wildlife Service, April, 2013. Critical habitat shown is that most recently available from U.S. FWS. Check with U.S. FWS or Federal Register to confirm.

Critical Habitat in the Study Area

Figure 4.2-2

6. *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan*

The Initial Study from the BEACON Final Program EIR (May 2013) concluded that only the first criterion could potentially result in a significant impact, while the Proposed Ordinance would result in no impact with respect to the second through sixth criteria. Hence, only the first criterion (direct and indirect impacts to sensitive species and/or their habitat) is addressed in Impact BIO-1.

b. Project Impacts and Mitigation Measures.

Impact BIO-1 The Proposed Ordinance would incrementally increase the number of recyclable paper and reusable carryout bags within the Study Area, which if improperly disposed of, could impact aquatic and marine environments and sensitive species. However, the reduction in the number of plastic carryout bags used would be expected to reduce the overall amount of litter entering the creeks and coastal habitat, thus reducing litter-related impacts to sensitive wildlife species and sensitive habitats. This is a Class IV, *beneficial*, effect.

The Proposed Ordinance would not include any physical development that would result in direct biological impacts.All carryout bags, including plastic, recyclable paper, and reusable bags, have the potential to affect local creeks and coastal habitats, such as the Pacific Ocean, when improper disposal of bags occurs. These bags can become litter that enters the storm drain system and ultimately enters into creeks/rivers and eventually coastal and marine environments. As described above in the Setting, litter that enters coastal habitats can adversely affect sensitive species that inhabit coastal and marine environments, including sea turtles, seals, fish, otters, or bird species as a result of ingestion or entanglement. However, each type of carryout bag's potential to become litter varies and is based on the number of bags disposed of as well as the bag's weight and material.

As described in Section 2.0, *Project Description*, typical plastic carryout bags are made from petroleum or bio-based plastic (typically made of thin, lightweight high density polyethylene (HDPE)), are less than 2.25 mils (0.00225 inches) thick, and weigh approximately five to nine grams. Post-use from a retail store, a customer may reuse a plastic carryout bag at home, but eventually the bags are disposed of in the landfill, recycling facility, or discarded as litter. Although some recycling facilities handle plastic bags, most reject them because they can get caught in the machinery and cause malfunctioning, or are contaminated after use. Recyclability is also dependent on the presence of markets for the recycled material. About 11% of single-use plastic carryout bags in the United States are currently recycled (US EPA, May 2013). The majority of plastic carryout bags end up in a landfill or as litter. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may become airborne litter due to their light weight (Green Cities California MEA, 2010). Plastic carryout bags that become litter can enter storm drains and watersheds from surface water runoff or may be blown directly into the ocean by the wind where they maybe ingested by marine wildlife or cause entanglement. While the frequency to which these incidents occur is in

dispute, these types of incidents have been documented. Ingestion or entanglement in plastic carryout bags can result in choking, reduced productivity, lacerations, ulcers, and death to sensitive species in the marine environment, including sea turtles, seals, fish, otters, or bird species.

Recyclable paper carryout bags also have the potential to enter the marine environment as litter. Paper carryout bags are typically produced from kraft paper and weigh anywhere from 50 to 100 grams, depending on whether or not the bag includes handles (AEA Technology, 2009). A paper bag weighs approximately 90% more (approximately 45 to 90 grams) than single-use plastic bags. Because of their weight and recyclability, single-use paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because recyclable paper bags are not as resistant to biodegradation, there would be less risk of entanglement if paper bags enter the marine environment compared to plastic carryout bags. Thus, although recyclable paper bag litter may enter coastal habitats and affect sensitive species in the marine environment, the impacts of paper bags would be less than those of plastic carryout bags.

Reusable carryout bags may also become litter and enter the marine environment; however, these bags differ from single-use carryout bags in their weight, durability and longevity. Reusable bags can be made from plastic or a variety of cloths such as vinyl or cotton. Built to withstand many uses, reusable bags weigh at least ten times what an HDPE plastic bag weighs and two times what a paper bag weighs, therefore reducing the potential to become windborne (ExcelPlas Australia, 2004; City of Pasadena, 2008). Reusable bags are typically reused until worn out through washing or multiple uses, and then typically disposed either in the landfill or recycling facility. Because of the weight and sturdiness of these bags, reusable bags are less likely to become litter or to be carried from landfills by wind compared to plastic and paper carryout bags (Green Cities California MEA, 2010). In addition, since reusable carryout bags are specifically designed to be used multiple times, they would be disposed of less often than plastic or recyclable paper carryout bags. As such, reusable bags are less likely to enter the marine environment as litter and would generally be expected to result in fewer impacts to sensitive species than plastic or paper carryout bags.

The Proposed Ordinance would reduce plastic carryout bag usage by an estimated 95% compared to existing conditions (from approximately 71.6 million to approximately 3.58 million bags annually), and would reduce total bag use by approximately 64% (to approximately 25.96 million plastic, recyclable paper, and reusable bags). This overall reduction in bags would be expected to generally reduce litter-related impacts to aquatic and marine environments and associated sensitive species. Impacts would be beneficial.

Mitigation Measures. As the impact would be beneficial, no mitigation is required.

Significance After Mitigation. Impacts to sensitive species as a result of the Proposed Ordinance would be beneficial without mitigation.

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of plastic carryout bags, and promote a shift toward reusable carryout bags. This shift would generally have beneficial effects with respect to sensitive biological resources. Other agencies in the region (including the cities of Ojai, Carpinteria, and Malibu, and the County of Los Angeles)

have either adopted or are considering such ordinances. In addition, the BEACON EIR analyzed the impacts to biological resources associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, impacts would be beneficial to biological resources. Similar to the Proposed Ordinance, these other adopted and pending ordinances could incrementally reduce the number of plastic bags entering the environment, including in creeks/rivers and the Pacific Ocean, as litter. These other ordinances would be expected to have similar beneficial effects. Therefore, there would be no significant adverse cumulative impacts to biological resources.

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4.3 GREENHOUSE GAS EMISSIONS

This section analyzes the Proposed Ordinance's impacts related to climate change. The analysis focuses on manufacturing, transportation and disposal of carryout bags, as well as energy use related to washing reusable bags, as these are the largest contributors to greenhouse gas (GHG) emissions.

4.3.1 Setting

a. Climate Change and Greenhouse Gases. Climate change is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period of time. The term "climate change" is often used interchangeably with the term "global warming," but "climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures. The baseline against which these changes are measured originates in historical records identifying temperature changes that have occurred in the past, such as during previous ice ages. The global climate is continuously changing, as evidenced by repeated episodes of substantial warming and cooling documented in the geologic record. The rate of change has typically been incremental, with warming or cooling trends occurring over the course of thousands of years. The past 10,000 years have been marked by a period of incremental warming, as glaciers have steadily retreated across the globe. However, scientists have observed acceleration in the rate of warming during the past 150 years. Per the United Nations Intergovernmental Panel on Climate Change (IPCC, 2007), the understanding of anthropogenic warming and cooling influences on climate has led to a high confidence (90% or greater chance) that the global average net effect of human activities since 1750 has been one of warming. The prevailing scientific opinion on climate change is that most of the observed increase in global average temperatures, since the mid-20th century, is likely due to the observed increase in anthropogenic GHG concentrations (IPCC, 2007).

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as surface water and oceanic evaporation.

Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases and sulfur hexafluoride (SF_6) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO_2) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent"

(CO_2E), and is the amount of a GHG emitted multiplied by its GWP. CO_2 has a GWP of one. By contrast, CH_4 has a GWP of 21, meaning its global warming effect is 21 times greater than CO_2 on a molecule per molecule basis (IPCC, 1997).

The accumulation of GHGs in the atmosphere regulates the earth's temperature. Without the natural heat trapping effect of GHG, Earth's surface would be about 34° C cooler (CalEPA, 2006). However, it is believed that emissions from human activities, particularly the consumption of fossil fuels for electricity production and transportation, have elevated the concentration of these gases in the atmosphere beyond the level of naturally occurring concentrations. The following discusses the primary GHGs of concern.

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO_2 are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (United States Environmental Protection Agency [USEPA], April 2011). CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th Century. Concentrations of CO_2 in the atmosphere have risen approximately 40% since the industrial revolution. The global atmospheric concentration of CO_2 has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Association [NOAA], 2010). The average annual CO_2 concentration growth rate was larger during the last 10 years (1995–2005 average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, CO_2 represents an estimated 82.8% of total GHG emissions based on Global Warming Potential (Department of Energy [DOE] Energy Information Administration [EIA], August 2010). The largest source of CO_2, and of overall GHG emissions, is fossil fuel combustion.

Methane. CH_4 is an effective absorber of radiation, though its atmospheric concentration is less than that of CO_2 and its lifetime in the atmosphere is limited to 10 to 12 years. It has a global warming potential (GWP) approximately 21 times that of CO_2. Over the last 250 years, the concentration of CH_4 in the atmosphere has increased by 148% (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH_4 include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (USEPA, April 2011).

Nitrous Oxide. Concentrations of nitrous oxide (N_2O) began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). N_2O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of N_2O emissions. N_2O's GWP is approximately 310 times that of CO_2.

Fluorinated Gases (HFCS, PFCS and SF_6). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and SF_6, are powerful GHGs that are emitted from a variety of

industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF_6 emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO_2, CH_4, and N_2O, but these compounds have higher GWPs. SF_6 is the most potent GHG the IPCC has evaluated.

State Greenhouse Gas Inventory. Worldwide anthropogenic emissions of GHG were approximately 40,000 million metric tons (MMT) CO_2E in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). CO_2 emissions from fossil fuel use accounts for 56.6% of the total emissions of 49,000 million metric tons CO_2E (includes land use changes) and all CO_2 emissions are 76.7% of the total. Methane emissions account for 14.3% of GHG and N_2O emissions account for 7.9% (IPCC, 2007).

Total U.S. GHG emissions were 6,633.2 million metric tons CO_2E in 2009 (USEPA, April 2011). While total U.S. emissions have increased by 7.3% from 1990 to 2009, emissions decreased from 2008 to 2009 by 427.9 million metric tons CO_2E, or 6.1% (DOE EIA, Table 12.1, August 2010). This decrease was primarily due to: (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased, and the price of natural gas decreased substantially. Since 1990, U.S. emissions have increased at an average annual rate of 0.4%. The transportation and industrial end-use sectors accounted for 33% and 26%, respectively, of CO_2 emissions from fossil fuel combustion in 2009. Meanwhile, the residential and commercial end-use sectors accounted for 22% and 19%, respectively, of CO_2 emissions from fossil fuel combustion in 2009 (USEPA, 2011).

Based upon the California Air Resources Board (ARB) *California Greenhouse Gas Inventory for 2000-2009* (ARB, 2011), California produced 453 MMT CO_2E in 2009. The major source of GHG in California is transportation, contributing 38% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 23% of the state's GHG emissions (ARB, June 2011). California emissions are due in part to its large size and large population compared to other states. Another factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. ARB has projected statewide unregulated GHG emissions for the year 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, will be 596 MMT CO_2E (ARB, 2007).

b. Effects of Climate Change. Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Scientists have projected that the average global surface temperature could rise by1.0-4.5°F (0.6-2.5°C) in the next 50 years, and the increase may be as high as 2.2-10°F (1.4-5.8°C) in the next century. In addition to these projections, there are

identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic (IPCC, 2007).

According to the CalEPA's 2010 Climate Action Team Biennial Report, potential impacts of climate change in California may include loss of snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA, April 2010). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Sea Level Rise. According to *The Impacts of Sea-Level Rise on the California Coast*, prepared by the California Climate Change Center (CCCC) (May 2009), climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. The study identifies a sea level rise on the California coast over the past century of approximately eight inches. Based on the results of various global climate change models, sea level rise is expected to continue. The California Climate Adaptation Strategy (December 2009) estimates a sea level rise of up to 55 inches by the end of this century.

Air Quality. Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (CEC March, 2009).

Water Supply. Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F, mostly at night and during the winter, with higher elevations experiencing the highest increase. Many Southern California cities have experienced their lowest recorded annual precipitation twice within the past decade. In a span of only two years, Los Angeles experienced both its driest and wettest years on record (California Department of Water Resources [DWR], 2008; CCCC, May 2009).

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during our wet winters and releasing it slowly when we need it during our dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050.

Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR, 2008).

Hydrology. As discussed above, climate change could potentially affect: the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise may be a product of climate change through two main processes: expansion of sea water as the oceans warm and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture. California has a $30 billion agricultural industry that produces half of the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

Ecosystems and Wildlife. Climate change and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as two feet along most of the U.S. coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes, such as carbon cycling and storage (Parmesan, 2004; Parmesan, C. and H. Galbraith, 2004).

While the above-mentioned potential impacts identify the possible effects of climate change at a global and potentially statewide level, in general scientific modeling tools are currently unable to predict what impacts would occur locally with a similar degree of accuracy. In general, regional and local predictions are made based on downscaling statewide models (CEC, March 2009).

c. Greenhouse Gas Emissions from Carryout Bags. Carryout bags have the potential to contribute to the generation of GHGs either through emissions associated with manufacturing process, truck trips delivering carryout bags to retailers, through disposal during landfill degradation, or through energy use for washing. Each is summarized below.

Manufacturing Process. The manufacturing process to make carryout bags requires fuel and energy consumption. This creates GHG emissions, including CO_2, CH_4, N_2O_x, fluorinated gases, and ozone. In addition, fertilizers that are used on crops for resources such as cotton or pulp, which are then utilized in the manufacture of carryout bags, also have the potential to

emit N_2O_x. The amount of GHG emissions varies depending on the type and quantity of carryout bags produced. Compared to truck trips and disposal, the manufacturing process is the largest emitter of GHGs due to the high volume of fuel and energy consumption that is used during the process.

Truck Trips. Delivery trucks that transport carryout bags from manufacturers or distributors to Study Area local retailers also create GHG emissions. GHG emissions from truck trips result primarily from the combustion of fossil fuels and include CO_2, CH_4, and N_2O. Retail customers in the Study Area currently use an estimated 71,626,590 plastic carryout bags per year. Assuming 2,080,000 plastic bags per truck load (City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011; refer to Appendix C: Calculations), this number of plastic bags would require approximately 34 truck trips per year (an average of about 0.09 trips per day) to deliver these plastic carryout bags in the Study Area.

Disposal/Degradation. Once disposed of by customers, carryout bags that are not recycled are deposited to a landfill where they are left to decompose and degrade. Depending on the type and materials used, a carryout bag will degrade at various rates. When carryout bag materials degrade in anaerobic conditions at a landfill, CH_4 is emitted. This contributes to climate change (Green Cities California MEA, 2010).

Washing/Sanitizing. The energy use to power washing machines and clothes dryers to wash and sanitize reusable carryout bags creates GHG emissions. However, the amount of GHG emissions depends on the method of washing (i.e., hand washing, electric or natural gas-powered washing machine) and on the frequency of washing.

GHG Emission Rates per Bag. Various studies have estimated GHG emissions for the different carryout bags (single-use plastic, paper or reusable bags) to determine a per bag GHG emissions rate. The Boustead Report (2007) compared plastic and paper carryout bags and assumed that one paper bag could carry the same quantity of groceries as 1.5 plastic bags. Based on the Scottish Report (AEA Technology, 2005) and the Santa Clara County Negative Declaration (October 2010), GHG emissions associated with the manufacture, use, and disposal of a paper carryout bag are 2.97 times[1] greater than the emissions generated by the manufacture, use, and disposal of a single-use plastic carryout bag. Thus, based on the single-use plastic carryout bag GHG emissions rate of 0.04 metric tons CO_2E per 1,500 bags from the Boustead Report, paper carryout bags would emit 0.1188 metric tons CO_2E per 1,000 bags (0.04 x 2.97=0.1188). If used only once, the manufacture, use and disposal of an LDPE reusable bag results in 2.6 times greater the GHG emissions of a plastic carryout bag. However, another type of reusable bag, a cotton carryout bag results in 131 times the GHG emissions of a single-use HDPE plastic carryout bag (British Environment Agency, 2011). Therefore, reusable cotton carryout bags would emit 5.24 metric tons CO_2E per 1,000 bags (if used only once). For the purposes of this EIR, based on comments received by the public for the BEACON Program EIR, the higher rate associated with a cotton reusable will be utilized as a conservative estimate of GHG emissions for the Proposed Ordinance.

[1] 10% reduction (from a rate of 3.3 to 2.97) based on the Scottish Report (AEA Technology, 2005) and the Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

Table 4.3-1 lists the current GHG emissions associated with the manufacture, transport, and disposal of plastic carryout bags in the Study Area using the per bag GHG emissions rates discussed above and the estimated number of carryout bags currently used. As discussed in Section 2.0, *Project Description*, based on a baseline population estimate of approximately 134,890 persons in 2012 and a statewide estimate of approximately 531 plastic bags used per person per year, retail customers in the Study Area currently use an estimated 71,626,590 plastic carryout bags per year. As shown in Table 4.3-1, overall GHG emissions associated with Study Area plastic carryout bag use are 1,910 metric tons CO_2E per year, or approximately 0.014 metric tons CO_2E per person.

Table 4.3-1
Existing Greenhouse Gas Emissions
from Plastic Carryout Bags in the Study Area

Bag Type	Existing Number of Bags Used per Year	GHG Impact Rate per Bag	CO_2e (metric tons)	CO_2e per year (metric tons)	CO_2e per Person[2]
Single-use Plastic	71,626,590	1.0	0.04 per 1,500 bags[1]	1,910	0.014
			Total	**1,910**	**0.014**

CO_2E = Carbon Dioxide Equivalent units
[1] Based on Boustead Report, 2007; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.
[2] Emissions per person are divided by the current Study Area population – 134,890 (California Department of Finance, May 2012)

d. Regulatory Setting. The following regulations address both climate change and GHG emissions.

International and Federal Regulations. The United States is, and has been, a participant in the United Nations Framework Convention on Climate Change (UNFCCC) since it was produced by the United Nations in 1992. The objective of the treaty is "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system." This is generally understood to be achieved by stabilizing global GHG concentrations between 350 and 400 ppm, in order to limit the global average temperature increases between 2 and 2.4°C above pre-industrial levels (IPCC 2007). The UNFCC itself does not set limits on GHG emissions for individual countries or enforcement mechanisms. Instead, the treaty provides for updates, called "protocols," that would identify mandatory emissions limits.

Five years later, the UNFCC brought nations together again to draft the Kyoto Protocol (1997). The Protocol established commitments for industrialized nations to reduce their collective emissions of six GHGs (carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons) to 5.2% below 1990 levels by 2012. The United States is a signatory of the Protocol, but Congress has not ratified it and the United States has not bound itself to the Protocol's commitments (UNFCCC, 2007).

The United States is currently using a voluntary and incentive-based approach toward emissions reductions in lieu of the Kyoto Protocol's mandatory framework. The Climate Change Technology Program (CCTP) is a multi-agency research and development coordination effort (led by the Secretaries of Energy and Commerce) that is charged with carrying out the President's National Climate Change Technology Initiative (US EPA, December 2007).

The voluntary approach to address climate change and GHG emissions may be changing. The United States Supreme Court in *Massachusetts et al. v. Environmental Protection Agency et al*. ([2007] 549 U.S. 05-1120) held that the United States Environmental Protection Agency (US EPA) has the authority to regulate motor-vehicle GHG emissions under the federal Clean Air Act.

California Regulations. Assembly Bill (AB) 1493 (2002), referred to as "Pavley," requires ARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I took effect for model years starting in 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG" will cover 2017 to 2025. Fleet average emission standards would achieve a 22% reduction by 2012 and a 30% reduction by 2016.

In 2005, Governor Schwarzenegger issued Executive Order S-3-05, establishing statewide GHG emissions reduction targets. Executive Order (EO) S-3-05 provides that by 2010, emissions shall be reduced to 2000 levels; by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80% of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the "2006 CAT Report") (CalEPA, 2006). The 2006 CAT Report identifies a recommended list of strategies that the state could pursue to reduce GHG emissions. These are strategies that could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture, etc.

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the Statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under S-3-05), and requires ARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO_2E. The Scoping Plan was approved by ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives,

voluntary actions, and market-based mechanisms.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10% by 2020.

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts.

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing ARB to develop regional GHG emission reduction targets to be achieved from vehicles for 2020 and 2035. SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, ARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Santa Barbara County Association of Governments (SBCAG), the MPO for Santa Barbara County, was assigned a target of maintaining per capita 2005 levels of GHG Emissions (ARB, February 2010). SBCAG's SCS was adopted in August 2013.

ARB Resolution 07-54 establishes 25,000 metric tons of GHG emissions as the threshold for identifying the largest stationary emission sources in California for purposes of requiring the annual reporting of emissions. This threshold is just over 0.005% of California's total 2004 GHG emissions inventory.

In April 2011, Governor Brown signed SB 2X requiring California to generate 33% of its electricity from renewable energy by 2020.

For more information on the Senate and Assembly bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and http://www.arb.ca.gov/cc/cc.htm.

Local Regulations and CEQA Requirements. Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, they give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management

District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs.

Santa Barbara County released a Climate Action Study in April 2011 that summarizes policies in place in the County to reduce GHG emissions and lists new emission reduction measures that could be implemented in the future. The topic areas for the reduction measures are: air and energy, land use and transportation, green building, and resource conservation. The Climate Action Study also includes a GHG emissions inventory for unincorporated Santa Barbara County. The study has not been formally adopted by the Santa Barbara County Board of Supervisors. Once the study is adopted, the County plans to develop a Climate Action Plan that would implement selected GHG reductions measures and will include significance thresholds for GHG emissions.

4.3.2 Impact Analysis

a. Methodology and Significance Thresholds. Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the *CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the Proposed Ordinance. Based on the adopted *CEQA Guidelines*, impacts related to GHG emissions would be significant if the Proposed Ordinance would:

- *Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.*

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). However, the SBCAPCD has not adopted GHG emissions thresholds, and no GHG emissions reduction plan with established GHG emissions reduction strategies has yet been adopted. Therefore, this analysis is based on the County of Santa Barbara's interim approach to evaluating GHG emissions, which is summarized in Table 4.3-2.

Table 4.3-2
County of Santa Barbara GHG Significance Determination Guidelines

GHG Emission Source Category	Operational Emissions
Non-stationary Sources	1,100 MT of CO_2E/year OR 4.6 MT CO_2E/SP/year (residents + employees)
Stationary Sources	10,000 MT/year
Plans	6.6 MT CO_2E/SP/year (residents + employees)

Notes: SP = Service Population.
Project emissions can be expressed on a per-capita basis as Metric tons of CO2E/Service Population/year, which represents the project's total estimated annual GHG emissions divided by the estimated population.

The Proposed Ordinance is evaluated based on the project-level threshold of 4.6 metric tons CO_2E per service population per year. A significant impact related to climate change would occur if GHG emissions associated with implementation of the Proposed Ordinance would exceed 4.6 metric tons of CO_2E units per person per year. In addition, impacts would be significant if the Proposed Ordinance would be inconsistent with applicable GHG emissions reductions strategies.

b. Project Impacts and Mitigation Measures.

Impact GHG-1 **The Proposed Ordinance would increase the number of recyclable paper and reusable carryout bags used in the County and would therefore incrementally increase GHG emissions compared to existing conditions. However, emissions would not exceed thresholds of significance. Impacts would be Class III, *less than significant*.**

The intent of the Proposed Ordinance is to reduce the use of plastic carryout bags and promote the use of reusable bags by Study Area retail customers. As such, the Proposed Ordinance would reduce the number of plastic carryout bags that are manufactured and increase the number of recyclable paper and reusable carryout bags that are manufactured, transported, washed (in the case of reusable bags) and disposed of within the Study Area.

As described in the *Setting*, the manufacture, transport, and disposal, of each recyclable paper bag generates 2.97 times more GHG emissions than the manufacture, transport, and disposal of a plastic carryout bag. If used only once, the manufacture, use and disposal of a reusable cotton carryout bag results in 131 times the GHG emissions of a plastic carryout bag (Environment Agency, 2011). Thus, on a per bag basis, plastic carryout bags have less impact than recyclable paper and reusable carryout bags. However, reusable carryout bags are intended to be used multiple times. With reuse of carryout bags, the total number of carryout bags that would be manufactured, transported and disposed of would be reduced. As described in Section 2.0, *Project Description*, implementation of the Proposed Ordinance would result in replacement of plastic carryout bags currently used in the Study Area (estimated at 71,626,590 million annually) with an estimated 21.5 million recyclable paper bags and 895 thousand reusable bags; an estimated 3.6 million plastic carryout bags would continue to be used annually.

As a result of the increase in reusable bags, the Proposed Ordinance may lead to increased energy use as reusable bags would be machine washable or made from a material that can be cleaned or disinfected, as required by the Proposed Ordinance. Washing reusable bags used in the Study Area would utilize energy or natural gas, depending on the type of washing machine and dryer used and, therefore, incrementally increase energy-production related GHG emissions.

As discussed in Section 4.5, *Utilities and Service Systems,* it is anticipated that most reusable bag users would simply include reusable bags in wash loads that would occur with or without the bags. Nevertheless, in order to provide a conservative estimate for impacts related to energy usage resulting from the Proposed Ordinance, this analysis assumes that the demand for energy in the Study Area would increase in order to maintain the hygiene of reusable bags, where bags are cleaned by washing machine and clothes dryers. Assuming that all reusable carryout bags are made of cotton and that all of them are machine washed in separate loads for just reusable carryout bags, this would create an additional 565,473 loads of laundry per year.[2] As noted above, this conservative assumption is different than the methodology used in the BEACON Program EIR. For the purposes of this EIR, based on comments received by the public for the BEACON Program EIR, the higher rate associated with a cotton reusable will be utilized as a conservative estimate of GHG emissions for the Proposed Ordinance.

Table 4.3-3 provides an estimate of GHG emissions that would result from the change in the makeup of carryout bags in the County resulting from implementation of the Proposed Ordinance. Although the total number of carryout bags would be reduced by approximately 45.6 million bags per year, the projected increase in the use of recyclable paper bags and reusable bags is expected to increase overall GHG emissions associated with the manufacture, transport, and disposal of carryout bags by approximately 0.054 CO_2E per person per year. Washing and drying of the additional reusable bags resulting from the Proposed Ordinance would also increase GHG emissions by approximately 0.004 metric tons CO_2E per person per year.

In total and based on the conservative assumptions described above, implementation of the Proposed Ordinance would result in a net increase of an estimated 0.044 metric tons CO_2E per person per year within the Study Area. However, both the increase in CO_2E emissions compared to existing conditions and the total emissions after implementation of the Proposed Ordinance would be less than 1% of the 4.6 metric tons CO_2E per person per year significance threshold. Therefore, impacts related to the GHG emissions would be less than significant. As discussed above, this estimate assumes that all reusable carryout bags would be cotton bags and that reusable carryout bags are used 52 times per year; thus, the actual GHG emissions may be less.

[2] *895,332 bags washed monthly,19 bags per load assuming an average washer capacity of 8 pounds per load and 6.8 ounces per bag, as measured on 8/10/2010 by Rincon Consultants, Inc. See Section 4.5 for more information.*

Table 4.3-3
Estimated Greenhouse Gas Emissions from Carryout Bags in Study Area with Implementation of the Proposed Ordinance

Manufacture, Use, and Disposal					
Carryout Bag Type	**Projected # of Carryout Bags Used per Year**[1]	**GHG Impact Rate (metric tons CO_2E)**		**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**[5]
Plastic	3,581,330	0.04 per 1,500 bags[2]		96	0.0007
Recyclable Paper	21,487,977	0.1188 per 1,000 bags[3]		2,553	0.02
Reusable	895,332	5.24 per 1,000 bags[4]		4,692	0.161
			Subtotal	*7,341*	*0.054*
Washing					
Carryout Bag Type	**# of Loads per Year**[6]	**Electricity Use Per Load (kWh)**[7]	**Total Electricity Use Per Year (kWh)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	565,473	3.825	2,162,934	510[8]	0.004
			Subtotal	*510*	*0.004*
Total GHG Emissions from Proposed Ordinance (Manufacture, Use and Disposal + Washing)				**7,851**	**0.058**
Existing GHG Emissions				**1,910**	**0.014**
Net Change (Total for Proposed Ordinance minus Existing)				**+5,941**	**+0.044**

CO_2E = Carbon Dioxide Equivalent units
[1] Refer to Table 2.2 in Section 2.0, Project Description.
[2] Based on Boustead Report, 2007; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.
[3] 10% reduction (from a rate of 3.3 to 2.97) based on the Scottish Report (AEA Technology, 2005) and the Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.
[4] Based on Environment Agency – United Kingdom government report, 2011.
[5] Emissions per person are divided by the existing population in the Study Area – 134,890 (Dept. of Finance, May 2012)
[6] Assumes that all reusable carryout bags would be machine washed. Assumes that each bag is washed once a month. Assumes 19 bags per load based on an average load capacity of 8 pounds per load and 6.8 ounces per bag (as measured on 8/10/2010 by Rincon Consultants, Inc.). See Table 4.5-8 in Section 4.5, Utilities and Service Systems.
[7] US Department of Energy: Energy Efficiency and Renewable Energy, 2010.
[8] Assuming Electricity = 0.524 pounds CO_2 per kWh and 2,204.6 pounds per metric ton (PG&E, 2013)
See calculations in Appendix C.

Mitigation Measures. Mitigation is not required since the impact would not be significant.

Significance after Mitigation. Impacts would be less than significant without mitigation.

Impact GHG-2 The Proposed Ordinance would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Impacts would be Class III, *less than significant*.

The Proposed Ordinance would be generally consistent with applicable regulations or plans addressing GHG reductions. The County of Santa Barbara has not adopted a Climate Action Plan (CAP) at this time. However, in 2008 the California Attorney General published *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level* (Office of the California Attorney General, Global Warming Measures Updated May 21, 2008). This document provides information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project. Tables 4.3-4 and 4.3-5 illustrate that the Proposed Ordinance would be consistent with both the GHG reduction strategies set forth by the 2006 CAT Report and the 2008 Attorney General's Greenhouse Gas Reduction Measures.

Table 4.3-4
Proposed Ordinance Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
California Air Resources Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	**Consistent** The trucks that deliver carryout bags to and from the Study Area retailers on public roadways would be in compliance with ARB's Tractor-Trailer GHG regulation which requires the use of aerodynamic trailers that are equipped with low rolling resistance tires in order to reduce GHG emissions.
Diesel Anti-Idling The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	**Consistent** Current State law restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to Study Area retailers are subject to this state-wide law.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	**Consistent** The diesel vehicles that deliver carryout bags to and from the Study Area on public roadways could utilize this fuel once it is commercially available.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	**Consistent** The heavy-duty trucks that deliver carryout bags to and from Study Area retailers on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieve 75% Statewide Diversion Goal Achieving the State's 75% waste diversion mandate as established by the amendment to the Integrated Waste Management Act of 1989, (AB 341, Chesbro), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	**Consistent** As of 2012, Santa Barbara County was diverting at least 75% of solid waste, thereby complying with thestandards established by AB 341. Any disposal of carryout bags would be required to adhere to the existing standards. The Proposed Ordinance would also assist by promoting reusable carryout bags, thus reducing the amount of solid waste generated in the form of plastic carryout bags.
Zero Waste – High Recycling Efforts to exceed the 75% mandate would allow for additional reductions in climate change emissions.	**Consistent** As described above, Santa Barbara County currently meets the 75% goal of recycling. The Proposed Ordinance would assist by

Table 4.3-4
Proposed Ordinance Consistency with Applicable Climate Action Team Greenhouse Gas Emission Reduction Strategies

Strategy	*Project Consistency*
	promoting reusable carryout bags, thus reducing the amount of solid waste generated in the form of plastic carryout bags. The ordinance would also shift bag consumption from plastic to recyclable paper. This would increase recycling of carryout bags because paper bags are recycled by services provided to each residence and workplace in the Study Area. Consumer access to plastic bag recycling opportunities is limited.
Energy Commission (CEC)	
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	**Consistent** Carryout bag delivery drivers could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	**Consistent** Carryout bag delivery drivers could purchase alternative fuel vehicles and utilize these fuels once they are commercially available regionally and locally.

Table 4.3-5
Proposed Ordinance Consistency with Applicable Attorney General Greenhouse Gas Reduction Measures

Strategy	*Project Consistency*
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	**Consistent** Currently, the ARB's Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks delivering carryout bags to Study Area retailers are subject to this state-wide law.
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.	**Consistent** As described above, Santa Barbara County exceeds the 50% waste diversion mandate. An objective of the Proposed Ordinance is to reduce plastic and paper bag waste in landfills. The Proposed Ordinance would require reusable bags to be available for sale at retail establishments and would require paper bags to be made from recyclable material.
Recycling Education Provide education and publicity about reducing waste and available recycling services.	**Consistent** The Proposed Ordinance would require reusable and recyclable paper carryout bags to be available at retail establishments.

Mitigation Measures. Mitigation is not required since the impact would not be significant.

Significance after Mitigation. Impacts would be less than significant without mitigation.

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of plastic carryout bags, and promote a shift toward reusable carryout bags. Similar to the Proposed Ordinance, such ordinances would be expected to generally reduce the overall number of bags manufactured and associated GHG emissions. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally change the GHG emissions associated with bag manufacturing, transportation and disposal. Within the region, the Cities of Ojai and Carpinteria have adopted such ordinances. In addition, the BEACON EIR analyzed the GHG emissions associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, total GHG emissions for all jurisdictions in the BEACON Study Area (including the County of Santa Barbara) were determined to be fewer than 0.1 metric tons CO_2E per person per year which did not exceed any thresholds of significance, and therefore was determined to be less than significant. As of November 12, 2013, there have been 66 similar ordinances adopted across the state of California that affect 87 local jurisdictions. However, based on the incremental increase in per capita emissions, the other ordinances are not expected to generate a cumulative increase in GHG emissions. For these reasons, cumulative significant impacts associated with implementation of carryout bag ordinances throughout the state are not anticipated.

4.4 HYDROLOGY and WATER QUALITY

This section analyzes the Proposed Ordinance's potential to adversely affect hydrology and water quality.

4.4.1 Setting

No known carryout bag manufacturers are located within Santa Barbara County yet carryout bags are assuredly manufactured and/or used elsewhere in California. Therefore, impacts to hydrology and water quality are not limited to the local watershed. However, for this analysis the local watershed and hydrologic conditions are discussed and used as an example of the types of effects that may occur as a result of the manufacturing and disposal of bags.

a. Surface Water Drainage and Carryout Bags.

Existing Hydrological Systems. Santa Barbara County contains four principal watersheds: Santa Maria, which includes the Cuyama and Sisquoc watersheds; San Antonio Creek; Santa Ynez; and South Coast, which is composed of approximately 50 short, steep watersheds. The headwaters of the principal watersheds are generally undeveloped, and the middle and lower sections are often developed with urban or agricultural uses. The four major rivers draining these watersheds are the Santa Maria, Sisquoc, Cuyama, and Santa Ynez. Rainfall is variable, and streamflow is flashy. Streamflow is generated directly from rainfall with little base flow contribution from headwaters. Most rivers and the lower reaches of streams are dry in the summer.

The majority of the watersheds in Santa Barbara County ultimately drain west to the Pacific Ocean. Therefore, trash in Study Area creeks and rivers can ultimately end up in the Pacific Ocean. Nearly all of the water bodies in the Study Area have been listed as impaired by the State Water Resources Control Board (State of California Environmental Protection Agency Natural Resources Agency, December 2012).

Effects of Carryout Bags. Carryout bags that enter the storm drain system as litter may affect storm water flow by clogging drains and redirecting flow. As described in Section 4.2, *Biological Resources*, typical plastic carryout bags weigh approximately five to nine grams and are made of thin (less than 2.25 mils or 0.00225 inches thick) high density polyethylene (HDPE) (Hyder Consulting, 2007). Post-use from a retail establishment, a customer may reuse a plastic carryout bag at home, but eventually the bags are disposed of in a landfill or recycling facility or discarded as litter. Although some recycling facilities handle plastic bags, most reject them because they get caught in the machinery and cause malfunctioning, or are contaminated after use. About 11% of single-use plastic carryout bags in the United States are currently recycled (US EPA, May 2013). The majority of plastic carryout bags end up in the landfill or as litter. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may blow away as litter due to their light weight (Green Cities California MEA, 2010). Plastic carryout bags that become litter can enter storm drains and may clog catch basins or be transported to the local watershed, the Study Area's river systems, or the Pacific Ocean.

Recyclable paper grocery bags also have the potential to enter the storm drains as litter. However, as described in Section 4.2, *Biological Resources*, because of their weight and recyclability, recyclable paper bags are less likely to become litter compared to plastic carryout bags (Green Cities California MEA, 2010). In addition, because recyclable paper bags are not as resistant to biodegradation, there is less potential to clog catch basins compared to plastic carryout bags. However, recyclable paper bags that are improperly disposed of can result in clogged catch basins or storm drains as biodegradation can take a long time to breakdown those types of bags. Thus, although recyclable paper bag litter may enter storm drains and temporarily affect hydrologic flow of surface water runoff, the potential to enter storm drains and cause long-term hydrologic effects is less than with plastic carryout bags.

Reusable bags may also become litter and enter storm drains; however, these bags differ from plastic and paper carryout bags in their weight and longevity. Reusable bags can be made from plastic or a variety of cloths such as vinyl or cotton. Built to withstand many uses, reusable bags typically weigh at least ten times what an HDPE plastic bag weighs and two times what a paper bag weighs. This restricts movement by wind. Reusable bags are typically reused until worn out through washing and then typically disposed of either in the landfill or recycling facility (if recyclable). Because of the weight and sturdiness of these bags, reusable bags are less likely to become litter or be carried from landfills by wind compared to plastic and paper carryout bags (Green Cities California MEA, 2010). Therefore, reusable bags are less likely to enter the storm drain system as litter.

b. Water Quality and Single-use Bags. Various entities in the region are focusing their efforts on poor surface water quality in creeks, rivers, and oceans due to polluted storm water and urban runoff discharges. Runoff pollutants can include pesticides, fertilizers, green waste, animal waste, human waste, petroleum hydrocarbons (gasoline, motor oil), trash, pollutants from the breakdown of plastic products, and other constituents.

One of the primary sources of surface water contamination in Santa Barbara County is runoff from impervious surfaces in urban areas. Stormwater flowing over roadways and other transportation facilities carries urban pollutants through natural drainage systems or man-made storm drain facilities to a body of surface water. Such discharges are referred to as "non-point" sources because the pollutants are found everywhere. These discharges are mostly unregulated, resulting in untreated pollutants entering rivers, lakes, and the Pacific Ocean. Pollutants contained within urban runoff primarily include suspended solids, oil, grease, pesticides, pathogens, and air pollutants.

As previously mentioned, nearly all of the water bodies in the Study Area have been listed by the State Water Resources Control Board as impaired, including but not limited to: the San Antonio Creek, the Santa Maria River and the Santa Ynez River (State of California Environmental Protection Agency Natural Resources Agency, December 2012).

The most effective way to reduce the level of contamination from surface runoff is through the control of pollutants prior to their discharge to the drainage system**.** Implementation of point source controls has led to substantial increases in the level of treatment and quality of discharges.

Water quality may be affected by carryout bags in two different ways: litter from bags and the use of materials for processing activities. As described above, litter that enters the storm drain system may clog storm drains and could result in contamination or may be transported into the local watershed or coastal habitat, violating waste discharge requirements (as described below in *Regulatory Setting*). In addition, manufacturing facilities may utilize materials that, if released in an uncontrolled manner, could degrade the water quality in local waterways. While plastic carryout bags are more likely to affect water quality as a result of litter, the plastic bag manufacturing process utilizes "pre-production plastic pellets," which may also degrade water quality if released either directly to a surface water body or indirectly through storm water runoff.

Recyclable paper bags have fewer litter-related effects on water quality than plastic carryout bags; however, the manufacturing process for paper bags may utilize various chemicals and materials and may also require the use of fertilizers, pesticides and other chemicals for production of resources (such as pulp). Discharges of these chemicals and materials into water bodies, either directly or indirectly through storm water runoff, may increase the potential for higher than natural concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus.

Because of the weight and sturdiness, reusable bags are less likely to be carried from landfills by wind compared to single-use plastic and paper bags (Green Cities California MEA, 2010). However, similar to recyclable paper bags, the manufacturing process for reusable bags can utilize materials such as chemicals or fertilizer for production of resources (such as cotton) that if released, either directly to a stream or indirectly via storm water runoff, could degrade water quality in local water bodies.

c. Regulatory Setting. The federal Clean Water Act (CWA) and the California Ocean Plan are the primary mechanisms through which pollutant discharges are regulated in California. The CWA established minimum national water quality goals and created the National Pollutant Discharge Elimination System (NPDES) permit system to regulate the quality of discharged water. All dischargers must obtain NPDES permits. Beginning in 1991, all municipal and industrial storm water runoff is also regulated under the NPDES system. Although the CWA has established 126 "priority contaminants" (metals and organic chemicals), the California Ocean Plan has further established effluent limitations for 21 of these pollutants.

The U.S. Environmental Protection Agency (EPA) is the primary Federal agency responsible for implementing the CWA. The Regional Water Quality Control Board (RWQCB) is the state agency with primary responsibility for implementing the CWA and the state's Porter-Cologne Water Quality Act. The RWQCB is also responsible for water quality regulation through its work in preparing and adopting the California Ocean Plan. Local agencies also have responsibility for managing wastewater discharges. All are required to meet criteria set forth in their NPDES permits, monitor their discharges, and routinely submit reports to the RWQCB and the EPA. Santa Barbara County is within the area covered by the Central Coastal Regional Water Quality Control Board. A small portion of Santa Barbara County is regulated by the Los Angeles Regional Water Quality Control Board.

Assembly Bill (AB) 258 was enacted in 2008 to address problems associated with releasing "preproduction plastic" (including plastic resin pellets and powdered coloring for plastics) into the environment. The bill enacted Water Code Section 13367, requiring the State Water Resources Control Board and RWQCBs to implement programs to control discharges of preproduction plastic from point and nonpoint sources (Green Cities California MEA, 2010). Program control measures must, at a minimum, include waste discharge, monitoring, and reporting requirements that target plastic manufacturing, handling, and transportation facilities. The program must, at a minimum, require plastic manufacturing, handling, and transportation facilities to implement best management practices to control discharges of preproduction plastics. This includes containment systems, careful storage of pre-production plastics, and the use of capture devices to collect any spills.

The State Water Resources Control Board (SWRCB, 2010) reports that it is taking the following actions to comply with Section 13367:

> *"State and Regional Water Board staff has conducted and are continuing to conduct compliance inspections of various types and scales of preproduction plastic manufacturing, handling, and transport facilities enrolled under California's Industrial General Permit (IGP) for storm water discharges…Collectively these inspections will help State and Regional Water Board staff to develop cost-effective regulatory approaches (including compliance-evaluation procedures and appropriate best management practices) for addressing this pollution problem.*
>
> *"The State Water Board has issued an investigative order to all plastic-related facilities enrolled under the IGP to provide the State Water Board with critical information needed to satisfy the legislative mandates in AB 258 (Krekorian). Facilities subject to this order must complete an online evaluation and assess their points of potential preproduction plastics discharge and means of controlling these discharges. Data gathered as a result of this effort will be used to help the State Board understand the California plastics industry and ultimately develop appropriate regulation of these facilities to ensure compliance with the Clean Water Act."*

Santa Barbara County's Storm Water Management Program (SWMP) was prepared pursuant to State Water Resources Control Board Water Quality Order No. 2003-005-DWQ National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS0000004 Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (General Permit) (County of Santa Barbara Water Resources Division, March 2012).

The requirements for NPDES permits now include the "California Toxics Rule" and State and Federal criteria for metals, pesticides and other pollutants that could affect aquatic life and human health.

Municipalities are required to obtain municipal separate storm sewer systems (MS4s) permits, which regulate storm water discharges. MS4 permits are issued by Regional Water Quality Control Boards (RWQCB) and are usually issued to a group of co-permittees encompassing an entire metropolitan area. Since the Study Area involves several major watersheds regulated by two RWQCBs, the Study Area has several MS4 permits. In Santa Barbara County, the cities of

Buellton, Carpinteria, Goleta, Santa Barbara, Santa Maria, and Solvang have been identified as MS4s because of their respective population densities and drainage infrastructure.

One municipal permit is a Phase I MS4 Permit for municipalities serving more than 100,000 people and is administered by the Central Coast RWQCB and the Los Angeles RWQCB for their respective jurisdictions. The other municipal permit is a Phase II General MS4 Permit for municipalities serving between 10,000 and 100,000 people and is administered by the aforementioned RWQCB's within their jurisdictions. Santa Barbara County is the primary co-permittee for the Phase I and Phase II boundaries, which includes the cities of Buellton, Goleta, Lompoc, Santa Barbara, Santa Maria, and Solvang.

The MS4 permits require the discharger to develop and implement a Storm Water Management Program with the goal of reducing the discharge of pollutants to the maximum extent practicable, which includes a trash load reduction requirement. The unincorporated areas of Santa Barbara County, as well as the cities of Buellton, Goleta, Lompoc, Santa Barbara, Santa Maria, and Solvang are subject to the County's Phase II regulations. The Cities of Carpinteria, Santa Barbara, Goleta, Buellton, Solvang, Lompoc, and Santa Maria have all implemented independent SWMPs within their municipal boundaries. The Santa Barbara County SWMP specify what BMPs will be used to reduce, control, or eliminate identified pollutants of concern. Santa Barbara County also regulates stormwater quality through the Storm Water Management and Discharge Control Ordinance (Ordinance No. 4654 of the County's Municipal Code).

4.4.2 Impact Analysis

a. Methodology and Significance Thresholds. Based on Appendix G of the CEQA Guidelines, the Proposed Ordinance would create a significant hydrology or water quality impact if it would:

1. *Violate any water quality standards or waste discharge requirements*
2. *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)*
3. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site*
4. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site*
5. *Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems in a manner which could create flooding or provide substantial additional sources of polluted runoff*
6. *Otherwise substantially degrade water quality*
7. *Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map*
8. *Place within a 100-year flood hazard area structures which would impede or redirect flood flows*

9. *Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam*
10. *Result in inundation by seiche, tsunami, or mudflow*

The Initial Study from the BEACON Final Program EIR (May 2013) concluded that only the first, second and sixth criteria could potentially result in a significant impact, while the Proposed Ordinance would result in no impact with respect to the third through fifth and seventh through tenth criteria. Hence, only the first and sixth criteria are addressed in this section. The second criterion is addressed in Section 4.5, *Utilities and Service Systems*.

b. Project Impacts and Mitigation Measures.

Impact HWQ-1 The Proposed Ordinance would incrementally increase the number of recyclable paper and reusable bags used in the Study Area, but the reduction in the overall number of plastic carryout bags used in the Study Area would reduce the amount of litter and waste entering storm drains. This would improve local surface water quality, a Class IV, *beneficial*, effect.

As a result of the Proposed Ordinance, an estimated 95% of the single-use plastic bags currently used annually in the Study Area (71,626,590 plastic carryout bags per year) would be replaced by an estimated 21.5 million recyclable paper bags and approximately 895 thousand reusable bags. About 3.58 million plastic carryout bags are expected to remain in circulation (refer to Table 2-2 in Section 2.0, *Project Description*). This represents an estimated 64% reduction in the total overall number of carryout bags (plastic, recyclable paper and reusable carryout bags) used annually within the Study Area.

Each type of carryout bag's potential to become litter is based on the bag's weight, material and quantity of bags used. As described in Impact BIO-1 in Section 4.2, *Biological Resources*, the majority of plastic carryout bags end up as litter or in the landfill. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may blow away as litter due to their light weight (Green Cities California MEA, 2010). Plastic carryout bags that become litter may enter storm drains from surface water runoff or may be blown directly into local waterways by the wind. Plastic carryout bag litter that enters the storm drain system can block or clog drains resulting in contamination (Green Cities California MEA, 2010). Based on statewide data that currently almost 20 billion plastic grocery bags (or approximately 531 bags per person) are consumed annually in California (Green Cities California MEA, 2010), Study Area retail establishments currently use an estimated 71.6 million plastic carryout bags per year. The 64% reduction in the overall number of carryout bags used within the Study Area, anticipated to result from implementation of the Proposed Ordinance, is expected to have a commensurate reduction in the potential for carryout bags to enter and clog area storm drains.

Like plastic carryout bags, recyclable paper bags have the potential to enter storm drains and local waterways as litter. However, as described in Impact BIO-1 in Section 4.2, *Biological Resources*, due to their weight and recyclability, recyclable paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because recyclable paper bags are not as resistant to breakdown as plastic carryout bags, they

would be less likely to block or clog drains compared to plastic carryout bags. Therefore, recyclable paper bags would be less likely to result in storm drain blockage or contamination.

Due to the weight and sturdiness of reusable bags made for multiple uses, reusable bags are less likely to be littered or carried from landfills by wind as litter compared to both plastic and paper carryout bags (Green Cities California MEA, 2010). Therefore, shifting toward greater use of reusable bags would not degrade water quality compared to existing conditions as a result of litter, nor would it increase the potential for storm drain blockage.

As described in Section 4.1, *Air Quality*, and Section 4.3, *Greenhouse Gas Emissions*, the Proposed Ordinance is anticipated to reduce the overall amount of plastic carryout bags used in the Study Area by approximately 68 million bags annually. Therefore, the Proposed Ordinance would be expected to reduce the amount of litter that could enter storm drains and local waterways, thus improving water quality, reducing maintenance and cleanup costs, and reducing the potential for storm drain blockage.

Mitigation Measures. Water quality, the storm drain operation, and associated hydraulic as well as hydrological conditions would benefit from the Proposed Ordinance because reducing the amount of plastic carryout bags in the Study Area also results in an incremental reduction in the amount of litter that enters the storm drain system and local waterways, thereby improving water quality. Therefore, mitigation is not required.

Significance After Mitigation. Impacts to water quality and storm drain operation from litter entering storm drains and local waterways would be beneficial without mitigation.

Impact HWQ-2 A shift toward reusable bags and potential increase in the use of recyclable paper bags could increase the use of chemicals associated with their production, which could degrade water quality in some instances and locations. However, bag manufacturers would be required to adhere to existing regulations, including NPDES Permit requirements and the California Health and Safety Code. Therefore, impacts to water quality from increasing recyclable paper and reusable bag processing activities would be Class III, *less than significant*.

The manufacturing process for plastic, recyclable paper, and reusable bags utilize various chemicals and materials. Plastic carryout bag manufacturers utilize "pre-production plastic." As discussed above in the *Setting*, paper bag manufacturers may utilize various chemicals and materials and may also require the use of fertilizers, pesticides and other chemicals for production of resources (such as pulp or cotton), which may increase the potential for higher natural concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus. Similar to paper bags, the manufacturing process for reusable bags can utilize materials such as chemicals or fertilizer for production of resources (such as cotton) that if released, either directly to a stream or indirectly via storm water runoff, could degrade water quality in local water bodies. If released into the environment, these pollutants could degrade water quality.

The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of plastic carryout bags and promote a shift toward the use of reusable bags. The Proposed Ordinance is anticipated to reduce the overall number of plastic carryout bags used in the Study Area by 95% and reduce the use of all types of bags (including plastic, recyclable paper, and reusable) by 64%. These shifts in the types and amounts of bags used could potentially alter processing activities related to bag production. The manufacturing impacts of each bag type and the anticipated changes in use are described below.

Plastic Carryout Bags. Conventional plastic carryout bags are a product of the petrochemical industry and are typically produced by independent manufacturers who purchase virgin resin from petrochemical companies or obtain non-virgin resin from recyclers or other sources. The manufacturing process for plastic carryout bags begins with the waste-byproducts of oil (imported bags) or natural gas (domestic bags) into hydrocarbon monomers, which are then further processed into polymers. These polymers are heated to form plastic resins, which are then blown through tubes to create the air pocket of the bag. Once cooled, the plastic film is stretched to the desired size of the bag and cut into individual bags (Green Cities California MEA, 2010). As described in Section 4.4.1 (d), *Regulatory Setting*, the plastic resin pellets are a concern when accidentally released (via spilling into storm drains during use or transport) into aquatic environments.

AB 258 was enacted to address these concerns by implementing program control measures that require plastic manufacturing, handling, and transportation facilities to implement best management practices to control discharges (accidental release from spilling) of preproduction plastics. This includes containment systems, careful storage of pre-production plastics, and the use of capture devices to collect any spills.

Products used in the process to manufacture plastic carryout bags, such as petroleum and natural gas, also have the potential to be released as result of an accident during transport or use. However, regulatory agencies such as the EPA set forth Preliminary Remediation Goals (PRGs) for various pollutants in soil, air, and tap water (U.S. EPA Region IX, Preliminary Remediation Goals Tables, November 2011). PRG concentrations can be used to screen pollutants in environmental media, trigger further investigation, and provide initial cleanup goals resulting from an accident or spill of petroleum or natural gas at a plastic carryout bag manufacturing facility.

Recyclable Paper Bags**.** The majority of recyclable paper bags are made from kraft paper bags, which are manufactured from a pulp that is produced by digesting a material into its fibrous constituents via chemical and/or mechanical means. Kraft pulp is produced by chemical separation of cellulose from lignin. Chemicals used in this process include caustic sodas, sodium hydroxide, sodium sulfide, and chlorine compounds (Green Cities California MEA, 2010). Processed and then dried and shaped into large rolls, the paper is then printed, formed into bags, baled, and then distributed to grocery stores. Although it does not directly discharge pollutants, the paper bag manufacturing process may utilize fertilizers, pesticides and other chemicals in the production of resources such as pulp. These pollutants may increase the potential for higher concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus, causing eutrophication as a result of surface water runoff. A recyclable paper bag has 14 times

the impact of one plastic carryout bag on eutrophication, which is caused when nitrate and phosphate are emitted into water, stimulating excessive growth of algae and other aquatic life (Green Cities California MEA, 2010). Eutrophication reduces the water quality and causes a variety of problems such as a lack of oxygen in the water (Green Cities California MEA, 2010). However, direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program established in Section 402 of the Clean Water Act (CWA).

Recyclable paper bag manufacturers are required to comply with the local plans and policies of the SWRCB and the RWQCB, which regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. For example, in the Study Area, recyclable paper bag manufacturers would be required to adhere to Santa Barbara County's Storm Water Management Plan BMPs to reduce the presence of pollutants in stormwater discharges to the maximum extent practicable. Paper bag manufacturing facilities would be required to implement BMPs, reducing the likelihood that pollutants would enter storm drains and other aquatic environments. There are, however, no known bag manufacturers in the Study Area.

Reusable Bags. Reusable bags can be manufactured with various materials, including polyethylene (PE) plastic, polypropylene (PP) plastics, multiple types of cloth (cotton canvas, nylon, etc.), and recycled plastic beverage containers (polyethylene terephthalate, or PET), among others (Green Cities California MEA, 2010). Depending on the type of material used in the manufacturing process, reusable bags have various impacts to water quality. A single reusable low density polyethylene (LDPE) bag has 2.8 times the impact of a plastic carryout bag on eutrophication as result of the use of pollutants that are used for materials in the manufacturing process (Green Cities California MEA, 2010). In addition, other types of reusable bags, such as cotton canvas, may require the use of fertilizers, pesticides and other chemicals in the production process. These pollutants may increase the potential for higher natural concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus causing eutrophication as a result of surface water runoff. However, with reuse of a LDPE or cotton canvas bag as intended, impacts to eutrophication would be lower in comparison to a single-use plastic bag and a single-use paper bag since reusable bags are intended to be used "hundreds of times" (Green Cities California MEA, 2010). Therefore, each reusable bag would be expected to replace hundreds of single-use plastic or paper bags, more than offsetting the increased impacts associated with each individual bag. For example, if every plastic carryout bag used in the Study Area was replaced with a reusable carryout bag (conservatively assuming 52 uses), the overall reduction in carryout bags would be from an estimated 71.6 million plastic carryout bags to 1.37 million reusable carryout bags. As such, overall eutrophication impacts would be lower in comparison to plastic and recyclable paper carryout bags.

As with other types of bags, reusable bag manufacturers would not be allowed to directly discharge pollutants into waters of the United States, except in accordance with the NPDES program established in Section 402 of the CWA. Reusable bag manufacturers may be required to obtain an "Individual" NPDES Permit and/or would need to adhere to an existing "General" NPDES Permit of the local area. An Individual NPDES permit regulates and limits the particular discharge at the manufacturing facility. The permit limits are based on the type of

activity, nature of discharge and receiving water quality. Manufacturing facilities would need to apply for and obtain a permit prior to the start of manufacturing operations. In addition, as part of the Individual Permit, a manufacturing facility would be required to monitor and report its discharges to the local Regional Water Quality Control Board to demonstrate that the facility's discharges are not in violation of any water quality standards.

Manufacturing facilities would also be required to adhere to existing General Permits that specify local discharge requirements for municipal storm water and urban runoff discharges. For example, in Study Area, reusable bag manufacturers would be required to adhere to Santa Barbara County's Storm Water Management Plan BMPs to reduce the presence of pollutants in stormwater discharges to the maximum extent practicable.

Although reusable bags may utilize various materials, reusable bag manufactures who utilize plastics in their production (for example, production of LPDE reusable bags) would also be required to adhere to pending requirements specified in AB 258, which addresses the release of "preproduction plastics" as described in Section 4.4.1 (d), *Regulatory Setting*. In addition, the California Health and Safety Code (Section 25531-25543.3) establishes a program for the prevention of accidental releases of regulated substances. With adherence to Health and Safety Code Section 25531-25543.3, reusable bag manufacturing facilities would be required to prepare and update a Risk Management Plan (RMP). This would further reduce the potential for a release of substances that may be washed into and through the storm drainage systems, local waterways, and ultimately to the Pacific Ocean.

Anticipated Changes in Bag Use. Based on a cost requirement of at least $0.10 per bag, as outlined in Section 2.0, *Project Description,* it is assumed in this analysis that the total volume of plastic carryout bags currently used in the Study Area (approximately 71,626,590 plastic carryout bags per year) would be replaced by recyclable paper bags (or 21,487,977paper bags or 30% of the total) and reusable bags (or 895,332 reusable bags or 65% of the total) as a result of the Proposed Ordinance (refer to Table 2-2 in Section 2.0, *Project Description)*. It is assumed that 5% of the existing total of plastic carryout bags used in the Study Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute plastic bags (e.g., restaurants) and these retailers would continue to distribute plastic carryout bags after the Proposed Ordinance is implemented.

Although the Proposed Ordinance would be expected to incrementally increase demand for the manufacturing of recyclable paper bags and reusable bags, it would also reduce demand for plastic carryout bags by approximately 68 million bags per year. With implementation of the Proposed Ordinance, approximately 26 million bags (including plastic, recyclable paper, and reusable carryout bags) would be manufactured for use in the Study Area – a decrease of 64% compared to existing conditions. Consequently, the Proposed Ordinance would reduce the overall impacts to water quality associated with bag manufacturing. Furthermore, as described above, manufacturing facilities would be required to adhere to existing federal, state and local regulations. Therefore, impacts to water quality related to the potential change of processing activities as a result of the Proposed Ordinance would not be significant.

Mitigation Measures. Impacts would be less than significant and no mitigation is required.

Significance After Mitigation. Impacts to water quality related to the potential change of process activities would be less than significant without mitigation.

c. Cumulative Impacts. Adopted and pending bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use bags, and promote a shift toward reusable bags. As discussed above, the hydrology and water quality impacts associated with the Proposed Ordinance are not considered significant and are generally considered beneficial. Several other agencies in the region (including the cities of Ojai, Carpinteria, and Malibu, and the County of Los Angeles) have either adopted or are considering such ordinances. In addition, the BEACON EIR analyzed the impacts to hydrology and water quality associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). Consistent with the findings in the BEACON EIR, these ordinances would be expected to result in similar reductions in the amount of litter entering storm drains, local creeks or watersheds, thereby improving water quality. In addition, the overall reduction in bag manufacturing expected to occur as a result of implementation of these ordinances would be expected to generally reduce water quality impacts associated with bag manufacturing. In addition, all recyclable paper and reusable bag manufacturing facilities would be required to comply with applicable regulatory requirements pertaining to preservation of water quality, including AB 258 and the California Health and Safety Code, as discussed in Impact HWQ-2. For these reasons, significant cumulative impacts associated with implementation of bag ordinances throughout the state are not anticipated.

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4.5 UTILITIES AND SERVICE SYSTEMS

This section discusses potential impacts of the Proposed Ordinance on utilities, including water supply and distribution, wastewater collection and treatment, and solid waste.

4.5.1 Setting

a. Water Supply and Demand.

County of Santa Barbara. The Proposed Ordinance would apply to the unincorporated areas of Santa Barbara County. Water service in Santa Barbara County is provided by a mix of cities, special districts, and private utility companies. The majority of the County's water supplies (approximately 77%) are from groundwater. Other water sources include local surface water (Gibraltar Reservoir, Jameson Lake, Fox and Alder Creeks, Lake Cachuma, Twitchell Reservoir) and imported water from the State Water Project. The current average annual water supply for Santa Barbara County is approximately 223,000 acre feet per year (AFY) plus approximately 90,000 in return flows to usable groundwater basins for a total of 313,000 AFY. Approximately 75% of demand is for agricultural uses and 25% for urban uses. Total demand is approximately 289,355 AFY. Thus there is currently an available supply of approximately 23,645 AFY (Santa Barbara County Integrated Regional Water Management Plan, May 2007).

Water Use Associated with Single-Use Plastic Carryout Bags. Various studies have estimated water use related to manufacturing of plastic carryout bags to determine a per bag water use rate. However, water use for plastic carryout bags varies depending on which Life Cycle Assessment (LCA) data is utilized. The Ecobilan LCA study (funded by Carrefour, a large French retailer) determined that per 9,000 liters of groceries, the manufacture of plastic carryout bags uses 52.6 liters of water (Ecobilan, 2004; County of Los Angeles Final EIR, 2010). Similarly, though using slightly different assumptions and data, the Boustead LCA study (an industry funded study) determined that the manufacture of single-use plastic carryout bags would require approximately 58 gallons of water for 1,500 bags. Utilizing the data from these two different studies, tables 4.5-1 and 4.5-2 summarize the existing water use associated with the manufacture of plastic carryout bags used in the Study Area.

Table 4.5-1
Current Water Consumption Associated with Plastic Carryout Bags
Based on Ecobilan Data

Number of Single-use Plastic Carryout Bags**	Water Consumption		
	Liters of Water per 9,000 liters of Groceries	Gallons of Water Per Day*	Millions of Gallons per Year
71,626,590	52.6	4,242	1.55

** Calculations are contained in the Utility Worksheets contained in Appendix D*
*** See Appendix D for the calculations.*
Source: Ecobilan, February 2004

Table 4.5-2
Current Water Consumption Associated with Plastic Carryout Bags
Based on Boustead Data

Number of Single-use Plastic Carryout Bags**	Water Consumption		
	Gallons of Water per 1,500 plastic bags	Gallons of Water Per Day*	Millions of Gallons per Year
71,626,590	58	7,588	2.77

** Calculations are contained in the Utility Worksheets contained in Appendix D*
*** See Appendix D for the calculations.*
Source: Boustead Consulting and Associates Ltd. 2007

Based on the Ecobilan LCA data, water demand associated with the manufacture of the 71.62 million plastic carryout bags currently used in the Study Area is approximately 1.55 million gallons per year or 4,242 gallons per day. Based on the Boustead LCA data, water demand associated with the manufacture of the 71.62 million single-use plastic carryout bags used in the Study Area is approximately 2.77 million gallons per year or 7,588 gallons per day.

No known plastic bag manufacturing facilities are located within Santa Barbara County; therefore, water demand associated with plastic carryout bag manufacturing does not directly affect the existing water supply in the county.

b. Wastewater Collection and Treatment.

Wastewater Service in Santa Barbara County. Multiple service providers deliver wastewater collection and treatment services to the unincorporated areas within Santa Barbara County. Several service providers operate, own, and maintain sewer mains, collection systems, and sewage treatment plants. Other service providers contract with nearby treatment plants. Table 4.5-3 summarizes the various wastewater treatment plants and the existing capacity at the plants within the counties.

Wastewater Generation Associated with Plastic Carryout Bags. Various studies have estimated wastewater generation associated with the manufacture of different types of carryout bags (plastic, paper or reusable bags) to determine a per bag wastewater use rate. The Ecobilan study determined that per 9,000 liters of groceries, the manufacture of plastic bags would generate 50 liters of wastewater. Based on the Ecobilan data, Table 4.5-4 displays the existing wastewater generation associated with the manufacture of the approximately 71.62 million plastic carryout bags currently used in the Study Area annually. As shown, the manufacture of plastic carryout bags currently generates approximately 37,054 gallons of wastewater per day (or 0.03705 MGD). Since no manufacturing facilities are located in the study, wastewater generation associated with single-use plastic carryout bag use does not directly affect any Study Area wastewater conveyance or treatment facilities.

Table 4.5-3
Current Treatment Plants, Flow and Remaining Capacity in the Study Area

Treatment Plant	Service Area	Existing Flow (mgd)	Existing Capacity (mgd)	Remaining Capacity (mgd)
Buellton Wastewater Treatment Plant	Buellton	0.48	0.65	0.17
Carpinteria Sanitary District Wastewater Treatment Plant*	Carpinteria and unincorporated areas in the Carpinteria Valley	1.325	2.5	1.175
El Estero Wastewater Treatment Plant	Santa Barbara	7.7	11	3.3
Goleta Sanitary District Treatment Plant	Goleta	5.5	11	5.5
Laguna County Sanitation District Wastewater Reclamation Plant	Orcutt and portions of unincorporated Santa Maria	2.4	3.7	1.3
La Purisima Wastewater Treatment Plant	Mission Hills	0.29	0.57	0.28
Lompoc Regional Wastewater Treatment Plant	Lompoc, Vandenberg Village, and Vandenberg Air Force Base	3.0	5.5	2.5
Guadalupe Wastewater Treatment Plant	Guadalupe	0.5	0.96	0.46
Montecito Sanitary District Wastewater Treatment Plant	Montecito	0.974	1.5	0.46
Solvang Wastewater Treatment Plant	Solvang and portions of Santa Ynez Valley	0.68	1.5	0.82
Chumash Wastewater Treatment Plant	Portions of Santa Ynez Valley	0.12	0.2	0.08
Summerland Sanitary District Wastewater Treatment Plant	Summerland	0.13	0.3	0.17
Santa Maria Wastewater Treatment Plant	Santa Maria	7.78	9.0	1.22
Los Alamos Wastewater Treatment Plant	Los Alamos	0.126	0.225	0.099
	Total	***31.0***	***48.6***	***17.6***

mgd = million gallons per day of wastewater N/A = data not available
Sources: Santa Barbara County Integrated Regional Water Management Plan, 2007; City of Santa Barbara, 2011; City of Lompoc, 2010; Goleta Sanitary District, 2009; City of Guadalupe, 2007; Montecito Sanitary District, 2012; City of Solvang, 2012; City of Santa Maria, 2011; City of Camarillo, 2012;; Personal Communication: Barnard, Riley, Martin, McManus, Moise, Sheets, Bennet, Hess, Coleman, 2012.

Table 4.5-4
Current Wastewater Generation Associated with Plastic Carryout Bags
Based on Ecobilan Data

Number of Plastic Bags**	Wastewater		
	Liters of Wastewater per 9,000 liters of Groceries	Gallons of Water Per Day*	Millions of Gallons per Year
71,626,590	50	4,032	1.47

** Calculations are contained in the Utility Worksheets contained in Appendix D*
*** See Appendix D for the calculations.*
Source: Ecobilan, February 2004.

c. Solid Waste.

There are currently three active solid waste landfills located in Santa Barbara County (see Table 4.5-6). The largest solid waste disposal site for Santa Barbara County is the Tajiguas Sanitary Landfill, located off Highway 101 in Goleta, approximately 23 miles west of Santa Barbara. The Tajiguas Sanitary Landfill has a permitted daily throughput of 1,500 tons per day, a remaining capacity of 6,660,000 cubic yards, and an estimated closure date of January 1, 2023 (CalRecycle, November 2013). Table 4.5-5 summarizes the permitted throughput, estimated daily throughput, and estimated remaining capacity for facilities that serve the Study Area.

Santa Barbara County is required to comply with State Law AB 939, which required every jurisdiction in California to reduce the waste it sends to landfills by 50% by the year 2000. The unincorporated areas of Santa Barbara County achieved a diversion rate of 69% in 2006 (Santa Barbara County Department of Public Works, Resource Recovery and Waste Management Division, 2010). This diversion rate represents an increase of six percent from the County's diversion rate for 2004 and has been formally approved by the CalRecycle (formerly California Integrated Waste Management Board). This diversion rate exceeds the State mandate (AB 939) that all jurisdictions divert at least 50% of their waste from landfills by the end of 2000.

Table 4.5-5
Solid Waste Disposal Facilities

Facility	Permitted Daily Throughput (tons/day)	Estimated Daily Throughput (tons/day)	Estimated Remaining Capacity (tons/day)
Tajiguas Sanitary Landfill	1,500	600	900
Santa Maria Regional Landfill	858	N/A	N/A
City of Lompoc Sanitary Landfill	400	120	280

N/A = Not Available
Sources: California Department of Resources Recycling and Recovery (CalRecycle), http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx; Personal Communications: Jensen, Clark, Coleman, Hemingway 2012.

Solid Waste Generation Associated with Plastic Carryout Bags. Various studies have estimated solid waste rates related to the different types of carryout bags plastic, recyclable paper or reusable carryout bags) to determine a per bag solid waste rate. Assuming that 11.1% of single-use plastic carryout bags are recycled in the United States and 49.5% of recyclable paper carryout bags are recycled (US EPA, 2013) and using the Ecobilan data, it was estimated that plastic carryout bags would generate 0.0066 kilograms (kg) of solid waste per bag, while recyclable paper carryout bags would generate 0.0140 kg of waste per bag. In terms of reusable carryout bags, cotton bags are assumed to be the heaviest type of reusable carryout bags. Based on data from the US EPA (2013) reusable cotton carryout bags would generate 0.2 kg of waste per bag. Similarly, using the Boustead data and assuming the US EPA recycling rates discussed above (US EPA, 2013), it was estimated that plastic carryout bags would produce 0.0042 kg of waste per bag, while recyclable paper carryout bags would generate 0.0171 kg of waste per bag. The Boustead data does not estimate the solid waste from reusable carryout bags. Tables 4.5-6 and 4.5-7 estimate the amount of solid waste associated with plastic carryout bags currently used in the Study Area based on the Ecobilan and Boustead studies.

Table 4.5-6
Current Solid Waste Associated with Plastic Carryout Bags
Based on Ecobilan Data

Number of Plastic Carryout Bags**	Solid Waste		
	Solid Waste per Bag (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
71,626,590	0.0066	1.42	520

** Calculations are contained in the Utility Worksheets contained in Appendix D*
*** See Appendix D for the calculations.*
Source: Ecobilan, February 2004

Table 4.5-7
Current Solid Waste Generation Associated with Plastic Carryout Bags
Based on Boustead Data

Number of Single-use Plastic Carryout Bags	Solid Waste		
	Solid Waste per Bag (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
71,626,590	0.0042	0.9	329

** Calculations are contained in the Utility Worksheets contained in Appendix D*
*** See Appendix D for the calculations.*
Source: Boustead Consulting and Associates Ltd. 2007

As shown in Table 4.5-6, based on current US EPA recycling rates and the Ecobilan data, the use of plastic carryout bags within the Study Area generates approximately 1.42 tons of solid waste per day, or 520 tons per year. Based on the Boustead data (Table 4.5-7), the use of plastic carryout bags within the Study Area generates approximately 0.9 tons of solid waste per day, or 329 tons per year.

4.5.2 Impact Analysis

a. Methodology and Significance Thresholds. To analyze impacts to utilities, the anticipated increase of water, wastewater and solid waste as a result of implementation of the Proposed Ordinance was compared to the available capacity of facilities that serve the Study Area.

Based on Appendix G of the *CEQA Guidelines*, a significant impact related to utilities and service systems would occur if the Proposed Ordinance would:

1. *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;*
2. *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;*
3. *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;*
4. *Have insufficient water supplies available to serve the Project from existing entitlements and resources, resulting in the need for new or expanded entitlements;*
5. *Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments;*
6. *Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs; or*
7. *Not comply with federal, state, and local statutes and regulations related to solid waste.*

The Initial Study from the BEACON Final Program EIR (May 2013)determined that all of the above criteria should be discussed in this EIR except for Criterion 3, which was determined to result in no impact as the Proposed Ordinance would incrementally improve the effectiveness of the stormwater drainage systems in the Study Area. Impacts related to water, wastewater, and solid waste are discussed below. It should be noted that based on comments received by the public for the BEACON Program EIR, for the purposes of this EIR a higher rate associated with a cotton reusable will be utilized as a conservative estimate for the water, wastewater and solid waste calculations for the Proposed Ordinance. For water and wastewater associated with reusable bags, it is assumed that all reusable bags would be cotton reusable bags, and thus would require monthly washing. The BEACON Program EIR assumed half of the reusable bags would be cotton (and thus washed in a washing machine) and the other half would be reusable bags that could be hand washed. In regard to solid waste, this analysis conservatively assumes that all reusable carryout bags would be cotton bags (the heaviest bag available) and that each reusable carryout bag purchased per year would be deposited in a landfill within that year. This methodology is intended to provide a reasonable, conservative estimate of the impacts associated with water, wastewater and solid waste from carryout bags.

b. Project Impacts and Mitigation Measures

Impact U-1 The increase of reusable bags within the Study Area as a result of the Proposed Ordinance would incrementally increase water demand due to washing of reusable bags. However, sufficient water supplies are available to meet the demand created by reusable bags. Therefore, water supply impacts would be Class III, *less than significant*.

The Proposed Ordinance would increase the use of reusable bags as a result of prohibiting the distribution of plastic carryout bags by specified retailers and requiring a mandatory charge for recyclable paper bags. Manufacturing facilities of carryout bags are not known to be located within Santa Barbara County. Therefore, manufacturing facilities would not utilize the County's water supplies.

In addition to water use from the manufacture of carryout bags, the Proposed Ordinance may result in increased water use as reusable bags would be machine washable or made from a material that can be cleaned or disinfected, as required by the Proposed Ordinance. Periodic washing of reusable carryout bags for hygienic purposes would be the responsibility of the individual customers. It is assumed that individuals would generally continue to practice good hygiene and would wash reusable carryout bags on a regular basis. Washing reusable carryout bags used within the Study Area would utilize local water supplies. It is anticipated that most reusable carryout bag users would simply include the bags in wash loads that would occur with or without the bags. Nevertheless, in order to provide a conservative estimate the Proposed Ordinance's impact with respect to water demand, this analysis assumes that reusable carryout bags would be washed separately and that all reusable carryout bags would be machine washed. Assuming that all new reusable carryout bags require monthly cleaning in a washing machine, the total increase in Study Area water demand (as shown in Table 4.5-8) would be approximately 69.41 AFY.

Table 4.5-8
Water Use From Reusable Carryout Bag Cleaning

# of Additional Reusable Carryout Bags from Proposed Ordinance that Require Washing[1]	Number of Times Washed per Year (monthly)[2]	# of Carryout Bags per Wash Load[3]	# of Loads per Year	Gallons of Water per Wash Load*	Total Water Use (gallons per year)	Total Water Use (AFY)
895,332	12	19	565,473	40	22,618,923	69.41
				TOTAL	**22,618,923**	**69.41**

[1] Assumes that all of reusable carryout bags would be machine washed.
[2] Assumes that each reusable carryout bag is washed once a month.
[3] Assumes an average washer capacity of 8 pounds per load and 6.8 ounces per reusable carryout bag (as measured on 8/10/2010 by Rincon Consultants, Inc.)
** Source: California Energy Commission: Consumer Energy Center, 2010; City of Santa Monica Carryout Bag Final EIR, January 2011.*

As stated in the *Setting* there is approximately 23,645 AFY of available water supply in the Study Area. Thus, the potential increase in water demand due to implementation of the Proposed Ordinance (increase of approximately 69 AFY) accounts for about 0.2% of the available supply and is within the capacity of the water supplies of the Study Area and would result in a less than significant impact. Furthermore, the estimated water demand associated with implementation of the Proposed Ordinance is conservative, as it assumes that 100% of reusable bags would be washed in separate washing machine loads rather than included in existing wash loads.

Mitigation Measures. Impacts would be less than significant; therefore mitigation is not required.

Significance After Mitigation. Impacts would be less than significant without mitigation.

Impact U-2 Water use associated with washing reusable carryout bags within the Study Area would incrementally increase wastewater generation. However, projected wastewater flows would remain within the capacity of Study Area wastewater collection and treatment systems and would not exceed applicable wastewater treatment requirements. Impacts would be Class III, *less than significant*.

Although the Proposed Ordinance would not result in additional sewer connections or an increase in the service population, it may incrementally increase water use associated with washing of reusable bags and, therefore, may incrementally increase Study Area wastewater generation. As shown in Table 4.5-3, all treatment plants in Santa Barbara County have available capacity.

The manufacture of all types of carryout bags produces wastewater (as described above in the *Setting*); however, because no known manufacturing facilities are located within Santa Barbara County, the use of plastic carryout bags does not currently affect wastewater conveyance or treatment facilities serving the Study Area and the projected increased use of recyclable paper carryout bags and reusable carryout bags as a result of the Proposed Ordinance would not affect wastewater conveyance or treatment facilities serving the Study Area.

The use of reusable bags within the Study Area would, however, require periodic washing of bags for hygienic purposes. Assuming that 100% of the water used to wash reusable bags would become wastewater, approximately 69.41 AFY per year (22,618,923 gallons) or approximately 61,970 gallons per day would enter the sewer system and require treatment at the Study Area's treatment plants. As shown in Table 4.5-3, every wastewater treatment plant in the Study Area has remaining capacity to treat additional wastewater. Even if all 61,970 gallons per day went to the same wastewater treatment plant, each treatment plant in the Study Area would have available capacity. Thus, there is adequate capacity to treat the additional wastewater that would result from the Proposed Ordinance and no new facilities would be necessary. Further, this analysis is based on conservative assumptions and actual water use may be lower. Impacts would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not necessary.

Significance After Mitigation. Impacts related to wastewater generation would be less than significant without mitigation.

Impact U-3 The Proposed Ordinance would alter the solid waste generation rates in the Study Area due to an increase in recyclable paper and reusable carryout bag use and a reduction in plastic carryout bag use. However, projected future solid waste generation would remain within the capacity of regional landfills. Impacts would therefore be Class III, *less than significant*.

Solid waste generated within the Study Area is taken to various landfills operating within Santa Barbara County. Solid waste in the County of Santa Barbara is sent to either the Tajiguas, Santa Maria, or Lompoc landfills. The Proposed Ordinance does not involve any physical development. However, use of all types of carryout bags would require disposal at the end of use and changes in the number and types of carryout bags used would alter the amount of solid waste generation. Tables 4.5-9 and 4.5-10 estimate the anticipated change in solid waste generation that would result from the Proposed Ordinance using the Ecobilan (Table 4.5-9) and the Boustead (Table 4.5-10) data.

Table 4.5-9
Solid Waste Due to Carryout Bags Based on Ecobilan Data

Type of Carryout Bag	Number of Carryout Bags	Solid Waste		
		Solid Waste per Carryout Bag per day (kg)	Solid Waste Per Day (tons)	Solid Waste per Year (tons)
Plastic Carryout Bag	3,581,330	0.0066	0.07	26
Recyclable Paper	21,487,977	0.0140	0.91	330.44
Reusable*	895,332	0.200	0.54	197.39
		Total	**1.52**	**554**
		Existing	1.42	520
		Net Change (Total minus Existing)	**0.1**	**34**

Calculations are contained in the Utility Worksheets contained in Appendix D
Source: Ecobilan, February 2004
** A conservative assumption that all reusable carryout bags would be made of cotton and would be disposed in a landfill after one year is included in this analysis.*

Table 4.5-10
Solid Waste Due to Carryout Bags Based on Boustead Data

Type of Carryout Bag	Number of Carryout Bags	Solid Waste		
		Solid Waste per Carryout Bag per day (kg)	Solid Waste Per Day (tons)	Solid Waste per Year (tons)
Plastic Carryout Bag	3,581,330	0.0042	0.05	16.47
Recyclable Paper	21,487,977	0.0171	1.11	405.5
Reusable*	895,332	0.200	0.54	197.39
		Total	**1.7**	**619**
		Existing	0.9	329
		Net Change (Total minus Existing)	**0.8**	**290**

Calculations are contained in the Utility Worksheets contained in Appendix D.
Source: Boustead Consulting and Associates Ltd. 2007. Note: Boustead data does not estimate solid waste from reusable carryout bags.
** Since Boustead does not estimate solid waste from reusable carryout bags, a conservative assumption that all reusable carryout bags would be made of cotton is included in this analysis.*

As shown in Table 4.5-9, based on the Ecobilan data and using an assumption that all reusable carryout bags are made of cotton and would be sent to a landfill,[1] the Proposed Ordinance would result in a net increase of approximately 34 tons per year of solid waste per year. As shown in Table 4.5-10, based on the Boustead data and assuming that all reusable carryout bags are made of cotton and would be disposed of each year, there would be an increase of approximately 290 tons per year of solid waste. The Boustead study shows plastic carryout bag waste as lower in weight and recyclable paper carryout bag waste as higher in weight than the Ecobilan data, thus resulting in a higher net increase in solid waste generation.

The above estimates represent a conservative scenario that assumes approximately half of all recyclable paper carryout bags would be deposited in a landfill even though the Study Area has a higher recycling rate of approximately 69% (CalRecycle, 2006) than the EPA rate of 49.5%. In addition, this analysis conservatively assumes that all reusable carryout bags would be cotton bags (the heaviest bag available) and that each reusable carryout bag purchased per year would be deposited in a landfill within that year. In reality, Study Area residents may recycle paper carryout bags at a higher rate than the 49.5% assumed in this analysis and would use various types of reusable carryout bags, many of which weigh less than cotton carryout bags. Finally, because the Proposed Ordinance includes requirement that reusable carryout bags be designed for a minimum of 125 uses, it is likely that many reusable carryout bags would be utilized for more than one year so would not be disposed of annually. Nevertheless, based on these conservative scenarios, the increase in Study Area wide solid waste would range from an

[1] This methodology uses a more conservative approach to estimate solid waste compared to the BEACON EIR under both the Ecobilan and Boustead studies. For this EIR, the analysis for both the Ecobilan and Boustead scenarios conservatively assumes that all reusable carryout bags would be cotton bags (the heaviest bag available) and that each reusable carryout bag purchased per year would be deposited in a landfill within that year. In the BEACON EIR, the Boustead data did not include solid waste associated with reusable bags (as that study only evaluates plastic and paper bags) and the Ecobilan study utilized a smaller rate of solid waste generally associated with a LDPE type reusable (which much lighter in weight than a cotton reusable bag).

estimated 0.1 to 0.8 tons per day. The maximum increase of 0.8 tons per day would represent 0.29% of the remaining daily capacity at the Lompoc Landfill (the landfill in Santa Barbara County with the lowest daily remaining capacity), which has a remaining daily capacity of 280 tons per day. Therefore, the impact to solid waste facilities as a result of the Proposed Ordinance would be less than significant.

Mitigation Measures. Impacts would be less than significant; therefore, mitigation is not required.

Significance After Mitigation. Impacts related to solid waste generation would be less than significant without mitigation.

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use carryout bags, and promote a shift toward reusable carryout bags. Cumulative impacts are discussed below by impact area.

Water. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase water use associated with washing of reusable bags for hygienic purposes. Within the region, the Cities of Ojai and Carpinteria have adopted such ordinances. In addition, the BEACON EIR analyzed the increase of water use associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, water use associated with adoption of plastic carryout bag ban ordinances in all jurisdictions within the two counties (increase of 470.5 AFY) would not exceed any existing water supplies, and therefore was determined to be less than significant. In California, the County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), and City of Palo Alto, among others, have adopted or are considering such ordinances. However, based on the incremental water use associated with the Proposed Ordinance (increase of approximately 69.41 AFY in the Study Area, which is approximately 0.29% of total remaining excess water supply), the other ordinances are not expected to generate an increase in water that would exceed water supplies in their respective regions. Therefore, cumulative water impacts would not be significant.

Wastewater. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase wastewater associated with washing of reusable bags. Within the region, the Cities of Ojai and Carpinteria have adopted such ordinances. In addition, the BEACON EIR analyzed the increase of wastewater associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, the increase of wastewater associated with adoption of plastic carryout bag ban ordinances in all jurisdictions within the two counties (increase of 420,003 gallons per day) would not exceed the capacity of a wastewater treatment plant, and therefore was determined to be less than significant. In California, the County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), and City of Palo Alto, among others, have either adopted or are

considering such ordinances. However, based on the incremental increase in wastewater associated with the Proposed Ordinance (approximately 61,970 gallons per day), the other ordinances are not expected to generate an increase in wastewater that would exceed the capacity of a wastewater treatment plant or require new or expanded facilities within their respective regions. Therefore, cumulative wastewater impacts would not be significant.

Solid Waste. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase solid waste associated with carryout bags. Within the region, the Cities of Ojai and Carpinteria have adopted such ordinances. In addition, the BEACON EIR analyzed the increase of solid waste associated with the adoption of a bag ordinance by all jurisdictions in Ventura and Santa Barbara counties (including the County of Santa Barbara). As determined in the BEACON Final EIR, the increase of solid waste associated with adoption of plastic carryout bag ban ordinances in all jurisdictions within the two counties would not exceed the capacity of any regional landfill, and therefore was determined to be less than significant. In California, the County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), and City of Palo Alto have either adopted or are considering such ordinances. Using the more conservative Boustead data, based on the incremental increase in solid waste (approximately 0.8 tons per day) associated with the Proposed Ordinance, the other ordinances are not expected to generate an increase in solid waste that would exceed the capacity of a regional landfill or require new or expanded facilities within their respective regions. Therefore, cumulative solid waste impacts would not be significant.

5.0 OTHER CEQA DISCUSSIONS

This section discusses additional issues required for analysis under CEQA, including growth inducement and significant irreversible environmental effects.

5.1 GROWTH INDUCING IMPACTS

The *CEQA Guidelines* require a discussion of a proposed project's potential to foster economic or population growth, including ways in which a project could remove an obstacle to growth. Growth does not necessarily create significant physical changes to the environment. However, depending upon the type, magnitude, and location of growth, it can result in significant adverse environmental effects. Therefore, the Proposed Ordinance's growth-inducing potential would be considered significant if it could result in significant physical effects in one or more environmental issue areas. The most commonly cited example of how an economic effect might create a physical change is where economic growth in one area could create blight conditions elsewhere by causing existing competitors to go out of business and the buildings to be left vacant.

5.1.1 Economic and Population Growth

The Proposed Ordinance would prohibit specified retail establishments in the Study Area from providing plastic carryout bags to customers at the point of sale and create a mandatory ten cent ($0.10) charge for each recyclable paper bag distributed by these stores. The intent of the Proposed Ordinance is to reduce the environmental impacts of plastic carryout bags. The Proposed Ordinance would not facilitate new development, change land use controls or encourage population growth.

Plastic bag production and distribution would reduce as a result of the Proposed Ordinance. However, employment patterns in the region would not be affected as there are no known plastic bag manufacturing facilities in the Study Area. In addition, recyclable paper bag use is anticipated to increase incrementally. However, similar to plastic bag manufacturing, employment patterns in the region would not be affected by the Proposed Ordinance as there are no known paper bag manufacturing plants in the Study Area. Also, demand for reusable bags can be anticipated to increase. Nevertheless, incremental increases in the use of recyclable paper and reusable bags in the region is not anticipated to significantly affect long-term employment at these facilities or increase the region's population.

Therefore, the Proposed Ordinance would not be growth-inducing as it would not affect long-term employment opportunities or increase the region's population.

Revenues generated by sales of recyclable paper bags would remain with the affected stores. The Proposed Ordinance-would not affect economic growth and therefore would not be significant.

5.1.2 Removal of Obstacles to Growth

No improvements to water, sewer, and drainage connection infrastructure would be necessary for the Proposed Ordinance. No new roads would be required. Because implementation of the Proposed Ordinance would not involve or facilitate construction, land use changes or population growth, and would not involve the extension of infrastructure into areas that otherwise could not accommodate growth, it would not remove an obstacle to growth.

5.2 IRREVERSIBLE ENVIRONMENTAL EFFECTS

The *CEQA Guidelines* require that EIRs reveal the significant environmental changes that would occur with project development. CEQA also requires decisionmakers to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve a project. This section addresses non-renewable resources, the commitment of future generations to the Proposed Ordinance, and irreversible impacts associated with the Proposed Ordinance.

The Proposed Ordinance would prohibit specified retail establishments in the Study Area from providing plastic carryout bags to customers at the point of sale and create a mandatory ten cent ($0.10) charge for each recyclable paper bag distributed by these stores. The intent of the Proposed Ordinance is to reduce the environmental impacts of plastic carryout bags. As an ordinance, the project would not include development of any physical structures or involve any construction activity. Therefore, the Proposed Ordinance would not alter existing land uses or cause irreversible physical alterations related to land development or resource use. To the contrary, the express purpose of the Ordinance is to reduce the wasteful use of resources and associated environmental impacts.

The manufacturing of carryout bags and the additional truck trips associated with delivering carryout bags (recyclable paper and reusable bags) to the Study Area would incrementally increase regional air pollutant emissions. As discussed in Section 4.1, *Air Quality*, air pollutant emissions would not be increased beyond existing thresholds and with anticipated reductions in the overall number of plastic carryout bags used in the Study Area, emissions would be reduced compared to existing conditions. Similarly, as discussed in Section 4.3, *Greenhouse Gas Emissions*, although the proposed Ordinance would result in net increase of GHG emissions (approximately 0.044 CO_2E/person/year) compared to existing conditions, this increase would not exceed any thresholds of significance and the Proposed Ordinance would be consistent with applicable plans, policies and regulations related to reducing GHG emissions. Thus, the Proposed Ordinance would not result in any significant impacts related to air quality and GHG emissions.

6.0 ALTERNATIVES

As required by Section 15126.6 of the *CEQA Guidelines,* this section examines a range of reasonable alternatives to the proposed project. The following five alternatives are evaluated:

- *Alternative 1: No Project*
- *Alternative 2: Ban on Plastic carryout Bags at all Retail Establishments, Except Restaurants*
- *Alternative 3: Mandatory Charge of $0.25 for Paper Bags*
- *Alternative 4: Ban on Both Plastic and Paper Carryout Bags*
- *Alternative 5: Mandatory Charge of $0.10 for Plastic and Paper Carryout Bags*
- *Alternative 6: Delayed Implementation in the North Portion of the County for the First Year After Adoption*

This section also includes a discussion of the "environmentally superior alternative" among those studied.

6.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

6.1.1 Description

The no project alternative assumes that the Single-Use Plastic Bag Ban Ordinance is not adopted or implemented. Plastic and paper carryout bags would continue to be available free-of-charge to customers at most retail stores throughout the Study Area (in unincorporated Santa Barbara County). In addition, reusable carryout bags would continue to be available for purchase by retailers. Thus, it is assumed that the use of carryout bags at Study Area retail stores would not change compared to current conditions.

6.1.2 Impact Analysis

No change in environmental conditions would occur under this alternative because neither a ban nor a mandatory charge for carryout bags would be imposed. Thus, Study Area retail customers would have no incentive to alter their existing carryout bag preferences. Because conditions would not change under this alternative, none of the impacts in the studied issue areas associated with the Proposed Ordinance would occur. This alternative would not result in the change in truck trips associated with delivering reusable bags and recyclable paper bags that would occur with implementation of the Proposed Ordinance and would therefore eliminate the air quality emissions and greenhouse gas (GHG)/climate change impacts associated with such trips. In addition, because the No Project alternative would not facilitate a shift to reusable bags, the Proposed Ordinance's less than significant impacts related to water and wastewater demand from washing reusable bags would be eliminated. On the other hand, this alternative would not achieve the Proposed Ordinance's beneficial effects relative to air quality and biological resources (sensitive species). Therefore, this alternative would not result in the general benefits with respect to litter reduction, hydrology, and water quality that are expected to result from implementation of the Proposed Ordinance. Solid waste generation

would not change from existing conditions and, therefore, there would be no impact related to solid waste facilities.

6.2 ALTERNATIVE 2: BAN ON PLASTIC CARRYOUT BAGS AT ALL RETAIL ESTABLISHMENTS, EXCEPT RESTAURANTS

6.2.1 Description

Similar to the Proposed Ordinance, this alternative would prohibit Study Area retailers from providing plastic carryout bags to customers at the point of sale and create a mandatory $0.10 charge per recyclable paper bag. However, under this alternative, the Ordinance would apply to all categories of retail establishments (i.e., clothing and hardware stores which are not included in the Proposed Ordinance) except for restaurants, fast food, and some take-out food establishments.[1] It should be noted that under this Alternative, the Ordinance would exclude garment bags (a bag without handles that is designed to be placed over articles of clothing on a hanger such as those distributed by department stores or dry cleaners). As a result, under this alternative, only 1% of plastic carry out bags would be distributed at the point of sale anywhere within the Study Area, a 99% reduction in the number of plastic carryout bags (70,910,324 plastic bags). In contrast, the Proposed Ordinance is expected to reduce the number of plastic carryout bags distributed within the Study Area by 95% or 68,045,261 plastic bags. It is conservatively assumed that the additional plastic bags that would be removed under this alternative would be replaced by recyclable paper bags, such that, in total, 34% of the plastic carryout bags currently used within the Study Area would be replaced by recyclable paper bags, and 65% would be replaced by reusable bags.

The total estimate of bag use under this alternative, compared to the Proposed Ordinance, is summarized in Table 6-1.

Table 6-1
Estimated Carryout Bag Use: Proposed Ordinance versus Alternative 2

Bag Type	Carryout Bags Used Annually	
	Proposed Ordinance*	Alternative 2**
Plastic	3,581,330	716,266
Recyclable Paper	21,487,977	24,353,041
Reusable	895,332	895,332
Total	**25,964,639**	**25,964,639**

** Refer to Table 2.2 in Section 2.0, Project Description*
*** Based on assumptions of 1% bag use remaining for restaurant use, 34% conversion of the volume of existing plastic bag use in the Study Area to paper bags and 65% conversion to reusable bags (based on 52 uses per year).*

[1] Though all restaurants, fast food, and some take-out establishments (those that do not sell grocery items as defined in the Proposed Ordinance) would be exempt from the Proposed Ordinance in this Alternative, it is important to note that not all of these actually provide plastic carryout bags. A survey conducted for the City of Palo Alto found that only 63% of restaurants provide plastic bags.

6.2.2 Impact Analysis

a. Air Quality. As described in Section 4.1, *Air Quality,* it is anticipated that the Proposed Ordinance would replace the total volume of plastic carryout bags currently used in the Study Area with approximately 30% recyclable paper bags and 65% reusable bags, leaving 5% of the plastic bags in circulation (or approximately 3.58 million bags, as shown in Table 6-1 above). This alternative would prohibit all retail establishments, except for restaurants, in the Study Area from providing plastic carryout bags to customers at the point of sale and would therefore eliminate an additional 2.8 million plastic carryout bags as compared to the Proposed Ordinance. Consequently, this alternative would reduce emissions associated with plastic bag manufacturing, transportation, and disposal to a greater extent than the Proposed Ordinance.

Table 6-2
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Alternative 2

	Ozone Emissions per year (kg)	AA Emissions per year (kg)
Alternative 2 Total	776	53,855
Proposed Ordinance Total	756	51,059
Difference	20	2,796
Existing Total (without an Ordinance)	1,647	77,643
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)	(871)	(23,788)

Source: Refer to Table 4.1-4 in Section 4.1, Air Quality.
( ) = reduction of emissions compared to existing conditions.

However, because the additional 4% of plastic carryout bags captured by this alternative would be replaced by recyclable paper bags rather than reusable bags (refer to Table 6-1), the total number of recyclable paper bags would incrementally increase compared to the Proposed Ordinance. As described in Section 4.1, *Air Quality*, paper bags have an incrementally greater per-bag impact than plastic carryout bags. Because Alternative 2 would essentially trade 2.8 million plastic carryout bags for the same number of recyclable paper bags, air pollutant emissions would incrementally increase as compared to what would occur under the Proposed Ordinance. Table 6-2 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 2, as compared to the Proposed Ordinance and existing conditions.

As compared to the Proposed Ordinance, the contribution to ground level ozone would increase by approximately 20 kg per year under this alternative and the contribution to atmospheric acidification would increase by approximately 2,796 kg per year when compared to the Proposed Ordinance. However, this alternative, like the Proposed Ordinance, would reduce emissions of ozone and atmospheric acidification compared to existing conditions.

To estimate mobile emissions resulting from Alternative 2, the number of truck trips per day was calculated (see Appendix E for full calculations). As shown in Table 6-3, Alternative 2 would result in an estimated 120 truck trips per year, or 0.33 truck trips per day, which is slightly higher than the Proposed Ordinance rate of 0.3 truck trips per day.

Table 6-3
Estimated Truck Trips per Day Following Implementation of Alternative 2

	Truck Trips Per Year	Truck Trips per Day
Alternative 2 Total	**120.45**	**0.33**
Proposed Ordinance Total	**108.67**	**0.30**
Difference	**12**	**0.03**
Existing Total for Plastic Bags (without an Ordinance)	**34**	**0.09**
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)	**86**	**0.24**

** City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011; and City of Sunnyvale Carryout Bag Ordinance EIR (SCH#2011062032), December 2011.*

Based on the estimated truck trips for Alternative 2, mobile emissions were calculated using the URBEMIS model. As shown in Table 6-3, although Alternative 2 would slightly increase truck trips compared to the proposed Ordinance, this increase is incremental. As shown in Table 6-4, this slight increase truck trips has a negligible increase related to mobile emissions. None of these emissions would exceed SBCAPCD thresholds.

Based on the above, impacts resulting from bag manufacturing and use (including ground level ozone and atmospheric acidification) would be slightly greater under this alternative, but would continue to be Class IV, *beneficial,* compared to existing conditions while impacts relating to truck emissions would continue to be Class III, *less than significant*.

b. Biological Resources. Similar to the Proposed Ordinance, this alternative would ban plastic carryout bags, thereby reducing the amount of plastic bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of plastic carryout bags by approximately 2.8 million bags and increase the number of recyclable paper bags by the same amount. Although this alternative may incrementally increase the use of recyclable paper bags in the Study Area as compared to the Proposed Ordinance, the impacts of paper bags on biological resources are less than those of plastic carryout bags. Because of their weight and recyclability,

Table 6-4
Operational Emissions Associated with Alternative 2

	Emissions (lbs/day)		
	ROG	**NO_x**	**PM_{10}**
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01
Mobile Emissions: Alternative 2	<0.01	0.02	<0.01
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: URBEMIS 2007 calculations for Vehicle. See Appendix E for calculations

paper bags are less likely to become litter compared to plastic carryout bags (Green Cities California MEA, 2010). In addition, because recyclable paper bags are not as resistant to biodegradation, there would be less risk of entanglement if entering the marine environment compared to plastic carryout bags. Therefore, the impact to sensitive species as a result of litter entering the marine environment from Alternative 2 would be reduced compared to the Proposed Ordinance. Similar to the Proposed Ordinance, impacts would be Class IV, *beneficial*. Overall benefits would be somewhat greater than those of the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of plastic carryout bags by approximately 2.8 million bags and increase the number of paper bags by the same amount. The number of reusable bags would not change as compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases,* through the manufacturing, transportation, and disposal, each recyclable paper bag results in 2.97 times the emissions of a plastic carryout bag. Because this alternative would increase the number of recyclable paper bags and reduce the number of plastic bags, it would result in a net increase of GHG emissions compared to the Proposed Ordinance.

Table 6-5 provides an estimate of GHG emissions associated with implementation of Alternative 2. Compared to the Proposed Ordinance, GHG emissions under Alternative 2 would increase by approximately 0.002 CO_2E per person per year. Although Alternative 2 would result in slightly greater GHG impacts than the Proposed Ordinance, emissions as a result of this alternative would not exceed the 4.6 metric tons CO_2E per person per year threshold. Therefore, impacts would remain Class III, *less than significant.*

Table 6-5
Estimated Greenhouse Gas Emissions from Alternative 2

	CO_2E per year (metric tons)	CO_2E per Person (metric tons)
Total GHG Emissions from Alternative 2	**8,114**	**0.0602**
Total GHG Emissions from Proposed Ordinance	7,850	0.0582
Difference	**264**	**0.0020**
Existing GHG Emissions	1,910	0.0142
Net Change (Total minus Existing)	**6,204**	**0.0460**

CO_2E = Carbon Dioxide Equivalent units
See Appendix E for emissions calculations

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of plastic carryout bags used within the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. Although this alternative would be expected to replace an estimated 2.8 million plastic carryout bags with the same number of recyclable paper bags, paper bags are not as resistant to breakdown and would therefore be less likely to block or clog drains compared to plastic carryout bags (refer to Section 4.4, *Hydrology and Water Quality*). Because recyclable paper bags would be less likely to result in storm drain blockage or contamination, this alternative would reduce litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in generally Class IV, *beneficial,* effects to water quality, and overall benefits would be somewhat greater under this alternative.

This alternative would be expected to result in the use of more recyclable paper carryout bags in the Study Area than would implementation of the Proposed Ordinance. However, as with the Proposed Ordinance, paper bag manufacturing facilities would be required to adhere to NPDES Permit requirements and the California Health and Safety Code reducing impacts to water quality. Impacts to water quality from altering bag processing activities would be the same as under the Proposed Ordinance and would remain Class III, *less than significant.*

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of plastic carryout bags by approximately 2.8 million bags and increase the number of recyclable paper bags by same amount. The number of reusable bags would not change under this alternative. Because the same number of reusable bags would be used under this alternative as under the Proposed Ordinance, water demand and wastewater generation related to washing reusable bags would be roughly the same. This includes 69.41AFY of water and approximately 61,970 gallons per day of wastewater. As discussed in Section 4.5, *Utilities and Service Systems,* there are sufficient water supplies available to meet this demand, as well as capacity within the existing wastewater distribution and

treatment system. Therefore, impacts related to water and wastewater would be similar to the Proposed Ordinance and would continue to be Class III, *less than significant*.

Using the more conservative solid waste generation rates based on Boustead (as shown in Table 4.5-10 in Section 4.5, *Utilities and Service systems*) and assuming that all reusable bags are cotton and disposed of in a landfill each year, implementation of this alternative would generate an estimated 0.91 tons/day of solid waste (calculations are contained in Appendix E). In comparison, implementation of the Proposed Ordinance would generate an increase of 0.80 tons/day. Therefore, Alternative 2 would generate 0.11 tons/day more solid waste than the Proposed Ordinance. However, like the Proposed Ordinance, this increase would not exceed the available capacity at Study Area landfills. Therefore, solid waste impacts would be greater when compared to the Proposed Ordinance, but would remain Class III, *less than significant*.

6.3 ALTERNATIVE 3: MANDATORY CHARGE OF $0.25 FOR PAPER BAGS

6.3.1 Description

This alternative would continue to prohibit Study Area retail establishments included in the Proposed Ordinance from providing plastic carryout bags to customers at the point of sale, but would increase the mandatory charge for a recyclable paper bag from $0.10 to $0.25. As a result of the $0.15 mandatory charge increase per paper bag, it is anticipated that this alternative would further promote the use of reusable bags since customers would be deterred from purchasing recyclable paper bags due to the additional cost.

Based on a cost requirement of $0.25 per bag, it is assumed that the total volume of plastic bags currently used in the Study Area (approximately 71.63 million plastic bags per year) would be replaced by approximately 6% paper bags and 89% reusable bags[2] under Alternative 3 (compared to 30% paper and 65% reusable assumed for the Proposed Ordinance). It is assumed that 5% of existing plastic carryout bags would remain in use, similar to the Proposed Ordinance, since the alternative would not apply to some retailers who distribute plastic carryout bags (e.g., restaurants, hardware stores).

Table 6-6 summarizes the anticipated changes in bag distribution as a result of a $0.25 mandatory charge under this alternative compared to the $0.10 charge under the Proposed Ordinance.

[2] Rates from City of San Jose Final EIR, SCH # 2009102095, October 2010.

Table 6-6
Estimated Bag Use: Proposed Ordinance versus Alternative 3

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 3**
Plastic carryout	3,581,330	3,581,330
Single-Use Paper	21,487,977	4,297,595
Reusable	895,332	1,225,917
Total	**25,964,639**	**9,104,842**

** Refer to Table 2.2 in Section 2.0, Project Description.*
*** Based on an assumption of 5% existing plastic bag use in Study Area to remain, 6% conversion of the volume of existing plastic bag use in Study Area to paper bags and 89% conversion to reusable bags (based on 52 uses per year).*

6.3.2 Impact Analysis

a. Air Quality. As described in Section 4.1, *Air Quality*, it is anticipated that the Proposed Ordinance would replace the total volume of plastic carryout bags currently used in the Study Area with approximately 30% recyclable paper bags and 65% reusable bags, leaving 5% of the plastic bags in circulation (or approximately 3.58 million bags, as shown in Table 6-6 above). This alternative would increase the mandatory charge on recyclable paper bags by fifteen ($0.15) cents and would therefore promote a greater shift toward reusable bags. Consequently, this alternative would reduce the number of recyclable paper bags and increase the number of reusable bags compared to the Proposed Ordinance. Because this alternative would apply to the same retailers as the Proposed Ordinance, the number of plastic carryout bags remaining in circulation would be the same. In total, Alternative 3 would result in approximately 16.8 million fewer bags (including plastic carryout, paper, and reusable) than the Proposed Ordinance. Air pollutant emissions associated with bag manufacturing, transportation, and disposal would therefore be reduced when compared to the Proposed Ordinance.

Table 6-7 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 3, as compared to the Proposed Ordinance. Because this alternative would reduce the number of paper bags in the Study Area, the contribution to ground level ozone would decrease by approximately 505 kg per year and the contribution to atmospheric acidification would decrease by approximately 34,337 kg per year when compared to the Proposed Ordinance.

To estimate mobile emissions resulting from Alternative 3, the number of truck trips per day was calculated (see Appendix E). As shown in Table 6-8, Alternative 3 would result in an estimated 33 truck trips per year, or 0.09 truck trips per day, which is lower than truck trips with the Proposed Ordinance and also slightly lower than the existing number of truck trips related to delivering plastic carryout bags.

Table 6-7
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Alternative 3

	Ozone Emissions per year (kg)		AA Emissions per year (kg)
Alternative 3 Total	**251**	**Alternative 3 Total**	**16,722**
Proposed Ordinance Total	**756**	**Proposed Ordinance Total**	**51,059**
Difference	**(505)**	**Difference**	**(34,337)**
Existing Total (without an Ordinance)	**1,647**	**Existing Total (without an Ordinance)**	**77,643**
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)	**(1,397)**	**Net Change**	**(60,921)**

Source: Refer to Table 4.1-5 in Section 4.1, Air Quality.
( ) = reduction of emissions compared to existing conditions.

Table 6-8
Estimated Truck Trips per Day
Following Implementation of Alternative 3

	Truck Trips Per Year	Truck Trips per Day
Alternative 3 Total	**33**	**0.09**
Proposed Ordinance Total	**109**	**0.30**
Difference	**(76)**	**(0.21)**
Existing Total for Plastic Bags (without an Ordinance)	34	0.09
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)	**(2)**	**(<0.001)**

**City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011.*
Refer to Appendix E for calculations
( ) = reduction of emissions compared to existing conditions.

Table 6-9
Operational Emissions Associated with Alternative 3

	Emissions (lbs/day)		
	ROG	**NO_x**	**PM_{10}**
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01
Mobile Emissions: Alternative 3	(<0.01)	(0.01)	(<0.01)
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: URBEMIS 2007 calculations for Vehicle. See Appendix E for calculations
( ) = reduction of emissions compared to existing conditions.

Based on the estimated truck trips for Alternative 3, mobile emissions were calculated using the URBEMIS model. As indicated in Table 6-9, this alternative would reduce daily emissions compared to the Proposed Ordinance. In addition, because mobile emissions would be reduced compared to existing conditions, these emissions would not exceed SBCAPCD thresholds.

Based on the above, Alternative 3 would reduce air quality impacts compared to the Proposed Ordinance. Impacts resulting from bag manufacturing and use (ground level ozone and atmospheric acidification) would continue to be Class IV, *beneficial,* and impacts relating to an increase in truck trips would be reduced to a Class IV, *beneficial,* impact since truck trips and the associated emissions would actually be reduced under this alternative compared to existing conditions.

b. Biological Resources. Similar to the Proposed Ordinance, this alternative would prohibit certain Study Area retailers from distributing plastic carryout bags, thereby incrementally reducing the amount of plastic carryout bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would result in approximately 16.8 million fewer bags (including plastic carryout, paper, and reusable). Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of recyclable paper bags by approximately 17 million bags and increase the number of reusable bags by approximately 330,585 bags. Therefore, this alternative would further reduce the amount of paper bag litter that could enter the marine environment. Although recyclable paper bags are less likely to become litter compared to plastic carryout bags (refer to Section 4.2, *Biological Resources*), the net reduction of overall bags associated with this alternative would result in overall less litter entering the marine environment. As a result, Alternative 3 would continue to be a Class IV, *beneficial,* impact (like the Proposed Ordinance) and would have additional beneficial effects to marine species as compared to the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 17 million bags and increase the number of reusable bags by approximately 330,585. The number of plastic carryout

bags would not change compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases,* the manufacturing, transportation, and disposal of each recyclable paper bag results in 2.97 times the emissions of a plastic carryout bag, while the manufacturing, transportation, and disposal of each reusable bag results in approximately 131 times the emissions of a plastic carryout bag. Although this alternative would increase the number of reusable bags by approximately 330,585, which would increase GHG emissions, it would reduce number of recyclable paper bags to a greater extent (approximately 17 million bags). Table 6-10 provides an estimate of GHG emissions that would result from the reduction of carryout bags as a result of implementation of Alternative 3.

Table 6-10
Estimated Greenhouse Gas Emissions from Alternative 3

	CO_2E per year (metric tons)	CO_2E per Person (metric tons)
Total GHG Emissions from Alternative 3	**7,728**	**0.0573**
Total GHG Emissions from Proposed Ordinance	7,850	0.0582
Difference	**(122)**	**(0.0009)**
Existing GHG Emissions	1,910	0.0142
Net Change (Total minus Existing)	**5,818**	**0.0431**

CO_2E = Carbon Dioxide Equivalent units
See Appendix E for emissions calculations

Compared to the Proposed Ordinance, GHG emissions under Alternative 3 would decrease by approximately 0.0009 CO_2E per person per year. Compared to existing conditions without an Ordinance, this alternative would increase GHG emissions by approximately 5,818 metric tons per year or approximately 0.04 CO_2E per person per year, which is less than the 4.6 metric tons per year threshold. Therefore, GHG impacts from Alternative 3 would be slightly reduced when compared to the Proposed Ordinance, but the impact would remain Class III, *less than significant*, compared to existing conditions.

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of plastic carryout bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would further reduce the number of recyclable paper bags compared to the Proposed Ordinance (by approximately 17 million bags), replacing them instead with approximately 330,585 reusable bags. Compared to the Proposed Ordinance, this alternative would result in approximately 16.8 million fewer total bags (including plastic carryout, paper, and reusable). As a result, overall, this alternative would reduce litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial,* effects to water quality. Overall benefits would be somewhat greater under this alternative since fewer paper bags would be used in the Study Area.

This alternative would be expected to result in the use of fewer recyclable paper carryout bags in the Study Area as compared to the Proposed Ordinance. However, it would not completely eliminate paper bags. As with the Proposed Ordinance, paper bag manufacturing facilities would be required to adhere to NPDES Permit requirements and the California Health and Safety Code reducing impacts to water quality. Impacts to water quality from altering bag processing activities would be the same as the Proposed Ordinance and would continue to be Class III, *less than significant*.

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of recyclable paper bags by approximately 17 million and increase the number of reusable bags by approximately 330,585. The number of plastic carryout bags would not change under this alternative. Because more reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation related to washing reusable bags would also increase incrementally. This would equate to a net increase of an estimated 25.6 AFY of water and a net increase of 22,881 gallons per day of wastewater compared to the Proposed Ordinance. As noted in Section 4.5, *Utilities and Service Systems,* there are sufficient water supplies and wastewater facility capacity to meet this demand. Therefore, impacts would be slightly greater than those of the Proposed Ordinance, but would remain Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-10 in Section 4.5, *Utilities and Service systems*), this alternative would generate a net decrease of 0.69 tons/day of solid waste (calculations are contained in Appendix E) compared to existing conditions. In comparison, the Proposed Ordinance would generate a net increase of 0.79 tons/day compared to existing conditions but was determined to result in a Class III, *less than significant* impact. Therefore, Alternative 3 would generate less solid waste than the Proposed Ordinance, would reduce solid waste compared to existing conditions, and would not exceed the existing capacity at area landfills. Solid waste impacts would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*.

6.4 ALTERNATIVE 4: BAN ON BOTH PLASTIC CARRYOUT AND PAPER CARRYOUT BAGS

6.4.1 Description

This alternative would prohibit specified Study Area retail establishments, as defined by the Proposed Ordinance, from providing plastic carryout and paper carryout bags to customers at the point of sale. It is anticipated that by also prohibiting paper carryout bags, this alternative ordinance would substantially reduce both plastic and paper carryout bags within the Study Area, and further promote the shift to the use of reusable bags by retail customers. By banning both plastic carryout and recyclable paper bags, customers would be forced to use reusable carryout bags. This may increase the number of reusable bags purchased within the Study Area.

It is assumed that banning both plastic carryout and recyclable paper bags would result in replacement of the total volume of plastic carryout bags currently used within the Study Area (approximately 71.63 million plastic carryout bags per year) with approximately 1.3 million reusable bags (compared to 21.49 million recyclable paper and 895,332 reusable bags assumed

for the Proposed Ordinance). It is assumed that 5% of existing plastic carryout bags would remain in use, similar to the Proposed Ordinance, since the alternative would not apply to some retailers who distribute plastic bags (e.g., restaurants). Table 6-11 summarizes the changes in bag distribution as a result of banning both plastic carryout and recyclable paper bags under this alternative compared to the Proposed Ordinance.

Table 6-11
Estimated Bag Use: Proposed Ordinance versus Alternative 4

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 4**
Plastic Carryout	3,581,330	3,581,330
Recyclable Paper	21,487,977	0
Reusable	895,332	1,308,563
Total	**25,964,639**	**4,889,893**

** Refer to Table 2.2 in Section 2.0, Project Description*
*** Based on an assumption of 5% existing plastic bag use in the Study Area to remain, and 95% conversion to reusable bags (based on 52 uses per year).*

6.4.2 Impact Analysis

a. Air Quality. As described in Section 2.0, *Project Description,* it is anticipated that the Proposed Ordinance would replace the total volume of plastic carryout bags currently used in the Study Area with approximately 21.49 million paper and 895,332 reusable bags assumed for the Proposed Ordinance (or 95% of the plastic bags), leaving 5% of the plastic bags in circulation (or approximately 3.58 million bags, as shown in Table 6-11 above). This alternative would prohibit specified retail establishments from providing plastic carryout or paper carryout bags to customers at the point of sale, and would therefore promote a greater shift toward reusable bags. Consequently, this alternative would reduce the number of paper bags and increase the number of reusable bags compared to the Proposed Ordinance. Because this alternative would apply to the same retailers as the Proposed Ordinance, the number of plastic carryout bags remaining in circulation would be the same. In total, Alternative 4 would result in approximately 21 million fewer total bags (including plastic carryout, recyclable paper, and reusable) than the Proposed Ordinance. Air pollutant emissions associated with bag manufacture, transportation, and disposal would therefore be reduced when compared to the Proposed Ordinance. Table 6-12 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 4, as compared with the Proposed Ordinance.

As shown in Table 6-12, because this alternative would reduce the number of recyclable paper bags and the total number of bags used in the Study Area, the contribution to ground level ozone would decrease by approximately 631 kg per year and the contribution to atmospheric acidification would decrease by approximately 42,921 kg per year when compared to the Proposed Ordinance.

Table 6-12
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Alternative 4

	Ozone Emissions per year (kg)	AA Emissions per year (kg)
Alternative 4 Total	**124**	**8,138**
Proposed Ordinance Total	**756**	**51,059**
Difference	**(631)**	**(42,921)**
Existing Total (without an Ordinance)	**1,647**	**77,643**
Net Change of Alternative 4 (Alternative 4 Total minus Existing Total)	**(1,523)**	**(69,506)**

Source: Refer to Table 4.1-4 in Section 4.1, Air Quality.
( ) = reduction of emissions compared to existing conditions.

To estimate mobile emissions resulting from Alternative 4, the number of truck trips per day was calculated (see Appendix E for calculations). As shown in Table 6-13, Alternative 4 would result in an estimated 14 truck trips per year, or 0.04 truck trips per day, which is lower than the Proposed Ordinance and would also be lower than the existing number of truck trips related to delivering plastic carryout bags.

Table 6-13
Estimated Truck Trips per Day
Following Implementation of Alternative 4

	Truck Trips Per Year	Truck Trips per Day
Alternative 3 Total	**14**	**0.04**
Proposed Ordinance Total	**109**	**0.30**
Difference	**(95)**	**(0.26)**
Existing Total for Plastic Bags (without an Ordinance)	34	0.09
Net Change of Alternative 4 (Alternative 4 Total minus Existing Total)	**(21)**	**(0.06)**

Source: See Calculations in Appendix E.
( ) = reduction of emissions compared to existing conditions.

Based on the estimated truck trips for Alternative 4, mobile emissions were calculated using the URBEMIS model. As indicated in Table 6-14, this alternative would reduce truck trips and reduce daily emissions compared to the Proposed Ordinance. In addition, because truck trips and the associated mobile emissions would be reduced compared to existing conditions, these emissions would not exceed SBCAPCD thresholds.

Table 6-14
Operational Emissions Associated with Alternative 4

	Emissions (lbs/day)		
	ROG	**NO_x**	**PM_{10}**
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01
Mobile Emissions: Alternative 4	(<0.01)	(<0.01)	(<0.01)
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: URBEMIS 2007 calculations for Vehicle. See Appendix E for calculations
( ) = reduction of emissions compared to existing conditions.

Based on the above, Alternative 4 would reduce air quality impacts compared to the Proposed Ordinance. Impacts resulting from bag manufacturing and use (ground level ozone and atmospheric acidification) would continue to be Class IV, *beneficial,* like the Proposed Ordinance while impacts related to truck trips would be reduced from a Class III, *less than significant* (under the Proposed Ordinance) to Class IV *beneficial,* since truck trips and the associated emissions would actually be reduced under this alternative compared to existing conditions.

b. Biological Resources. This alternative would ban both plastic carryout and recyclable paper carryout bags from certain retailers, thereby reducing the amount of plastic carryout and paper bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would further reduce the amount of paper bag litter that could enter the marine environment. Although recyclable paper bags are less likely to become litter compared to plastic carryout bags (refer to Section 4.2, *Biological Resources*), the net reduction of overall bag use associated with this alternative would result in overall less litter entering the marine environment. As a result, Alternative 4 would continue to be a Class IV, *beneficial,* impact (like the Proposed Ordinance) and would have additional beneficial effects to marine species as compared to the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of recyclable paper bags by approximately 21.49 million bags and increase the number of reusable bags by approximately 413,231. The number of plastic carryout bags would not change under this alternative. As noted in Section 4.3, *Greenhouse Gases,* the manufacture, transport, and disposal of each recyclable paper bag results in 2.97 times the emissions of a plastic carryout bag, while the manufacturing, transportation,

and disposal of each reusable bag results in approximately 131 times the emissions of a plastic carryout bag. The increased use of reusable bags would slightly increase GHG emissions, while the significantly reduced use of paper bags would somewhat offset this impact.

Table 6-15 provides an estimate of GHG emissions that would result from the reduction of carryout bags as a result of implementation of Alternative 4.

Table 6-15
Estimated Greenhouse Gas Emissions from Alternative 4

	CO_2E per year (metric tons)	CO_2E per Person (metric tons)
Total GHG Emissions from Alternative 4	**7,698**	**0.0571**
Total GHG Emissions from Proposed Ordinance	7,850	0.0582
Difference	**(152)**	**(0.0011)**
Existing GHG Emissions	1,910	0.0142
Net Change (Total minus Existing)	**5,788**	**0.0429**

CO_2E = Carbon Dioxide Equivalent units
See Appendix E for emissions calculations
( ) = reduction of emissions compared to existing conditions.

Compared to the Proposed Ordinance, GHG emissions under Alternative 3 would decrease by approximately 0.001 CO_2E per person per year. Compared to existing conditions without an Ordinance, this alternative would increase GHG emissions by approximately 5,788 metric tons per year or approximately 0.042 CO_2E per person per year, which is less than the 4.6 metric tons per year threshold. Therefore, GHG impacts from Alternative 3 would be slightly reduced when compared to the Proposed Ordinance, but the impact would remain Class III, *less than significant*, compared to existing conditions.

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of plastic carryout bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would reduce the number of recyclable paper bags compared to the Proposed Ordinance (by approximately 21.49 million bags), replacing them instead with approximately 413,231 reusable bags. In total, Alternative 4 would result in approximately 21 million fewer total bags (including plastic carryout, paper, and reusable) than the Proposed Ordinance. As a result, this alternative would reduce overall litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial,* effects to water quality. Overall benefits would be somewhat greater under this alternative since fewer paper bags would be used in the Study Area.

This alternative would prohibit retailers (except restaurants) from providing recyclable paper carryout bags within the Study Area. This alternative would actually reduce the number of

paper bags manufactured for use in the region. Thus, impacts to water quality from altering bag processing activities would be reduced under this alternative compared to the Proposed Ordinance, which would increase recyclable paper bag use. In addition, under this alternative, recyclable paper bag use would be reduced compared to existing conditions since paper bags are currently used throughout the Study Area. Thus, this alternative would result in a Class IV, *beneficial impact*.

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of recyclable paper bags by approximately 21.49 million and increase the number of reusable bags by approximately 413,231. The number of plastic carryout bags would not change under this alternative. Because more reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation associated with washing reusable bags would also increase incrementally. This equates to an increase of an estimated 101.5 AFY of water and 90,571 gallons per day of wastewater compared to existing conditions, or a net increase of 32 AFY of water and 28,601 gallons of wastewater compared to the Proposed Ordinance. However, as noted in Section 4.5, *Utilities and Service Systems,* there are sufficient water supplies and wastewater treatment capacity to meet this demand. Therefore, impacts would be slightly greater than those of the Proposed Ordinance, but would remain Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-10 in Section 4.5, *Utilities and Service systems*), this alternative would generate a reduction of 0.07 tons/day of solid waste compared to existing conditions (calculations are contained in Appendix E). In comparison, the Proposed Ordinance would generate 0.8 tons/day but was determined to result in a Class III, *less than significant* impact. Therefore, Alternative 4 would generate less solid waste than the Proposed Ordinance, would reduce solid waste compared to existing conditions, and would not exceed the existing capacity at area landfills. Therefore, solid waste impacts would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*.

6.5 ALTERNATIVE 5: MANDATORY CHARGE OF $0.10 FOR PLASTIC AND PAPER CARRYOUT BAGS

6.5.1 Description

Under this alternative the Proposed Ordinance would continue to allow Study Area retail establishments to provide plastic carryout and paper bags to customers at the point of sale, but would create a mandatory charge for a plastic carryout and paper bags of $0.10. The provision in AB 2449 which restricted the ability of cities and counties to regulate plastic carryout grocery bags through imposition of a fee expired on January 1, 2013 (see Section 2.0 for further discussion). As a result of the $0.10 mandatory charge for plastic and paper bags, compared to existing conditions it is anticipated that this alternative would reduce the use of plastic and paper bags and promote the use of reusable bags since customers would be deterred from purchasing plastic and paper bags due to the additional cost.

With a cost requirement of $0.10 per single-use carryout bag, it is assumed that the total of current bag use would be replaced with 22% plastic bags, 14% paper bags, and 64% reusable

bags.[3] Table 6-16 summarizes the anticipated changes in bag distribution as a result of a $0.10 mandatory charge for carryout bags under this alternative compared to the ban on plastic bags and charge for paper bags under the Proposed Ordinance.

Table 6-16
Estimated Bag Use: Proposed Ordinance versus Alternative 5

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 5**
Plastic carryout	3,581,330	15,757,850
Single-Use Paper	21,487,977	10,027,723
Reusable	895,332	881,558
Total	**25,964,639**	**26,667,130**

** Refer to Table 2.2 in Section 2.0, Project Description*
*** Based on an assumption of 22% of plastic bag use in the Study Area to remain, 14% conversion to paper and 64% conversion to reusable bags (based on 52 uses per year).*

6.5.2 Impact Analysis

a. Air Quality. As described in Section 2.0, *Project Description,* it is anticipated that the Proposed Ordinance would replace the total volume of plastic carryout bags currently used in the Study Area with approximately 21.49 million recyclable paper and 895,332 reusable bags assumed for the Proposed Ordinance (or 95% of the plastic bags), leaving 5% of the plastic bags in circulation (or approximately 3.58 million bags, as shown in Table 6-16 above). This alternative would allow all retail establishments to provide plastic carryout or recyclable paper carryout bags to customers at the point of sale for a charge of $0.10. This alternative assumes that some plastic and paper bags would still be used, though fewer paper bags would be used than if plastic bags were banned. Also, because of a charge for paper and plastic bags, a shift towards reusable bags would occur. Alternative 5 would result in the use of approximately 702,492 more total bags (including plastic carryout, paper, and reusable) than the Proposed Ordinance because plastic bags, although regulated with a $0.10 charge, would still be permitted for use at all retail establishments. However, because Alternative 5 assumes fewer recyclable paper bags will be used compared with a ban on plastic bags, air pollutant emissions associated with bag manufacture, transportation, and disposal would be decreased when compared to the Proposed Ordinance. Table 6-17 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 5, as compared to the Proposed Ordinance.

[3] Rates from Herrera Environmental Consultants, 2010. The Herrera report assumes that if there is a $0.10 charge on plastic and paper bags, bags use would be 10% paper, 22% plastic, and 64% reusable. They also assume 4% would switch to no bag. For the purposes of this analysis, we conservatively assume that instead of no bag, the remaining 4% would convert to paper bags.

Table 6-17
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Alternative 5

	Ozone Emissions per year (kg)		AA Emissions per year (kg)
Alternative 5 Total	**691**	**Alternative 5 Total**	**40,605**
Proposed Ordinance Total	**756**	**Proposed Ordinance Total**	**51,059**
Difference	**(64)**	**Difference**	**(10,454)**
Existing Total (without an Ordinance)	**1,647**	**Existing Total (without an Ordinance)**	**77,643**
Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)	**(956)**	**Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)**	**(37,038)**

Source: Refer to Table 4.1-4in Section 4.1, Air Quality.
( ) = reduction of emissions compared to existing conditions.

As shown in Table 6-17, because this alternative would reduce the number of recyclable paper bags used in the Study Area, the contribution to ground level ozone would decrease by approximately 64 kg per year and the contribution to atmospheric acidification would decrease by approximately 10,454 kg per year when compared to the Proposed Ordinance.

To estimate mobile emissions resulting from Alternative 5, the number of truck trips per day was calculated (see Appendix E for calculations). As shown in Table 6-18, Alternative 5 would result in an estimated 62 truck trips per year, or 0.17 truck trips per day, which is lower than the Proposed Ordinance but would be more than the existing number of truck trips related to delivering plastic carryout bags.

Based on the estimated truck trips for Alternative 5, mobile emissions were calculated using the URBEMIS model. As indicated in Table 6-19, this alternative would reduce truck trips and reduce daily emissions compared to the Proposed Ordinance. Though truck trips and the associated mobile emissions would be increased compared to existing conditions, these emissions would not exceed SBCAPCD thresholds.

Alternative 5 would reduce air quality impacts compared to the Proposed Ordinance. Impacts resulting from bag manufacturing and use (ground level ozone and atmospheric acidification) would continue to be Class IV, *beneficial,* like the Proposed Ordinance while impacts relating to truck emissions would be Class III, *less than significant* (like the Proposed Ordinance) compared to existing conditions.

Table 6-18
Estimated Truck Trips per Day
Following Implementation of Alternative 5

	Truck Trips Per Year	Truck Trips per Day
Alternative 5 Total	**62**	**0.17**
Proposed Ordinance Total	**109**	**0.30**
Difference	**(47)**	**(0.13)**
Existing Total for Plastic Bags (without an Ordinance)	34	0.09
Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)	**27**	**0.07**

**City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011.*
( ) = reduction of emissions compared to existing conditions.

Table 6-19
Operational Emissions Associated with Alternative 5

	Emissions (lbs/day)		
	ROG	NO_x	PM_{10}
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01
Mobile Emissions: Alternative 5	<0.01	0.01	<0.01
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: URBEMIS 2007 calculations for Vehicle. See Appendix E for calculations

b. Biological Resources. This alternative would implement a mandatory $0.10 charge for both plastic carryout and paper carryout bags at certain retailers, thereby reducing the amount of plastic carryout and paper bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would further reduce the amount of paper bag litter that could enter the marine environment. However, this alternative would result in an increase in plastic bag use (from 5% of existing use under the Proposed Ordinance, to 22% under Alternative 5), as compared to the Proposed Ordinance. As a result, the Class IV, *beneficial,* effects to marine species from Alternative 5 would be slightly reduced as compared to the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the paper bags by approximately 11.4 million bags and the

number of reusable bags by approximately 13,774. The number of plastic bags would increase by approximately 12.17 million compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases,* the manufacture, transport, and disposal of each paper bag results in 2.97 times the emissions of a plastic carryout bag. The increased use of paper bags would increase GHG emissions. Table 6-20 provides an estimate of GHG emissions that would result from the reduction of carryout bags as a result of implementation of Alternative 5.

Table 6-20
Estimated Greenhouse Gas Emissions from Alternative 5

	CO_2E per year (metric tons)	CO_2E per Person (metric tons)
Total GHG Emissions from Alternative 5	**6,733**	**0.0499**
Total GHG Emissions from Proposed Ordinance	7,850	0.0582
Difference	**(1,117)**	**(0.0083)**
Existing GHG Emissions	1,910	0.0142
Net Change (Total minus Existing)	**4,823**	**0.0358**

CO_2E = Carbon Dioxide Equivalent units
See Appendix E for emissions calculations
( ) = reduction of emissions compared to existing conditions.

Compared to the Proposed Ordinance, GHG emissions under Alternative 5 would decrease by approximately 1,117 metric tons CO_2E per year or 0.06 metric tons CO_2E per person per year. Compared to existing conditions without an Ordinance, this alternative would increase GHG emissions by approximately 4,823 metric tons per year or approximately 0.036 CO_2E per person per year. Therefore, GHG impacts associated with Alternative 5 would be reduced when compared to the Proposed Ordinance, but like the Proposed Ordinannce GHG impacts would be Class III, *less than significant,* compared to existing conditions.

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of plastic carryout bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would reduce the number of recyclable paper bags compared to the Proposed Ordinance (by approximately 11.4 million bags) and would incrementally reduce the number of reusable bags compared to the Proposed Ordinance (a reduction of approximately 13,774 reusable bags). However, the decrease in paper and reusable bag use is offset by an increase in plastic bag use as compared to the Proposed Ordinance (an increase of approximately 12.17 million plastic carryout bags. As a result of the increase in plastic bag use, this alternative would increase overall litter compared to the Proposed Ordinance. An incremental increase in the amount of plastic bag litter that could enter storm drains and local waterways would incrementally degrade water quality and incrementally increase the potential for storm drain blockage. However, like the Proposed Ordinance, Alternative 5 would result in an overall reduction in the quantity of plastic carryout bags used in the Study Area, compared to existing conditions. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial,* effects to water quality. However, overall benefits would be somewhat less under this alternative since more plastic bags would be used in the Study Area.

This alternative would implement a mandatory $0.10 fee for each single-use paper and plastic carryout bag distributed by retailers (except restaurants) within the Study Area. This alternative would actually reduce the number of recyclable paper and reusable bags manufactured for use in the region. However, Alternative 5 would increase the number of plastic carryout bags manufactured for use in the region compared to the Proposed Ordinance. Thus, impacts to water quality from altering bag processing activities would be slightly increased under this alternative compared to the Proposed Ordinance which would reduce plastic bag use. In addition, under this alternative, the use of plastic carryout bags would be reduced by 40% compared to existing conditions. Furthermore, as described in Section 4.4, *Hydrology and Water Quality*, manufacturing facilities would be required to adhere to existing federal, state and local regulations. Thus, this alternative, like the Proposed Ordinance, would result in a Class III, *less than significant* impact. However, overall benefits would be somewhat less under this alternative as more plastic bags would be used in the Study Area compared to the Proposed Ordinance.

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of recyclable paper bags by approximately 11.4 million and reduce the number of reusable bags by approximately 13,774. The number of plastic carryout bags would increase by approximately 12.17 million bags as compared to the Proposed Ordinance. Because 1% fewer reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation associated with washing reusable bags would also decrease by 1%. This equates to a net decrease of an estimated 1.1 AFY of water and a net decrease of an estimated 953 gallons per day of wastewater compared to the Proposed Ordinance. Though this alternative would increase water and wastewater generation compared to existing conditions, as noted in Section 4.5, *Utilities and Service Systems,* there are sufficient water supplies and wastewater treatment capacity to meet this demand. Therefore, impacts would be slightly reduced than those of the Proposed Ordinance, but would remain Class III, *less than significant*, compared to existing conditions.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-10 in Section 4.5, *Utilities and Service systems*), this alternative would generate an increase of 0.35tons/day of solid waste compared to existing conditions (calculations are contained in Appendix E). In comparison, the Proposed Ordinance would generate 0.79 tons/day. Therefore, Alternative 5 would generate less solid waste than the Proposed Ordinance, and would not exceed the existing capacity at area landfills. Therefore, solid waste impacts would be reduced when compared to the Proposed Ordinance, but would remain Class III, *less than significant*.

6.6 ALTERNATIVE 6: DELAYED IMPLEMENTATION IN NORTH COUNTY, BAN ON PLASTIC CARRYOUT BAGS AT RETAIL ESTABLISHMENTS IN SOUTHERN SANTA BARBARA COUNTY ONLY FOR THE FIRST YEAR AFTER ADOPTION

6.6.1 Description

Similar to the Proposed Ordinance, this alternative would prohibit Study Area retailers from providing plastic carryout bags to customers at the point of sale and create a mandatory $0.10 charge per recyclable paper bag. However, under this alternative, the Ordinance would only

apply to southern Santa Barbara County areas in the first twelve months and would apply to the northern portion of Santa Barbara County (all areas north of the Santa Ynez Mountains using East and West Camino Cielo Roads as the boundary) after the first twelve months. As a result, initially only half of the number of plastic carryout bags currently used in Santa Barbara County would be removed/replaced with recyclable paper bags and reusable bags. Thus in the northern portion of Santa Barbara County, retailers would be able to provide plastic carryout bags and paper bags for no cost to customers at the point of sale for an additional year. Meanwhile, in the southern portion of the County, retailers would be subject to the same conditions as the Proposed Ordinance (ban on plastic carryout bags and a $0.10 fee on recyclable paper bags). Based on a cost requirement of $0.10 per bag but only applicable to the southern portion of Santa Barbara County for the first year after adoption, it is assumed that half of the the total volume of plastic bags currently used in the Study Area (approximately 35.8 million plastic bags per year) would remain in use in the northern portion of the County for the first year after adoption; however after the first year of adoption, this Alternative would have the same impacts as the Proposed Ordinance. For the southern portion of the County, half of the total volume of plastic bags currently used in the Study Area (approximately 35.8 million plastic bags per year) would be replaced by approximately 30% recyclable paper bags and 65% reusable bags[4] under Alternative 6 (similar to the Proposed Ordinance). It is assumed that 5% of existing plastic carryout bags in the southern portion of the County would remain in use, similar to the Proposed Ordinance, since the alternative would not apply to some retailers in the southern portion of the County who distribute plastic carryout bags (e.g., restaurants, hardware stores).

The total estimate of bag use under this alternative, compared to the Proposed Ordinance, is summarized in Table 6-21.

Table 6-21
Estimated Carryout Bag Use:
Proposed Ordinance versus Alternative 6 for Year One

Bag Type	Carryout Bags Used Annually	
	Proposed Ordinance*	Alternative 6**
Plastic	3,581,330	37,603,960
Recyclable Paper	21,487,977	10,743,989
Reusable	895,332	447,666
Total	**25,964,639**	**48,795,615**

** Refer to Table 2.2 in Section 2.0, Project Description*
*** Based on assumptions that no retailers in northern portion of County would be subject to an ordinance (thus 35.8 million plastic bags remain in use), 5% plastic bag use in southern portion of County remain for restaurant use, 30% conversion of the volume of existing plastic bag use in the southern portion of County to paper bags and 65% conversion to reusable bags (based on 52 uses per year).*

[4] Rates from City of San Jose Final EIR, SCH # 2009102095, October 2010.

6.6.2 Impact Analysis

a. Air Quality. As described in Section 4.1, *Air Quality,* it is anticipated that the Proposed Ordinance would replace the total volume of plastic carryout bags currently used in the Study Area with approximately 30% recyclable paper bags and 65% reusable bags, leaving 5% of the plastic bags in circulation (or approximately 3.58 million bags, as shown in Table 6-21 above). This alternative would prohibit all retail establishments in the southern portion of the County, except for restaurants, in the Study Area from providing plastic carryout bags to customers at the point of sale for the first year after adoption (but would not apply to the northern portion of the County) and would therefore eliminate only half of the number of plastic carryout bags as compared to the Proposed Ordinance for the first year after adoption. Consequently, for the first year after adoption, this alternative would not reduce emissions associated with plastic bag manufacturing, transportation, and disposal to as great an extent than the Proposed Ordinance.

Table 6-22
Estimated Emissions that Contribute to Ground Level Ozone and Atmospheric Acidification (AA) from Alternative 6

	Ozone Emissions per year (kg)	AA Emissions per year (kg)
Alternative 6 Total	**1,202**	**64,351**
Proposed Ordinance Total	**756**	**51,059**
Difference	**446**	**13,292**
Existing Total (without an Ordinance)	**1,647**	**77,643**
Net Change of Alternative 6 (Alternative 6 Total minus Existing Total)	**(446)**	**(13,292)**

Source: Refer to Table 4.1-4 in Section 4.1, Air Quality.
( ) = reduction of emissions compared to existing conditions.

However, because this alternative would not apply to retailers in the northern portion of Santa Barbara County for the first year after adoption, this alternative would increase the number of plastic carryout bags and reduce the number of recyclable paper and reusable bags in comparison to the Proposed Ordinance. As described in Section 4.1, *Air Quality*, paper bags and reusable bags have an incrementally greater per-bag impact than plastic carryout bags. Thus for this alternative, air pollutant emissions would incrementally decrease as compared to what would occur under the Proposed Ordinance for the first year after adoption. Table 6-22 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 6, as compared to the Proposed Ordinance and existing conditions.

As compared to the Proposed Ordinance, the contribution to ground level ozone would increase by approximately 446 kg per year under this alternative and the contribution to atmospheric acidification would increase by approximately 13,292 kg per year when compared to the Proposed Ordinance. However, this alternative, like the Proposed Ordinance, would reduce emissions of ozone and atmospheric acidification compared to existing conditions.

To estimate mobile emissions resulting from Alternative 6, the number of truck trips per day was calculated (see Appendix E for calculations). As shown in Table 6-23, Alternative 6 would result in an estimated 72 truck trips per year, or 0.2 truck trips per day, which is slightly higher than the Proposed Ordinance rate of 0.3 truck trips per day.

Table 6-23
Estimated Truck Trips per Day
Following Implementation of Alternative 6

	Truck Trips Per Year	Truck Trips per Day
Alternative 6 Total	**72**	**0.20**
Proposed Ordinance Total	**109**	**0.30**
Difference	**(37)**	**(0.10)**
Existing Total for Plastic Bags (without an Ordinance)	34	0.09
Net Change of Alternative 6 (Alternative 6 Total minus Existing Total)	**37**	**0.10**

**City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011; and City of Sunnyvale Carryout Bag Ordinance EIR (SCH#2011062032), December 2011.*

( ) = reduction of emissions compared to existing conditions.

Based on the estimated truck trips for Alternative 6, mobile emissions were calculated using the URBEMIS model. As shown in Table 6-24, although Alternative 6 would slightly reduce truck trips compared to the Proposed Ordinance, this decrease is incremental. Like the Proposed Ordinance, none of these emissions would exceed SBCAPCD thresholds.

Table 6-24
Operational Emissions Associated with Alternative 6

	Emissions (lbs/day)		
	ROG	**NO_x**	**PM_{10}**
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01
Mobile Emissions: Alternative 6	<0.01	0.01	<0.01
Thresholds	*25*	*25*	*80*
Threshold Exceeded?	***No***	***No***	***No***

Source: URBEMIS 2007 calculations for Vehicle. See Appendix E for calculations

Based on the above, impacts resulting from bag manufacturing and use (including ground level ozone and atmospheric acidification) would be slightly greater under this alternative, but would continue to be Class IV, *beneficial,* compared to existing conditions while impacts relating to truck emissions would continue to be Class III, *less than significant*.

b. Biological Resources. Similar to the Proposed Ordinance, this alternative would ban plastic carryout bags, thereby reducing the amount of plastic bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would have a greater number of plastic carryout bags as the ordinance would not apply in the northern portion of Santa Barbara County. Therefore, the impact to sensitive species as a result of litter entering the marine environment from Alternative 6 would be slightly greater compared to the Proposed Ordinance as there would be more plastic carryout bags in use in the first year after adoption. Nevertheless, because this alternative, like the Proposed Ordinance, would reduce the overall number of plastic carryout bags in Santa Barbara County (from 71.6 million to 37.6 million plastic carryout bags) impacts would be still be Class IV, *beneficial*. However, overall benefits would be somewhat less than those of the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to increase the number of plastic carryout bags as the ordinance would not apply to northern Santa Barbara County retailers in the first year after adoption. Thus it would also reduce the number of recyclable paper bags and reusable bags by approximately half in comparison to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases,* through the manufacturing, transportation, and disposal, each recyclable paper bag results in 2.97 times the emissions of a plastic carryout bag and each reusable bag (assuming a cotton reusable bag) results in 131 times the emissions of a plastic carryout bag. Because this alternative would decrease the number of recyclable paper bags and reusable bags and increase the number of plastic bags, it would result in a net decrease of GHG emissions compared to the Proposed Ordinance.

Table 6-25 provides an estimate of GHG emissions associated with implementation of Alternative 6. Compared to the Proposed Ordinance, GHG emissions under Alternative 6 would decrease by approximately 0.022 CO_2E per person per year. Emissions as a result of this alternative would still result in an increase in comparison to existing conditions. However, the net increase would not exceed the 4.6 metric tons CO_2E per person per year threshold. Therefore, impacts would remain Class III, *less than significant.*

Table 6-25
Estimated Greenhouse Gas Emissions from Alternative 6

	CO_2E per year (metric tons)	CO_2E per Person (metric tons)
Total GHG Emissions from Alternative 6	**4,880**	**0.0362**
Total GHG Emissions from Proposed Ordinance	7,850	0.0582
Difference	**(2,970)**	**(0.0220)**
Existing GHG Emissions	1,910	0.0142
Net Change (Total minus Existing)	**2,970**	**0.0220**

CO_2E = Carbon Dioxide Equivalent units
See Appendix E for emissions calculations.
( ) = reduction of emissions compared to existing conditions.

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of plastic carryout bags used within the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in generally Class IV, *beneficial.* However, because under this alternative the number of plastic carryout bags in the north portion of Santa Barbara County would remain the same (approximately 35.8 million plastic carryout bags) in the first year after adoption, and thus this alternative would not reduce as many plastic carryout bags as the Proposed Ordinance, the overall effects to water quality, and overall benefits would be somewhat less under this alternative.

This alternative would be expected to result in the use of more plastic carryout bags and fewer recyclable paper and reusable bags in the Study Area than would implementation of the Proposed Ordinance. However, as with the Proposed Ordinance, all types of carryout bag manufacturing facilities (whether plastic, paper or reusable) would be required to adhere to NPDES Permit requirements and the California Health and Safety Code reducing impacts to water quality. Impacts to water quality from altering bag processing activities would be the same as under the Proposed Ordinance and would remain Class III, *less than significant.*

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to increase the number of plastic carryout bags and reduce the number of recyclable paper bags and reusable bags as the ordinance would only apply to the southern

portion of Santa Barbara County and northern County retailers would be exempt for the first year after adoption. Because the number of reusable bags under this alternative would be reduced compared to the Proposed Ordinance, water demand and wastewater generation related to washing reusable bags would be reduced incrementally. This includes 34.7 AFY of water and approximately 30,985 gallons per day of wastewater. As discussed in Section 4.5, *Utilities and Service Systems,* there are sufficient water supplies available to meet this demand, as well as capacity within the existing wastewater distribution and treatment system. Therefore, impacts related to water and wastewater would be reduced compared to the Proposed Ordinance but would continue to be Class III, *less than significant*.

Using the more conservative solid waste generation rates based on Boustead (as shown in Table 4.5-10 in Section 4.5, *Utilities and Service systems*) and assuming that all reusable bags are cotton and disposed of in a landfill each year, implementation of this alternative would generate an estimated 0.4 tons/day of solid waste (calculations are contained in Appendix E). In comparison, implementation of the Proposed Ordinance would generate an increase of 0.8 tons/day. Therefore, Alternative 6 would generate 0.4 tons/day less solid waste than the Proposed Ordinance (a 50% decrease). However, like the Proposed Ordinance, this increase compared to existing conditions would not exceed the available capacity at Study Area landfills. Therefore, solid waste impacts would be reduced when compared to the Proposed Ordinance, but would remain Class III, *less than significant*.

6.7 ALTERNATIVES CONSIDERED BUT REJECTED

As required by Section 15126.6 (c) of the *CEQA Guidelines,* this subsection identifies those alternatives that were considered but rejected by the lead agency because they either did not meet the objectives of the project or could not avoid or substantially lessen one or more of the significant effects. Five alternatives were considered and were rejected as infeasible for not meeting the basic project objectives.

No Charge for Paper Bags

The first alternative that was considered but rejected is to ban plastic carryout bags, but not charge for paper bags at retailers in the Study Area. *CEQA Guidelines* § 15126.6 requires that an EIR consider a range of reasonable alternatives to a proposed project, which would feasibly obtain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. This alternative was rejected because it would not deter customers from using paper bags, which have greater impacts related to air quality, GHG emissions, and water quality than plastic bags on a per bag basis. In addition, this alternative would not achieve the Proposed Ordinance's objective of promoting a shift toward the use of reusable carryout bags by retail customers to as great a degree as would occur with the Proposed Ordinance. Objectives of the Proposed Ordinance are outlined in Section 2.0, *Project Description.*

Exception for Biodegradable or Compostable Bags

The second alternative considered, but ultimately rejected, involved incorporating an exception into the Proposed Ordinance for plastic bags made with biodegradable or compostable additives. This alternative was rejected from consideration because the environmental impacts

associated with using biodegradable and compostable additives are uncertain at this time. Researchers at California State University Chico Research Foundation tested the degradation of biodegradable bags in composting conditions, and found that they did not degrade (CIWMB 2007; Green Cities California MEA, 2010). Furthermore, these bags reduce the quality of recycled plastics when introduced into the recycling stream and so must be kept separate to avoid contaminating the recycling stream (CIWMB 2007; Green Cities California MEA, 2010). Therefore it is unclear what environmental impacts may be associated with switching to plastic bags made with biodegradable additives or water soluble bags. In addition, this alternative would not achieve the objectives of reducing the amount of plastic carryout and paper bags in trash loads (e.g., landfills), in conformance with the trash load reduction requirements of the NPDES Municipal Regional Permit, promoting a shift toward the use of reusable carryout bags by retail customers, and avoiding litter and the associated adverse impacts to stormwater systems, aesthetics and the marine environment.

Mandated Retailer Incentives

The third alternative considered, but ultimately rejected, would require retailers to offer incentives for customers to use reusable bags (such as paying customers) rather than banning single-use bags. While this alternative may deter some customers from using plastic carryout and paper bags, it may not promote the shift to reusable carryout bags by retail customers as effectively and would place a financial burden on the Study Area retailers.

Plastic Bag Deposit Program

The fourth alternative considered but rejected would involve establishing a deposit program for plastic bags instead of a ban. This deposit program would be similar to California's "Bottle Bill" that places a $0.05 to $0.10 charge on beverage containers that is returned to customers when they recycle their containers. This alternative was rejected because it would not achieve the Ordinance's objectives, including deterring the use of paper bags and promoting a shift toward the use of reusable bags. Though AB 2449 currently requires applicable retail stores to provide a plastic bag collection bin, only about 5% of plastic bags are actually recycled. Further, although some recycling facilities handle plastic bags, most recycling facilities reject plastic bags because they get caught in the machinery and cause malfunctioning or are contaminated after use (Green Cities California MEA, 2010; Boustead, 2007).

6.8 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

This subsection identifies the environmentally superior alternative. Alternative 4, the Ban on Both Plastic carryout and Paper Carryout Bags alternative, would be considered environmentally superior among the alternatives, as it would have greater overall environmental benefits compared to the Proposed Ordinance. In addition, this alternative would result in beneficial effects to the environment compared to existing conditions in the areas of air quality, biological resources, hydrology/water quality and utilities and service systems. This alternative would also meet the project objectives, including:

- *Reducing the environmental impacts related to plastic carryout bags, such as impacts to biological resources (including marine environments), water quality and utilities (solid waste equipment and facilities)*

- *Deterring the use of paper bags by retail customers*
- *Promoting a shift toward the use of reusable carryout bags by retail customers*
- *Reducing the amount of single-use bags in trash loads to reduce landfill volumes*
- *Reducing litter and the associated adverse impacts to stormwater systems, aesthetics and marine and terrestrial environments*

It should be noted that the Proposed Ordinance would not result in any significant impacts; therefore, adopting the environmentally superior alternative, Alternative 4, rather than the Proposed Ordinance would not avoid any significant environmental effects.

Table 6-26 compares the impacts for each of the alternatives with the impacts associated with the Proposed Ordinance.

Table 6-26
Impact Comparison of Alternatives with the Proposed Ordinance

Issue	Proposed Ordinance	Alt 1: No Project	Alt 2: Ban on Plastic Bags at all Retail Establishments	Alt 3: Mandatory Charge of $0.25 for Paper Bags	Alt 4: Ban on Both Plastic carryout and Paper Carryout Bags	Alt 5: Mandatory Charge of $0.10 for Plastic and Paper Bags	Alt 6: Delayed Imple-mentation in North County for the First Year
Air Quality	=	-	= / -	+	+	= / +	= / -
Biological Resources	=	-	= / +	= / +	= / +	= / -	= / -
Greenhouse Gas Emissions	=	= / +	= / -	= / +	= / +	+	=/+
Hydrology/Water Quality	=	-	= / +	= / +	+	= / -	= / -
Utilities and Service Systems	=	+	= / -	= / +	= / +	= / +	= / +

+ Superior to the proposed project (reduced level of impact)
- Inferior to the proposed project (increased level of impact)
= / + slightly superior to the proposed project in one or more aspects, but not significantly superior
= / - slightly inferior to the proposed project in one or more aspects, but not significantly inferior
= Similar level of impact to the proposed project

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7.1 REFERENCES

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Martin, Bobbie. General Manager. Santa Ynez Community Services District. Personal Communication. December 19, 2012.

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7.3 REPORT PREPARERS

This EIR was prepared by Rincon Consultants, Inc., under contract to the County of Santa Barbara. Consultant staff involved in the preparation of the EIR are listed below.

Joe Power, AICP CEP, Principal
Matt Maddox, MESM, Project Manager
Karly Kaufman, MESM, Associate Environmental Planner
Ryan M. Gardner, MESM, LEED GA, Sustainability Associate
Katherine Warner, Graphics Technician
Katie Stanulis, Production Coordinator

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Appendix A

Notice of Preparation and
NOP Comment Letters

SANTA BARBARA COUNTY
Resource Recovery &
Waste Management Division
Innovative Environmental Solutions

Scott D. McGolpin
Public Works Director

Mark A. Schleich
Deputy Director

NOTICE OF PREPARATION
PUBLIC NOTICE OF SCOPING MEETING
SANTA BARBARA COUNTY SINGLE-USE PLASTIC BAG BAN ORDINANCE

PUBLICATION DATE: November 5, 2013

FROM: Mark A. Schleich, Deputy Director
County of Santa Barbara
Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, California 93101

SUBJECT: **Notice of Preparation of a Draft Environmental Impact Report (13EIR-00000-00006) for the proposed Santa Barbara County Single-Use Plastic Bag Ban Ordinance**

PROJECT NAME: Santa Barbara County Single-Use Plastic Bag Ban Ordinance

The Santa Barbara County Public Works Department, Resource Recovery and Waste Management Division (RRWMD) is the Lead Agency responsible for preparation of an Environmental Impact Report (EIR) for the proposed Santa Barbara County Single-Use Plastic Bag Ban Ordinance. In accordance with Section 15082 of the California Environmental Quality Act (CEQA) Guidelines, a Notice of Preparation (NOP) has been prepared for the proposed ordinance. This NOP is a request for comment on the scope of environmental issues that you or your organization believes should be addressed in the EIR regarding the proposed project.

Background: On Behalf of its member agencies, The Beach Erosion Authority for Clean Oceans and Nourishment (BEACON), a California Joint Powers agency established in 1992 to address coastal erosion, beach nourishment and clean oceans within the Central California Coast from Point Conception to Point Mugu, prepared a Program EIR (SCH # 2012111093) for a proposed model ordinance regulating single-use plastic bags throughout the incorporated and unincorporated areas of Santa Barbara and Ventura counties. BEACON completed the Final Program EIR in May 17, 2013 and has provided the Final EIR to the member agencies (including the County of Santa Barbara) for their use as CEQA Lead Agencies in adopting a Single-Use Plastic Bag Ban Ordinance applicable to their respective jurisdictions. Santa Barbara County is

now proposing to prepare a project specific EIR (utilizing information from the Program EIR) to analyze environmental impacts associated with the adoption of a county-specific ordinance which, as described below, differs slightly from the model ordinance analyzed in the BEACON Program EIR. The intent of the ordinance is to reduce the environmental impacts related to the use of single use plastic bags and promote a shift toward the use of reusable bags.

Project Location: The proposed Single-Use Plastic Bag Ban Ordinance would apply to certain retail food and grocery store establishments throughout unincorporated Santa Barbara County (see Figure 1).

Project Description (summary): The proposed ordinance, which can be reviewed at http://www.lessismore.org/supbb, (1) prohibits the free distribution of single-use carryout paper and plastic bags; and (2) requires retail establishments to charge customers for paper bags at the point of sale. Regulated retail establishments would be allowed to sell reusable bags or distribute them free of charge. The proposed ordinance sets the minimum charge for single-use paper bags at ten cents ($0.10). Plastic carryout bags are defined in the proposed ordinance as any bag made predominately of plastic derived from either petroleum or biologically-based sources, such as corn or other plant sources, which is provided to a customer at the point of sale. Regulated bags would not include reusable bags, produce bags, or product bags (as defined). The proposed ordinance does not apply to restaurants and other food service providers, allowing them to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises. Retail establishments would be required to keep complete accurate records and report annually to the governing jurisdiction for three (3) years after this ordinance goes into effect.

Per the proposed ordinance, any of the following retail establishments would be regulated:

1. A store of at least 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 (Part 1.5 (commencing with Section 7200) of Division 2 of the Revenue and Taxation Code) which sells a line of dry grocery or canned goods, or non-food items and some perishable food items for sale or a store that has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code; or

2. A drug store, pharmacy, supermarket, grocery store, convenience food store, food mart, liquor store, or other similar retail store or entity engaged in the retail sale of a limited line of grocery items. Grocery items typically include, but are not limited to, milk, bread, soda, candy and snack foods.

In summary, the proposed County ordinance includes the following specific changes to BEACON's model ordinance:

- Reformatted to fit in the County Code as Chapter 16-B

- Section J. 2: This section was re-worded for clarity. Liquor stores are specifically called out but the reference to ABC Type 20 and 21 licenses was dropped.
- Section J. 3: This is a new section which exempts wineries and wine tasting rooms.
- Section 16B-3 Permitted Bags: This section was modified to clarify that stores that do not hand out single use bags of any sort would not be required to sell reusable bags.
- Section 16B-4 E and 16B-7 A: These sections were modified to identify that the County Public Works Department would be the primary agency responsible for implementing and enforcing the County ordinance (as opposed to the Finance Department as stated in the model ordinance). This change is reflected in other sections of the ordinance as well.

Potential Environmental Effects: An EIR will be prepared to evaluate the environmental impacts that implementation of the proposed ordinance might cause. Issue areas proposed to be evaluated in detail in the EIR include: Air Quality, Biological Resources, Greenhouse Gas Emissions, Hydrology/Water Quality, and Utilities/Service Systems. These are the same issues that were studied in the EIR for the BEACON model ordinance described above. As part of the environmental review prepared for the model ordinance, BEACON prepared an Initial Study and concluded that other issues on the CEQA checklist would not have the potential for significant environmental effects. This analysis remains applicable to the proposed County ordinance. Alternatives to the proposed project that were analyzed in the BEACON Program EIR will also be evaluated in the EIR. These include:

- No Project
- Ban on Single-Use Plastic Bags at all Retail Establishments, Except Restaurants
- Mandatory Charge of $0.25 for Paper Bags
- Ban on Both Single Use Plastic and Paper Carryout Bags
- Mandatory Charge of $0.10 for Plastic and Paper Carryout Bags

In addition, an alternative that includes delayed implementation of the ordinance in certain areas of the County will be analyzed.

Written Comments: In accordance with the time limits established by CEQA, **your response to this NOP must be received at the address underlined below at the earliest possible date, but not later than 5:00 p.m. on Monday, December 9th, 2013**. Your response should include your name, your agency's or organization's name, your address, and if applicable, the name of the specific contact person in your agency or organization. Comments should be mailed, e-mailed or hand delivered to: County of Santa Barbara, Public Works Department, Resource Recovery and Waste Management Division, 130 E. Victoria Street, Suite 100, Santa Barbara, California 93101. Attention: Mr. Carlyle A. Johnston. E-mail Address cjohnst@cosbpw.net

Public Scoping Meeting: A public Scoping Meeting will also be held to accept comments regarding issues of concern that should be evaluated in the EIR. The purpose of the Scoping Meeting is to provide the public and other affected government agencies with a formal opportunity to comment on the environmental issues that should be analyzed in the EIR. The

Scoping Meeting will focus on gathering public input on the environmental document and on feasible ways in which project impacts may be mitigated.

Date: **Thursday, November 21st**
Time: **6 PM**
Location: **Santa Barbara County Planning Commission Hearing Room**
123 East Anapamu Street, 1st Floor
Santa Barbara, CA 93101

Please contact Mr. Carlyle A. Johnston, Project Leader, at (805) 882-3617 if you have any comments or questions regarding the Single-Use Plastic Bag Ban Ordinance.

Respectfully,

Mark A. Schleich
Deputy Director – Resource Recovery and Waste Management Division

Attachment A: NOP Distribution List

c: Clerk of the Board (please post for 30 days)

19 November 2013

County of Santa Barbara
Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
Attention: Mr. Carlyle A. Johnston

Subj: Comments on the Proposed Model Single-Use Plastic Bag Ordinance

Ref: (a) Notice of Preparation of a Draft Environmental Impact Report (13EIR-00000-00006) for the proposed Santa Barbara County Single-Use Plastic Bag Ban Ordinance dated 5 November 2013
(b) BEACON Single-Use Carryout Bag Ordinance Final Environmental Impact Report, dated May 2013.
(b) Proposed Model County Ordinance Single-Use Bag Ordinance (Draft)

Encl: (1) "*Bag Bans: Wrong Way To Control Litter*" by Anthony van Leeuwen, dated 10 September 2013
(2) "*Landfills Impacted By Bag Bans*" by Anthony van Leeuwen, dated 12 November 2013
(3) "*Plastic Bag Ban Creates New Welfare Benefit*", by Anthony van Leeuwen, dated 28 April 2013
(4) "*Bag Bans - Market Driven Solutions Superior*" by Anthony van Leeuwen, dated 3 November 2013
(5) "*Bag Bans: Officials Neglect Homework!*", by Anthony van Leeuwen and Don Williams, dated 10 August 2013
(6) "*Bag Bans: A Failure – Not Success As Claimed*" by Anthony van Leeuwen and Don Williams, dated 10 November 2013
(7) "*Plastic Bag Alternatives Much More Costly to Consumers*", by Anthony van Leeuwen and Don Williams, dated 5 June 2013
(8) "*What Will A Plastic Carryout Bag Ban Cost Your Community*", by Anthony van Leeuwen, dated 15 July 2013

1. Reference (a) requested comments regarding environmental issues or concerns that should be evaluated during preparation of a project specific Draft Environmental Impact Report (EIR) for the County of Santa Barbara. In response the following comments are provided:
    a. Reference (a) indicated that information from reference (b) will be used to prepare the project specific Draft EIR. In a paper titled "Bag Bans: Wrong Way To Control Litter", enclosure (1), the author identifies that the environmental analysis in reference (b) is incomplete or incorrectly computes values for several of those parameters. See enclosure (1), Table 1 and Table 2 and Appendix A for further information. Appendix A corrects the analysis located in reference (b) Appendix E. While Appendix A does not point out the changes that were made, the County of Santa Barbara has the expertise to compare Appendix A with Appendix E in the BEACON EIR to identify the differences.
    b. Reference (b) also fails to correctly model the landfill impact as a direct result of the plastic bag ban. The two modeling methods produce questionable results and particularly fails to

take into account that most reusable bags are not recyclable and will end up into the landfill and also fails to account for the environmental impacts of replacement plastic bags that consumers will purchase once plastic carryout bags are banned. Table 3 in enclosure (1) demonstrates that over 4 times as much material goes to the landfill as a direct result of a bag ban. Enclosure (2) is provided for additional information regarding landfill impacts.

2. Although reference (a) requested comments regarding environmental issues or concerns that should be evaluated in the EIR, it also identified changes to the model ordinance, reference (c). The following comments are with respect to the Proposed Model Ordinance and could have an effect on the assumptions made in the EIR and the environmental evaluation. The County of Santa Barbara should evaluate the following comments promptly. The following comments apply to reference (c):
    a. Section 16B-6. Exempt Customers. This section grants a lifetime exemption from paper bag fees to families that participate in the California Special Supplemental Food Program for Women, Infants, and Children (WIC) or in the Supplemental Nutrition Assistance Program (SNAP) or food stamp program. See Enclosure (3) for further information.
        i. This provision is essentially a new welfare benefit indirectly paid for by all shoppers, exempt and non-exempt, and not available to non-exempt customers. In essence, this is an indirect transfer of wealth from the non-exempt customer to the exempt customer as mandated by the County of Santa Barbara.
        ii. This creates two classes of shoppers: (1) One class never has to worry about bringing or forgetting a reusable bag, or be concerned about the paper bag fee, since a paper bag will always be provided free of charge; (2) The Other class has to remember to bring their reusable bags, if they forget they have to go back to the car or go back home to get their bags, or voluntarily pay the fee for each paper bag, or forgo bags entirely.
        iii. The City of San Jose in their Single-Use Bag Ordinance granted the exemption from the paper bag fee for only one calendar year and expected these customers to use reusable bags or pay for paper bags or use no bags after the one year period expired. It is highly recommended that the exemption from the paper bag fees be time limited or removed altogether from the ordinance.
    b. Section 16B-3. Permitted Bags. This section states that a store could provide to the customer a bag that meets the requirements of a recyclable paper bag or a reusable bag. See enclosure (4) for additional information.
        i. A fee would be paid by the customer for each recyclable paper bag issued.
        ii. Reusable bags are not regulated by the ordinance and No fee is required for issuing a reusable bag.
        iii. Stores could provide “free” of charge a plastic T-Shirt Bag that meets the thickness requirements for a reusable bag. While the intent may be for the customer to reuse these bags, they are seldom reused and essentially become a “disposable” bag according to officials in the City of San Jose. San Jose recently amended their ordinance to enact a minimum fee of 10-cents for each reusable bag (thick plastic bag) issued. It should be noted that the minimum fee requirement for reusable bags will prevent reusable bag giveaways by stores.
        iv. It is recommended that you **retain this loophole** in order for your ordinance to be compatible with surrounding communities.
        v. This thick reusable plastic bag is also not a windblown litter nuisance and more than likely has a smaller environmental impact than paper bags. Therefore this type of bag should not be regulated.

c. Section 16B-4 Paragraph E. This subparagraph describes the requirements of the retail store to report the quantity of paper bags issued and the money's collected as fees for paper bags and the efforts that the retailer has undertaken to encourage the use of reusable bags.
    i. The County of Santa Barbara is to be commended in putting a three year time limit on this provision.
    ii. It appears from the ordinance that this is the only information that the County will use to gauge the effectiveness of the ordinance to ensure paper bag usage does not increase to an unacceptable level. What level of paper bag use is determined acceptable and unacceptable and what are the threshold criteria? See 1.d.iii.
    iii. Retailers are extremely limited to educating shoppers about reusable bags. Besides signs, displaying reusable bags for sale, or perhaps mentioning to shoppers about using reusable bags, and perhaps including some educational information in advertising encouraging shoppers to purchase and use reusable bags. These efforts are so limited as to be practically useless. These requirements should be eliminated from the ordinance. See Enclosure (4) for more information.
d. What is missing from the ordinance and supporting documentation is the following:
    i. Criteria for success. What is the criteria that Santa Barbara County intends to use to evaluate the effectiveness of the proposed ordinance and what is the criteria that will be used to determine if the ordinance fails or succeeds? See Enclosure (4), (5), and (6) for additional information.
    ii. Cost Benefit Analysis. What are the initial and recurring costs to the County? What are the initial and recurring costs to consumers from imposition of this ordinance? Why has a cost/benefit Analysis not been performed? See Enclosures (7) and (8) for additional information.
    iii. Paper Bag Fee Threshold. What is the paper bag usage threshold criteria that Santa Barbara County will use to determine if the paper bag fee should be raised or if paper bags will be banned altogether?
    iv. Documented Plastic Bag Problem. Where is the Finding that plastic carryout bags are a problem in the County of Santa Barbara? Where is the problem (geographic locations) and what is the magnitude of the problem at each location. Anecdotal evidence is insufficient. See Enclosure (5) for additional information.
    v. Bag Usage Statistics. Does the County of Santa Barbara intend to conduct surveys to determine bag usage statistics before and after implementation of the ordinance? and after

3. This memorandum and enclosures are submitted in accordance with reference (a) and should become part of the official record regarding the Preparation of this EIR and the development of the proposed ordinance. For more information, please feel free to contact Mr. Anthony van Leeuwen, 901 Decatur Ave., Ventura, CA 93004 or at 805-647-4738 or by email at: vanleeuwenaw@roadrunner.com.

Respectfully,

Anthony van Leeuwen

Anthony van Leeuwen

Bag Bans: Wrong Way To Control Litter

Bag Bans Create A Larger Negative Environmental Impact, Cost A Fortune, And Have A Negligible Impact On Litter

By Anthony van Leeuwen, 10 September 2013

Bag Bans provide a sense of accomplishment to public officials who believe that they have taken a giant step forward to making their community more attractive. Certainly, as time goes on, they see fewer plastic carryout bags in the environment bolstering that sense of accomplishment.

But like the proverbial ostrich, these officials have buried their head in the sand and failed to see that they took a step backward instead of forward. You see, these officials should have taken the time to understand that plastic bags make up only 0.6% of all litter, and that a bag ban would still leave the remaining 99.4% of litter waiting to be picked up! (Stein, 2012)

More importantly, had these officials done a cost benefit analysis and implemented one or more of the recommendations in this paper, they could have avoided the environmental and economic damage done to their communities and to their citizens by a bag ban! The impacts that could have been avoided are as follows:

- A Greater Negative Environmental Impact - due to changing carryout bag usage
- A Greater Landfill Impact - due to higher volume of material deposited Post Ban
- A Greater Financial Cost To Local Jurisdictions - to implement and administer the bag ban
- A Greater Financial Cost to Residents - due to out-of-pocket costs and the value of one's personal time

The above impacts could have been avoided by using traditional solutions to clean up litter. For example, by hiring people to clean up litter, not only would the 0.6% of plastic bag litter be cleaned up, but the other 99.4% of all litter could have been cleaned up too and at a far smaller financial outlay to the local jurisdictions. Not only would jobs have been created for the unemployed but a cleaner and more beautiful city would be the result.

Greater Negative Environmental Impact

The environmental impact for Santa Barbara and Ventura Counties is documented in the Beacon Single-Use Carryout Bag Ordinance Final Environmental Impact Report and summarized in Table 1 below. (BEACON, 2013)

Table 1 contains columns for Line number, Environmental Impact parameter, Units, Pre Ban value, Post Ban value, and the Delta or difference between Pre Ban and Post Ban values. Some environmental impact parameters are shown as Not Calculated (N/C) because they were not provided in the Chapter 4

Encl: (1)

of the BEACON EIR. All numeric values shown in Table 1 are directly from the BEACON EIR. (BEACON, 2013)

Table 1 shows that five (5) parameters that have a greater value Post Ban and that three (3) parameters have a lower value. For an overall higher Post Ban environmental impact!

Table 1. Environmental Impacts from BEACON EIR

Line	Environmental Impact	Units	Pre Ban	Post Ban	Delta
1	Ozone Emissions	kg	15,140	6,944	(8196)
2	Atmospheric Acidification	kg	713,534	469,227	(244,307)
3	Green House Gas Emissions:				
4	Per Year	Metric Tons	17,553	28,472	10919
5	Per Person	Metric Tons	0.0142	0.0230	0.0088
6	Water Consumption (Ecobilan Data)	Million gallons/year	14.23	N/C	N/C
7	Water Consumption (Boustead Data)	Million gallons/year	25.45	N/C	N/C
8	Water Consumption (Wash Reusable Bags)	Million gallons/year	0	153.3	153.3
9	Waste Water Generation (Ecobilan Data)	Million gallons/year	13.52	N/C	N/C
10	Solid Waste (Ecobilan Data)	Short tons	4,733	2137	(2596)
11	Solid Waste (Boustead Data)	Short tons	3000	4814	1814
12	Energy - Ecobilan	Million KWh/Day	N/C	N/C	N/C
14	Energy - Boustead	Million KWh/Day	N/C	N/C	N/C
15	Energy Consumption (Wash Reusable Bags)	Million KWh/Year	0	9.94	9.94

While some of the missing information was located in Appendix E of the BEACON EIR, the information was not included in Table 1, because of other discrepancies that were discovered. In fact, in Appendix A the author recreated the spreadsheet to calculate the missing environmental parameters and to correct several numeric values. These discrepancies were found after the public comment period and therefore not included in the authors public comments in the Final BEACON EIR. The BEACON EIR and EIRs from the Counties of San Mateo and Los Angeles and the City of Los Angeles were consulted to develop Appendix A. This data is shown in Table 2, titled "Corrected Table of Environmental Impacts".

Table 2. Corrected Table of Environmental Impacts

Line	Environmental Impact	Units	Pre Ban	Post Ban	Delta
1	Ozone Emissions	kg	15,140	6,944	(8196)
2	Atmospheric Acidification	kg	713,534	469,227	(244,307)
3	Green House Gas Emissions:				
4	Per Year	Metric Tons	17,553	28,472	10919
5	Per Person	Metric Tons	0.0142	0.0230	0.0088
6	Water Consumption (Ecobilan Data)	Million gallons/year	14.23	22.47	8.24
7	Water Consumption (Boustead Data)	Million gallons/year	25.45	199.53	174.08
8	Water Consumption (Wash Reusable Bags)	Million gallons/year	0	153.3	153.3
9	Waste Water Generation (Ecobilan Data)	Million gallons/year	13.52	17.41	3.89
10	Solid Waste (Ecobilan Data) w/recycling	Short tons	4,730.39	1442.46	(3287.93)
11	Solid Waste (Boustead Data)	Short tons	2902.34	4716.31	1813.97
12	Energy - Ecobilan	Million KWh/Day	0.22	0.12	(0.10)
14	Energy - Boustead	Million KWh/Day	0.25	0.40	0.15
15	Energy Consumption (Wash Reusable Bags)	Million KWh/Year	0	9.94	9.94
16	Eutrophication - Ecobilan	Kg Phosphate/Year	204.4	880.05	675.65

Encl:(1)

Table 2 is similar to Table 1 and includes the omitted information. In some cases the values are slightly different due to several corrections that were made. One environmental parameter not calculated in the BEACON EIR is Eutrophication. Eutrophication is the pollution of water by nitrates and phosphates which causes algae blooms. This parameter was added in Line 16 of Table 2.

Note that the Delta column shows a total of ten (10) environmental parameters that are greater and four (4) that are smaller Post Ban. It should be noted that these impacts occur both inside and outside the study area and are measured over the complete life cycle of carryout bags. These impacts will last as long as a plastic bag ban is in place. It should also be noted, that the values Pre Ban are much lower overall than the values Post Ban!

Greater Landfill Impact

The BEACON EIR evaluates the generation of solid waste from carryout bags using Ecobilan and Boustead methodologies. It should be noted that Ecobilan methodology predicts a decrease of 3,287.93 tons and Boustead predicts an increase of 1814 tons. It should be noted that only the Ecobilan methodology includes solid waste from reusable bags, while Boustead does not. The value of solid waste attributed to reusable bags calculated in Ecobilan data in the BEACON EIR is wrong as asserted by the author. (BEACON, 2013, p. 8-25) The BEACON EIR shows only 150 lbs. or about 353 reusable bags of solid waste for the two county area per year. It would take more than 20,000 years to dispose of the more than 8 million reusable bags. Therefore, neither the Ecobilan and Boustead methodologies predict reasonable values for quantities of material going to the landfill.

In a paper titled "FACT SHEET – LANDFILL IMPACTS" the author calculates the amount of material going to the landfill Pre Ban and Post Ban. This data is summarized in Table 3 below and shows that the amount of material going to the landfill Post Ban is more than four times as much.

Table 3. Independent Analysis of Landfill Impacts

	Quantity	Weight per bag (lbs.)	Weight (lbs.)	Weight (tons)
Pre-Ban				
Plastic Carryout Bags	639,152,405	0.01213	7,752,918.68	**3,876.46**
Post Ban				
Plastic Carryout Bags	32,912,070	0.01213	399,223.41	199.61
Reusable Bags	8,228,018	0.42500	3,496,907.84	1,748.45
Paper Bags	156,003,213	0.14875	23,205,477.97	11,602.74
Replacement Bags	263,296,562	0.01213	3,193,787.30	1,596.89
Other Plastic (Ventura County)	14,507,641	0.140708	2,041,341.09	1,020.67
Total Post Ban				**16,168.37**
Post Ban /Pre Ban Ratio				**4.17**

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In Table 3, the weight of material is calculated from the quantities of plastic, paper, and reusable bags, adjusted for recycling and multiplied by the average weight of each bag to produce the total contribution of each bag to the landfill. For further information, the reader is referred to the author's original article. (van Leeuwen, Fact Sheet - Landfill Impacts LASBVTA, 2013)

Greater Financial Cost to Local Jurisdictions

The Local Jurisdiction incurs a onetime implementation cost and also annual recurring costs to administer the ordinance. Onetime implementation costs include all those costs to roll out a new program, including educating local businesses and the public about the ordinance and may include promotions such as reusable bag giveaways. Recurring annual costs include the cost of staff time to collect and analyze retailer reports, prepare reports for the city council or board of supervisors, make store inspections, and handle complaints by citizens and investigate reported allegations of non-compliance by retail stores. Collectively the local jurisdictions in Santa Barbara and Ventura Counties are estimated to spend more than a million dollars or two to implement bag bans and hundreds of thousands of taxpayer dollars to administer the ordinances on an annual basis.

In addition, under the Federal Clean Water Act, many communities are required to install trash capture devices in storm drain inlets, catch basins, and outfalls to trap trash, including plastic bags, to prevent trash from entering creeks and rivers and making its way to the ocean. Communities are already spending hundreds of thousands of dollars to do this. By doing this, communities will prevent plastic debris from reaching the ocean and coastal areas and causing harm to wildlife.

Greater Financial Cost to Residents

In a previous article titled "*Plastic Bag Alternatives Much More Costly to Consumers*" the authors analyze the annual cost per household of different bag alternatives. Not only are out of pocket costs estimated but also the value of one's personal time to handle bags and wash reusable bags is estimated and monetized at $12 per hour or about half of the California Average Labor Rate. (van Leeuwen & Williams, Plastic Bag Alternatives Much More Costly to Consumers, 2013) These costs are summarized in Table 4 below:

Table 4, Cost of Different Bag Alternatives

Bag Type	Option	Annual Cost
plastic	Store Provided	$ 20.80
plastic	Self-Purchased	$ 45.80
Paper	**Store Provided at 10-cents each**	**$ 78.00**
Paper	Store Provided at 25-cents each	$ 195.00
Reusable	Durable Machine Washable Bags	$ 262.00
Reusable	**Cheap Hand Washable Bags**	**$ 300.00**

As can be seen from Table 4, above, the cost of store provided plastic bags is much lower than self-purchased plastic bags, store provided paper bags, or reusable bags.

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In a follow on article titled "*What Will A Plastic Carryout Bag Ban Cost Your Community?*" the author calculates the cost of carryout bags to residents of local jurisdictions in Santa Barbara and Ventura Counties Pre Ban and Post Ban. These results are summarized in Table 5.

Table 5 shows the total annual Pre Ban cost of **$19,353,989.34** and a total annual Post Ban cost of **$48,911,699.31** for a net increase of **$29,557,709.97**. However, some people are already using reusable bags, and because it is doubtful and highly unlikely that retail prices will be reduced after a bag ban, therefore the **Pre Ban Total Reusable Bag Cost** of $12.6 million (see original article) should be subtracted from the **Post Ban Total Cost** of $48.9 million for a **Total Post Ban Net Increase of $36.3 million**. (van Leeuwen, What Will A Plastic Carrout Bag Ban Cost Your Community, 2013)

Table 5. Cost to Residents in Santa Barbara and Ventura Counties

Area	Public Cost Pre Ban	Public Cost Post Ban	Public Cost Delta
Santa Barbara County			
Unincorporated Areas	$ 2,083,899.77	$ 5,266,463.52	$ 3,182,563.75
Buelton	$ 74,423.35	$ 188,083.84	$ 113,660.49
Carpenteria*	$ 200,467.10	$ 506,623.53	$ 306,156.43
Goleta	$ 458,538.45	$ 1,158,825.41	$ 700,286.96
Guadalupe	$ 108,658.40	$ 274,603.18	$ 165,944.78
Lompoc	$ 653,939.92	$ 1,652,647.02	$ 998,707.10
Santa Barbara	$ 1,372,478.02	$ 3,468,547.56	$ 2,096,069.53
Santa Maria	$ 1,535,083.02	$ 3,879,485.41	$ 2,344,402.39
Solvang	$ 80,988.77	$ 204,676.06	$ 123,687.29
Total Santa Barbara County	**$ 6,568,476.80**	**$ 16,599,955.52**	**$ 10,031,478.72**
Ventura County			
Unincorporated Areas	$ 1,477,662.42	$ 3,734,371.17	$ 2,256,708.75
Camarillo	$ 1,016,614.11	$ 2,569,202.81	$ 1,552,588.70
Fillmore	$ 232,238.20	$ 586,915.95	$ 354,677.75
Moorpark	$ 534,170.82	$ 1,349,964.70	$ 815,793.88
Ojai*	$ 115,514.59	$ 291,930.25	$ 176,415.66
Oxnard	$ 3,073,884.92	$ 7,768,369.21	$ 4,694,484.29
Port Hueneme	$ 337,055.30	$ 851,811.32	$ 514,756.03
Santa Paula	$ 458,400.71	$ 1,158,477.32	$ 700,076.61
Simi Valley	$ 1,921,539.63	$ 4,856,144.49	$ 2,934,604.86
Thousand Oaks	$ 1,961,100.47	$ 4,956,123.25	$ 2,995,022.78
Ventura	$ 1,657,331.38	$ 4,188,433.32	$ 2,531,101.95
Total Ventura County	**$ 12,785,512.54**	**$ 32,311,743.80**	**$ 19,526,231.25**
Total	**$ 19,353,989.34**	**$ 48,911,699.31**	**$ 29,557,709.97**

Recommendations

Since plastic bag litter is only about 0.6% of all litter, officials should consider some or all of the following solutions that avoid the negative environmental and economic impacts discussed above:

- Create jobs and hire more people to clean up **all** litter
- Improve street sweeping in problem areas

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- Require more frequent cleaning of retail parking lots
- Empty trash receptacles in public areas on weekends to prevent overflowing
- Install trash capture devices in storm drain inlets, catch basins, and outfalls
- Require residents to bag trash that could become airborne litter during hauling
- Making sure that trash and recycle trucks are fully enclosed when driving on major roadways
- Require stores to provide a paper bag to people who buy only snacks that are consumed outside the store which results in the majority of plastic bag trash
- Continue to use volunteer groups to clean up litter
- Make litter cleanup a community service for teens, adults, and lawbreakers

The above solutions are simple, effective, and will assist in maintaining a clean and beautiful community. These solution will avoid the greater negative environmental impact, the greater amount of material deposited in the landfill, the expenditure of public funds to implement and sustain a bag ban, and the increased financial cost to residents.

Conclusion

Using a bag ban to reduce plastic carryout bag litter is clearly the wrong solution to the litter problem. By using a bag ban instead of traditional methods to eliminate litter, unavoidable consequences occur including a greater negative impact to the environment, more material will go to landfills, local jurisdictions will incur one time and recurring annual costs, and residents of Santa Barbara and Ventura counties will incur annual costs of $36.3 million. And all for cleaning up less than 0.6% of litter.

The other 99.4% of litter still needs to be cleaned up. Hiring a few unemployed people to clean up litter in the community is a far more cost effective solution to cleaning up plastic bag litter.

Public Officials, are encouraged to put the issue of bag bans to a vote of the people. Don't shove it down the throats of the people like what happened with Obama Care.

About The Author

*Anthony van Leeuwen is the founder of the **Fight The Plastic Bag Ban** website and writes extensively on the subject. He holds a bachelors and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Appendix A - **Attached**

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Conversions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
MJ to kWh	0.27777778

2007 Recycle Rate	
plastic bags	11.90%
paper bags	36.80%

	9000 Liters of Groceries - # of bags
Plastic	643
paper	439
Reusable	243

Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable Bag Size (liters)	37
Number of plastic bags used in participating jurisdictions per year	658,241,406
Number of plastic bags used in participating jurisdictions per day	1,803,401

Ordinance - Assume 95% switch to paper and Reusable Bags	Per Day	Per Year
Number of Plastic bags still in (5% of existing)	90,170	32,912,070
Number of Paper Bags per day with 30% conversion	541,020	197,472,422
Number of Reusable Bags per day with 65% conversion	22,543	8,228,018

Eutrophication - Ecobilan	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
Grams phosphate per 9000 liters groceries	0.2	0.2	2.35	0.55
Grams phosphate per bag	0.00031	0.00031	0.00535	0.00226
Grams phosphate per day	561.06	28.05	2,893.14	50.97
Kilograms phosphate per day	0.56	0.03	2.89	0.05

Proposed phosphate per day (Kg)	2.97
Increase in phosphate per day (Kg)	2.41
Increase as a result of Ordinance - Kilograms Phosphate per year	880.05

Eutrophication was added based on other EIRs

Water Use - Ecobilan	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
Liters water per 9000 liters groceries	52.6	52.6	173	137
Liters water per bag per day	0.08182	0.08182	0.39367	0.56322
Liters water per day	147,558.29	7,377.91	212,984.08	12,696.44
Gallons per day	38,980.78	1,949.04	56,264.44	3,354.05
Millions gallons per day (MGD)	0.0390	0.0019	0.0563	0.0034
Millions gallons per year	14.23	0.71	20.54	1.22

Proposed Water Use. Millions gallons per year	22.47
Increase - Million gallons per year	8.24

Water Use - Washing Reusable Bags	Hand Washing Reusable Bags	Machine Washing Reusable Bags
# of Reusable Bags - Machine Washed (50%)	4,114,009	4,114,009
Number of times washed per year (Monthly)	12	12
# of Bags per Wash Load		19
# Loads per Year		2,598,321
Gallons of Water per Wash Load	1	40
Total Water Use (gallons per year)	49,368,105	103,932,854

Total Water Use (gallons per year)	153,300,959
Total Water Use Million Gallons per Year	153.30

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Energy Use - Washing Reusable Bags	Hand Washing Reusable Bags	Machine Washing Reusable Bags
# of Reusable Bags - Machine Washed (50%)	4,114,008.79	4,114,008.79
Number of times washed per year (Monthly)	12	12
# of Bags per Wash Load		19
# Loads per Year		2,598,321
Electricity Use per Wash Load (KWh)		3.825
Electricity Use (KWh) per year		9,938,579
Electricity Use (KWh) per year	9,938,579	
Millions of KWh per year	9.94	

Wastewater - Ecobilan	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
Liters wastewater per 9000 liters groceries	50.00	50.00	130.7	136.614
Liters wastewater per bag per day	0.078	0.078	0.297	0.562
Liters wastewater per day	140,264.53	7,013.23	160,907.62	12,660.67
Gallons per day	37,053.97	1,852.70	42,507.30	3,344.60
Millions gallons per day	0.0371	0.0019	0.0425	0.003
Millions gallons per year	13.52	0.68	15.52	1.22
Proposed wastewater. Millions gallons per year	17.41			
Increase of wastewater per Day (MGD)	0.011			
Increase of wastewater. Millions gallons per Year	3.89			

Solid Waste - Ecobilan (w/EPA recycling)	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
Kg waste per 9000 liters groceries (w/EPA recycling)	4.19	4.19	2.42	0.24
Kg waste per bag per day	0.007	0.007	0.005	0.001
Kg waste per day	11,757.09	587.85	2,974.75	22.54
Tons per day	12.96	0.65	3.28	0.02
Tons per year	4,730.39	236.52	1,196.87	9.070
Proposed waste (w/EPA recycling)	1,442.46			
Increase waste. Tons per Year	(3,287.93)			

Solid Waste - Ecobilan	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
Kg waste per 9000 liters groceries (No Recycling)	4.76	4.76	3.82	0.24
Kg waste per bag per day	0.007	0.007	0.009	0.001
Kg waste per day	13,345.17	667.26	4,706.88	22.54
Tons per day	14.71	0.74	5.19	0.02
Tons per year	5,369.34	268.47	1,893.78	9.070
Proposed waste. Tons per Year	2,171.32			
Increase waste. Tons per Year. (No Recycling)	(3,198.02)			

Energy - Ecobilan	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use	Proposed Reusable Bag Use
MJ Energy per 9000 liters groceries	286.00	286.00	295.00	268.33
MJ Energy per bag per day	0.445	0.445	0.671	1.103
MJ Energy per day	802,313.12	40,115.66	363,180.94	24,867.42
KWh per day	222,864.76	11,143.24	100,883.59	6,907.62
Millions KWh per year	0.22	0.01	0.10	0.01
Proposed Energy. Millions KWh per year	0.12			
Increase in Energy. Millions KWh per year	(0.10)			
Increase in Energy. KWh per day	(103,930.31)			

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Water Use - Boustead	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use
Gallons per 1000 paper bags (1500 plastic bags)	58	58	1004
Gallons of water per bag per day	0.03867	0.03867	1.00400
Gallons of water per day	69,731.51	3,486.58	543,184.42
Millions gallons per day	0.0697	0.0035	0.5432
Millions gallons per year	25.45	1.27	198.26
Proposed Water use per year	199.53		
Proposed Increase in Water use per year	174.08		
Increase water use - Millions of gallons per Day	0.48		

Solid Waste - Boustead	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use
Kg waste per 1000 paper bags (1500 plastic bags)	6.00	6.00	21.00
Kg waste per bag per day	0.004	0.004	0.021
Kg waste per day	7,213.60	360.68	11,361.43
Tons per day	7.95	0.40	12.52
Tons per year	2,902.34	145.12	4,571.19
Proposed solid waste per Year. Tons per year	4,716.31		
Increase in solid waste per Year. Tons per year	1,813.97		
Increase as a result of ordinance. Tons per day	4.97		

Energy - Boustead	Existing Plastic Bag Use	Proposed Plastic bag Use (5%)	Proposed Paper Bag Use
MJ Energy per 1000 paper bags (1500 plastic bags)	763.00	763.00	2622.00
MJ Energy per bag per day	0.509	0.509	2.622
MJ Energy per day	917,330.03	45,866.50	1,418,555.31
KWh per day	254,813.90	12,740.69	394,043.15
Millions KWh per day	0.25	0.01	0.39
Proposed Energy. Millions KWh per day	0.41		
Increase in Energy. Millions KWh per day	0.15		
Increase in KWh per day	151,969.94		

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LANDFILLS IMPACTED BY BAG BANS

MORE MATERIAL HEADED TO THE LANDFILL AN UNINTENDED CONSEQUENCES OF A PLASTIC CARRYOUT BAG BAN

By Anthony van Leeuwen
16 April 2013 Updated 12 November 2013[1]

Executive Summary

The Single-Use Carryout Bag Ordinance has a detrimental impact on landfills that has not been clearly identified. While the Environmental Impact Report (EIR) identifies that plastic carryout bags currently end up in the landfill, unbeknownst to proponents of the ordinance is that the amount of material deposited in the landfill after the ban has been implemented is far greater than before the ban. Landfill impacts for both the City of Los Angeles and for Santa Barbara and Ventura Counties are presented in Tables 1 and 2 respectively. While landfills can absorb the additional material with no problem, it is nevertheless an unintended consequence of the single-use carryout bag ordinance.

Introduction

When communities implement single-use carryout bag ordinances the material composition of carryout bags change from largely (95%) plastic to paper and reusable shopping bags made from a variety of plastics and fabrics. (BEACON, 2013) As a result the composition of materials recycled and landfilled also changes One direct consequence of a plastic bag ban is the increase in the amount of material that will end up in the landfill. This material includes the following: remaining plastic carryout bags, paper bags, reusable bags, replacement bags, and "other plastic". These materials are defined in the following subparagraphs:

Plastic Carryout Bags

A plastic carryout bag is the lightweight plastic shopping bag given to the consumer at the checkout stand to take their purchases home. The bag is made from either High Density Polyethylene (HDPE) or Low Density Polyethylene (LDPE) plastic and has built in handles that make the bag a popular item for reuse. Not all plastic carryout bags weigh the same, but for purposes of this paper we will assume that plastic carryout bags weigh 5.5 grams or 0.01213 lbs. each. According to the BEACON EIR, about 5% of plastic carryout bags will remain after the single-use carryout bag ordinance is implemented. (BEACON, 2013)

[1] This article was previously published under the title "Fact Sheet – Landfill Impacts".

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Paper Carryout Bags

A recyclable paper bag has at least 40% post-consumer recycled content and weighs between 45 and 90 grams and has approximately 1.5 times the volume of plastic carryout bag. A paper bag from Trader Joe's weighs 67.47 grams or 2.38 ounces each and is the average weight used in this paper.

Reusable Bags

Reusable bags come in small, medium, and large sizes and can hold 10, 25, and 35 lbs. respectively when filled. (Health & Safety Ontario , 2011, p. 6) The most common bags are made from non-woven polypropylene plastic and from cotton or Jute with handles and intended to be used multiple times. Reusable bags weigh between 50 and 200 grams. The weight of a reusable bags for purposes of this paper is assumed to be 6.8 ounces as weighed by Rincon Consultants on 8/10/2010. (BEACON, 2013, p. 4.3-12) The least common Reusable bags are made from LDPE or HDPE plastic which is nothing more than a thick plastic bag and represent less than 5% of the market. (BEACON, 2013, p. 8-144) Reusable bags are assumed to be used once per week for 52 weeks and have a lifespan of 1 year. (BEACON, 2013, p. 2-10)

Replacement Plastic Bags

A direct effect of a plastic carryout bag ban is the purchase of replacement plastic trash bags to line small trashcans, pick up pet litter, etc. About 40.3% of the plastic carryout bags are reused as trash bags and disposed of in the landfill and it is expected that consumers will purchase replacement plastic bags to fill this niche. (Edwards & Fry, 2011) For purposes of this fact sheet, a Replacement Plastic Bag is assumed to weigh the same as plastic carryout bag. The total number of replacement bags is equal to 40.3% of plastic carryout bags pre-ban. (Edwards & Fry, 2011)

"Other Plastic"

The In-Store Recycling Bin is primarily for recycling of plastic carryout bags. However, an added benefit is that "other plastic" bags and wraps can also be recycled in this bin including: produce bags, bread bags, newspaper bags, dry cleaning bags, and plastic wrap from toilet paper, paper towels, diapers, etc. This "other plastic" material is not accepted in the curbside recycling bins in the City of Los Angeles and also Ventura County because it is uneconomical to recycle and the material get caught in the sorting machinery. In Santa Barbara County this material can be put in the curbside recycle bins. (Santa Barbara Public Works Department, 2012-2013) Hence, for Ventura County, this "other plastic" can only be recycled through the In-Store Recycling Bin. In 2009, only 2.9% of plastic bags issued were recovered through the In-Store Recycling Program. However, for every ton of plastic carryout bags that were recycled, 11.6 tons of "other plastic" was recovered preventing this material from ending up in the land fill. (CalRecycle, 2011)

Adverse impacts

The adverse impacts of a Single-Use Bag Ordinance are described below.

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Most Reusable Bags Are Not Recyclable

Reusable bags made from LDPE and HDPE plastic are fully recyclable through the In-Store Recycling Bins. The majority of Reusable bags made from non-woven Polypropylene (PP) or fabrics such as cotton are not recyclable since no recycling facilities exist in the City of Los Angeles or in Santa Barbara and Ventura Counties; hence, disposal is in the landfill. (Herrera Environmental Consultants, 2008) This is another example of an unintended consequence of a plastic bag ban, where a recyclable plastic carryout bag is replaced by a reusable bag that cannot be recycled!

In-Store Recycling Bin Shutdown

Under California State Law AB 2449 and SB 1219, retail stores that issue plastic carryout bags at the checkout stand have to provide an In-Store Recycling Bin so that customers can bring plastic carryout bags back for recycling. The cost of this recycling program is shouldered by customers through higher prices. When a plastic carryout bag ban is implemented, retail stores will no longer be legally required to retain the recycling bin. Stores are in business of selling groceries and not in the recycling business. In San Francisco, after a plastic bag ban went into effect many retail stores shut down their plastic bag recycling bins. (Brown, 2011) (The ULS Report, 2008) An unintended consequence of a plastic carryout bag ban is that "other plastic" collected for recycling will end up in the landfill if retail stores shut down the In-Store Recycling Bins and the material is not accepted in the curbside recycle bin. This paper assumes that the In-Store Recycling bins will be shut down.

Double Bagging Paper Bags

Double bagging at the checkout stand normally occurs when the customer purchases items that are heavy e.g. canned food, etc. Observations from one market shows that double bagging may occur as much as 40% to 80% of the time. While the weight of the items carried in the bag is one factor, the other factor is that the paper handles break off easily. Double bagging of paper bags in not taken into account in the analysis of landfill impacts.

Reusable Bag Proliferation

Proliferation of reusable bags is a perverse side effect of the plastic carryout bag ban. Customers purchase more reusable bags than they really need (for example, they don't have any with them on a spur of the moment shopping trip) or receive free bags during promotions. As a result, an extraordinary quantity of reusable bags will be disposed of in landfills. This occurred in Australia where the reusable bag has been dubbed the "new green monster" and grocery stores accomplices to the proliferation because they make money on every bag sold. (Munro, 2010) While Australia is far away it is happening right here in the United States. (Strickler, 2013) Reusable Bag Proliferation is not taken into account in landfill impacts discussed in this paper.

Disposal of Carryout Bags and Landfill Impacts

When bags reach their end of life they are disposed of either by recycling or by disposal in the landfill. The BEACON EIR assumes 100% use of plastic carryout bags in the Study Area Pre Ban (BEACON, 2013) with 2.9% disposed of by recycling and 97.1% disposed of in the landfill. (CalRecycle, 2011) While we

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recognize that there are people who use paper bags and reusable bags at the current time, there are no local bag usage statistics available for Santa Barbara and Ventura Counties that could have been used to model bag usage. Post Ban we are concerned with disposal of plastic carryout bags (the remaining 5%), paper bags, reusable bags, replacement bags, and "other plastic".

City of Los Angeles Landfill Impact

The impact to landfills is calculated using bag quantities assumed in the Draft EIR which are based upon the assumption that Californians use 20 billion plastic carryout bags per year. A total of 2,031,232,707 plastic carryout bags were assumed Pre Ban. Post Ban it was assumed that 5% of plastic carryout bags or 101,561,635 would remain; 30%, would be replaced by 609,369,812 paper bags; and 65%, would be replaced by 25,390.409 reusable bags. 79% of paper bags were assumed to be landfilled with 21% recycled. (Green Cities California, 2010, p. 18) (City of Los Angeles, 2013) 97.1% of plastic carryout bags were assumed to be landfilled with 2.9% recovered through recycling. The Post Ban "other plastic" is calculated from the 2.9% of Pre Ban plastic carryout bags recycled multiplied by 11.6 times the weight of a single plastic carryout bag or 0.140708 lbs. per bag. (CalRecycle, 2011)

Post Ban/Pre Ban Ratio

The ratio of material deposited in the landfill Post Ban compared to the material deposited in the landfill Pre Ban is calculated as follows:

$$Post\ Ban\ /\ Pre\ Ban\ Ratio\ = \frac{Post\ Ban\ Landfill\ Weight\ Deposited}{Pre\ Ban\ Landfill\ Weight\ Deposited}$$

The Post Ban/Pre Ban Ratio as described in the above equation provides a figure of merit comparing the Post Ban verses the Pre Ban amount that is deposited in the landfill. The Post Ban/Pre Ban Ratio for City of Los Angeles is 4.25 in table 1 and for Santa Barbara and Ventura Counties is also 4.17 in Table 2.

	Quantity	Weight per bag (lbs.)	Weight (lbs.)	Weight (tons)
Pre-Ban				
Plastic Carryout Bags	1,972,326,958	0.01213	23,924,326.01	**11,962.16**
Post Ban				
Plastic Carryout Bags	101,561,635	0.01213	1,231,942.64	615.97
Reusable Bags	25,390,409	0.42500	10,790,923.76	5,395.46
Paper Bags	481,402,152	0.14875	71,608,570.04	35,804.29
Replacement Bags	812,493,083	0.01213	9,855,541.09	4,927.77
Other Plastic	58,905,749	0.140708	8,288,510.06	4,144.26
Total				**50,887.74**
Post Ban /Pre Ban Ratio				**4.25**

Table 1. City of Los Angeles Landfill Impacts

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Santa Barbara and Ventura County Landfill Impacts

A total of 658,241,406 plastic carryout bags were assumed Pre Ban. Post Ban it was assumed that 5% of plastic carryout bags or 32,912,070 would remain; 30%, would be replaced by 197,472,422 paper bags; and 65%, would be replaced by 8,228,018 reusable bags. 79% of paper bags were assumed to be landfilled with 21% recycled. (Green Cities California, 2010, p. 18) 97.1% of plastic carryout bags were assumed to be landfilled with 2.9% recovered by recycling. The Post Ban "other plastic" is calculated from the 2.9% of Pre Ban plastic carryout bags recycled multiplied by 11.6 times the weight of a single plastic carryout bag or 0.140708 lbs. per bag and multiplied by 76% to account for Ventura County only based upon population. (CalRecycle, 2011)

	Quantity	Weight per bag (lbs.)	Weight (lbs.)	Weight (tons)
Pre-Ban				
Plastic Carryout Bags	639,152,405	0.01213	7,752,918.68	**3,876.46**
Post Ban				
Plastic Carryout Bags	32,912,070	0.01213	399,223.41	199.61
Reusable Bags	8,228,018	0.42500	3,496,907.84	1,748.45
Paper Bags	156,003,213	0.14875	23,205,477.97	11,602.74
Replacement Bags	263,296,562	0.01213	3,193,787.30	1,596.89
Other Plastic (Ventura County)	14,507,641	0.140708	2,041,341.09	1,020.67
Total				**16,168.37**
Post Ban /Pre Ban Ratio				**4.17**

Table 2. Santa Barbara and Ventura County Landfill Impacts

Summary of Landfill Impacts

Both Table 1 for the City of Los Angeles and Table 2 for Santa Barbara and Ventura counties show that for both geographic areas the amount of carryout bags and other material deposited in landfill after the ban is more than four times as much than before the ban. It should be understood that the quantities in Table 1 and Table 2 have not been adjusted for loss and other factors that reduce the actual amounts that end up in the landfill. Table 1 and Table 2, clearly show that an unintended consequence of the bag ban is an increase in the amount material deposited in the landfill.

Even if you change some of the assumptions, you will still have more material going to the landfill Post Ban. For example:

- If you were to assume that the lifespan of reusable bag is two years vice one year, the weight of reusable bags in the tables will cut in half and the Post Ban/Pre Ban Ratio will not change substantially.
- If you ignore paper bags and consider only the remaining material, you still will have more material going into the landfill after the ban than before.

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- If you consider the potential impact of *paper bag double bagging* and *reusable bag proliferation* the amount of material going to the landfill would be much more!

Since the plastic carryout bag ban intended to reduce the amount of material going to the landfill, the opposite has occurred instead. This is clearly a perverse unintended consequence.

Recommendations

While Table 1 and Table 2 contain raw numbers, these tables are instructive in they can help us to identify strategies to reduce landfill amounts and mitigate the effects of the proposed ordinance. For Example, the following strategies could be initiated:

- Set a recycling goal for paper carryout bags at 60% vice the national average of 21%. A public education program will be needed.
- Modify the ordinance so that the Reusable Bags sold by retail stores in the Study Area must have an existing recycling infrastructure.
- Modify the curbside recycling program to allow for collection of clean plastic bags and wraps in the curbside recycling bin (material may have to be put in a bag and secured). Requires an education program.

The objective in the Environmental Impact Report to reduce the amount of single-use carryout bags in trash loads has failed. Therefore, it is recommended that the Plastic Carryout Bag Ban be dropped.

About The Author

Anthony van Leeuwen is the founder of the Fight The Plastic Bag Ban *website and writes extensively on the subject. He holds a bachelor's and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Plastic Bag Ban Creates New Welfare Benefit

By Anthony van Leeuwen, 3 May 2013

Local ordinances that implement plastic carryout bag bans are very similar from one community to the next. The ordinances ban the distribution of plastic carryout bags and impose a fee of 10 or 25 cents on paper bags to discourage paper bag use and encourage the use of reusable shopping bags.

One of the more interesting parts of the ordinance is the exemption granted to families that participate in the California Special Supplemental Food Program for Women, Infants, and Children (WIC) or in the Supplemental Nutrition Assistance Program (SNAP) also known as the Food Stamp program. Participants in these programs are allowed to receive free paper bags when they shop; whereas, all others must purchase paper bags or purchase and use reusable bags. In addition, participants may be eligible for free reusable bags at the option of the store.

Due to economic conditions in the United States, the rolls of people who are on public assistance programs have swelled. In California, there are 3.97 million Food Stamp participants and 1.45 million WIC participants. All of these are eligible to receive free paper bags and potentially free reusable bags when they shop. The question is, who pays for these free paper and reusable bags?

In the past, when everyone used the cheaper plastic or the more expensive paper bags, the cost of those bags was passed on to shoppers through higher prices. Each shopper who received paper or plastic bags received a benefit for the higher merchandise prices paid.

Under the single-use carryout bag ordinances, Food Stamp and WIC participants will as "exempt" shoppers receive free paper carryout bags while all other "non-exempt" shoppers will pay a fee for each paper carryout bag.

The fee charged to "non-exempt" customers for paper bags is to be retained by the store and used to pay for (1) cost of paper bags and (2) the cost of complying with the ordinance and (3) cost associated with educational efforts to encourage the use of reusable bags. In other words, "non-exempt" customers who pay a fee for using paper bags will subsidize "exempt" customers by paying for the free paper bags they are given. Of course, if not enough people pay for paper bags the remaining cost of the free paper bags will be borne by all customers through higher prices.

Since the city and County have no intention of reimbursing the retail store for the free paper bags offered to "exempt" shoppers, the ordinance in effect creates a new benefit for SNAP and WIC participants paid for largely by "non-exempt" shoppers who are not eligible for this benefit.

In low income areas, stores will be burdened by giving away large numbers of the more expensive paper bags due to the higher proportion of the population receiving Food Stamps or WIC benefits than stores

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in more affluent areas such as Beverly Hills. In low income areas, one would expect that fewer "non-exempt" shoppers would pay for paper bags in order to avoid paying the 10 or 25-cent paper bag fee. Therefore the amount of money collected from "non-exempt" customers would more than likely not cover the cost of all of the free paper bags issued. Hence, the cost of free paper bags would have to be passed on to customers in the form of higher prices.

Since the purpose of the ordinance is to eliminate plastic carryout bags, discourage the use of paper carryout bags and to promote the use of reusable bags, it would seem that there should be no exemptions to the ordinance. That the ordinance would apply equally to all people who shop in a regulated store.

By exempting certain shoppers from paying for paper or reusable bags, not only is a new welfare benefit established, but a bad precedent is also set. The "exempt" shopper has no incentive to use reusable bags since a free paper bag will always be provided. The "exempt" shopper who receives free reusable bags has no incentive to bring the bags with them next time they shop since the store will always provide a free paper bag or reusable bag.

The provision in the ordinance to provide free paper bags to "exempt" shoppers demonstrates that the goal to reduce paper bag usage is not serious and brings into question the environmental benefits supposedly achieved by the plastic carryout bag ban.

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Bag Bans - Market Driven Solutions Superior

BAG BANS FREEZE INNOVATION AND LOCK INFERIOR SOLUTIONS INTO PLACE

BY ANTHONY VAN LEEUWEN, 14 NOVEMBER 2013

The movement to ban plastic carryout bags is growing as more and more California communities enact single-use bag ordinances. These ordinances are very similar to one another and go beyond banning plastic carryout bags to implementing a very specific solution. This solution attempts to change the shopping paradigm where shoppers supply their own reusable bags rather than receive store supplied disposable bags to carry their purchases. To ensure that consumer behavior is changed, retailers are required by the local ordinance to charge a minimum fee for each paper bag issued.

By implementing a specific solution, mandated by the government, innovation is stifled and businesses are no longer free to pursue alternative solutions that are in their best interests. Government officials and their staffs simply do not have the expertise and time to investigate alternative solutions to solve the underlying problem or have the motivation to improve customer service, therefore the government mandated solution locks an inadequate and antiquated solution into place. Furthermore, freedom of choice on both the part of retailers and consumers is unnecessarily sacrificed, restricted, and infringed.

Background

In 2006, the State of California attempted to deal with the issue of plastic carryout bags by passing AB 2449. AB 2449 required stores that distributed plastic carryout bags to provide an In-Store Recycling Bin so shoppers can recycle plastic carryout bags and to sell reusable bags along with several other provisions. In addition, AB 2449 attempted to shift consumers away from using plastic carryout bags to using reusable bags on a voluntary basis. AB 2449 expired on 1 January 2013 and was extended by SB 1219 to 1 January 2020. (van Leeuwen, Why Not To Ban Plastic Carry Out Bags, 2012)

The latest statistics available from 2009 the State of California reported that about 3% of plastic bags were recycled. (CalRecycle, 2011) While environmentalists and politicians blame consumers for the low recycling rate, the real reason is that the plastic carryout bag with its built-in handles is one of the most reused and repurposed items that come into the home. Consumers reused 76% of all bags received and 40.3% of all bags were used to dispose of trash or as trash bin liners, etc. With such a high reuse by consumers of plastic carryout bags it stands to reason that the plastic carryout bag recycling rate would never achieve the kind of results that one would normally expect. Furthermore, by reusing plastic carryout bags to dispose of trash it benefits the environment by avoiding the manufacture and subsequent purchase of replacement plastic garbage bags. (Edwards & Fry, 2011)

The State of California's voluntary program to encourage the use of reusable bags enjoyed very limited success in that about 10% of shoppers adopted the use of reusable bags, 5% used paper bags, 15% choosing to use **No** bags, and the remaining 70% continued to use store supplied plastic carryout bags.

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(Team Marine, 2013) While California shoppers had every opportunity since 2007 to choose to use reusable bags each time they shop, 90% of shoppers chose plastic bags, paper bags, or No bags over using reusable bags clearly demonstrating that consumers rejected the "reusable bag" solution proposed by the state.

Typical Bag Ban

Single-Use Bag Ordinances in communities throughout California are very similar to one another. They ban plastic carryout bags, impose a minimum fee on paper bags in order to coerce shoppers into using reusable bags. Most bans include an exemption from the paper bag fee for participants in the California Special Supplemental Food Program for Women, Infants, and Children (WIC) or in the Supplemental Nutrition Assistance Program (SNAP) also known as the Food Stamp program. (BEACON, 2013) The Single-Use Bag Ordinances require stores to provide free paper and or reusable bags to WIC and SNAP participants and thereby unintentionally creating a new welfare benefit. (van Leeuwen, Plastic Bag Ban Creates New Welfare Benefit, 2013) Most bag bans cover grocery and convenience stores, although some include all stores. Some ordinances provide an exemption from the ban on plastic carryout bags by charitable organizations such as the Salvation Army Thrift Stores. All ordinances require retailers to report paper bag use and the amount of fees collected from paper bags. In addition, most ordinances require that retailers promote and educate shoppers about using reusable bags. (San Jose City Clerk, 2011)

Rationale behind Bag Ban Characteristics

Ban on Plastic Carryout Bags

A central feature of single-use bag ordinances is the prohibition on the distribution of plastic carryout bags. These are the razor thin lightweight plastic bags normally seen in grocery stores that when improperly disposed can become wind-blown litter. These bags reportedly find their way into the environment as litter and can find their way into creeks and rivers and out to the ocean where they can cause harm to marine wildlife. (van Leeuwen, Why Not To Ban Plastic Carry Out Bags, 2012)

Fee on Paper Bags

The fee on paper bags is designed for one purpose to discourage paper bag use in favor of reusable bags. The thought is that if a fee is not imposed on paper bags, then plastic bags would simply be replaced by paper bags. Since paper bags have a higher negative environmental impact compared to plastic bags, allowing unrestrained paper bag use is thought to be more harmful to the environment. A single paper bag has the same environmental impact as four plastic carryout bags. Hence, a paper bag has to be used more than four times before it has a lower negative environmental impact than using plastic carryout bags.

The local jurisdiction would mandate a minimum fee that must be charged by the retail establishment for each paper bag issued. In most jurisdictions the minimum fee is set at 10 cents per paper bag. Although jurisdictions would like to get their hands on that money they are forced to let the stores keep it unless the fee is put on the ballot where it will face certain defeat.

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One of the more interesting parts of most single-use bag ordinances is the exemption from the paper bag fee granted to families that participate in the California Special Supplemental Food Program for Women, Infants, and Children (WIC) or in the Supplemental Nutrition Assistance Program (SNAP) also known as the Food Stamp program. Participants in these programs are exempt from the paper bag fee and are allowed to receive free paper bags when they shop; whereas, all others must purchase paper bags or purchase and use reusable bags. In addition, participants may be eligible for free reusable bags at the option of the store. The question is who pays for these free paper and reusable bags? (van Leeuwen, Plastic Bag Ban Creates New Welfare Benefit, 2013)

The fee charged to "non-exempt" customers for paper bags is to be retained by the store and used to pay for (1) cost of paper bags and (2) the cost of complying with the ordinance and (3) cost associated with educational efforts to encourage the use of reusable bags. In other words, "non-exempt" customers who pay a fee for using paper bags will subsidize "exempt" customers by paying for the free paper bags they are given. Of course, if not enough people pay for paper bags the remaining cost of the free paper bags will be borne by all customers through higher prices. This is a particular problem with stores in inner city neighborhoods where as many as 80% of customers are participants in WIC and food stamp programs. In these areas, the cost of paper bags must be recovered through higher retail prices. (van Leeuwen, Plastic Bag Ban Creates New Welfare Benefit, 2013)

In the event the local jurisdiction does not see paper bag use decrease, the paper bag fee would be raised to 25 cents per paper bag.

The drawback of the paper bag fee exemption is the creation of two classes of people. One is eligible for free paper bags and the other class is not even though both classes of people pay for paper bags indirectly through higher prices

Reusable Bags

The concept behind reusable bags is that when used multiple times they have the potential of having a lower negative environmental impact than plastic carryout bags. Of course it depends upon the type of material used to make the bags. Most reusable bags are made from Polypropylene or cotton. Polypropylene bags are not recyclable and must be used at least 14 times and cotton reusable bags must be used at least 173 times in order to have a lower environmental impact than using plastic carryout bags. An LDPE reusable bag (a thick plastic carryout bag about 1% of the market) must be used 5 times in order to have a lower environmental impact than using plastic carryout bags. (Edwards & Fry, 2011, p. 61)

One of the drawbacks of reusable bags is that they must be washed on a regular basis in order to prevent buildup of bacteria. Polypropylene reusable bags must be hand washed while most cotton or fabric bags can be machine washed. Reusable bags cost the consumer time to inspect, wash, dry, fold, and stock the bags in the car in order to have them with you the next time you shop. So in addition to the cost of bags, there is personal time involved which should also be considered. In an article titled "Plastic Bag Alternatives Much More Costly to Consumers", the authors evaluate the personal time required to handle reusable bags and place a value on that time in order to equitably compare the

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monetary cost of each bag alternative. (van Leeuwen & Williams, Plastic Bag Alternatives Much More Costly to Consumers, 2013)

Educating Shoppers about Using Reusable Bags

Retailers are very limited in what they are able to do in terms of educating shoppers about using reusable bags. This is limited to signs about remembering to bring your reusable bags, signs about recycling your plastic carryout bags in the In-Store Recycling Bin, and perhaps a verbal comment to the shopper by the checker. Shoppers go into a store to shop and frequently are in a hurry and pay no attention to posted signs. Now, you might say that some educational messages about using reusable bags could be included in television, radio, or newspaper advertisements, but those would be very brief and more than likely not reap the desired results. Hence, the education opportunities for retail stores are very limited almost to the point of being impractical.

Retail Store Reporting Requirements

Under practically all single-use bag ordinances retail stores are required to put the paper bag fee on customer receipts including the amount charged for paper bags. In addition, the retail store is required to report the number of paper bags issued and the amount of money collected in fees. The purpose of this requirement is to determine how well the ordinance discourages paper bag use and in the event officials deem that the fee does not sufficiently discourage use of paper bags the fee charged for paper bags could be raised.

Single-Use Bag Ordinances Are Not Successful

In a paper titled "Bag Bans: A Failure-Not Success As Claimed" the author notes that if a single-use bag ordinances just banned plastic bags they would be considered a success; However, single-use bag ordinances do more than just ban plastic carryout bags! Single-use bag ordinances are implemented by the community as a project and projects include key objectives. These objectives when analyzed demonstrate that the single-use bag ordinances, at the very best, achieve marginal results and for the most part are an outright failure! (van Leeuwen & Williams, Bag Bans: A Failure - Not Success As Claimed, 2013)

- For example, the objective to reduce "… *the environmental impacts related to single-use plastic carryout bags …"* upon the environment clearly fails because 10 out of 14 environmental parameters have a higher negative impacts after the ban than before.
- The objective to "… *deter the use of paper bags by retail customers …"* also fails because paper bag use increases from about 5% to about 30%.
- The objective to "… *promoting a shift bag toward the use of reusable carryout bags …"* fails in that shoppers choose the No bag option or paper bags over reusable bags on a 2:1 ratio.
- The objective to "… *reduce the amount of single-use bags in trash loads to reduce landfill volumes"* fails in that the weight of single-use paper bags post ban exceeds the weight of plastic bags pre-ban. Furthermore, if you include all bags in trash loads as a direct result of the single-use bag ordinance more than four times as much material by weight is deposited in the landfills after the ban than before.

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- Also the objective to reduce "… *litter and the associated adverse impacts to storm water systems, aesthetics and marine and terrestrial environments"* fails in that the ordinance only eliminates at most 0.6% of roadside litter leaving the remaining 99.4% of litter waiting to be picked up.

Each of the above objectives for the single-use bag ordinance clearly FAILS. The only "unstated" objective that of banning plastic bags succeeds and only because it is the law. Communities would do well NOT to implement a single-use bag ordinance or to REPEAL such an ordinance if it is on the books. Projects that do not live up to their objectives are normally cancelled, whether in private industry or in the government. (van Leeuwen & Williams, Bag Bans: A Failure - Not Success As Claimed, 2013)

The single-use bag ordinances lock into place a ban on the "free" distribution of plastic carryout bags by affected retail stores and place a fee on paper bags in order to coerce shoppers to use reusable bags. These requirements lock a single "failed" solution into place and prevent retail stores from exploring alternative solutions to the razor thin plastic carryout bags that are deemed to be an environmental problem.

Market Driven Solution

In a **Market Economy**, goods are bought and sold with prices determined by the free market with minimal government control and regulation. (Vocabulary.Com, 2013)

In a **Managed Economy**, the government manages the allocation of goods and resources and determines prices. (Vocabulary.com, 2013)

A single-use bag ordinance clearly fits the model of a Managed Economy and not a free Market Economy. The ordinance determines the allocation of goods by banning plastic carryout bags and promoting through coercion the use of reusable bags and determines the price or fee charged for paper bags.

Adopting a Market Driven Solution would have made the most sense. Communities could simply have banned the razor-thin plastic bags that are a wind-blown nuisance. Simple as that. While this solution might have increased paper bag use initially, paper bags are much more expensive than the plastic bags they replace. The use of the more expensive paper bags would drive industry to provide a cheaper alternative to the paper bag, a bag that would not be a wind-blown nuisance. Competition and ingenuity and development of new products are what has made this country great. There is no reason to believe that this would not occur in the disposable shopping bag industry.

The public would have adopted the new solution. No rancor and complaints. No local cost to enforce an ordinance. Individual choice and liberty and freedom would have been preserved. Retail establishments would be able to offer their customers a "free" bag to take purchases home or people could use reusable bags if they are so inclined.

Some stores in some areas have tried market driven solutions and began offering a thicker plastic bag to customers meeting the thickness requirements of a reusable plastic bag instead of a paper bag only to

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have the city (e.g. City of San Jose) impose the minimum fee on that bag as well. Thereby reinforcing the government mandated solution that the customer must use reusable bags.

Conclusion

Public officials who adopt a single-use bag ordinance demonstrate a lack of faith in the free market and the ability of that market to adopt a satisfactory solution to the razor thin plastic bags that they deem to be a wind-blown and environmental nuisance. Free Market solutions are superior to the government mandates that are fixed in law since they can respond to changing condition in the market and the advent of new and innovative products.

It is common knowledge that when the government dictates the solution – innovation and progress are thrown out the window and failed government policies are locked into place. A bag ban locks a failed government policy in place distorting the free market and costing consumers.

Public Officials are encouraged to put the issue of bag bans to a vote of the people. Don't shove it down the throats of the people like what happened with the Affordable Care Act (ACA) also known as Obama Care.

About The Author

*Anthony van Leeuwen is the founder of the **Fight The Plastic Bag Ban** website and writes extensively on the subject. He holds a bachelor's and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Bag Bans: Officials Neglect Homework!

County and City Officials Fail To Perform Due Diligence When Implementing Bag Bans

By Anthony van Leeuwen and Don Williams
10 August 2013

Misguided officials in more and more California communities are adopting plastic carryout bag bans and, in their haste to jump on the latest Eco-Fad bandwagon, fail to perform due diligence in attempting to solve a complex problem. Little to no effort is spent actually analyzing the problem or coming up with possible alternative solutions. (Myers, 2012) Most of the effort is spent on the required Environmental Impact Report (EIR) to justify the ban, jumping over the legal hurdles to avoid lawsuits, and trying to justify bag bans without the necessary objective data.

Officials who fall for trendy environmental fads like bag bans put greater value on appearing "green" than actually helping the environment. (Myers, 2012) Contrary scientific and economic information is disregarded in favor of a totalitarian solution which is then forced upon community residents as the only solution to a supposed dire environmental emergency. In their rush, government officials can't even wait for the next election to put it to the voters to ask their permission and buy-in before taking away the liberties of businesses and citizens.

Consider key evidence that shows bag bans are a solution looking for a problem:

1) A vast majority of city and county officials cannot even show that they have a plastic bag problem, let alone a problem of such magnitude where a ban is the only possible solution. The source of plastic bag litter and methods by which plastic bags are released to the environment is largely unknown and never investigated. In most jurisdictions litter audits are not performed to determine the quantity of plastic bags and the rate at which these bags are released into the environment. Traditional methods such as increasing the frequency of litter cleanup and removal efforts are never considered. Rather than investigating these issues, officials make emotional decisions to ban plastic bags based on anecdotal evidence consisting of photos of plastic bags littered along the road, caught on fences, stuck in trees, in the mouth of a turtle, or tales of a plastic island floating in the middle of the ocean. Emotion and fantasy win out over objective facts and logic.

2) A bag ban normally involves a ban on plastic carryout bags and a fee of 10 or 25-cents on paper bags. The fee for paper bags is designed to coerce shoppers into using reusable shopping bags rather than just switch from plastic bags to paper bags. Yet the only real argument against paper bags is that they don't want citizens to use them. Thus, it becomes evident that this issue is not about plastic bags, but about forcing people to give up the convenience of single-use carryout bags altogether. It is about behavior change to force people to adopt a "green" lifestyle.

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3) Bag ban proponents assert that one of the primary reasons for a bag ban is that litter in the terrestrial and marine environments results in harm to wildlife. However, a simple review of litter statistics shows that the plastic carryout bag make up only a small fraction of all plastic debris and litter that could harm wildlife. Instead of adopting a comprehensive and broad based strategy to reduce or eliminate all plastic litter, proponents irrationally single out one particular product (plastic carryout bags) and decree it to be public enemy #1, an enemy that must be eliminated at all cost.

4) Proponents claim there will be reductions in cleanup and trash disposal, but since plastic bags comprise less than 0.3% of total waste (Integrated Waste Management Board, 2009) and make up less than 1.0% of roadside litter (Schultz & Stein, 2009), litter control and cleanup budgets are never reduced. No reduction in litter cleanup costs or trash disposal savings have been shown in any city after a bag ban and shouldn't be expected because the other 99% of the trash still needs to be cleaned up! Meanwhile, communities spend thousands of dollars on administrative costs to pass and implement a ban, educate businesses and the public about the ban, sponsor free bag giveaways, and then incur the recurring costs of time and money to manage and investigate complaints and reported bag ban violations. In addition, government officials never consider the millions of dollars that their citizens must spend in time and money to purchase, maintain, wash, and handle reusable bags. This cost has been calculated to be about $250 per year per family. In the end, millions of dollars are spent just so city workers can clean up a few less plastic bags. The philosophy seems to be "No cost is too high for any benefit too small."

Not only is the argument to ban bags invalid, but it wastes millions of dollars that could be better used for the environment. Had officials spent a fraction of the cost to implement and sustain a plastic carryout bag ban for increased litter cleanup and prevention efforts, most litter problems could have been solved! The best way for cities to save money and not needlessly burden their citizens with senseless work and costs is NOT to pass a bag ban! Cities could hire dozens of additional people to clean up litter with the money saved by not passing a bag ban.

Most people are not aware that communities are already spending hundreds of thousands of dollars installing full or partial capture devices in storm drain catch basins, inlets, and outfalls. These devices prevent all trash, including plastic bags and plastic debris, harmful to marine wildlife from flowing into creeks and rivers and making its way to the ocean. (Approaching Zero Trash, 2012) Since 80% of plastic bags and debris in the ocean comes from storm drains and flood control channels, the largest part of the problem is already well on its way to being solved. (Algalita Marine Research Foundation, 2013)

Community volunteers and local environmental groups have been instrumental in keeping waterways and beaches clean from litter. This is vital to preventing plastic bags and other litter from harming the environment as it provides an essential safety net to litter control and prevention measures.

5) In a rush to impose a bag ban on the entire population, bag ban proponents ignore major sources of litter. Homeless encampments in the river bottom and creek areas are a primary source of litter including plastic bags and other plastic debris harmful to wildlife. Winter storms wash some of this trash

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downstream and out to the ocean. Efforts to remove homeless encampments have had mixed results, but homeless encampments are rarely ever mentioned as a source of trash. In fact, the removal of 20 homeless encampments in the Ventura River bottom resulted in the removal of 100 tons of trash! (Cohn, 2012)

Garbage and Recycling trucks are a major source of litter in the street and gutter, as anyone who has driven behind a garbage or recycling truck can attest. (Litter Abatement Task Force, 2007) (Schultz & Stein, 2009) Who hasn't seen these trucks spewing plastic wrap, Styrofoam, paper, and other trash? Yet this issue is not addressed by bag ban proponents.

And everyone knows that there are always a few bad apples in the barrel. No one likes litterbugs. Yet many cities that pass bag bans don't even have litter penalties or enforce existing litter laws if they have them. Using bag ban proponents own exaggerated statistics, less than one in 2 million plastic bags reaches the bay or ocean. You cannot punish everyone for the irresponsibility of a few!

6) Officials overlook significant and potentially dangerous side effects when passing bag bans. The effort to manage bags and the resulting frustration of shoppers and the workload on stores are significantly impacted. Shoplifting increases, including a dramatic rate of theft of plastic shopping baskets from stores. (McNerthey, 2013) (Monkey, 2013) Residents who reuse plastic bags for multiple purposes will now be required to purchase replacement plastic bags. Since most reusable bags hold more than the plastic bags they replace, they weigh more and represent an ergonomic risk not only to the store employees but to the customers. (van Leeuwen, 2013) In addition, many residents, particularly the homeless, do not have facilities to wash reusable bags. In fact a vast majority of reusable bag users do not wash their bags resulting in filthy bags laden with disease causing bacteria creating a potential health hazard. (van Leeuwen, Bacterial and Viral Health Hazards of Reusable Shopping Bags, 2013) These aggravations, frustrations, wastes of time and energy, increases in theft, and significant public health hazards are all swept under the rug by bag ban proponents and government officials blindly following the lead of other cities in the bag ban frenzy.

7) Officials should consider logical and proven methods to reduce litter first. Reducing litter and keeping the environment clean should be accomplished through traditional and comprehensive methods. Sources of litter should be identified and practical steps to prevent litter taken including educating the public about litter prevention and enforcement.

Thus, instead of rushing into controversial bag bans, community leaders should perform due diligence and consider the following strategies and actions before considering an all-out bag ban:

1. EVALUATE THE PROBLEM

- Establish a Litter Task Force to survey the local community and identify the sources of all litter, including homeless encampments, illegal dumping, freeways, uncovered trash receptacles, and uncovered garbage trucks.

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- Quantify the actual percentage of plastic grocery bags used in the community that enter the environment as litter in comparison with other products.

2. EVALUATE POSSIBLE SOLUTIONS

- Evaluate street sweeping schedules and litter removal efforts in high litter areas.
- Evaluate location and maintenance schedules for public trash receptacles.
- Review city laws and enforcement against littering.
- Consider Trash Total Maximum Daily Loads (TMDL) projects that install trash capture devices in storm drain catch basins that prevent plastic bags and other litter from entering creeks, rivers and the ocean.
- Review laws regulating garbage trucks for containment of trash during collection and transport.

3. EDUCATE, DON'T REGULATE

- Perform education campaigns to stress the importance of reducing, reusing, and recycling.
- Educate the public on the proper methods to dispose of plastic grocery bags, and all similar bags.
- Educate residents to bag loose trash to prevent it from becoming airborne when trash is dumped.

4. SERIOUSLY EVALUATE THE SIDE EFFECTS

- Study the wash rate of typical reusable bags.
- Interview and study the problems and issues associated with dirty bags at grocery stores.
- Review disease statistics and rates.
- Evaluate the cost impact to families in time, money, and frustration.
- Evaluate the other bags and materials that will be required to replace the previously reused plastic grocery bags.
- Compare the negative environmental burden of increased paper bag manufacture and usage.
- Evaluate the economic impact to communities through loss of business, tax revenue, and citizen impact.
- Evaluate the rise in theft.
- Evaluate the additional time consumption at stores at checkout stands, collecting of carts and baskets, and dealing with customer frustration or customers running out to their cars to gather their forgotten bags.
- Consider the need for government guidelines on the use, reuse, inspection, cleaning, handling, and disposal of reusable bags.
- Consider clear government policies for the rights of a business to refuse to handle or accept dirty, wet, or filthy reusable bags brought in by customers to the store.
- Evaluate the impact of reusable bag requirements on people who take public transportation, walk, or ride bicycles.

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5. EVALUATE THE ROLE OF GOVERNMENT

- Consider if it is the government's role to determine the acceptable use of a bag.
- Consider the height of the bar that must be set before the government removes personal freedoms from people. After all, citizens could stop using plastic bags on their own WITHOUT the government mandate.
- Evaluate the lawfulness and position of the government to impose price controls and set "minimum prices" for a product (paper bags).
- Evaluate if the government should be limiting businesses from providing a free product to customers that the customers freely choose.
- Perform a neutral poll of citizens to determine if there is a vast majority that favor bag bans.
- Put the bag ban to a vote at the next election, rather than dictate bag choice on the people.
- Prioritize the resources of government, and evaluate if implementation and enforcement of a bag ban is high on the list of priorities.

SUMMARY

The symbolism and emotional push to be "green" and "politically correct" are driving one government official after another to adopt bag bans even without supporting facts and objective data, consideration of alternatives, and without fully evaluating the ramifications of such bag bans. While government officials focus on the efforts to pass a bag ban they neglect to do the homework and due diligence, as described above, that is required and expected of public agencies and officials. Elected government officials wrong the very residents that elected them by failing to perform the due diligence, particularly when the issue at hand is a destruction of citizen rights.

The lack of a reasonable and objective examination into the real causes of and potential solutions to the litter problem indicates that bag bans are not about solving a problem, but rather about controlling people and forcing them to live a "green" lifestyle. Many Bag Ban proponents openly state that this is their intent and bag bans are merely the first step. They are not concerned with real results that provide any significant improvement to the environment, just taking this step at restricting people's behavior and forcing them to conform to the lifestyle they have defined.

Bag bans have come at the expense of civil liberties and the rights of businesses and people to make their own choices to determine how to carry products home from the store. Personal rights should not be so easily tossed aside in the name of expedience for an unjustified, illogical, emotional, feel-good eco-fad like bag bans. This makes bag bans not only an annoying inconvenience, but a dangerous precedent that should not be allowed or even encouraged as a solution to a problem that is truly insignificant.

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Bag Bans: A Failure-Not Success As Claimed

SUCCESS IS NOT MEASURED BY A REDUCTION IN PLASTIC CARRYOUT BAG LITTER, BUT BY THE SUCCESSFUL ACCOMPLISHMENT OF ALL BAG BAN OBJECTIVES AND AN HONEST EVALUATION OF BAG BAN IMPACTS AND RESULTS

By Anthony van Leeuwen and Don Williams
11 November 2013

As more and more communities pass ordinances to ban plastic carryout bags, a key question remains: Are these bag bans successful? Proponents of bag bans are quick to point out that once the bags are banned, fewer plastic bags will be found as litter in the environment. Of course, that is true. If the use of plastic carryout bags is sharply reduced by a bag ban then the quantity of plastic carryout bags found as litter will be similarly reduced and reflected in litter surveys. But does that single measurement signify the success of the ban? Or are there other factors that must be considered before a bag ban can be declared a success? In this paper we will look at this question and attempt to provide a reasonable answer.

Typical Bag Ban

Bag Bans throughout the State of California are very similar to one another. They ban plastic carryout bags and also impose a minimum fee on paper bags primarily to coerce shoppers into using reusable bags. Most bans include exemptions from the paper bag fee for certain low income groups (e.g. food stamp recipients) as well as waivers for plastic carryout bag use by certain non-profit organizations. Produce and product bags without handles are typically exempt along with carryout bags from restaurants.

Typical Bag Ban Objectives

Proponents of Bag bans frequently state that their objective is to reduce plastic bag litter and thereby prevent harm to marine and terrestrial wildlife. However, these are not the sole objectives of a bag ban. The objectives of a typical Bag Ban are normally stated in the accompanying Environmental Impact Report (EIR) or other planning documentation. In the case Santa Barbara, San Mateo, and Ventura Counties the objectives were cited in the respective EIR and are re-stated in Table 1 below. These objectives are fairly common and apply to other bag ban ordinances as well. In addition, Single-Use Bag Ordinances and accompanying documentation fail to outline potential side effects and impacts, and neglect to provide guidelines for conducting an acceptable cost analysis for reaching the stated objectives. In other words, NO cost/benefit analysis was performed.

Analysis of Typical Ordinance Objectives

Like any other project, the success of a project can be determined by analyzing the original project objectives, how well the project lived up to those objectives, and the cost to achieve those objectives. By analyzing the objectives behind the ordinance, we can determine if the goals of the ordinance as expressed in the objectives are achieved.

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Table 1. Objectives from Santa Barbara, San Mateo, and Ventura County Final EIRs

	Objectives
1	*Reducing the environmental impacts related to single use plastic carryout bags, such as impacts to biological resources (including marine environments), water quality and utilities (solid waste equipment and facilities)*
2	*Deterring the use of paper bags by retail customers*
3	*Promoting a shift toward the use of reusable carryout bags by retail customers*
4	*Reducing the amount of single-use bags in trash loads to reduce landfill volumes*
5	*Reducing litter and the associated adverse impacts to storm water systems, aesthetics and marine and terrestrial environments*

How well each of the five objectives, in Table 1, is achieved is an important consideration in determining the success of the single-use bag ordinance. This consideration along with the impacts and consequences to both shoppers and the environment is the only fair and equitable way to judge the overall success of a bag ban.

Objective 1: Reducing Environmental Impacts

Objective 1 states as follows: "*Reducing the environmental impacts related to single use plastic carryout bags, such as impacts to biological resources (including marine environments), water quality and utilities (solid waste equipment and facilities)*". While this objective could have been better written, we will look at the overall environmental impact of the ordinance and leave the impact of plastic bag litter for analysis in objective 5. In a paper titled "Bag Bans: Wrong Way to Control Litter" the author included Table 2, showing that ten out of fourteen environmental parameters are greater Post Ban than Pre Ban for Santa Barbara and Ventura Counties. What this means is that based upon the assumptions in the EIR there is a larger negative impact to the environment Post Ban than Pre Ban. (van Leeuwen, Bag Bans: Wrong Way To Control Litter, 2013) Similar results are expected for the San Mateo County EIR. While the higher negative impact is not catastrophic, or even deemed significant, it nevertheless increases rather than decreases the negative environmental impact of a bag ban. Hence, **Objective 1 clearly fails**.

Table 2. Santa Barbara and Ventura County EIR Environmental Parameters

Line	Environmental Impact	Units	Pre Ban	Post Ban	Delta
1	Ozone Emissions	kg	15,140	6,944	(8196)
2	Atmospheric Acidification	kg	713,534	469,227	(244,307)
3	Green House Gas Emissions:				
4	Per Year	Metric Tons	17,553	28,472	10919
5	Per Person	Metric Tons	0.0142	0.0230	0.0088
6	Water Consumption (Ecobilan Data)	Million gallons/year	14.23	22.47	8.24
7	Water Consumption (Boustead Data)	Million gallons/year	25.45	199.53	174.08
8	Water Consumption (Wash Reusable Bags)	Million gallons/year	0	153.3	153.3
9	Waste Water Generation (Ecobilan Data)	Million gallons/year	13.52	17.41	3.89
10	Solid Waste (Ecobilan Data) w/recycling	Short tons	4,730.39	1442.46	(3287.93)
11	Solid Waste (Boustead Data)	Short tons	2902.34	4716.31	1813.97
12	Energy - Ecobilan	Million KWh/Day	0.22	0.12	(0.10)
13	Energy - Boustead	Million KWh/Day	0.25	0.40	0.15
14	Energy Consumption (Wash Reusable Bags)	Million KWh/Year	0	9.94	9.94
15	Eutrophication - Ecobilan	Kg Phosphate/Year	204.4	880.05	675.65

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Objective 2: Reduce the Use of Paper Bags

Objective 2 states as follows: "*Deterring the use of paper bags by retail customers*". This means that the ordinance should be designed in such a manner so as to discourage or deter paper bag use, for example, by imposing a fee for each paper bag distributed. The thought is that if a fee was not imposed on paper bags, then plastic bags would just be replaced by paper bags. Even though imposing a fee will not eliminate paper bag use, the fee should be sufficiently high enough to discourage paper bag use. Furthermore, the fee exemption for certain low income groups (e.g. food stamp recipients) is not conducive to lowering paper bag usage rates as these customers are able to receive a free paper bag whenever they shop and have no incentive to adopt using reusable bags. (van Leeuwen, Plastic Bag Ban Creates New Welfare Benefit, 2013)

In the City of Santa Monica, the Team Marine study (see Table 3 below and also Appendix A) shows paper bag usage going from 5% Pre Ban to 23% Post Ban and increasing to 29% one-year after the ban. What this means is that despite the fee, paper bag use increased after the bag ban with a clear **upward** trend. (Team Marine, 2013)

The bag usage data for Santa Monica counted customers who used each of the three (plastic, paper, and reusable) bag types and those who used no bags. The survey did not count the number of bags used. San Jose, on the other hand, counted total customers, customers who used no bags, and the total bags of each type used. This makes comparing results between Santa Monica and San Jose data difficult. The San Jose survey data is located in Table 3 below and Appendix B.

The San Jose survey sampled more customers before the ban than after the ban. In addition, the number of customers who did not use bags increased significantly from 12.9% to 43.5%. By adjusting the San Jose pre-ordinance data to analyze an equal number (i.e. 1000) customers before and after the ban a 19% decrease in paper bag use occurred as a result of the large increase in customers not using bags. If the data is adjusted to compare an equal number of customers who used bags before and after the ban, we see an increase in paper bag use by 25%. Therefore, we conclude that paper bag use actually increased among patrons who used bags.

For both Santa Monica and San Jose, we see paper bag use increasing after implementation of a ban on plastic carryout bags. The fee imposed does not appear to be a significant deterrent and over time people get used to the fee and accept the fee with paper bags usage going up. (Team Marine, 2013) This is to be expected, since the fee imposed on paper bags is financially competitive with the total cost of using reusable bags. (van Leeuwen & Williams, Plastic Bag Alternatives Much More Costly to Consumers, 2013) In time, as more and more people get used to the fee and exasperated with the difficulties of using reusable bags, shoppers will increasingly choose paper bags.

While the goals of Objective 2 are partially met, in that it discourages the outright replacement of plastic bags by paper bags, the ordinance does not discourage paper bag use significantly. Hence, **Objective 2 is considered Marginal**.

Objective 3: Promoting a Shift to Reusable Bags

Objective 3 states as follows: "*Promoting a shift toward the use of reusable carryout bags by retail customers.*" This objective suggests that the ordinance should result in an increase in reusable bag usage once plastic carryout bags are banned. In Table 3, reusable bags usage increased for both the cities of Santa Monica and San Jose. Paper bag use and patrons choosing No bags increased as well.

For the city of Santa Monica the use of reusable bags increased from 10% to 41% immediately after the ban and then settled down to 35% after one year with what appears to be a **downward trend**. We also see that paper bag use increases from 5% to 23% right after the ban and increased to 29% one year after the ban. Patrons who chose No Bag increased from 15% to 36%. In other words, consumers chose No Bags or Paper Bags over reusable bags by 65% to 35% or an almost a 2:1 ratio. Hence, shoppers have largely rejected reusable bags by a 2:1 ratio and the objective of shifting consumers into using reusable bags has produced marginal results and literally **Failed**.

Similar results exist for the City of San Jose (surveys mainly of grocery stores only) where patrons who chose NO bag significantly went up from 12.9% to 43.5%. Similarly, paper bag use increased from 10.3% to 18.8% for an increase of 8.5%, using the adjusted numbers in parentheses. Reusable bag use went up from 2.7% to 36.4% for an increase of 33.7%. Thus patrons chose No bags or paper bags 39.1% over reusable bags 33.7% for a 6:5 ratio.

Table 3. Pre Ban and Post Ban Carryout Bag Usage

Study	Plastic Bags	Paper Bags	Reusable Bags	No Bags or Other
EIR Assumptions§				
Pre Ban	100%	0%	0%	0%
Post Ban	5%	30%	65%	0%
Santa Monica (Team Marine Study)‡				
Pre Ban	69%	5%	10%	15%
Post Ban	0%	23%	41%	36%
Post Ban + 1 Year	0%	29%	35%	36%
San Jose¥				
Pre Ban	85% (74%)	11.9% (10.3%)	3.1% (2.7%)	12.9%
Post Ban	2.3% (1.3%)	33.3% (18.8%)	64.4% (36.4%)	43.5%

§ EIR Assumptions come from the EIRs for San Mateo, Santa Barbara, and Ventura Counties.
‡ Santa Monica Data is based upon the number of customers using each bag type or no bag.
¥ San Jose Data is based upon the quantity of bags used, total customers using bags and no bags. The percentages in parenthesis are adjusted numbers derived by multiplying the percentage times the percentage of people using bags. This allows us to compare results.

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While it is true that in both cases, reusable bag usage went up, we clearly see that based upon the data available, shoppers clearly chose the No Bag and paper bag option over reusable bags. This is true not only for grocery stores but for non-grocery stores as well, as can be seen by a brief survey conducted by Stop The Bag Ban which balanced the grocery store surveys with non-grocery store surveys and included in Appendix B. Hence, the objective to shift consumers to using reusable bags **FAILED**.

Objective 4: Reducing Single Use Bags in Trash Loads

Bag ban proponents claim that the bag ban will keep thousands of tons of plastic bags out of the landfill. What they don't tell you is that the total amount put into the landfill as a direct result of the single-use bag ordinance is many times as much as the plastic bags previously put into the landfill!

Table 4 identifies the materials put into the landfill Pre Ban and Post Ban. Since the EIRs assume an initial condition of 100% plastic bag use, we assume that 5% will be recycled and the other 95% will end up in the landfill in a worst case condition. Many of these bags will contain trash. Post Ban we assume that 61% of paper bags end up in the landfill with 39% recycled.[1] In addition, reusable bags made from cotton or Polypropylene (PP) are not recyclable in the United States, we assume that all reusable bags are landfilled each year. This is because the EIR assumes a worst case lifespan for a reusable bag as used once per week for 52 weeks. (van Leeuwen, Fact Sheet - Landfill Impacts LASBVTA, 2013)

In Table 4, Replacement Bags refers to the 40.3% of plastic carryout bags that are reused by consumers as trash can liners or trash bags and will be disposed of in the landfill. Because these bags are banned consumers will purchase replacement bags. Even though these bags are not as likely to become litter, their manufacture, sale, and disposal are a direct result of the ordinance, and must be included in analyzing the impact to the environment. "Other plastic" refers to other plastic bags and plastic wraps that are recycled through the In-Store Recycling Bins that are now landfilled since by law stores are not required to retain the In-Store Recycling Bins and will remove them.

Table 4. Santa Barbara and Ventura County Single-Use Bag Ordinance Landfill Impacts.

	Quantity	Weight per bag (lbs.)	Weight (lbs.)	Weight (tons)
Pre-Ban				
Plastic Carryout Bags	639,152,405	0.01213	7,752,918.68	**3,876.46**
Post Ban				
Plastic Carryout Bags	32,912,070	0.01213	399,223.41	199.61
Reusable Bags	8,228,018	0.42500	3,496,907.84	1,748.45
Paper Bags	156,003,213	0.14875	23,205,477.97	11,602.74
Replacement Bags (40%)	263,296,562	0.01213	3,193,787.30	1,596.89
Other Plastic (Ventura County)	14,507,641	0.140708	2,041,341.09	1,020.67
Total Post Ban				**16,168.37**
Post Ban /Pre Ban Ratio				**4.17**

[1] It is not known if the 39% recycling rate for paper bags will remain valid once consumers pay 10-cents for each paper bag and put a higher value on the paper bag, bags previously received for "free".

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While the objective specifically refers to reducing the single use bags in trash loads, from Table 4 it can be seen that the remaining 5% plastic carryout bags plus single use paper bags exceed the weight of the plastic carry out bags Pre Ban. When you take all material, including the disposal of reusable bags, replacement bags, and "other" plastic the total weight disposed Post Ban in more than four times the weight Pre-Ban. (van Leeuwen, Fact Sheet - Landfill Impacts LASBVTA, 2013)

Based upon the objective of reducing single use bags in trash loads, this objective clearly **FAILS**!

Objective 5: Reducing Litter and associated adverse impacts on terrestrial and Marine Environments.

Objective 5 states the following: "*Reducing litter and the associated adverse impacts to storm water systems, aesthetics and marine and terrestrial environments*".

The single-use bag ordinance bans plastic carryout bag distribution at many retail stores sharply reducing the total number of plastic carryout bags distributed; Hence, the number of plastic carryout bags found in litter will be reduced. Since 5% of plastic carryout bags are expected to remain, as time goes on the number of plastic bags found in litter will be reduced, but they will never be totally eliminated.

Furthermore, since plastic bags of all types comprise only 0.6% of roadside litter, banning 95% of one type of bag (the plastic grocery bag) will at the very most reduce litter by a tiny fraction. The actual amount of litter reduction is so small as to be negligible. Since well over 99% of litter remains adverse impacts of litter are not reduced, therefore objective 5 clearly **Fails**. (Stein, 2012)

Conclusion

The bag ban ordinance was proposed as a solution to a variety of complex co-dependent problems, but has failed to achieve the results expected. While it is true that banning plastic bags does reduce the number of carryout bags found in littered areas, the objectives of a bag ban ordinance clearly FAIL in these key areas:

- Higher negative Post Ban impact to the environment.
- Greater use of paper bags including an upward usage trend.
- Rejection of reusable bags in favor of paper and No bags by a 2:1 ratio including downward usage trend.
- Greater Landfill volume and weight of material as a direct result of bag ban.
- Negligible impact on litter.

Proponents will try to spin the data and claim success for a bag ban, but the facts show that a majority of people reject reusable bags in favor of paper bags or no bags at all. Furthermore, the bag bans have cost citizens millions of dollars in pursuing alternatives that are not only time consuming, but have negative side effects and even endanger public health. This paper only examined the stated objectives

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of a bag ban and the negative consequences of such a ban were only partially explored as they related to these objectives. However, together with the failure to achieve the key objectives, the negative impacts of bag bans far outweigh any claimed success. Bag bans should be reviewed and repealed due to their negative impact to the citizens and the environment. Bag bans were a bad idea from the beginning, and the evidence is proving that out as time goes on.

About The Authors

Anthony van Leeuwen *is the founder of the* ***Fight The Plastic Bag Ban*** *website and writes extensively on the subject. He holds a bachelors and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Appendix A

Team Marine Shopping Bag Research Report

Team Marine, a student group from Santa Monica High School, conducted a 19-month long study to examine the effects of the Santa Monica Plastic Bag Ban. The study spanned ten months prior to the ban and 12 months after. A total of 50,400 store patrons were observed at regular stores and at Eco-Friendly stores. (Team Marine, 2013, p. 1)

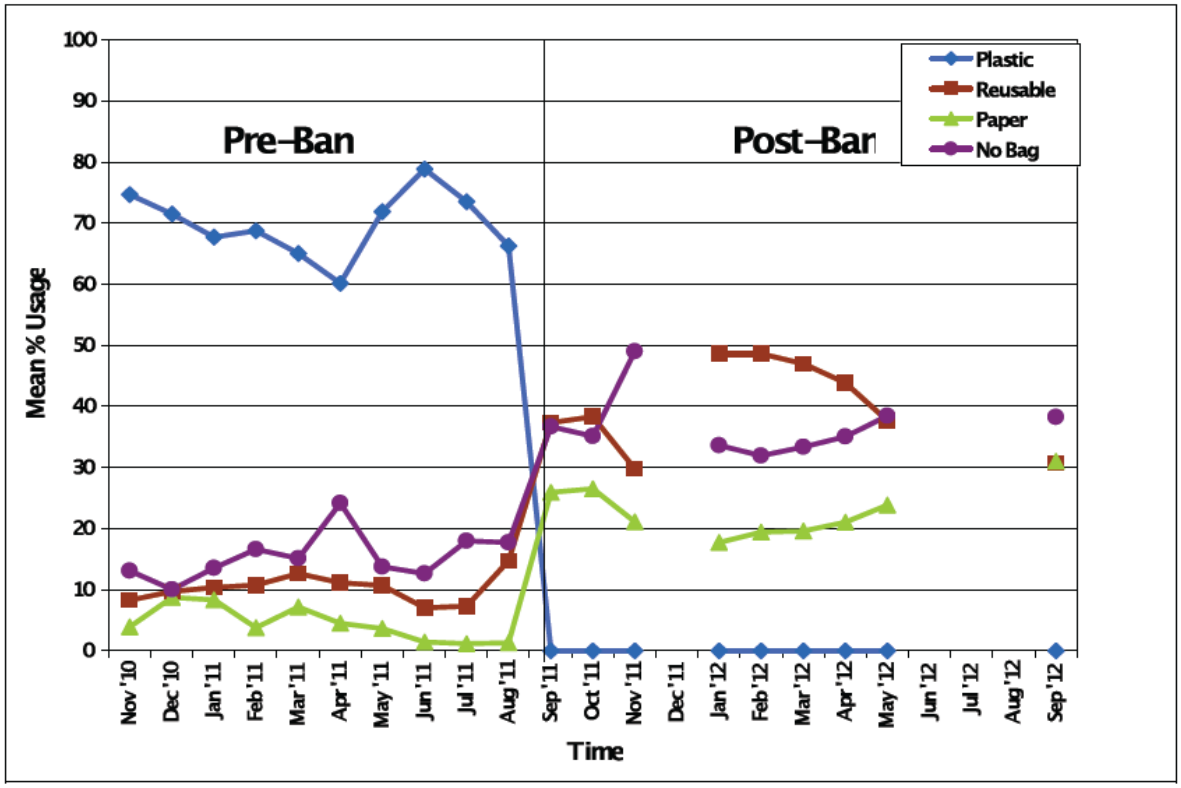

Figure A-1. Mean Percent Usage of Different Bag Choices at Regular Stores

Figure A-1 is copied from the Team Marine Research Report, Page 6, Figure 4. (Team Marine, 2013, p. 6)

This figure shows bag usage data from regular stores. Note that the mean plastic bag usage dropped from a mean 69.41% to 0%. Mean paper bag usage goes from about 4.85% to 23.16% and then rises to about 30% at one year Post Ban. Reusable bag usage increases from 10.44% to 41.25% and then drops to about 30% one year after the ban. The mean No bag option grew from 15.3% to almost 50% and then drops to about 35.59%. The graph shows a downward trend for reusable bags and an upward trend for paper bags and no bag option. Gaps in data are gaps where no data was collected. (Team Marine, 2013, p. 1)

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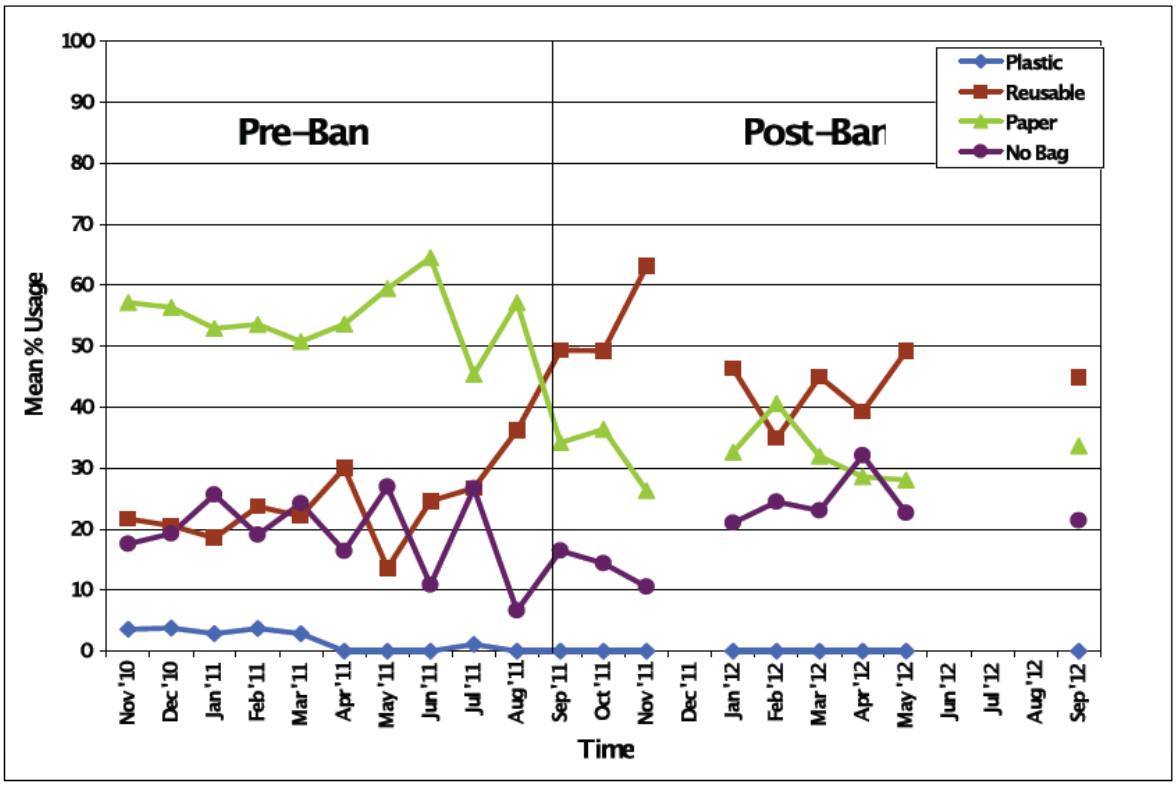

Figure A-2. Mean Percent Usage of Different Bag Choices at Eco-Friendly Stores

Figure A-2 is copied from the Team Marine Research Report, Page 5, Figure 3. (Team Marine, 2013, p. 5)

Eco-Friendly stores are stores like Trader Joe's and Whole Foods that specialize in high end and organic foods and generally have not issued plastic carryout bags but used paper bags instead.

Figure A-2 shows the drop in paper bag usage as a result of the paper bag fee. Mean paper bag use dropped from about 55.4% Pre Ban to 32.62% Post Ban. The mean reusable bag use increased from 23.25% and jumped to over 60% and settled down to 46.68%. The mean No bag use went from 19.22% to 20.70%. The effect of a paper bag fee clearly shows a reduction in paper bag use and increase in reusable bag use at Eco-Friendly stores. (Team Marine, 2013, p. 3)

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Appendix B

Table B-1. San Jose Pre Ban and Post Ban Store Bag Usage Observation Data

Survey Year	Total Customers Observed	Customers With No Bag	Customers Who Use Bags		Qty. of Paper Bags	Qty. of Plastic Bags	Qty. of Reusable Bags	Total Bags
2009S	1057	60	997		641	2542	115	3298
2010W	705	67	638		208	3598	77	3883
2010S	1107	243	864		159	1064	73	1296
Pre Ban	**2869**	**370**	**2499**		**1008**	**7204**	**265**	**8477**
Percent	**100%**	**12.9%**	**87.1%**		**11.9%**	**85.0%**	**3.1%**	**100%**
2012S	1068	419	649		317	28	550	895
2012F	1105	526	579		300	15	644	959
Post Ban	**2173**	**945**	**1228**		**617**	**43**	**1194**	**1854**
Percent	**100%**	**43.5%**	**56.5%**		**33.3%**	**2.3%**	**64.4%**	**100%**
Adjusted per 1000 customers Pre Ban and Post Ban								
Pre Ban	**1000**	**129**	**871**		**351**	**2511**	**92**	**2955**
Post Ban	**1000**	**435**	**565**		**284**	**20**	**549**	**853**
Percent Increase/Decrease					**-19%**	**-99%**	**495%**	**-71%**
Adjusted per 1000 customers who used bags Pre Ban and Post Ban								
Pre Ban	**1148**	**148**	**1000**		**403**	**2883**	**106**	**3392**
Post Ban	**1770**	**770**	**1000**		**502**	**35**	**972**	**1510**
Percent Increase/Decrease					**24.6%**	**-98.8%**	**816.9%**	**-55.5%**

Comments:

1. The City of San Jose Bag Usage Surveys conducted before and after the bag ban were badly designed. The total number of customers were counted, customers who chose No bag or hand carried their purchases out of the store, and the quantity of Plastic, Paper and Reusable bags used. The number of customers who used each bag type was not counted or included in the raw data. This makes analysis of trends from before and after the bag ban difficult to analyze. (City of San Jose, 2013)

2. Using the City of San Jose data as presented in the top half of Table B-1, we see that customers who chose not to use a bag increased from 370 Pre Ban to 945 Post Ban or an increase of 12.9% to 43.5%. Paper bag use increased from 11.9% to 33.3%, plastic bag use decreased from 85% to 2.3%. and reusable bags use increased from 3.1% to 64.4%. These percentages are meaningless since they reflect the proportion of all bags that each type reflected Pre and Post Ban. This is like comparing apples and oranges.
3. We note that the total number of customers surveyed Pre Ban is significantly more than Post Ban. Adjusting the data to reflect 1000 customers Pre Ban and Post Ban shows a 19% reduction in paper bag use, 99% reduction in plastic bag use and 495% increase in reusable bags. It should be noted that the number of customers who did NOT use bags increased from 129 to 435 out of a thousand or 237% increase.
4. The San Jose survey focused almost exclusively on grocery stores. However, grocery stores make up only a portion of the total number of stores. No measurements of other stores were done or factored into these results. (See below for a survey of other stores.)
5. When the number of customers is adjusted for 1000 customers who used bags Pre Ban and Post Ban, paper bag use is shown to increase by 24.6% and reusable bags are shown to increase by a whopping 816.9%. The number of customers who chose to forgo bags increased from 148 to 770 for an increase of 420% increase.

"Stop The Bag Ban" Survey Results

To compensate for the omission of non-grocery stores by the City of San Jose bag usage survey, on 7-8 October 2013, the "Stop The Bag Ban" group conducted a Bag Usage survey of non-grocery type stores including Fry's Electronics, Best Buy, Home Depot, Dollar Tree, and Wal-Mart all located in San Jose. Each store was observed for 1 hour and Survey data collected is shown in Table 5, below.

Table 5. Stop The Bag Ban Bag Usage Survey

Store	Customers With No Merchandise	Customers With Merchandise And No Bags	Customers With Purchased Bags	Customers With Reusable Bags	Customers With Free Bags
Home Depot	14	91	0	3	0
Best Buy	38	36	0	2	0
Dollar Tree	5	21	0	4	35
Wal-Mart	37	149	85	33	0
Fry's Electronics	48	103	2	4	0
Total	**142**	**400**	**87**	**46**	**35**
Percentages	**20%**	**56%**	**12%**	**6.5%**	**5%**

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Note that 400 customers (56%) purchased merchandise and choose no bags. 87 customers (12%) purchased paper bags and 46 customers (6.5%) brought and used reusable bags. In San Jose, "thick" plastic bags are considered reusable and not subject to regulation. The Dollar Tree store provides these for free rather than face theft of shopping baskets and merchandise. A total of 35 customers (5%) used Dollar Tree free bags. Since Wal-Mart carries a line of groceries, the percentage of reusable bags is higher than the other stores, as is typical of grocery stores where pre-planned purchases are common. Note that over half the customers overall now choose to go without any bags rather than deal with the difficulties of using reusable bags or paying for bags. The number of customers buying paper bags rather than using reusable bags is 2 to 1 and the number of customers choosing any alternative over using reusable bags is about 10:1.

The stated goal of the bag ban in San Jose was to get people to move to using reusable bags. This survey reflects only 8% of patrons fulfilling that goal.

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Plastic Bag Alternatives Much More Costly to Consumers

WHAT PLASTIC BAG BAN PROPONENTS DO NOT WANT YOU TO KNOW!

By Anthony van Leeuwen, Fight The Plastic Bag Ban, and Don Williams, Stop The Bag Ban, 5 June 2013

A plastic bag ban forces consumers to use alternative methods for transporting their purchases home. It turns out that all of these methods are much more costly and time consuming than the plastic carryout bags supplied by retail stores.

A plastic bag ban normally involves a ban on plastic carryout bags and a fee of 10 or 25-cents on paper bags. The fee is intended to coerce shoppers to purchase and use reusable shopping bags.

At the present time, large retail stores pay less than 2-cents each for plastic carryout bags in bulk quantities. So a typical family that uses about 20 plastic carryout bags per week, or 1040 bags per year at 2-cents each, would cost retail stores approximately $20.80 per year. Of course, the customer pays for those bags through higher retail prices.

When living under a bag ban, shoppers have several options for transporting purchased goods home from the store. This paper will review those options that shoppers have at their disposal after a bag ban takes effect and compares the impacts of and the estimated costs associated with each option.

Bag Options Under A Plastic Bag Ban

Self-Purchased Plastic Bags

Shoppers could purchase their own plastic carryout bags. We assume, as stated above, that a typical family could use up to 20 bags per week, or about a 1000 bags per year. A box of 1000 T-shirt bags can be purchased for about $25 or about 2.5-cents each. By keeping the bags in the car, shoppers will always have bags with them. However, the shopper must spend additional time to manage bags; for example, to get bags out of the car prior to shopping, restocking unused bags back into the car, or (worst case) forgetting to take the bags into the store and then having to make an additional trip back to the car. This is estimated to take 2 minutes per week for a total of 104 minutes per year. With a person's time valued at $12 per hour[1] this works out to $20.80 per year. Total cost for this option is therefore $45.80 per year.

Store-Purchased Paper Bags

If the family chooses to use paper bags, they will be available for purchase from the store at 10-cents or

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25-cents each as specified by the local ordinance. Since paper bags hold more, we can assume 15 paper bags per week. That means the family would pay $78 per year for paper bags at 10-cents each or $195 per year at 25-cents each.

The paper bag cost could be reduced if some of the bags were reused, although that would require additional time and effort to inspect, fold, and put the bags in the car. This would be more worthwhile if the bag fee is 25-cents per paper bag.

Durable Machine-Washable Reusable Bags

If the family chooses to use durable machine washable reusable bags that are dryer safe, the cost for each bag is approximately $6.00. A two-car family should have at least 8 bags per car for a total of 16 bags. The family will pay $96 total for the bags or $48 per year assuming a two year lifespan. However, this option will require complete bag handling and management time which includes basic bag handling (2 minutes per week as noted previously) plus time to inspect each bag after use, refold all the bags, and redistribute and restock the car(s). Complete bag handling is estimated at 5 minutes per week or 260 minutes per year at $12 per hour or $52 per year. On top of that, time and labor to clean out dirty bags, spot clean if needed, run the bags through the washing machine and dryer, refolding and restocking the bags, and managing the cleaned bags on a monthly basis is estimated to be about 12 hours per year at $12.00 per hour, or $144 per year. In addition, the cost of machine washing and drying the reusable bags once per month will add as much as $18 per year to utility bills. Total cost for this option is $262 per year.

Cheap Reusable Bags

If the family chooses to use the cheaper reusable bags, the cost is about $2 each. A family should have at least 8 bags per car or 16 bags total costing $32. The cheap reusable bags will likely have a 1 year lifespan. However, these cheaper bags must be hand washed and hung up to dry. Washing the bags in the sink usually involves letting the bags soak in a solution of soap and bleach to kill bacteria. The process is a nuisance and could take as much as one and a half hours per month. Over the course of one year, this takes 18 hours of personal time valued at $12.00 per hour, or $216 per year. This option still requires full bag handling as noted previously to use, inspect, refold, and restock bags. This is estimated at 5 minutes per week or 260 minutes per year at $12 per hour or $52 per year. Total cost for this option is $300 per year.

All of the options discussed above are summarized in Table 1 to provide a clear comparison of costs associated with complying with a bag ban.

Other Considerations

In addition to the time consuming efforts of managing reusable shopping bags, health hazards associated with bacterial cross contamination of food products should also be considered including protocols that call for segregation of food products and the use of dedicated bags. These protocols make packing reusable bags much more time consuming and confusing.

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Any bag that is reused, even if inspected, has a higher risk of contamination. The safest option is to use bags that are used only once to carry groceries, while the more risky option is to use bags that are reused, often multiple times and sometimes months between washes.

Table 1. Plastic, Paper, and Reusable Bag Option Costs

Bag Type	Strategy	Annual Purchase Costs	Annual Bag Handling cost	Annual Cleaning Cost	Total Cost per Year
PRE-BAN: Disposable Plastic Bag (Store Supplied)	Stores supply plastic carryout bags at less than 2 cents each for free. 20 bags per week or 1040 bags per year.	($20.80 paid for by the store and added to store retail prices)	None	None	$20.80
Disposable Plastic Bag (Shopper supplied)	Purchase Plastic Carryout Bags – 20 bags per week or 1040 bags per year.	1000 bags for $25.00	Basic Bag Handling - $20.80	None	$45.80
Purchased Paper Bag	Purchase Paper Bags – 15 paper bags per week at 10 cents each.	$78.00	None	None	$78.00
Purchased Paper Bag	Purchase Paper Bags – 15 paper bags per week at 25 cents each.	$195.00	None	None	$195.00
Durable Reusable Bag	Purchase 16 durable reusable bags. Machine wash and dry bags on a monthly basis. (Assumes 2 year lifespan)	16 bags at $6 each for two years or $48 per year.	Full Bag Handling - $52.00	12 hours at $12 per hour or $144 per year. Plus $18 in higher utility bills per year.	$262.00
Cheap Reusable Bag	Purchase 16 cheap reusable bags and hand wash them on a monthly basis. (Assumes 1 year lifespan.)	16 bags at $2 each or $32 per year.	Full Bag Handling - $52.00	1.5 hours per month or 18 hours per year at $12 per hour or $216 per year	$300.00

Repurposing used plastic bags was not considered in this comparison. In particular, used plastic bags have a multitude of reuses around the house. Without used plastic bags, other bags (such as small trash bags) will need to be purchased and used in their place.

Another factor not considered is the cost of aggravation and stress. In the middle of finding parking spaces, rushing to do errands, and possibly juggling a child or two, the shopper must ensure that they brought bags, consider how much shopping they may do, remember to bring enough bags when they leave the car, and pay the price of purchasing paper bags if they underestimate the volume of their purchases.

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Also not considered is the ease and convenience at which people can stock and carry reusable bags. The reusable bag option is not considered possible for someone who regularly takes public transportation, walks, rides a bike, stops by a store while carpooling or riding with a friend, or has a schedule which is not completely predictable. Carrying around 5 to 10 reusable bags at all times just in case a person goes shopping is not considered practical unless they can be stored in a car.

In places where bag bans have been implemented, the most common scenario is that people go to the expense of buying and trying to use reusable bags, yet still end up purchasing paper bags at the store when they either forget their bags or do not have enough. The total cost is then a baseline of the reusable bag costs supplemented by purchased paper bags on occasion.

Conclusion

By far, the cheapest, most convenient and safest option is to have stores supply free sanitary plastic carryout bags to any customer who chooses to use them.

However, when a plastic carryout bag ban is implemented by the government, the cheapest, most convenient, and safest option is for each consumer to purchase a box of plastic carryout bags for each of their cars, keep them in the car, and take enough with them when they go shopping. Cost is about $45.80 per year.

The next cheapest option is to purchase paper bags at the store which will cost $78 per year at 10-cents a bag or $195 per year at 25-cents per bag. The advantage of this option is that no pre-planning is required, although not all stores may offer paper bags.

If the consumer chooses to purchase and use reusable shopping bags, manage them, wash and sanitize them, it will cost the family between $262 and $300 per year. However, this option carries with it potential health risks associated with reusable bags.

Using reusable bags is the most costly, the most difficult, and the most unhealthy method to transport purchases home when living under a government mandated plastic bag ban. Ironically, this is the very method that bag ban proponents are trying to coerce people into using.

But no matter which solution you choose to carry your purchases home, it will cost you much more. And you will be yearning for those good old days when merchants offered a free bag for the privilege of shopping in their store.

[1] California's average labor rate is $25.17 per hour. A rate of less than half the average labor rate ($12) was used to calculate the value of a person's time associated with handling shopping bags. If the average labor rate was used, or it was factored higher for high income areas (such as where bag bans have so far been implemented), the annual cost of the reusable bag options would double or triple.

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What Will A Plastic Carryout Bag Ban Cost Your Community?

WHAT COMMUNITIES TYPICALLY FAIL TO CALCULATE BEFORE IMPLEMENTING A BAG BAN

By Anthony van Leeuwen, 15 July 2013

Communities that implement plastic carryout bag bans most often fail to take into consideration the increased costs that are passed onto residents. Not only will residents incur out-of-pocket costs to purchase bags, but depending upon the type of bag chosen, personal time will be required to manage bags and maintain bags in a sanitary condition.

Carryout Bag Costs

In a previous article[1] titled "*Plastic Bag Alternatives Much More Costly to Consumers*" the authors analyze the annual cost per household of different bag alternatives including out-of-pocket costs to purchase bags but also to place a dollar value on one's personal time to manage bags and maintain bags in a sanitary condition. Personal time was valued at $12 per hour or about half of the California Average Labor Rate. These costs are summarized in Table 1 below:

Table 1. Annual Cost of Carryout Bag Alternatives

Bag Type	Option	Annual Cost
plastic	**Store Provided**	**$ 20.80**
plastic	Self-Purchased	$ 45.80
Paper	**Store Provided at 10-cents each**	**$ 78.00**
Paper	Store Provided at 25-cents each	$ 195.00
Reusable	Durable Machine Washable Bags	$ 262.00
Reusable	**Cheap Hand Washable Bags**	**$ 300.00**

For purposes of this article, and to keep things simple, we will use $20.80 as the annual indirect cost per household for store supplied plastic carryout bags, $78.00 as the annual cost per household for using store provided paper bags at 10-cents each, and $300.00 as the annual cost per household for using reusable bags.

[1] Van Leeuwen, Anthony and Williams, Don. 5 June, 2013. "*Plastic Bag Alternatives Much More Costly to Consumers*", Located at: http://fightttheplasticbagban.files.wordpress.com/2013/04/plasticbagalternativesmuchmorecostlytoconsumers.pdf

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Shoppers Exempt From Paper Bag Fee

Local ordinances that implement plastic carryout bag bans are very similar from one community to the next. The ordinances ban the distribution of plastic carryout bags at checkout and impose a fee of 10 or 25 cents on paper bags to discourage paper bag use and encourage shoppers to use reusable shopping bags instead.

Most ordinances grant a permanent[2] exemption to families that participate in the California Special Supplemental Food Program for Women, Infants, and Children (WIC) or in the Supplemental Nutrition Assistance Program (SNAP) also known as the Food Stamp program. Participants in these programs are exempt from paying the fee for paper bags when they shop; whereas, all others must purchase paper bags or purchase and use reusable bags. The fee exemption, in effect, creates a new welfare benefit.[3]

Due to economic conditions in the United States, the rolls of people who are on public assistance programs have swelled. In California, there are 4.18 million Food Stamp participants and 1.46 million WIC participants. It is assumed that SNAP and WIC participant groups overlap as indicated by program brochures. Since, information about the group overlap is not available, we will assume that no overlap exists and just add the two groups together to determine the fraction of the population eligible to receive free paper bags. For the purpose of this paper we will assume that all SNAP and WIC participants will use free paper bags when they shop.

We calculate the percent of the population eligible for free paper bags as follows:

$$Percent\ Population\ Eligible\ For\ Free\ Bags = \frac{SNAP\ Participants + WIC\ Participants}{California\ State\ Population} \times 100\%$$

$$Percent\ Population\ Eligible\ For\ Free\ Bags\ = \frac{4{,}180{,}000 + 1{,}460{,}000}{37{,}966{,}471}\ x\ 100\% = 14.86\%$$

Carryout Bag Usage

Only one study exists that identifies carryout bag usage statistics based upon observations of shoppers before and after implementation of a bag ban. This study[4] was conducted by Team Marine, an environmental student group at Santa Monica High School. These high school students conducted observations of 50,400 grocery store patrons over a period of 19 months spanning from ten months prior to the Santa Monica Plastic Bag Ban to twelve months after. Team Marine subsequently published their report in March 2013 which included observations from before the ban, immediately after the ban and up to 1 year after the ban was implemented. Results of the study are summarized in Table 2 below.

[2] In some cases, such as the City of San Jose, the ordinance grants the exemption from the paper bag fee for one year only.

[3] Van Leeuwen, Anthony, 28 April 2013. "Plastic Bag Ban Creates New Welfare Benefit", Located at: http://fightttheplasticbagban.files.wordpress.com/2013/04/plastic-bag-ban-creates-new-welfare-benefit.pdf

[4] Team Marine, 8 May 2013. "The Effects of the Plastic Bag Ban on Consumer Bag Choice at Santa Monica Grocery Stores". Santa Monica High School. Located at: http://www.teammarine.org/wp-content/uploads/2013/05/Grocery-Store-Bag-Research_Press-Release-12-13.pdf

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Also included in Table 2 are the Pre-ban and Post Ban assumptions from the BEACON Environmental Impact Report[5] (EIR) for Santa Barbara and Ventura Counties for comparison.

Even though the City of Santa Monica is not necessarily representative of cities and unincorporated areas in Santa Barbara or Ventura Counties, and that actual Pre Ban and Post Ban bag usage statistics will vary, we can nevertheless use these bag usage statistics to estimate Pre Ban and Post Ban costs to area residents.

Table 2. Pre Ban and Post Ban Carryout Bag Usage

Study	Plastic Bags	Paper Bags	Reusable Bags	No Bags or Other
BEACON EIR				
Pre Ban	100%	0%	0%	0%
Post Ban	0%	30%	65%	0%
Team Marine (Santa Monica)				
Pre Ban	69%	5%	10%	15%
Post Ban	0%	23%	41%	36%
Post Ban + 1 Year	0%	29%	35%	36%

Pre Ban Cost To Area Residents

In Table 3, we calculate the cost to residents for carryout bags before the bag ban by using the percentages of bag use indicated as Pre Ban in Table 2. The cost of plastic bags and paper bags are paid for indirectly by the shoppers in the form of higher prices. For store supplied paper bags, a cost of 4-cents per paper bag (estimated store cost) was used instead of the 10-cents per bag. The cost of plastic bags is calculated at $20.80 per household per year or 20 bags per week for 52 weeks for a total of 1040 bags per household at 2-cents each. The cost of reusable bags is calculated using the figure of $300 per household per year.

Post Ban Cost To Area Residents

To calculate the Post Ban cost to area residents, the fraction of households who pay for paper bags compared to all households who use paper bags must be calculated. This fraction is called an adjustment factor and is used in Table 4 to compute paper bag cost. The Adjustment Factor is calculated as follows:

$$Adjustment\ Factor = \frac{Percent\ Paper\ Bags - Percent\ Population\ Eligible\ For\ Free\ Bags}{Percent\ Paper\ Bags} \times 100\%$$

[5] BEACON, April 2013, "Single Use Carryout Bag Ordinance, Final Environmental Impact Report", Document SCH #2012111093, Appendix B Draft Ordinance. Page 552. Located at: http://www.beacon.ca.gov/assets/PDFs/Bag-Ordinance/BEACON%20Single%20Use%20Carryout%20Bag%20Ordinance%20Final%20EIR_updated%20May1.pdf

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$$Adjustment\ Factor = \frac{29\% - 14.86\%}{29\%} \times 100\% = 48.76\%$$

The next number needed is the number of households in a given area. Shopping is performed on a household or family basis regardless of how many household members shop. In California, the average household size is 2.91 persons[6] or three people. To calculate the number of households in an area, the area's population[7] is divided by 3. Next we determine the number of households that use paper bags and reusable bags based upon the "Post Ban + 1 Year" percentages in Table 2. The reason for using the "Post Ban + 1 Year" percentages is that after a bag ban is implemented, area residents are very responsive, but the responsiveness wears off as they become accustomed to the ban. In both cases, for paper bags and reusable bags, we calculate the yearly cost using the following formulas:

$$Paper\ Bag\ Annual\ Cost = Households\ Using\ Paper\ Bags\ \times \$78\ \times Adjustment\ Factor$$

$$Reusable\ Bag\ Annual\ Cost = Households\ Using\ Reusable\ Bags\ \times \$300$$

Results of our calculations for Santa Barbara and Ventura Counties and incorporated municipalities are included in Table 4 below. Table 4 also includes cost estimates for the cities of Carpenteria and Ojai (denoted by an asterisk) who have already implemented bag bans.

Factors That Affect Results

It should be noted that costs are modeled based upon carryout bag usage Pre Ban and Post Ban in Santa Monica. To our knowledge, no other bag usage studies based upon actual observations exist. Obviously, applying bag usage statistics from Santa Monica to Santa Barbara and Ventura Counties is subject to error but should be good enough for a meaningful estimate. Costs for a particular area could differ by a number of factors including:

- Prosperity of area residents
- Percent of area's residents exempt from paper bag fee
- Environmental conscientiousness of area's residents
- Specifics of a local ordinance that implements a bag ban
- How many people choose the No Bag option

Post Ban Cost Increase To Santa Barbara and Ventura Counties

Pre Ban and Post Ban Results for Santa Barbara and Ventura Counties are located in Tables 3 and 4, respectively. In Table 3, the estimated Pre Ban cost for Santa Barbara County is $6,568,476.80 and Ventura County is $12,785,512.54 for a total annual pre ban cost of **$19,353,989.34**. It should be noted that the plastic bag and paper bag costs are paid for indirectly by all shoppers via higher prices. The Pre Ban cost for reusable bags is calculated in the same manner as for Post Ban which includes both the cost

[6] United States Census. Located at: http://quickfacts.census.gov/qfd/states/06000.html
[7] State of California, Department of Finance, May 2013. "E-1 Population Estimates for Cities, Counties, and the State — January 1, 2012 and 2013". Located at: http://www.dof.ca.gov/research/demographic/reports/estimates/e-1/

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of bags and the value of one's time for handling and sanitizing the bags. In Table 4, the estimated Post Ban cost for Santa Barbara County is $16,599,955.52 and Ventura County is $32,311,743.80 for a total annual Post Ban cost of **$48,911,699.31**.

It would be tempting to subtract the **Total Pre Ban Cost** from the **Total Post Ban Cost** to determine how much **more** an area's residents will have to pay. However, it is highly doubtful that residents will see retail prices reduced after a bag ban; therefore, to compute the cost increase the **Pre Ban Total Reusable Bag Cost** of $12.6 million should be subtracted from the **Post Ban Total Cost** of $48.9 million for a **Total Post Ban Net Increase of $36.3 million**.

Cost Per Plastic Carryout Bag Eliminated

To determine the **Cost Per Bag Eliminated** the **Pre Ban Quantity of Plastic Bags** assumed Pre Ban in Table 3 must be calculated. We do that using the following formula:

$$Pre\ Ban\ Quantity\ of\ Plastic\ Bags = Households\ Using\ Plastic\ Bags * 1040\ bags\ per\ household$$

$$Pre\ Ban\ Quantity\ of\ Plastic\ Bags = 290{,}866\ \times 1040 = \ 302{,}500{,}640$$

To calculate the **Cost Per Bag Eliminated** we divide the **Total Post Ban Net Increase** by the **Pre Ban Quantity of Plastic Bags** using the following formula.

$$Cost\ Per\ Bag\ Eliminated = \frac{Total\ Post\ Ban\ Net\ Increase}{Pre\ Ban\ Quantity\ of\ Plastic\ Bags}$$

$$Cost\ Per\ Bag\ Eliminated = \frac{\$36{,}300{,}000}{302{,}500{,}640} = \$0.12$$

So the cost to eliminate each plastic carryout bag is 12 cents and that for a bag that costs less than 2 cents each in bulk. In other words, a bag ban is not a very smart economic move.

Since no one knows what percent of plastic carryout bags used each year that end up in the environment as litter, it would not be surprising that when the cost is compared only to the quantity of bags littered that the cost to remove each littered plastic carryout bag could be as high as $10,000 per littered bag.

Conclusion

It should be noted that the net cost increases at the city and county would have been much greater had not the proportion of people using the No Bag alternative not increased from 15% to 36%. It should also be noted from Table 1, that individual families will see their costs increase from $45.80 to $300 annually depending upon which carryout bag alternative they choose or a factor of 2.2 to 14.4 times greater than the indirect cost of store supplied plastic bags. Hence, unless a family chooses not to use carryout bags, their costs to comply with the plastic bag ban will increase.

Since plastic carryout bags represent less than 1% of roadside litter, community and county litter cleanup budgets **cannot be reduced by one penny**! When you consider all the money that would be

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spent by each jurisdiction to implement a bag ban and the **$36.3 million** increase that Santa Barbara and Ventura County residents would have to spend annually to comply with the bag ban, and that less than 1% of roadside litter is cleaned up, it becomes obvious that the bag ban is not a wise investment of time and money! **Alternatives solutions for comprehensive litter prevention and removal deserve serious consideration.**

It would cost area residents 12 cents to eliminate each plastic carryout bag! Since plastic carryout bags cost less than 2-cents each in bulk, it is not a very good use of money.

Community and County officials should consider the economic and financial impact to their local jurisdictions including costs passed to residents by a local plastic carryout bag ban.

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Table 3. Pre Ban Cost of Carryout Bags to Area Residents

Area	Population	Number of Households In Area	Households Using Plastic Bags	Plastic Bag Annual Cost	Households Using Paper Bags	Paper Bag Annual Cost	Households Using Reusable Bags	Reusable Bag Annual Cost	Total Public Annual Cost
Santa Barbara County									
Unincorporated Areas	136,167	45,389	31,318	$651,422.93	2,269	$70,806.84	4,539	$1,361,670.00	$2,083,899.77
Buellton	4,863	1,621	1,118	$23,264.59	81	$2,528.76	162	$48,630.00	$74,423.35
Carpenteria*	13,099	4,366	3,013	$62,665.62	218	$6,811.48	437	$130,990.00	$200,467.10
Goleta	29,962	9,987	6,891	$143,338.21	499	$15,580.24	999	$299,620.00	$458,538.45
Guadalupe	7,100	2,367	1,633	$33,966.40	118	$3,692.00	237	$71,000.00	$108,658.40
Lompoc	42,730	14,243	9,828	$204,420.32	712	$22,219.60	1,424	$427,300.00	$653,939.92
Santa Barbara	89,681	29,894	20,627	$429,033.90	1,495	$46,634.12	2,989	$896,810.00	$1,372,478.02
Santa Maria	100,306	33,435	23,070	$479,863.90	1,672	$52,159.12	3,344	$1,003,060.00	$1,535,083.02
Solvang	5,292	1,764	1,217	$25,316.93	88	$2,751.84	176	$52,920.00	$80,988.77
Total Santa Barbara County	**429,200**	**143,067**	**98,716**	**2,053,293**	**7,153**	**$223,184.00**	**14,307**	**$4,292,000.00**	**$6,568,476.80**
Ventura County									
Unincorporated Areas	96,554	32,185	22,207	$461,914.34	1,609	$50,208.08	3,218	$965,540.00	$1,477,662.42
Camarillo	66,428	22,143	15,278	$317,791.55	1,107	$34,542.56	2,214	$664,280.00	$1,016,614.11
Fillmore	15,175	5,058	3,490	$72,597.20	253	$7,891.00	506	$151,750.00	$232,238.20
Moorpark	34,904	11,635	8,028	$166,980.74	582	$18,150.08	1,163	$349,040.00	$534,170.82
Ojai*	7,548	2,516	1,736	$36,109.63	126	$3,924.96	252	$75,480.00	$115,514.59
Oxnard	200,855	66,952	46,197	$960,890.32	3,348	$104,444.60	6,695	$2,008,550.00	$3,073,884.92
Port Hueneme	22,024	7,341	5,066	$105,362.82	367	$11,452.48	734	$220,240.00	$337,055.30
Santa Paula	29,953	9,984	6,889	$143,295.15	499	$15,575.56	998	$299,530.00	$458,400.71
Simi Valley	125,558	41,853	28,878	$600,669.47	2,093	$65,290.16	4,185	$1,255,580.00	$1,921,539.63
Thousand Oaks	128,143	42,714	29,473	$613,036.11	2,136	$66,634.36	4,271	$1,281,430.00	$1,961,100.47
Ventura	108,294	36,098	24,908	$518,078.50	1,805	$56,312.88	3,610	$1,082,940.00	$1,657,331.38
Total Ventura County	**835,436**	**278,479**	**192,150**	**3,996,725.82**	**13,924**	**$434,426.72**	**27,848**	**$8,354,360.00**	**$12,785,512.54**
Total	**1,264,636**	**421,545**	**290,866**	**$6,050,018.62**	**21,077**	**$657,610.72**	**42,155**	**12,646,360.00**	**$19,353,989.34**

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Table 4. Post Ban Cost of Plastic Bag Ban to Area Residents

Area	Population	Number of Households In Area	Households Using Paper Bags	Paper Bag Annual Cost	Households Using Reusable Bags	Reusable Bag Annual Cost	Total Public Annual Cost
Santa Barbara County							
Unincorporated Areas	136,167	45,389	13,163	$ 500,618.52	15,886	$ 4,765,845.00	$ 5,266,463.52
Buellton	4,863	1,621	470	$ 17,878.84	567	$ 170,205.00	$ 188,083.84
Carpenteria*	13,099	4,366	1,266	$ 48,158.53	1,528	$ 458,465.00	$ 506,623.53
Goleta	29,962	9,987	2,896	$ 110,155.41	3,496	$ 1,048,670.00	$ 1,158,825.41
Guadalupe	7,100	2,367	686	$ 26,103.18	828	$ 248,500.00	$ 274,603.18
Lompoc	42,730	14,243	4,131	$ 157,097.02	4,985	$ 1,495,550.00	$ 1,652,647.02
Santa Barbara	89,681	29,894	8,669	$ 329,712.56	10,463	$ 3,138,835.00	$ 3,468,547.56
Santa Maria	100,306	33,435	9,696	$ 368,775.41	11,702	$ 3,510,710.00	$ 3,879,485.41
Solvang	5,292	1,764	512	$ 19,456.06	617	$ 185,220.00	$ 204,676.06
Total Santa Barbara County	**429,200**	**143,067**	**41,489**	**$1,577,955.52**	**50,073**	**$ 15,022,000.00**	**$ 16,599,955.52**
Ventura County							
Unincorporated Areas	96,554	32,185	9,334	$ 354,981.17	11,265	$ 3,379,390.00	$ 3,734,371.17
Camarillo	66,428	22,143	6,421	$ 244,222.81	7,750	$ 2,324,980.00	$ 2,569,202.81
Fillmore	15,175	5,058	1,467	$ 55,790.95	1,770	$ 531,125.00	$ 586,915.95
Moorpark	34,904	11,635	3,374	$ 128,324.70	4,072	$ 1,221,640.00	$ 1,349,964.70
Ojai*	7,548	2,516	730	$ 27,750.25	881	$ 264,180.00	$ 291,930.25
Oxnard	200,855	66,952	19,416	$ 738,444.21	23,433	$ 7,029,925.00	$ 7,768,369.21
Port Hueneme	22,024	7,341	2,129	$ 80,971.32	2,569	$ 770,840.00	$ 851,811.32
Santa Paula	29,953	9,984	2,895	$ 110,122.32	3,495	$ 1,048,355.00	$ 1,158,477.32
Simi Valley	125,558	41,853	12,137	$ 461,614.49	14,648	$ 4,394,530.00	$ 4,856,144.49
Thousand Oaks	128,143	42,714	12,387	$ 471,118.25	14,950	$ 4,485,005.00	$ 4,956,123.25
Ventura	108,294	36,098	10,468	$ 398,143.32	12,634	$ 3,790,290.00	$ 4,188,433.32
Total Ventura County	**835,436**	**278,479**	**80,759**	**$3,071,483.80**	**97,468**	**$ 29,240,260.00**	**$ 32,311,743.80**
Total	**1,264,636**	**421,545**	**122,248**	**$4,649,439.31**	**147,541**	**$ 44,262,260.00**	**$ 48,911,699.31**
'*' denotes community has already implemented a plastic bag ban.							

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2 December 2013

County of Santa Barbara
Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
Attention: Mr. Carlyle A. Johnston

Subj: Comments on the Proposed Single-Use Plastic Bag Ordinance and Proposed Environmental Impact Report

Ref: (a) Notice of Preparation of a Draft Environmental Impact Report (13EIR-00000-00006) for the proposed Santa Barbara County Single-Use Plastic Bag Ban Ordinance dated 5 November 2013
(b) Viewgraph Presentation "*Notice of Preparation, Environmental Impact Report, Single Use Plastic Bag Ban Ordinance*" dated 11/21/2013.
(c) Proposed Model County Ordinance Single-Use Bag Ordinance (Draft)

Encl: (1) "*Plastic Bag Recycling Rate - A Non-Issue*" by Anthony van Leeuwen, dated 23 November 2013
(2) "*National Plastic Shopping Bag Recycling Signage Testing – A Survey of the General Population*", March 2007 by APCO Insight.
(3) City of San Jose Pre and Post Store Observations Summary, dated 11/29/2013
(4) Analysis of San Jose Pre and Post Bag Ban Data, dated 11/29/2013
(5) "*The Effects of the Plastic Bag Ban on Consumer Bag Choice at Santa Monica Grocery Stores*", by Team Marine, Santa Monica High School, dated 8 May 2013.
(6) Save The Plastic Bag Coalition (STPB) Public Records Act Request to Los Angeles County Department of Public Works dated 18 April 2012
(7) Los Angeles County Response to Public Records Act Request dated 26 April 2012
(8) Save The Plastic Bag Coalition (STPB) Letter to City Council dated 2 May 2012
(9) "*Rebuttal of the San Jose Bag Ban Results*" by Don Williams and Anthony van Leeuwen, dated 23 August 2013
(10) Photo: Whole Foods, City of West Hollywood dated 7 March 2013

1. Reference (a) announced a public Scoping Meeting on 21 November 2013 for the purpose of "gathering public input on the environmental document and on feasible ways in which project impacts may be mitigated." During the public Scoping Meeting a viewgraph presentation, reference (b), was presented by County Staff. The undersigned commented on the presentation at the scoping meeting and by submitting additional written comments below pertaining to issues in the presentation. The presentation contained 32 slides beginning with slide 1 and are referred to herein by their ordinal number. The following comments apply:
    a. Slide 8. Bag Ban History – California. The slide is misleading and deceptive. The slide references the unincorporated area of the county yet provides the estimated total number of plastic carryout bags for the entire county including the incorporated areas. The number of bags used in the unincorporated area should be calculated by using the population of the

unincorporated area of the county and multiplying that by 531 bags per person per year. This would be approximately 72 million plastic carryout bags and NOT the 228 million as shown. By talking about the unincorporated area of the county and then providing a statistic for the entire county, is deceptive and misleading because it gives officials and the public the impression there are more plastic bags in the unincorporated area than there really are.

b. Slide 13, Single-Use Plastic Bag Recycling. The bullet "CalRecycle reports only 5% of plastic bags are recycled" is DECEPTIVE in that it does NOT tell the whole story. The bullet suggests that because the recycling rate of plastic carryout bags is only 5% that this is a reason why these bags should be banned. However, the reason why the recycling rate is so low is conveniently omitted in order to further a political agenda! Enclosure (1) titled "*Plastic Bag Recycling Rate - A Non-Issue*" is submitted to explain why the recycling rate of plastic bags is low. The plastic carryout bag with its handles that can easily be tied together to secure the contents is one of the most reused and repurposed items that comes into the household. Studies show that the reuse rate of plastic bags is between 76% and 92% (See Enclosures (1) and (2)). With such a high reuse rate, it follows that the recycling rate would be low, particularly when a large proportion of these bags are used to dispose of trash and end up in the landfill in lieu of a plastic trash bag. Plastic carryout out bags used as trash bags and disposed of in the landfill filled with trash are **not available for recycling**, a simple fact that many so-called Bag Ban proponents are unable to grasp or purposely ignore.

   It should be noted that empty plastic bags should be recycled at the In-Store Recycling Bin at your local grocery store or if disposed in the trash, should be bagged with other trash, the same as shredded paper from your paper shredder must be bagged to prevent windblown litter. This simple solution would solve a major problem with loose plastic bags at the landfill.

c. Slide 14, Single-Use Plastic Bag Recycling. This slide is misleading in that it attempts to suggest that recycling of plastic carryout bags is challenging and may not make economic sense. The following points are made:
   i. The slide omits important and essential information about the plastic bag recycling program mandated by the State of California through AB 2449 and SB 1219. Grocery stores recycle plastic bags and pass the cost of doing so to customers. Trucks that deliver groceries to local stores, instead of leaving empty take recycled cardboard and plastic bags back to their distribution centers for further consolidation and transport to recyclers and thereby **avoid the extra transportation charges**.
   ii. In the event a ban on plastic carry out bags is implemented in Santa Barbara County, retail stores will no longer be required by law to maintain their plastic bag recycling program since they no longer distribute plastic carryout bags. In San Francisco the plastic carry out bag ban has led grocery stores to shut down their plastic bag recycling programs.
   iii. In the event local retailers shut down their recycling programs, consumers will lose access to the **only successful facility** for recycling plastic carryout bags and other plastic bags and wraps resulting in more plastic going to the landfill instead of being recycled.
   iv. The sorting equipment at recycling facilities are being jammed not only by plastic carryout bags, but by all sorts of plastic bags (newspaper bags, produce bags, frozen food bags) and plastic wrap (wrap from toilet paper, bottled beverages, bottled

water, packaged products), and from all sorts of materials (blankets, hoses, ropes or other strapping materials) which are all responsible for jamming sorting machinery. A ban on plastic carryout bags will not prevent all jams of sorting machinery at recycling facilities or expensive breakdowns. Educating the public that plastic bags and wraps and other prohibited materials may not be put in the curbside recycling bin would be a much better solution to the problem. Furthermore, the public needs to be educated about bringing unused and clean plastic bags and wraps to the retail stores' In-Store Recycling Bin for recycling vice the curbside recycle bin.

v. Because automated sorting machines are a relatively new, engineers will continue to improve on designs for a newer generation of machines that are not susceptible to breakdowns from plastic film and materials wrapping around rotating shafts or jamming the machine in some other manner. With the prestigious University of California, Santa Barbara (UCSB) located in Santa Barbara County why not challenge the UCSB students and faculty to develop new processes for recycling and reclaiming plastics and redesigning sorting machines to prevent entanglement of plastic film in the rotating components of those machines!

d. Slide 16, Experience in Other Jurisdictions, San Jose City. The information provided on the slide for the City of San Jose is MISLEADING:

i. The first bullet states that little data is available documenting the use of bags before bans were implemented. This statement is correct. Only one good study exists that identifies carryout bag usage statistics based upon observations of shoppers before and after implementation of a bag ban. This study, see Enclosure (5), was conducted by Team Marine, a student environmental group at Santa Monica High School. These high school students conducted observations of 50,400 grocery store patrons over a period of 19 months spanning from ten months prior to the Santa Monica Plastic Bag Ban to twelve months after. Team Marine subsequently published their report in March 2013 with an update in May 2013. This report included observations from before the ban, immediately after the ban and up to 1 year after the ban was implemented. Team Marine reported that shoppers choosing No Bags went up from 15% to 36%, paper bags went up from 5% to 29%, and reusable bags went up from 10% to about 35%. The County of Santa Barbara should have used the Team Marine study for bag usage rather than the misleading data from the City of San Jose.

ii. The statement: "Reusable bags up from 4% to 62%" is incorrect and misleading. The numeric quantities of 4% and 62% are incorrect due to internal inconsistencies within San Jose documents reporting the Pre Ban and Post Ban bag use. Unfortunately the wrong numeric quantities are repeated on this slide. Enclosure (3), spreadsheet data from the City of San Jose, shows reusable bag use going from 3.1% to 64.4%. Normally, one would conclude that this represents an increase, but each number merely represents the proportion of reusable bags compared to all other bags used and counted. The actual quantity of reusable bags observed Pre Ban was **265** and Post Ban was **1194**, only **4.5** times more bags Post Ban than Pre Ban. When the bag usage number are adjusted for 1000 customers Pre Ban and 1000 customers Post Ban, see Enclosure (4), we see that reusable bags went up from 92 to 549 or 495% or by a factor of about **6**. An increase of 3.1% to 64.4% is misleading because it would suggest that the use of reusable bags increased by a factor of **20.78**, when in actuality reusable bag use increased by a much smaller

factor of about **6**. Hence, the data presented is misleading giving a false impression that the bag ban is much more successful than it really is!

iii. The statement: "*No bag option* up more than 100%" while true, deceptively obscures the fact that number of customers who chose the No Bag option went up from 12.9% Pre Ban to 43.5% Post Ban and more than tripled with an increase of 237%. Enclosure (3), "*City of San Jose Pre and Post Store Observations Summary*" is submitted for information and includes source data from the City of San Jose and was reformatted for purposes of this document.

iv. The city of San Jose also reported paper bag usage going from 11.9% to 33.3% even though the total number of paper bags observed decreased from 1008 to 617. When survey data is adjusted to 1000 customers Pre Ban and Post Ban, including those who choose the No Bag option, paper bags used decreased by 19%. If survey data is adjusted to 1000 customers who used bags before and after the ban, there is a 24.6% increase in paper bags used. In other words, for customers who continue to use bags there is an increase in paper bags used. **The large number of customers who rejected the ordinance and chose to use the No bag option instead impacted survey results.** See Enclosure (4) for our Analysis.

v. Questions remain about the validity of the San Jose survey. The city of San Jose sampled 2,869 shoppers Pre Ban and 2,173 Post Ban. The city counted total shoppers, shoppers who used no bag, and counted the total of each type of bag used. The city should have counted the number of shoppers who used each of the different bag types (plastic, paper, or reusable) in order to assess how well shoppers accepted the ban and the shift to reusable bags. In addition, while some of the stores were surveyed both before and after the ban, some stores were only sampled before the ban but not after. While grocery stores and department stores were surveyed before the ban, after the ban predominantly grocery stores were surveyed. Our contention is that the disproportion between grocery and departments stores in the surveys before and after the bag ban distorted the survey results. See Enclosure (4) Sheet 2 for the stores and the dates each store was surveyed.

e. Slide 16, Experience in Other Jurisdictions, LA County. Los Angeles County claimed that paper bag use decreased over 20%. This number is fictitious as Los Angeles County had no statistics available concerning paper bag use prior to the bag ban. Save The Plastic Bag Coalition (STPB) submitted a Public Records Act Request, Enclosure (6), to LA County requesting copies of all documents, reports, and information about paper bag use in LA County in 2009 prior to the bag ban. LA County responded in Enclosure (7), stating that no relevant documents were found. The fact that LA County had no data on paper bag use before the ordinance took effect is documented in a letter to the Los Angeles City Council by STPB dated 2 May 2012, Enclosure (8). The inclusion of the statement that paper bag use decreased over 20% in LA County is a deceptive attempt to hide the fact that paper bag use increases in areas with plastic bag bans. For example, in the City of Santa Monica paper bag use increased from 5% to 29% as documented in Enclosure (5).

f. Slide 17, Experience in Other Jurisdictions, San Jose City. The information provided is this slide is questionable. For example, the 89% reduction of plastic bags in storm drains reported by the City of San Jose is based upon a reduction of 71 plastic bags (80 Pre Ban to 9 Post Ban) in 23 storm drain catch basins outfitted with trash capture devices. When you consider that the City of San Jose has a "storm water collection system that includes more than 1,150 miles of storm sewer pipelines, 29,900 storm drain inlets, 1,500 storm outfalls,

and over 4,500 miles of curb and gutter" the claim of an 89% reduction in plastic bags based upon results from 23 storm drain catch basins as being representative of the entire San Jose storm drain system is simply **not creditable**. See enclosure (9) titled "*Rebuttal of the San Jose Bag Ban Results*" for additional information about the San Jose Bag Ban Results.

g. Slide 19. Our Ordinance – Key Components. The information is incomplete. For example, paper bags used in grocery stores come in different sizes as shown in Enclosure (10). Are all such bags subject to the 10-cent fee? This is not clear in the proposed ordinance, reference (c), and should be clarified.

h. Slide 20. Our Ordinance – Key Components. The information in this slide is incomplete and deceptive. The pictured "green reusable bag" is more than likely made from Polypropylene (PP) and is NOT recyclable. Also missing is a statement that the recycling rate for Reusable bags is 0% or at most 1% for reusable bags made from HDPE or LDPE plastic. This makes the recycling rate of plastic carryout bags a much better option. (See Enclosure (1) Page 2)

i. Slide 22. Our Ordinance – Stores Affected. The information is incomplete. For example, plastic bags come in many different sizes. For example, Target sells a line of groceries and also merchandise. Target also carries large plastic bags that can hold pillows, rugs, clothes, or other large items. Are these large plastic bags also banned under the ordinance and to be replaced by paper bags? Will the 10-cent fee apply to these bags? The ordinance in reference (c) needs to clarify which plastic carryout bags are affected.

2. Although reference (a) requested comments regarding environmental issues or concerns that should be evaluated in the EIR, it also identified changes to the proposed ordinance, reference (c). The following comments are with respect to the Proposed Ordinance and could have an effect on the assumptions made in the EIR and the environmental evaluation. The County of Santa Barbara should evaluate the following comments promptly. The following comments apply to reference (c):

   a. Section 16B-1. Definitions. Subparagraph H. Recyclable paper carryout bag. The paragraph fails to make a distinction between the different sizes of paper bags and if all paper carryout bags are covered by this ordinance. See Enclosure 10 photo.

   b. Section 16B-1. Definitions. Subparagraph H and I. The definition for a Recyclable paper carryout bag includes the requirement that the bag "*is accepted for recycling in the curbside programs in the county*". Why is a similar requirement not listed for Reusable bags? The most common reusable bags are made from Polypropylene (PP) or from Cotton. At the current time there is no recycling facility in the United States that will accept bags made from PP and no composting facility that will accept cotton bags. This means that the recycling rate for these reusable bags is zero percent and at end of life will be disposed of in the landfill. Reusable bags made from High Density Polyethylene (HDPE) or Low Density Polyethylene (LDPE), a thick plastic bag, are recyclable through the In-Store Recycling Bins. By adding the requirement that stores only sell reusable bags that are recyclable in the local community would help the county move towards the Zero Waste goal. While shoppers are still free to purchase and use PP or Cotton bags on the internet or in other communities, stores subject to the ordinance would only sell Recyclable Reusable Bags. The county should seriously consider adding this requirement to the ordinance to further the Zero Waste Goal. See Enclosure (1) for details concerning the lack of recyclability of PP and cotton bags.

   c. Section 16B-2. Plastic carryout bags prohibited. This section is incomplete. A department store, such as Target, that sells a line of grocery products and subject to the ordinance, uses plastic carryout bags of different sizes. For example, there are large plastic carryout bags to carry out clothes, pillows, blankets, small rugs, etc. Are these larger plastic carryout bags also prohibited? Or does the ordinance apply only to the size plastic carryout bag commonly

used in grocery stores? This section should be rewritten to clarify which plastic carryout bag are banned.

d. Section 16B-3. Permitted bags. Same question as in 2.c above. Are smaller or larger size plastic bags prohibited in a department store that also sells a line of groceries?

3. This memorandum and enclosures are submitted in accordance with reference (a) and should become part of the official record regarding the Preparation of this EIR and the development of the proposed ordinance. For more information, please feel free to contact Mr. Anthony van Leeuwen, 901 Decatur Ave., Ventura, CA 93004 or at 805-647-4738 or by email at: vanleeuwenaw@roadrunner.com.

Respectfully,

Anthony van Leeuwen

Anthony van Leeuwen

Plastic Bag Recycling Rate - A Non-Issue

HIGH SECONDARY USE OF PLASTIC BAGS INHIBITS RECYCLING RATES – A STORY BAG BANNERS WON'T TELL YOU!

By Anthony van Leeuwen, 23 November 2013

Bag Ban Proponents like to point out that the recycling rate for plastic carryout bags is 5% or less and that because of the low recycling rate, plastic carryout bags should be banned.

Bag Ban Proponents totally miss the point. When plastic carryout bags are reused as trash bags, waste can liners, to pick up pet litter, dispose of kitchen grease, dispose of dirty diapers, or the myriad of other uses and end up in the landfill filled with trash, they cannot be recycled. Bag Ban Proponents appear to have a particularly difficult time comprehending this simple fact.

According to the State of California, the recycling rate of plastic carryout bags through the **In Store Recycling Program** is less than 5%. (CalRecycle, 2011) The U. S. Environmental Protection Agency (EPA) reports that 14.1% of plastic bags (of all kinds) are recycled. (EPA Office of Solid Waste, 2013)

What Bag Ban Proponents **neglect** to tell you is that according to a study by the UK Environment Agency that 76% of all plastic carryout bags are reused by consumers for a variety of purposes. In fact, this same study reports that 40.3% of all plastic carryout bags are reused as waste bin liners, as trash bags, and to pick up pet litter. In addition, the study claims that reusing a plastic carryout bag as a trash bag is actually beneficial to the environment because it avoids the manufacture and purchase of another plastic bag. (Edwards & Fry, 2011)

In a similar 2007 study, performed by APCO Insight, it is reported that 92% of respondents said they reuse plastic carryout bags and 8% said they did not. Sixty-Five percent (65%) of the respondents used them for trash and the remainder used them for a variety of other purposes. (APCO Insight, 2007)

Both the UK study and the APCO Insight study identify high levels of secondary reuse of plastic carryout bags that would inhibit recycling rates for these bags, since most would end up in the landfill with trash!

In fact, the plastic carryout bag is one of the most repurposed and reused items that comes into the home. The fact that plastic carryout bags are used for 12 minutes to carry groceries home and then reused as a trash bag to dispose of trash is beneficial to the environment in that it prevents the purchase and manufacture of another plastic bag. (Edwards & Fry, 2011) By reusing plastic carryout bags a certain efficiency is attained that when broken results in a higher environmental cost! (van Leeuwen, 2013)

But getting back to that low 5% plastic bag recycling rate often quoted by bag ban proponents. The only thing lower is the recycling rate for reusable bags. **Yes, that is right and you heard it here!** The recycling rate for reusable bags is close to 0% or at most 1%. You won't hear a Bag Ban Proponent tell you that! Don't you think we should ban reusable bags as well?

Encl: (1)

You see, majority of reusable bags currently in use in California are made from non-woven Polypropylene (PP) or fabrics such as cotton. While PP is technically recyclable, currently there is no recycling infrastructure that will accept PP bags in the United States. Furthermore, although cotton bags are technically compostable, there is no composting facility currently available. Hence, both PP and cotton reusable bags must be disposed of in the trash or landfill. (Greene, 2011)

About 1% of reusable bags are made from High Density Polyethylene (HDPE) or Low Density Polyethylene (LDPE). These bags are recyclable via the In-Store Recycling Bin at your local retail store.

The real problem with the lightweight plastic carryout bags is the litter problem. Plastic bags that enter the environment as litter is a direct result of people who litter and from wind-blown trash coming from garbage and other trucks or more simply put the improper disposal of trash.

A caller to a local radio show made an interesting observation. He said that when people shop and use plastic carryout bags to bring their groceries home, the bags are not littered. The caller went on to explain, that when people go into a store to purchase food and drink that will be consumed somewhere outside the store, that the probability is very high that those plastic bags will end up as litter. A simple solution might be to provide a paper bag instead of a plastic bag to a person buying drinks and snacks?

A similar argument can be made for plastic carryout bags that are reused to pack clothes and food items for a trip to the beach or to the park. An empty bag that is disposed in a public trash receptacle could become windblown litter if not tied in a knot or weighed down with trash.

Shoppers who save plastic bags for reuse should be sure to recycle excess bags through the In-Store Recycling Bins at their local supermarket and not through the curbside recycling bins. If they do dispose of bags in the curbside trash bin, these bags along with paper litter that can become windblown should be bagged, similar to the requirement to bag shredded paper from a paper shredder! This solution will prevent a lot litter spilling from garbage trucks when containers are emptied thereby preventing a significant amount of roadside litter not to mention plastic bag litter.

While no one knows the proportion of plastic carryout bags used in the community that enter the environment as litter, we do know that plastic bags of all types comprise less than 0.6% of roadside litter! (Stein, 2012) Using a bag ban to control littered plastic bags is the wrong solution, cost local jurisdictions and community residents millions of dollars for **negligible results**. (van Leeuwen, 2013)

Conclusion

Plastic bag bans are **BAD** public policy. When Bag Ban Proponents talk about the low 5% plastic bag recycling rate without explaining that the low recycling rate is a direct result of the high secondary reuse rate of plastic carryout bags by shoppers, you know they are trying to pull the wool over your eyes!

Encl: (1)

About The Author

*Anthony van Leeuwen is the founder of the **Fight The Plastic Bag Ban** website and writes extensively on the subject. He holds a bachelors and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Encl: (1)

Encl: (2)

National Plastic Shopping Bag Recycling Signage Testing

A Survey of the General Population

March 2007

American Plastics Council®

APCO insight®

Methodology

Encl: (2)

- This APCO Insight study is an assessments of attitudes and awareness associated with the recycling of plastic shopping bags as well as a quantitative evaluation of two creative executions of plastic shopping bag recycling logos/posters. It was conducted among 502 randomly selected consumers who are responsible for household grocery shopping at least "some of the time".

Survey Population:	General Adult Public
Sample Design:	Screened Random Sample
Eligibility Criteria:	Responsible for some household grocery shopping. Marketing, PR, opinion research or media exclusion.
Sample Size:	n = 502
Margin of Error:	± 4.5 % (at 95% confidence level)
Data Collection Methodology:	Interactive TV panel
Field Dates:	03/06/07 – 03/15/07

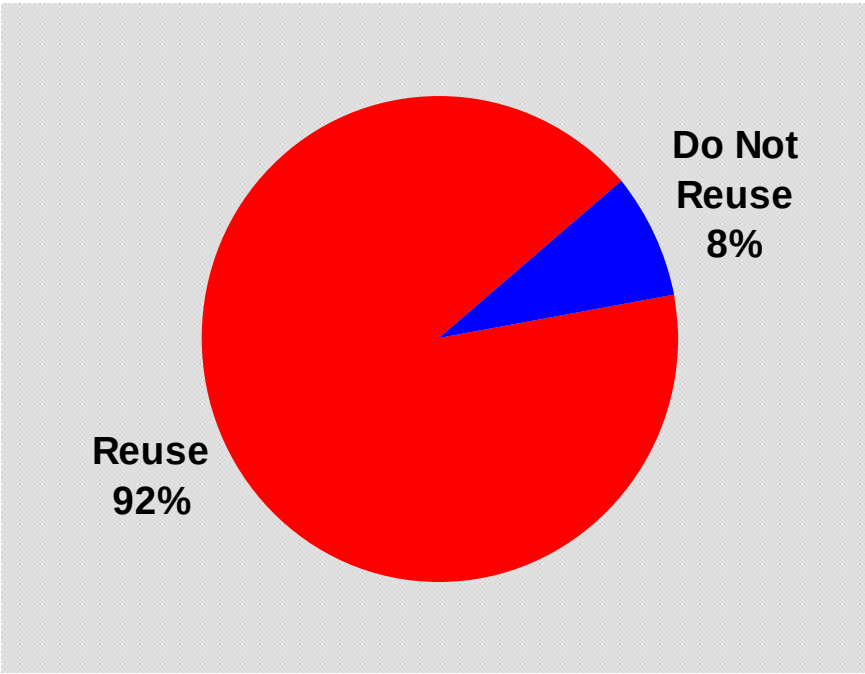
APCO insight®

Near Universal Reuse of Plastic Shopping Bags…

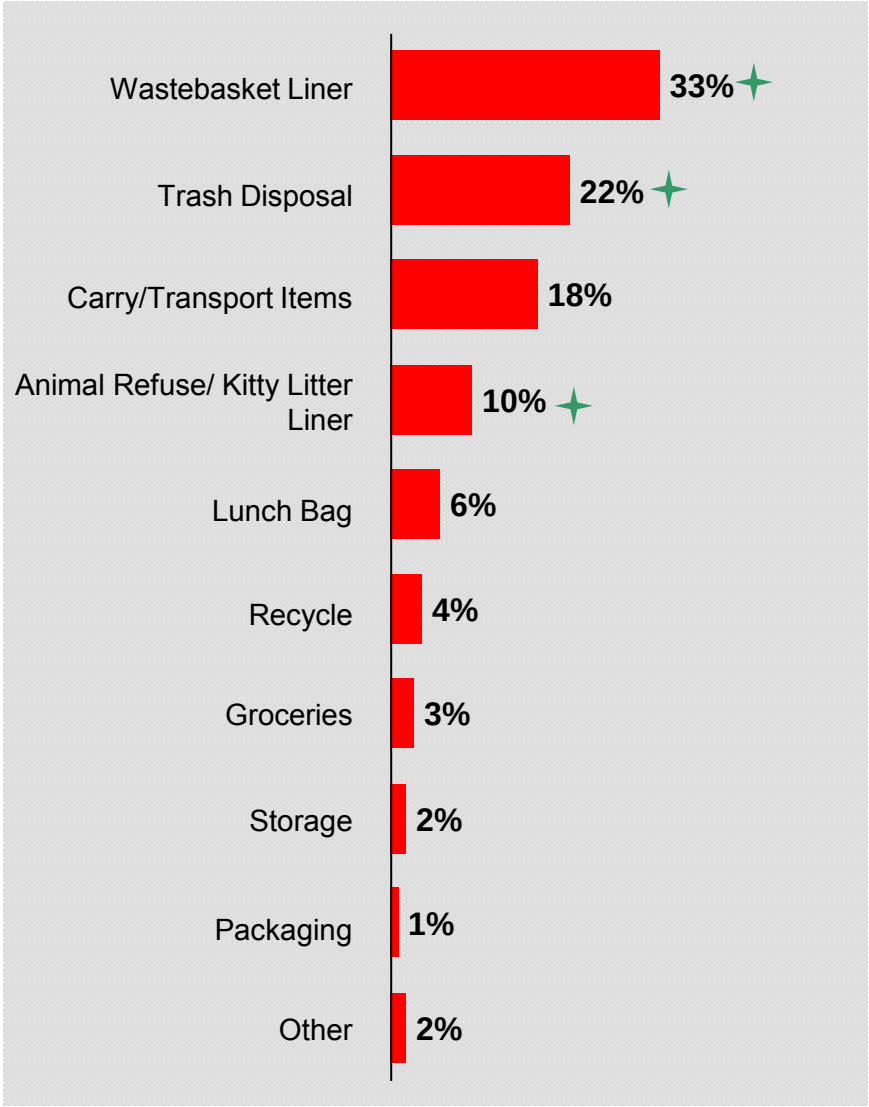
Encl: (2)

- The reuse of plastic shopping bags is nearly universal, with about two thirds (65%) of respondents using them to contain trash

Reuse of Plastic Shopping Bags



Uses for Plastic Shopping Bags



Q5. Do you or does anyone in your household ever reuse plastic shopping bags?
Q6. [IF Q5 = YES]: What is the primary purpose you reuse plastic bags for? (n=462)

APCO insight®

Encl: (3)

City of San Jose
Pre and Post Store Observations Summary

11/29/2013

YR.	# of Customers Observed	# of Paper Bags	# of Plastic Bags	# of Reusable Bags	Total Bags	% of Total Bags that were Paper	% of Total Bags that were Plastic	% of Total Bags that were Reusable	Ave. # Bags per Customer	Ave. # Single-Use Bag per Customer	Customers No Bag/Hand Carry Items	% of Customers No Bags/Hand Carry Items
2009S	1057	641	2542	115	3298	19.4%	77.1%	3.5%	3.12	3.01	60	5.7%
2010W	705	208	3598	77	3883	5.4%	92.7%	2.0%	5.51	5.40	67	9.5%
2010S	1107	159	1064	73	1296	12.3%	82.1%	5.6%	1.17	1.10	243	22.0%
PRE	**2869**	**1008**	**7204**	**265**	**8477**	11.9%	85.0%	**3.1%**	**2.95**	2.86	**370**	**12.9%**
2012S	1068	317	28	550	895	35.4%	3.1%	61.5%	0.84	0.32	419	39.2%
2012F	1105	300	15	644	959	31.3%	1.6%	67.2%	0.87	0.29	526	47.6%
POST	**2173**	**617**	**43**	**1194**	**1854**	33.3%	2.3%	64.4%	**0.85**	**0.30**	**945**	**43.5%**

Data reformatted from the original file provided by the city of San Jose named: Pre_Post_Stor_Observations_Summary12.11.12.xlsx

"To assess behavior change in bag use. City staff conducted visual observations of customers at retail stores before and after the ordinance went into effect. City staff observed shoppers leaving selected retail stores for one hour and counted the number and type of bags, or absence of a bag, that customers used to cany their purchases. Visual observations were made at a variety of store types, including grocery stores, pharmacies, and general retailers in different San Jose neighborhoods at the same stores both before and after implementation of the BYOB Ordinance." **City of San Jose Memorandum, Kerrie Romanow To Transportation and Environment Committee, dated 20 November 2012.**

Encl: (3)

City of San Jose
Pre and Post Store Observations Summary

11/29/2013

Bag Observation Locations		DATE OF PRE BAN SURVEY			DATE OF POST BAN SURVEY	
STORE	LOCATION	Summer 2009	Winter 2010	Summer 2010	Spring 2012	Fall 2012
Trader Joe's	635 Coleman Ave	7/9/2009	1/7/2010		3/27/2012	10/23/2012
Safeway	1300 West San Carlos Ave.	7/9/2009	1/13/2010		3/27/2012	10/23/2012
Su Vianda	727 East Santa Clara St.	7/13/2009	1/11/2010			
Lucky's	2980 E. Capitol Expressway	7/21/2009	1/19/2010		3/27/2012	10/23/2012
PW Market	5205 Prospect Rd	7/16/2009	1/21/2010			
Mi Pueblo	1745 Story Rr.	8/7/2009	1/22/2010		3/27/2012	10/23/2012
Ranch 99	1688 Hostetter Rd.	8/13/2009	1/7/2010		3/27/2012	10/23/2012
Food Maxx	Parkmoor Ave.		1/22/2010			
Lion Market	1710 Tully Rd.		2/3/2010			
International Food Bazaar	2052 Curtner Ave.		1/12/2010			
Walgreens	440 Blossom Hill Road			7/13/2010		
Target	2161 Monterey Hwy			7/14/2010	3/27/2012	10/23/2012
Ross	11 Curtner Avenue			7/14/2010		
CVS	1685 Tully Road			7/21/2010		
Eastridge Mall	Eastridge Loop			7/22/2010		
TJMAXX	5353 Almaden Expy			7/23/2010	3/27/2012	10/23/2012
Ross	5353 Almaden Expy			7/23/2010		
Bed Bath & Beyond	5353 Almaden Expy			7/23/2010		
Westfield Valley Fair Shopping Mall	2855 Stevens Creek Blvd.			7/28/2010		
Office Max	1130 Blossom Hill Road			8/12/2010		
Oakridge Mall	925 Blossom Hill Road			8/5/2010		

Data reformatted from the original file provided by the city of San Jose named: Bag_Survey_Locations.xlsx

Survey Year	Total Customers Observed	Customers With No Bag	Customers Who Use Bags	Qty. of Paper Bags	Qty. of Plastic Bags	Qty. of Reusable Bags	Total Bags
2009S	1057	60	997	641	2542	115	3298
2010W	705	67	638	208	3598	77	3883
2010S	1107	243	864	159	1064	73	1296
Pre Ban	**2869**	**370**	**2499**	**1008**	**7204**	**265**	**8477**
Percent	**100%**	**12.9%**	**87.1%**	**11.9%**	**85.0%**	**3.1%**	**100%**
2012S	1068	419	649	317	28	550	895
2012F	1105	526	579	300	15	644	959
Post Ban	**2173**	**945**	**1228**	**617**	**43**	**1194**	**1854**
Percent	**100%**	**43.5%**	**56.5%**	**33.3%**	**2.3%**	**64.4%**	**100%**
Adjusted per 1000 customers Pre Ban and Post Ban							
Pre Ban	**1000**	**129**	**871**	**351**	**2511**	**92**	**2955**
Post Ban	**1000**	**435**	**565**	**284**	**20**	**549**	**853**
Percent Increase/Decrease				**-19%**	**-99%**	**495%**	**-71%**
Adjusted per 1000 customers who used bags Pre Ban and Post Ban							
Pre Ban	**1148**	**148**	**1000**	**403**	**2883**	**106**	**3392**
Post Ban	**1770**	**770**	**1000**	**502**	**35**	**972**	**1510**
Percent Increase/Decrease				**24.6%**	**-98.8%**	**816.9%**	**-55.5%**

NOTES:

(1) The number of customers surveyed pre-ban exceeds the number of customers surveyed Post Ban.

(2) The number of customers who chose No Bags increased from 12.9% to 43.5%.

(3) When statistics adjusted to 1000 customers Pre and Post Ban Paper Bag use decreased 19%, Plastic Bag use decreased 99%, and Reusable Bag use increased 495%.

(4) When statistics are adjusted to 1000 customers Pre and Post Ban who used bags, Paper Bag use increased 24.6%, Plastic Bag use decreased 98.8%, and Reusable Bag use increased 816.9%.

(5) For every 1000 customers Post Ban 435 chose the NO BAG Option.

(6) The San Jose Bag Survey only counted total customers, customers who chose No Bag and the quantity of Plastic bags, Paper Bags, and Reusable Bags used.

For Immediate Release **5/8/13**

The Effects of the Plastic Bag Ban on Consumer Bag Choice at Santa Monica Grocery Stores

Research Report by Team Marine (www. teammarine.org), Santa Monica High School
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Background

To date, 71 cities or counties within California have adopted ordinances to ban single-use plastic bags[1] with Los Angeles City's upcoming implementation to bring the total affected to 25% of the state population[2]. Ban proponents have emphasized the negative environmental and economic impacts of plastic bags, noting that volunteer recycling efforts recover less than 5% of the produced material[3,4,5]. The plastics industry and pro-plastic affiliates have responded that recycling rates are rising, and that bans exacerbate environmental and economic impacts by increasing paper bag usage (i.e., problem shifting)[6,7,8]. Meanwhile, few comprehensive studies have quantitatively assessed: (1) the effectiveness of bag bans in eliminating plastic bags, (2) pre- and post-ban trends in carryout bag choice, (3) potential problem shifting to paper bags, and (4) the effects of age and gender on bag selection. Such data are needed for municipalities to make informed decisions about implementing ban ordinances and are critical to the success or failure of future bans at all levels of government.

Summary

We conducted a 19-month study over two years to examine the effects of the City of Santa Monica's plastic bag ban (implemented September 1, 2011 with a ten cent fee per paper bag) on consumer bag choice. Spanning ten months prior to the bag ban and 12 months after, we observed a total of 50,400 grocery store patrons exiting five Santa Monica grocery stores to visually estimate their age, gender, and carryout bag type (plastic, reusable, paper, or no bag). We performed separate analyses for both "eco-friendly" stores (Whole Foods and Trader Joes), which used few if any plastic bags prior to the ban, and "regular" stores, which used primarily plastic bags prior to the ban. The results show that at regular grocery stores, mean plastic bag usage went from 69% pre-ban to 0% post-ban, with reusable, paper, and no bag usage increasing from 10%, 5%, and 15% pre-ban to 41%, 23%, and 36% post-ban, respectively. At eco-friendly grocery stores, the ban not only eliminated plastic bags and increased reusable and no bag options, paper bag usage dropped by 23 percentage points. Our results also indicate the oldest age group was the most inclined to use plastic bags pre-ban and reusable bags post-ban, while the youngest patrons used more paper bags and no bags. Furthermore, at both eco-friendly and regular stores, a higher percentage of females used reusable bags than males, while males were inclined to use more paper bags or no bag than females.

Methods and Materials

We posed five questions before conducting our investigation:

1. Will the ban be effective in getting rid of plastic bags?
2. Will the ban be effective in increasing reusable bag usage?
3. Will the post-ban 10-cent fee on paper bags[1] be effective in decreasing paper bag usage?
4. Does patron age affect bag choice? Which age group is more eco-friendly/unfriendly?
5. Does patron gender affect bag choice? Which sex is more eco-friendly/unfriendly?

To answer these questions, we placed observers at five grocery stores in Santa Monica. For each store, we attempted to collect data eight times per month. During each round of data collection, we observed a minimum

of 100 patrons exiting the store. On a data sheet, each patron was placed into age, gender, and bag type categories. As much as possible, we sought to perform observations during the middle two weeks of every month to provide a gap between months. Peer training and group calibration tests were conducted for age and bag type variables to help reduce observer bias.

To test the null hypothesis that the plastic bag ban would have no effect on consumer bag choice, a multivariable analysis of variance (MANOVA) for both eco- and regular stores was performed after rescaling the pre-ban data to exclude the plastic bag category from the analysis[10]. To test the null hypotheses that age and gender variables would have no effects on consumer bag choice, we compared mean values using a series of T-tests. For all analyses, the p-value for significance was set at $p \leq 0.05$.

Results and Discussion

The results indicate that the ban was effective in getting rid of plastic bags at regular stores, reducing plastic bag use from ~70% to 0% (Fig. 1). Contrary to statements by pro-plastic bag groups[7], paper bags did not replace plastic bags as the predominant bag type. Rather, between pre- and post-ban, the mean percentage of patrons using reusable bags increased by 31 percentage points (MANOVA, $p = 0.0252$), followed by no bag (21 points, $p = 0.0003$), and paper (18 points, $p = 0.0153$) (Fig. 1). At eco-stores, the mean percentage of patrons using reusable bags and no bag rose 24 and 2 percentage points ($p < 0.001$ and $p = 0.0036$), respectively, while the percentage using paper bags decreased by 23 points ($p < 0.001$, Fig. 2). Accordingly, given the plastic bag ban's targets were regular stores, there was thus a notable "spillover effect" at eco-stores. These combined results suggest that the post-ban 10-cent fee per paper bag was an effective incentive to increase reusable and no bag selections. Furthermore, while this study did not assess patron volume per store or the number of bags used per customer, it is conceivable that the increased use of paper bags at regular stores is being countered by the decreased use of paper bags at eco-stores. A more comprehensive answer to this question could arise from subtracting a store's surplus of paper bags from a known purchase order volume within a particular time period to determine the true number of bags distributed.

Figures 2 and 3 indicate the city's plastic bag ban with 10-cent fee has been effective overall, further supported by the time graph for eco-stores (Fig. 3). Here, one year after the ban, the mean percentage of patrons using reusable bags remained steady around 47%. Conversely, at regular stores (Fig. 4), reusable bag use appears to be waning while paper bag use increasing. The upward drift in patrons using paper bags at regular stores in 2012 warrants further investigation. Specifically, it would be of interest to ensure grocery stores, one year after the ban, are following the law; are they continuing to disincentivize paper bag use by charging 10 cents per paper bag? Other variables could be contributing as well, including patron apathy, regular stores undercharging for the number of paper bags used, and stores prematurely removing strategic parking lot and store signage reminding customers to bring in their reusable bags. A study that could determine a store's paper bag surplus in inventory, its paper bag purchase order volume, and the number of paper bags sold in a given time period should establish if any undercharging is occurring, and ultimately, whether regular stores are obeying the law. If undercharging is not occurring, a steeper fee of more than 10 cents may need to be considered.

The present study found that age affects carryout bag selection (Figs. 5, 6, 7, and 8), although it is difficult to identify the most "eco-friendly/unfriendly" age group. The age graphs for both eco- and regular stores reveal that the youngest generation is more inclined to use no bag than older generations (t-test, $p < 0.0002$), while the oldest generation is more likely to use reusable bags than the youngest generation ($p < 0.0003$). The former result was an expected outcome; the youngest customers presumably use fewer bags since they are

less likely to shop for the entire household. In other words, young people likely purchase fewer items, which can be carried out in their hands. Interestingly, while the oldest age group appeared to use the most plastic bags at regular stores prior to the ban (Fig. 7), it used significantly more reusable bags than the two youngest age groups post-ban ($p = 0.039$, Fig. 8). This apparent flip in behavior is surprising, as stereotypes often portray older generations as resistant to change. Another noteworthy result involves paper bag use at eco-stores (Figs. 5 and 6). Prior to the ban, the youngest age group used significantly fewer paper bags than all age groups ($p < 0.03$), whereas after the ban, it appeared to use more paper bags than any other age group. Overall, the results suggest that more educational outreach to the 0-19, and perhaps the 20-39 age groups, may be needed to encourage an increase in reusable bag use.

The present study found that gender affects bag choice, but establishing a more "eco-friendly/unfriendly" gender is also difficult. The gender graphs (Figs. 9 and 10) show that at both eco- and regular stores, more females used reusable bags than males ($p < 0.000006$), while males used more no bag than females ($p < 0.002$). At eco-stores, males also used significantly more paper bags than females ($p < 0.03$). Thus, more outreach may be needed to encourage males to use reusable bags and decrease their use of paper bags.

It should be noted that during the pre-ban months, we attempted to collect data from a third eco-friendly grocery store (Santa Monica Co-Opportunity) (Table 1), but we had to throw out this data due to short staffing. For some months, we also fell short of our goal of eight observations per store or could not obtain data at all (Table 1), also due to short staffing. Despite these gaps in the data set, a total of 504 visual surveys were conducted, amounting to 50,400 patrons observed in the study (Table 1). It is our hope that these data will not only enhance understanding about the impacts of plastic bag bans, but similar prospective policy changes. As far as we are aware, this is the first comprehensive study to assess bag usage before and after a ban through visual surveys of patron bag choice. While previous studies[11,12,13,14] in Santa Monica and LA County mainly relied on bag sales data from grocery stores in their Environmental Impact Reports, our study is consistent with their main conclusions – bag bans with paper bag fees are effective. Future research is needed to determine the true number of paper bags consumed by patrons and the greenhouse gas emissions of those bags[14].

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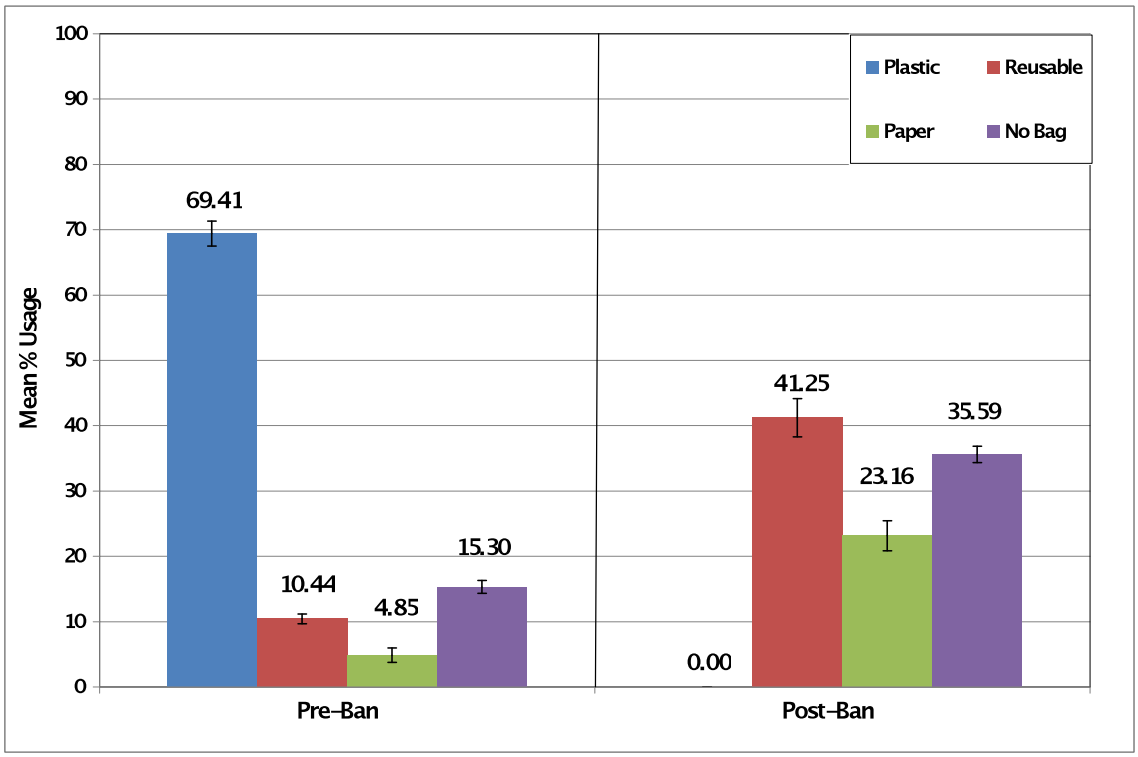

Figure 1. Mean percent usage (±SE) of different bag choices (regular stores and months pooled) before and after the plastic bag ban.

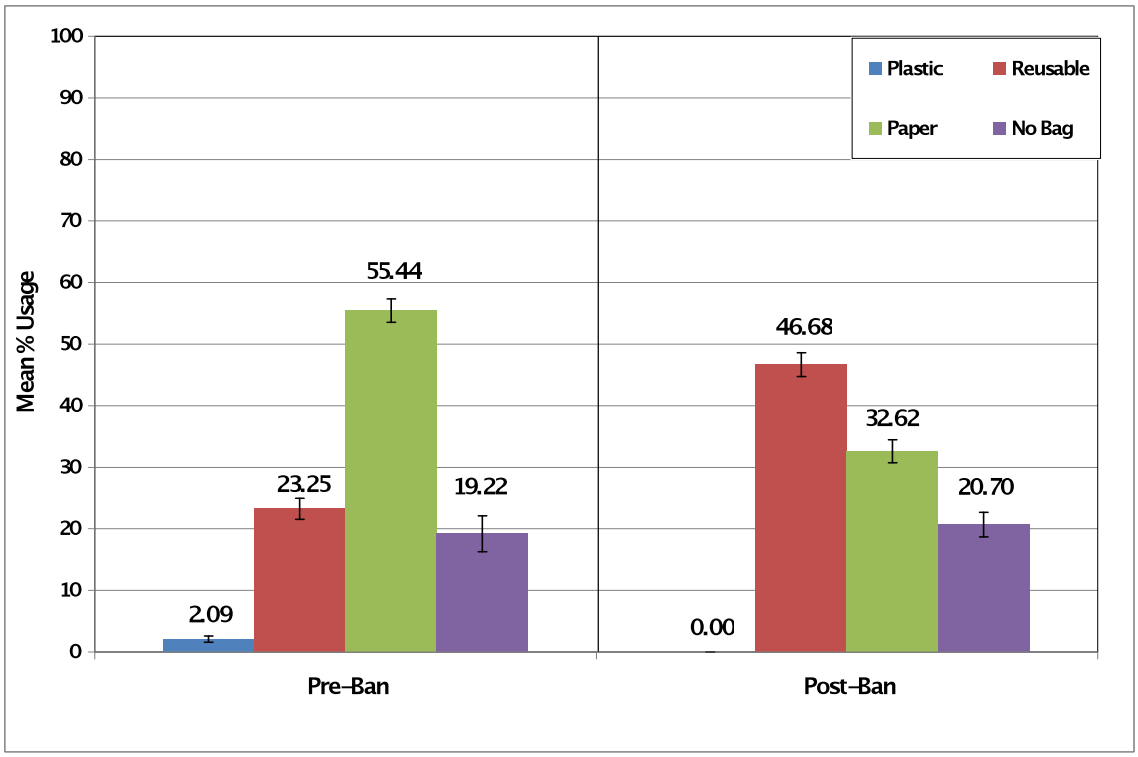

Figure 2. Mean percent usage (±SE) of different bag choices (eco-friendly stores and months pooled) before and after the plastic bag ban.

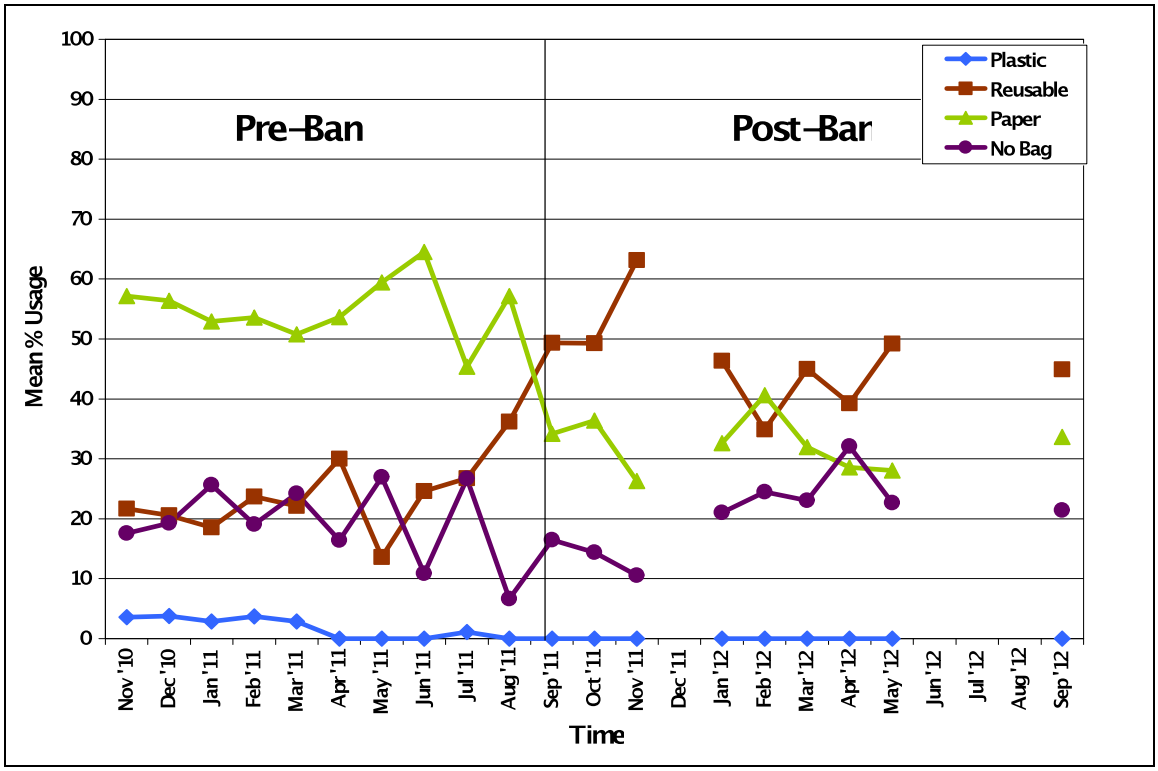

Figure 3. Mean percent usage of different bag choices per month (eco-friendly stores pooled) before and after the plastic bag ban. Gaps represent months no data were collected (see Table 1 below).

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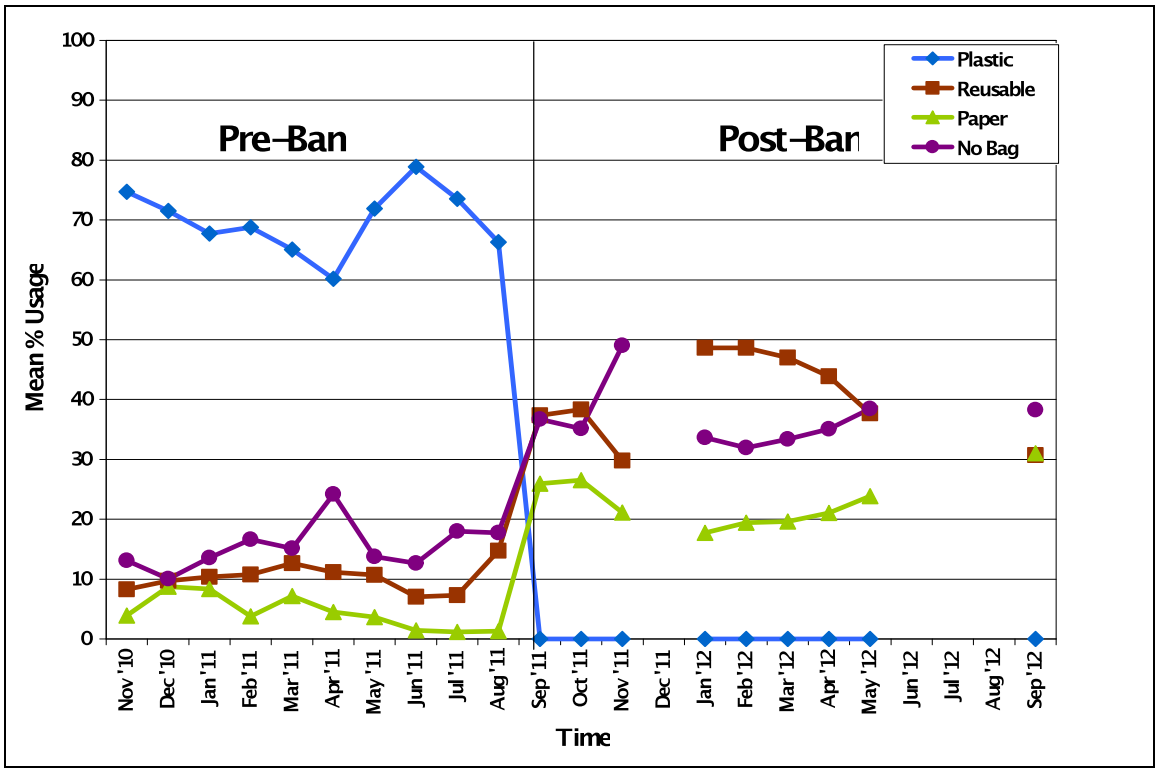

Figure 4. Mean percent usage of different bag choices per month (regular stores pooled) before and after the plastic bag ban. Gaps represent months no data were collected (see Table 1 below).

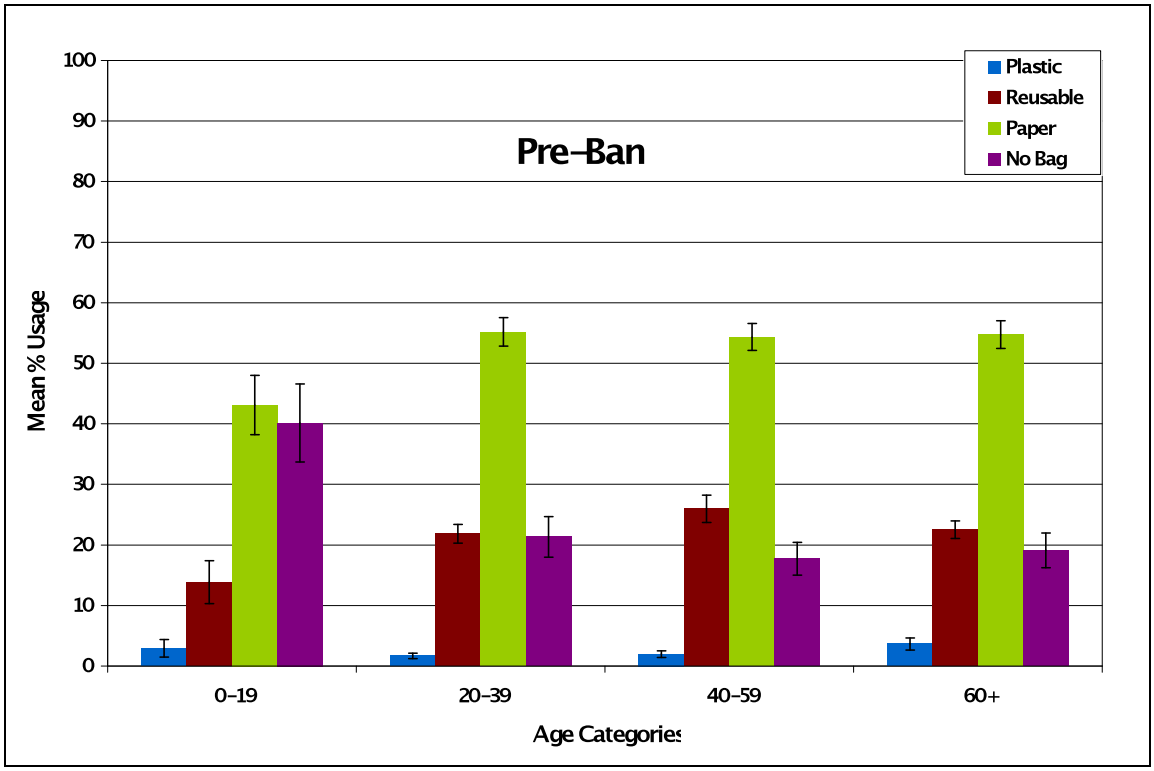

Figure 5. Mean percent usage (±SE) of different bag choices in different age categories (eco-friendly stores and months pooled) before the plastic bag ban.

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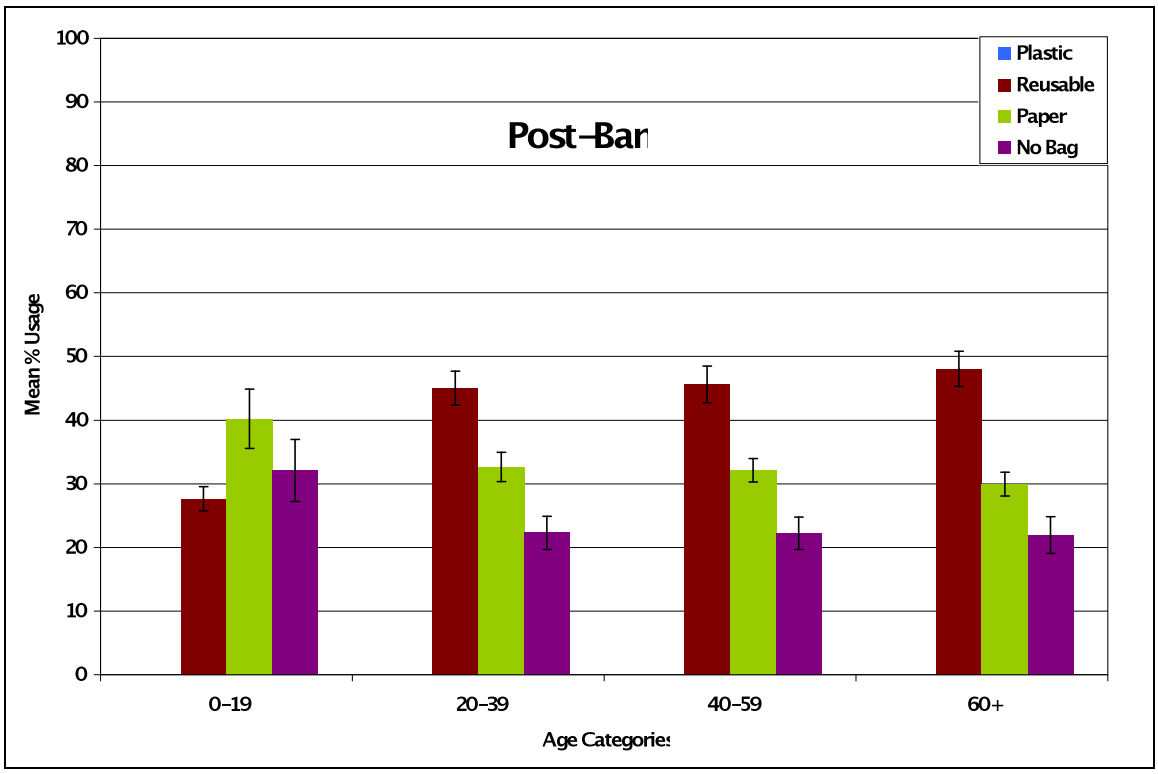

Figure 6. Mean percent usage (±SE) of different bag choices in different age categories (eco-friendly stores and months pooled) after the plastic bag ban.

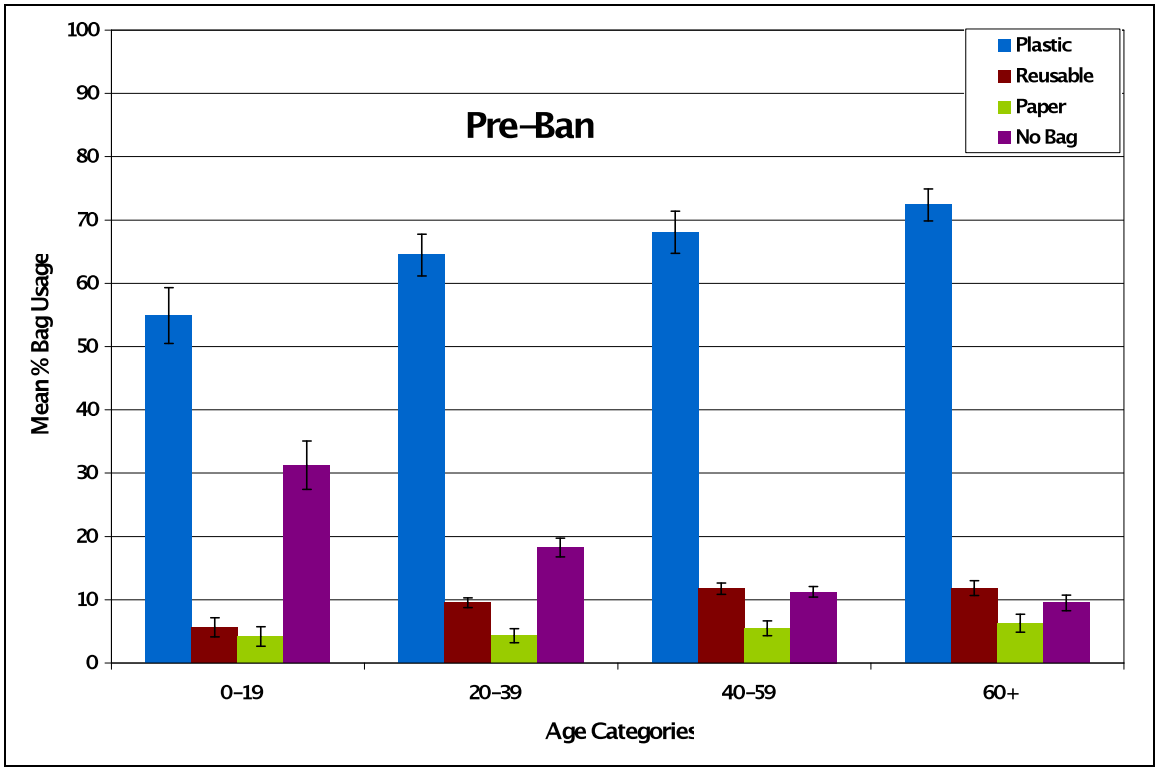

Figure 7. Mean percent usage (±SE) of different bag choices in different age categories (regular stores and months pooled) before the plastic bag ban.

Encl: (5)

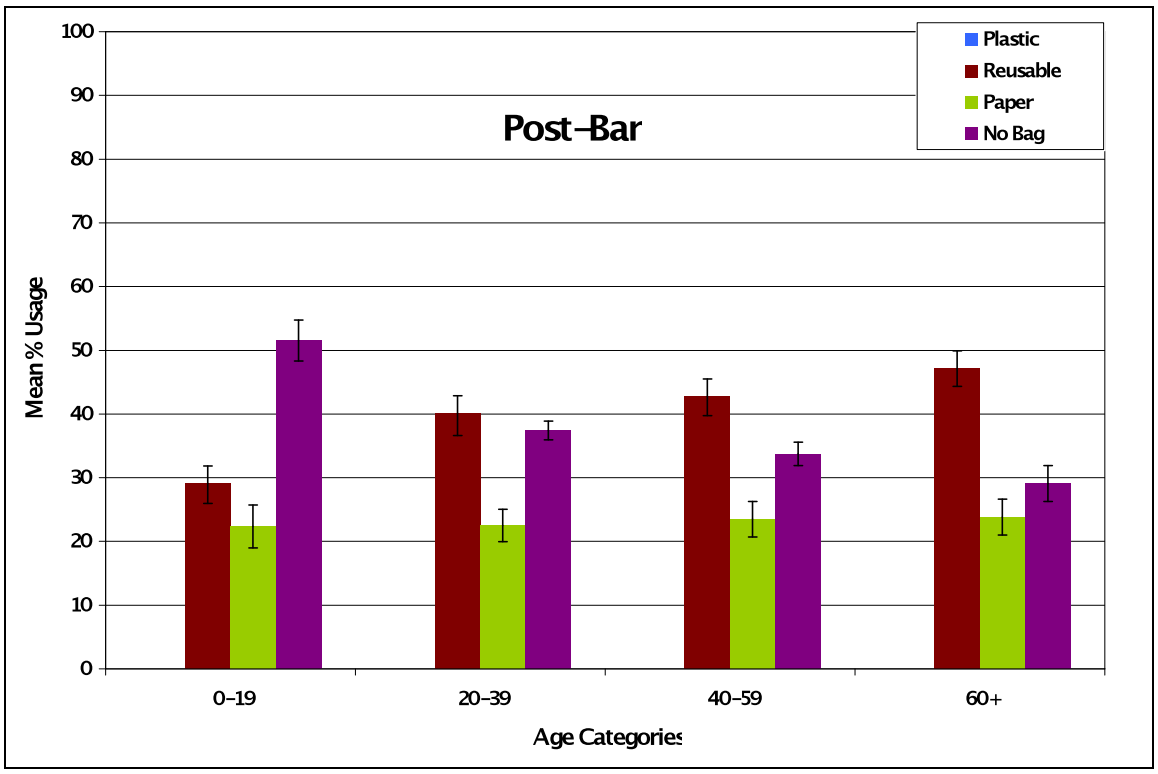

Figure 8. Mean percent usage (±SE) of different bag choices in different age categories (regular stores and months pooled) after the plastic bag ban.

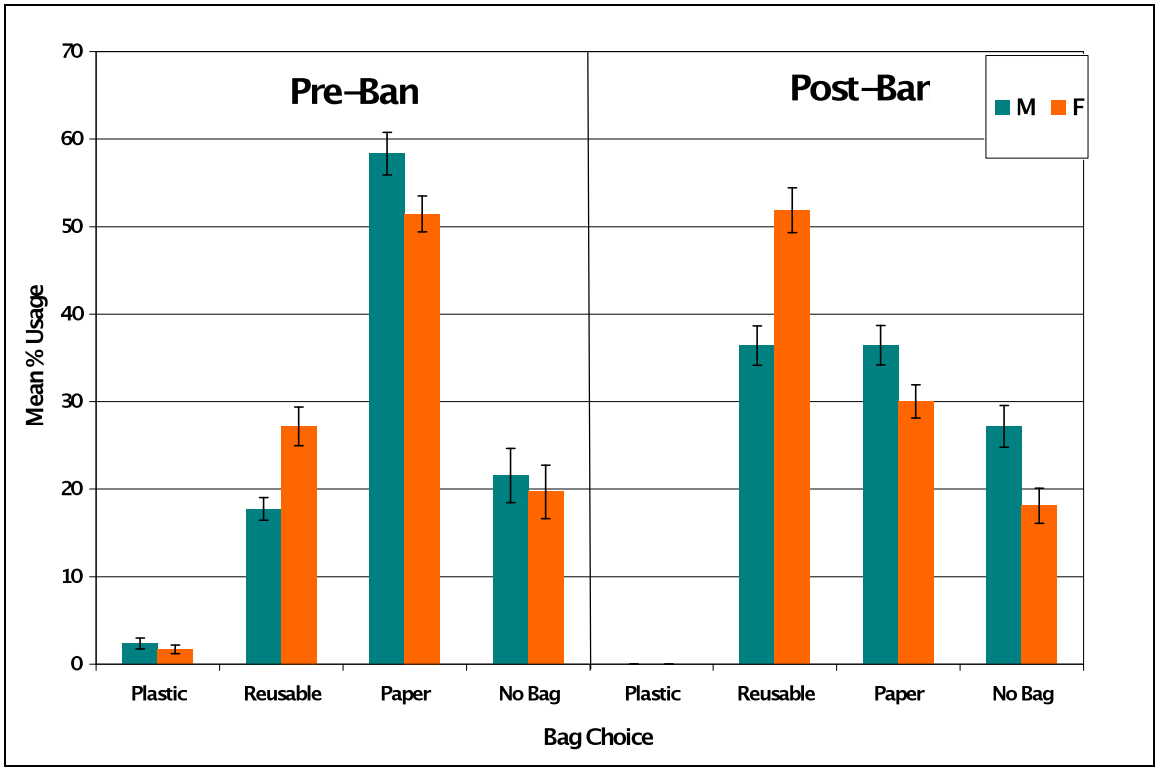

Figure 9. Mean percent usage (±SE) of different bag choices in different gender categories (eco-friendly stores and months pooled) before and after the plastic bag ban.

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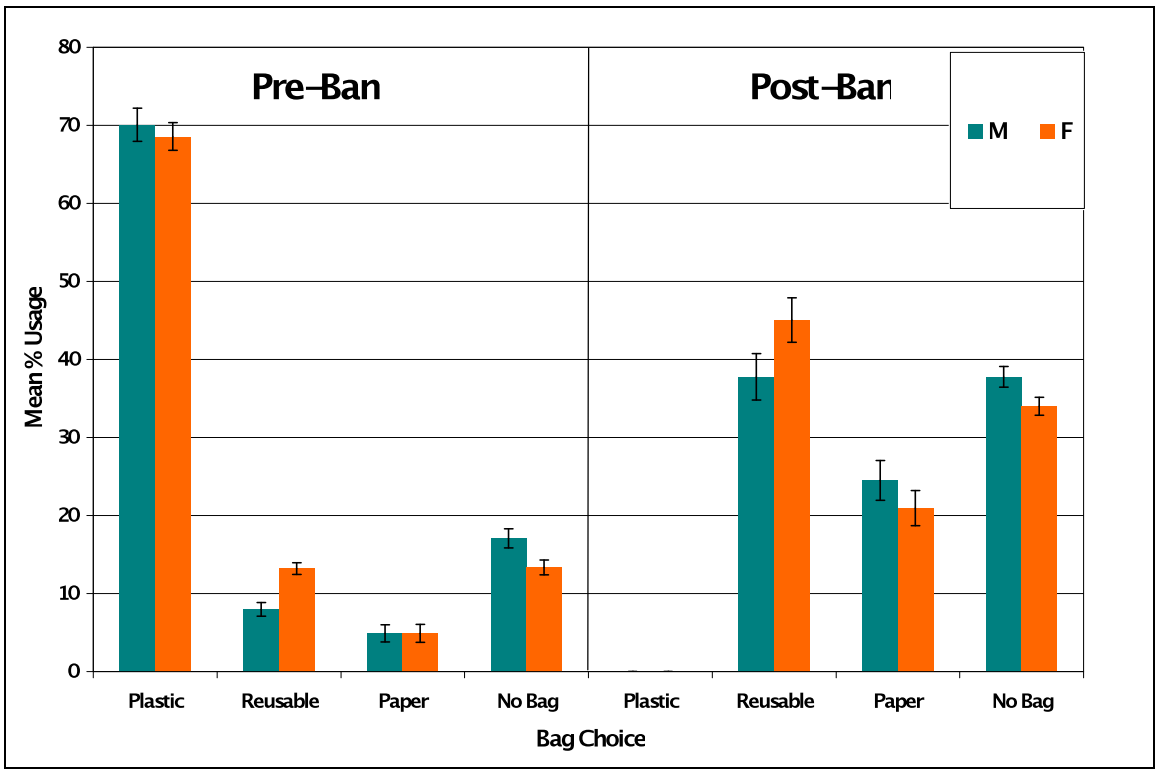

Figure 10. Mean percent usage (±SE) of different bag choices in different gender categories (regular stores and months pooled) before and after the plastic bag ban.

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Table 1. The number of visual surveys conducted each month at regular and eco-friendly stores before and after the ban. Co-Opportunity data discarded due to short staffing.

	"REGULAR STORES"			"ECO-FRIENDLY STORES"		
Month	**Albertsons**	**Vons**	**Ralphs**	**Co-Opportunity**	**Whole Foods**	**Trader Joes**
Nov 2010	10	10	10	10	10	10
Dec 2010	10	9	10	10	10	10
Jan 2011	10	9	7	10	10	10
Feb 2011	10	7	X	10	10	10
Mar 2011	8	5	6	7	8	6
Apr 2011	10	3	9	8	10	6
May 2011	8	X	6	4	4	8
Jun 2011	10	X	X	X	X	4
Jul 2011	3	X	X	X	1	7
Aug 2011	8	X	X	X	X	1
TOTAL PRE-BAN	**87**	**43**	**48**	**59**	**63**	**72**
		178			**135**	
Sep 2011	8	X	3	X	X	3
Oct 2011	6	X	3	X	X	2
Nov 2011	X	X	X	X	X	1
Dec 2011	X	X	X	X	X	X
Jan 2012	8	X	6	X	8	4
Feb 2012	5	5	5	X	8	4
Mar 2012	6	6	5	X	7	4
Apr 2012	8	5	5	X	2	4
May 2012	8	5	4	X	3	4
Sep 2012	6	6	8	X	8	8
TOTAL POST-BAN	**55**	**27**	**39**	**0**	**36**	**34**
		121			**70**	

Encl: (5)

SAVE THE PLASTIC BAG COALITION

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Phone: (415) 577-6660
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Website: www.savetheplasticbag.com

April 18, 2012

Suk Chong
LA County DPW
900 S. Fremont Avenue
Alhambra, CA 91803

VIA E-MAIL AND REGULAR MAIL
schong@dpw.co.la.ca.us

PUBLIC RECORDS ACT REQUEST

Dear Mr. Chong:

On April 4, 2012, Coby Skye of LA County DPW told the City of Los Angeles Energy and Environment Committee that unincorporated LA County had experienced a 24% reduction in paper bag usage and a 94% drop in all carryout bag usage since the LA County carryout bag ordinance took effect with its 10-cent paper bag fee.

On April 5, 2012, Cathy Browne of Los Angeles-based plastic bag manufacturer Crown Poly asked Mr. Skye to provide the basis for those figures. You responded by e-mail as follows:

> ***The table below shows the data behind the 94% drop (actual 2009 single-use plastic and paper bags usage vs extrapolated 2011 paper bag usage based on two quarters of store data):***

	Total bags per store per year (average)
Single use plastic bags 2009	***2,153,354 plastic bags***
Single use paper bags 2009 *	***191,426 paper bags***
Total single use bags used in 2009	***2,344,781 bags***
Single use paper bags 2011 (extrapolated from last 6 months of 2011)	***145,251 paper bags***
Percent change in overall single use bag usage	***- 93.81%***
Percent change in single use paper bag usage	***- 24.12%***

> **** Percent of paper bags was estimated from data collected in EIR***

> ***2009 is the last year for which we received data from the stores.***

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DOCUMENT REQUESTS

Pursuant to the California Public Records Act (Government Code §6250 to §6276.48), we hereby request and demand copies of the following documents, reports, and records.

A. The 2009 plastic bag figure:

According the EIR, which was completed in 2010, LA County was unable to determine any reliable figures for plastic bag usage. (EIR page 3.1-15.) Now you have come up with a figure of 2,153,354 from an unidentified source.

Please provide copies of all documents, reports, and records containing the sources and bases of the 2,153,354 figure and how it was calculated.

B. The 2009 "estimated" paper bag figure:

In 2009, stores were ***not*** required to report paper bag usage to the CIWMB or LA County. LA County has no data on paper bags usage in 2009. Therefore, you state: "Percent of paper bags was estimated from data collected in EIR."

We have reviewed the EIR and can find no estimate for paper bag usage in 2009 or any other year. The figure 191,426 is not in the EIR.

Please provide copies of all documents, reports, and records containing the sources and bases of the 191,426 figure and how it was calculated, including any relevant pages from the EIR.

C. The 2011 paper bag figure:

Please provide copies of all documents, reports, and records containing the sources and bases of the 145,251 figure and how it was calculated.

REQUEST FOR ASSISTANCE

Pursuant to §6253.1 of the Public Records Act, LA DPW is required to assist us in making a "make a focused and effective request that reasonably describes an identifiable record or records." Therefore, in accordance with §6253.1, LA DPW is requested to assist and cooperate with us by identifying records and information that are responsive to this request.

REQUEST FOR TIMELY RESPONSE

Later this month or in early April, on a date that has yet to be announced, the Los Angeles City Council will consider the proposal to ban plastic bags and impose a 10-cent fee on paper bags, or ban both plastic and paper bags. Therefore strict compliance with the deadlines in the Public Records Act is requested and demanded in order to ensure that the documents

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requested herein are provided well in advance of that date.

Sincerely,

Stephen L. Joseph
Counsel

Encl: (6)

RESPONSE TO PUBLIC RECORDS REQUEST

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

900 SOUTH FREMONT AVENUE, ALHAMBRA, CA 91803

April 26, 2012

SENT BY E-MAILTO: ***savetheplasticbag@earthlink.net***

Mr. Stephen L. Joseph

RESPONSE MEMO TRANSMITTING RECORDS IN CONNECTION WITH YOUR PUBLIC RECORDS REQUEST

We have reviewed your public records request dated April 18, 2012, and we offer the following:

☒ **Enclosed are the records you have requested.**

☐ We have collected the records you requested. These records are now available for pick up from the front counter of the Survey/Mapping and Property Management Division, on the 10th floor of the County of Los Angeles Department of Public Works, Headquarters Building, at the address shown above, during normal business hours.

☒ **We failed to find any existing records that satisfy your request for records showing how the figures were calculated.**

Remarks**:** In connection with the EIR that was completed in 2010 and referred to in the letter from the Save the Plastic Bag Coalition, dated April 18, 2012, the 2009 plastic bag figure, The 2009 "estimated" paper bag figure and the 2011 paper bag figure possibly from unidentified sources, the following is requested:

- Request for copies of all documents, reports, and records containing the sources and bases of the 2,153,354 figure for plastic bag usage and how it was calculated.
- Request for copies of all documents, reports, and records containing the sources and bases for the 191,426 (paper bag) figure and how it was calculated, including any relevant pages from the EIR.

Request for copies of all documents, reports, and records containing the sources and bases of the 145,251 (2011 paper bag) figures and how it was calculated

Customer Service is very important to us. Please take a minute to complete the customer survey through the following link: http://ladpw.org/general/survey/index.cfm?pid=IiJBMCAK. For more information regarding this response, please contact:

MARY-ELIZABETH OHDE, Supervising Title Officer III
Claims & Litigation Section, Mapping & Property Management Division
Office Hours: Monday through Thursday, 7 a.m. – 5:45 p.m.
Phone: (626) 458-7091 - Fax: (626) 979-5408
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Encl: (7)

SAVE THE PLASTIC BAG COALITION

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Website: www.savetheplasticbag.com

May 2, 2012

City Council
City of Los Angeles
200 North Spring St.
Los Angeles, CA 90012

Copy to:
County of Los Angeles DPW
900 S. Fremont Avenue
Alhambra, CA 91803
Attn: Suk Chong

RE: False bag reduction figures provided to LA City Council by LA County DPW

Dear Members of the LA City Council:

On April 4, 2012, Coby Skye of LA County DPW told the Energy and Environment Committee that unincorporated LA County had experienced a 24% reduction in paper bag usage and a 94% drop in all carryout bag usage since its ordinance took effect on July 1, 2011.

Mr. Skye's figures are demonstrably false and incorrect.

Following the committee meeting, we made a Public Records Act to the County regarding the figures. LA DPW has provided three document which show as follows:

1. ***The County has no data whatsoever regarding paper bag usage before the ordinance took effect.*** In an e-mail sent by Suk Chong of LA County DPW after Mr. Skye appeared before the committee, Mr. Chong admitted that the County had ***"estimated"*** such paper bag usage as it has no data. ***It is unfortunate that Mr. Skye chose not to share this fact with the committee.***

2. Eleven stores reported using zero paper bags in 2011 Q3 and Q4, which is not credible. Presumably, if they really did dispense zero bags in 2011 Q3 and Q4, they also dispensed zero plastic and paper bags prior to July 1, 2011.

3. Only supermarkets and large stores were subject to the ban in 2011. However, 37 of them reported less than 68 paper bags per day in 2011 Q4. One store reported three paper bags per day. Another reported 15 paper bags per day. That is not credible.

4. Most of the remaining stores reported significant paper bag usage. One store reported 4,774 bags per day. Another store reported 3,891 per day.

5. There is clearly a huge disparity in the sizes of the stores reporting paper bag usage. A store providing three paper bags per day cannot possibly be in the same size range as one providing 4,774 bags per day. ***The County is comparing apples and oranges***

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to show a false reduction in bag usage.

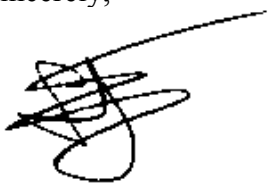
6. Many stores reported ***huge increases in paper bag usage*** in 2011 from Q3 to Q4. One store reported an increase from 64,800 to 429,738, which is a ***670% increase***. Another store reported an increase from 54,511 to 350,262, which is a ***640% increase***. Mr. Skye should have mentioned this to the committee.

7. We know that many stores lost a significant number of customers who opted to shop in incorporated parts of the County to avoid the paper bag fee.

The County is touting the success of its 10-cent paper bag fee, but its figures are not credible and it has not provided balanced information.

Please contact me if you would like copies of our Public Records Act request and the County's responses.

Sincerely,



Stephen L. Joseph
Counsel

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Rebuttal of the San Jose Bag Ban Results

CLAIMS OF SUCCESS ARE BIASED, EXAGGERATED, AND HIGHLY QUESTIONABLE.
A MORE COMPLETE REVIEW ACTUALLY SHOWS THE SAN JOSE BAG BAN TO BE A COMPLETE FAILURE.

By Don Williams and Anthony van Leeuwen
August 23, 2013

On November 20, 2012 Kerrie Romanov (Director of Environmental Services for San Jose) issued a memorandum to the San Jose City Council claiming success of the "Bag Ban" (San Jose ordinance #28877), ten months after the Bag Ban was implemented. Romanov claimed this success based upon apparent reductions in the number of plastic bags collected from certain locations and an increase in the number of reusable bags used by shoppers. This memo has been widely used by bag ban proponents, particularly quoting incorrectly calculated reduction numbers as facts to state that bag bans "work."

However, the memorandum is biased, factually incorrect, completely neglects a cost/benefit analysis of the bag ban, and fails to raise critical questions that should have been asked.

Report Evaluation

There are five (5) key areas in which the memorandum falls critically short of supplying a true picture of the bag ban impact. These areas are as follows:

1. The wrong parameter was measured, then claimed as a success.

The fundamental error in the report is measurement of the wrong parameter. Measuring a reduction in the number of plastic bags collected by a litter survey team at survey locations does not indicate the true reduction in the impact to the environment. The true impact is the number of plastic bags that were NOT collected and escaped into the environment, for example, made their way to San Francisco Bay or the ocean.

This issue here is that there was likely little to no change to the number of bags that got past the survey areas prior to the bag ban verses after the bag ban, and there was no attempt to measure them. There were just less numbers of bags that were cleaned up!

The vast majority (well over 99.9%) of plastic carryout bags are properly used, the majority reused, and then they are properly recycled or thrown away in trash receptacles. The small percentage of littered plastic carryout bags (basically from illegal littering or accidental release from garbage collection trucks) are collected in a number of ways, all designed to prevent them from permanently entering the environment:

- Street sweeping
- City funded park and creek garbage collection
- Storm drains, catch basins
- Voluntary citizen pickup (i.e. random "good Samaritans")
- Citizen/Agency creek cleanups

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In order for a plastic bag to permanently enter the environment, it must get past ALL of these safeguards. Measuring the reduction of one particular item (in this case plastic carryout bags) in any of these steps only measures a reduction in the amount of work required to perform the cleanup at that step. The city of San Jose made no effort to measure the true plastic carryout bag impact number before or after the bag ban. Thus, any true reduction impact to plastic bags permanently reaching the environment is completely unknown.

If the goal of the bag ban was to reduce the impact on City Employee trash collectors, then it could be argued that this was a valid measurement against that goal and it was successful. However, that was not the stated goal of the bag ban, and does not even remotely justify the huge personal and monetary cost of the bag ban imposed on San Jose businesses and citizens. (Also note that San Jose residents have seen ZERO reduction in city taxes or garbage collection costs since the bag ban went into effect. Proponents claimed millions of dollars in costs for litter cleanup, garbage collection, and the cost of equipment jams in waste management facilities. Yet NO savings have been realized by residents since the ban! Where is the money?)

The questions that should really be asked are these:

- Was the bag ban even remotely worth the cost in time and effort for everyone involved?
- Could the costs of the bag ban been better used for a greater environmental impact?

2. The measurement methodology was unscientific and seriously flawed.

The authors reviewed not only the memorandum (Romanov, 2012) but also obtained and reviewed the raw data upon which the memorandum results were based. The authors made the following observations:

- The cleanup locations measured before and after the ban were NOT the same areas! Since historical cleanup data for these sites is not known, there is no way to determine if these sites represent multi-year accumulations of litter that would skew results.
- The percentage figures cited in the memorandum do not reflect a true reduction in plastic bag litter. The figures represent a reduction in the proportion of plastic bags to other litter instead.
- Evaluating ALL of the data shows that NON-PLASTIC BAG litter was also reduced by approximately 30% to 40% in the same comparisons. This is a confirmation that the comparison locations and/or criteria is flawed, or were influenced by other unexplained factors. There was no attempt to mention or address this serious statistical error.
- The storm drain reductions are based upon too small a sample size to provide a creditable number. Twenty-three (23) storms drains catch basins outfitted with trash capture devices is too small a sample size for a city the size of San Jose. There was no attempt to discuss the status of storm drain trash capture devices in the City of San Jose and whether all planned devices have been installed.

In Appendix A, the authors critically examine the on-land, creek, and storm drain litter data. Both the city's computation of results and our computation of plastic bag reduction results are provided. The plastic bag reduction results from the city's data and methodology are questionable and flawed.

3. Bag usage observations were not taken at a broad cross-section of stores, skewing the data.

The memorandum states that "Visual observations were made at a variety of store types, including grocery stores, pharmacies, and general retailers in different San Jose neighborhoods at the same stores both before and after implementation of the BYOB Ordinance." (Romanov, 2012, p. 5) An examination of the spreadsheet containing Bag Survey Locations shows bag observations after the bag ban were taken almost completely at grocery stores, contradicting the statement in the memorandum, and therefore heavily skewed. (City of San Jose, 2013)

Grocery stores are the one location where people shop generally knowing how much they will purchase, have a car available with reusable bags, have shopping carts to use (making it easier to carry reusable bags), and are reminded of a need for reusable bags when they see signs or others in the parking lot carrying bags. Yet, even in this environment, over 43% of the people are NOT using reusable bags, with the vast majority of the people walking out clutching an armload of products or using shopping carts or baskets to transport raw un-bagged products to their car. This is not success!

Completely missing from the survey after the bag ban were any home repair locations (Home Depot, Lowe's, Orchard Supply Hardware, etc.), electronic resellers (Fry's, Best Buy, etc.), malls, convenience stores (7-11, AM/PM, etc.), specialty stores (auto repair stores, flower shops, etc.), and farmer's markets. Even a cursory view at any of these locations reflects a completely negligible rate of reusable bags. There were 3 drug stores, 3 clothing stores, an office supply store, and 2 malls included in one survey prior to the bag ban, but 100% of the data after the bag ban was from grocery stores ONLY.

In addition, some stores now choose to avoid shoplifting and theft of shopping baskets by providing free "thick" plastic bags (considered "reusable" under the San Jose law). Other stores have offered the thick plastic bags at a discounted price (for example, 7 cents instead of the city mandated 10 cent paper bag fee). None of these stores were included in the survey.

Bag ban proponents paint a false picture of a fully compliant citizen pulling into a Whole Foods parking lot in their environmentally friendly electric car gleefully pulling out a stack of reusable bags to do their pre-planned shopping. But reality is far from this romanticized picture. Any observation of shoppers reflects a large percentage of grumbling citizens ashamed to be hauling around an armload of dirty, ugly, slippery, and mismatched reusable bags against their will, people cursing at themselves and the stores when they forget their reusable bag in the car or home, or people just refusing to take part in bag bans and using no bags at all.

4. No cost/benefit analysis was performed, or even attempted!

When bag bans are passed, the city typically only worries about the cost to the city, and pays little to no attention to the impact to businesses and citizens. However, the cost to the businesses and citizens far outweigh the cost to the city. Consider these costs:

- **City Costs**

  The City of San Jose spent hundreds of thousands of dollars on the bag ban, in research, legal maneuvers, documentation, education, answering calls and questions, public hearings, and investigations and follow

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up. The City of San Jose continues to spend thousands of dollars per year in following up on the bag ban (such as producing the referenced memorandum), evaluation of the bag ban, and even considering modifications to the ordinance. In addition, they face potential lawsuits, and loss of sales tax from business decline. Incalculable is the frustration of the citizens, and the raw anger by many toward the city council and the city for imposing what is widely viewed as a "nanny-state" law on the citizens. One has only to read online posts and responses to newspaper articles to taste the public frustration.

- **Business Costs**

  There was absolutely no attempt to evaluate the impact to businesses. Checkout stands have slowed down and lines are longer, businesses have faced increased theft, shopping baskets have disappeared from many stores, some stores installed additional barriers to ensure shoppers are properly funneled through checkout stands, and other stores have hired additional security. In addition, there was no attempt to measure business loss to surrounding cities.

- **Citizen Costs**

  Citizens face the biggest penalties and costs by the bag ban. In addition to annoyance and inconvenience, just the time required to purchase, stock, prepare, use, inspect, wash, dry, restock, and replace reusable bags adds up to many hours per year. The authors have estimated the total impact in time and costs to be about $262 per year per household. This is even higher in the San Jose area where average income is much higher than average state level. If all 301,366 households (2010 Census Data) in San Jose complied with the wishes of the city to use reusable bags, this would equate to **$79 million per year** for San Jose residents.

  A detailed Cost Analysis for Citizen Costs is provided in Appendix B. This analysis reveals that a bag ban will cost San Jose city residents an additional **$23 million per year** based upon expected bag usage rates.

ALL of these costs must be added together then compared to the total benefit. At best, the city can only show a few thousand less plastic grocery bags were collected at catch basins and other points of entrapment. The cost/benefit analysis comes to well **over $10,000 per littered bag** just for the citizen cost alone. Surely there could be a better use for that money!

5. Serious negative impacts were never addressed or even mentioned

In addition to the cost impact of the bag ban, serious negative and side effects were never mentioned. These include:

- **Indications of a huge loss of business**

  Let's assume there was an average overall reduction rate of plastic bag litter of 60% as claimed by Ms. Romanov. Where do the plastic bags that comprise the remaining 40% come from? Does that not indicate that 40% of the people must be shopping outside of San Jose? In fact, this may be one of the only accurate statistical analysis conclusions of these measurements, because a cross-section of the trash at any collection point should reflect the percentage of people using that particular product. Completely

banning a product from businesses in San Jose then still seeing a 40% litter rate for that product indicates that about 40% of the people must be shopping outside of San Jose!

- **User inconvenience and frustration**

  No attempt was made to poll citizens, or measure wasted time and efforts due to the bag ban. How many citizens actually support or oppose the bag ban? How often do people have to go back to their car or even to their home to gather forgotten bags? How many negative posts and responses to online articles have been written? Why does a small 10 cent fee bother and anger them so much that they would carry armloads of loose goods from the store?

- **Store issues**

  There are multiple reports of plastic baskets and shopping carts being stolen from stores, longer wait times in lines, additional security issues, and customer anger aimed at stores. None of these were investigated.

- **Store clerk and citizen physical impact**

  The impact to the clerks and citizens on the increased use of reusable bags (or worse yet, those who opt not to use any bags) is significant. The clerks must now deal with packing bags at counter level, verses the previously used plastic bag frames at below counter level. In addition, customers insist of filling the reusable and purchased paper bags to the brim, resulting in much heavier weight being lifted. No ergonomic impact was investigated.

- **Public health concerns**

  There was no investigation of the rate of washing or cleanliness in the observed reusable bags. However, it is widely measured and known that people DO NOT wash their reusable bags, particularly if those people are forced to use the bags against their own free will. In addition to the actual investigation on wash rates, there was no investigation on any increase in disease or sickness to the citizens of San Jose or to employees at stores who have to pack filthy bags.

- **Nearly half the people now use no bag at all**

  Even at the grocery stores (where the city employees observed behavior), they measured 43% of the people leaving with no bags. Add in the Home Depot stores, Fry's, and others, and that number is likely well over 50%. Thus, the bag ban has had the effect of basically removing ANY form of carryout convenience. Is this progress? Is this a good thing? **No, it demonstrates the utter failure of government mandated solutions!**

Conclusion

The memorandum by Ms. Romanov clearly reflects an attempt to spin inconsistent and inconclusive data in the most positive manner possible, and completely ignoring an evaluation of the true effects (both positive and negative) of the San Jose bag ban. Therefore, the memorandum is both biased and negligent. A more

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neutral evaluation would conclude that the bag ban is totally unjustified based upon a cost/benefit analysis. A more negative evaluation would conclude that the San Jose bag ban is an utter failure and complete disaster.

Yet, in the world of politics, a true evaluation and analysis is typically avoided at all cost. Thus, city officials publish biased reports that neglect the facts or negative impacts, the city council believes the bag ban has been successful, and proponents repeat this misleading memorandum as evidence when convincing other city councils to follow San Jose like lemmings over the cliff.

It is the authors' opinion that the choice of bags to offer customers should be left to the businesses. Furthermore, the choice of bag to use should be left to the individual citizen based upon their situation and personal beliefs. Some people may choose to use reusable bags on planned shopping trips, such as grocery stores, but need a bag when visiting a Home Depot or Fry's. Others may want to avoid any danger of contamination in their bags and instead take full advantage of safe, clean, disposable bags. Bag ban proponents should make their case to the people, and let the people decide.

Virtually everyone hates litter. Litter laws should be enforced and those who litter should be punished. In addition, action should be taken by the city to ensure that loads in garbage and recycling trucks are completely contained to prevent spewing loose litter on city streets and encouraging people to bag loose litter that could become airborne. To ban a product and punish everyone because of the careless behavior of a few is not a responsible solution.

The statistics and claims in the November 20, 2012 memorandum by Ms. Romanov are neither scientifically accurate nor do they justify the immense personal and financial burden of the bag ban to the businesses and people of San Jose. The city council should demand that the items raised in this document be reviewed by the city, and the issues seriously addressed. The city should determine, in a truly unbiased manner, if the San Jose bag ban is justified. If not, the city should repeal the bag ban.

About The Authors

Don Williams *is the founder of the "**Stop the Bag Ban**" citizens group in the San Jose area. He holds a bachelor's degree in Mechanical Engineering and has worked in the high tech field for over 25 years.*

Anthony van Leeuwen *is the founder of the **Fight The Plastic Bag Ban** website and writes extensively on the subject. He holds a bachelor's and Master's degree in Electronics Engineering and has over 40 years of experience working in the federal government.*

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Appendix A

On-Land Litter Surveys

On Land Litter Surveys were conducted in 2009, 2010, and in 2012. Litter surveys were conducted along streets and sidewalks for a length of 100 feet. Trash collected was sorted and characterized to establish what percentage of the litter found consisted of single-use plastic bags. (Romanov, 2012, p. 3) Results of the litter surveys are summarized in Table A-1. The table shows the number of sites surveyed, total litter items found, number of plastic bags found, number of plastic bags per site, and the percent of plastic bags out of total litter items found.

Table A-1. On-Land Litter Surveys

Litter Audit Year	Number of Sites	Total Litter Items	Number of Plastic Bags	Plastic Bags Per Site	Percent of Total Litter
Pre Ban					
2009	48	7,917	387	8.1	4.9%
2010	59	7,784	409	6.9	5.3%
2009 Plus 2010	**107**	**15,701**	**796**	**7.4**	**5.1%**
Post Ban					
2012	31	3,679	76	2.5	2.1%

City of San Jose's Evaluation of On-Land Litter Reduction

The City of San Jose evaluated the results of the On-Land Litter Assessment in the November 2012 Memorandum. In the memo, data from the 2009 and 2010 Litter Assessments were added together to get pre-ban results. The post-ban data was obtained from the 2012 Litter Assessment. The data showed **796** plastic bags pre ban out of 15,701 litter items or **5.1%**. The post ban data showed **76** bags out of 3,679 litter items or **2.1%**. (Romanov, 2012, p. 6)

The city calculates the reduction in on-land plastic bag litter as follows:

$$ercent\ On\ Land\ Reduction = \frac{re\ Ban\ Percent\ of\ Total\ Litter - \ ost\ Ban\ Percent\ of\ Total\ Litter}{re\ Ban\ Percent\ of\ Total\ Litter} \times 100\%$$

$$ercent\ On\ Land\ Reduction = \frac{5.1\% - 2.1\%}{5.1\%} \times 100\% = 58.8\%\ or\ 59\%$$

Critical Analysis of San Jose's Evaluation of On-Land Litter Survey

The analysis of the On-Land Litter Survey in Table 1 of the memorandum is **flawed** for a number of reasons. (Romanov, 2012, p. 6)

First, for Pre-Ordinance data the City of San Jose added the results from the **48** sites in the 2009 Litter Survey to the **59** sites in the 2010 litter survey together, identifying a total of **107** sites. For Post-

Ordinance a total of 31 sites were surveyed. What this means is that the total area surveyed before the ban is more than three times larger than the area surveyed after the ban. This will distort the results.

Second, the sites surveyed were not the same in each survey year. This means that in each successive survey year new sites are included that might contain multi-year accumulations of trash and plastic bags distorting survey results.

Table A-2. Reduction of plastic bags in on-land sites

Litter Survey Year	Number of Sites	Survey Area (feet)	Number of Plastic Bags	Normalized Number of Plastic Bags	Percent Reduction
Pre Ban					
2010	48	4,800	387	8.1	
2011	59	5,900	409	6.9	
2010 plus 2011	**107**	**10,700**	**796**	**7.4**	
Post Ban					
2012	31	3,100	76	2.5	66%

Table A-2 shows the reduction of plastic bags in on-land sites. For each survey year, the number of survey sites is listed including the survey area which is computed by multiplying the number of sites by 100 feet which is the distance of roadway that was surveyed at each site. The table also contains the number of plastic bags found and the normalized number of plastic bags found. The normalized number of plastic bags is calculated by using the formula below and represents the number of plastic bags per 100 feet of surveyed roadway or site.

$$Normalized\ Number\ of\ Plastic\ Bags = \frac{Number\ of\ Plastic\ Bags}{Survey\ Area\ in\ feet} \times 100\ feet$$

To compute the percent reduction the following formula is used:

$$ercent\ Reduction = \frac{re\ Ban\ Normalized\ Plastic\ Bags - \ ost\ Ban\ Normalized\ Plastic\ Bags}{re\ Ban\ Normalized\ Plastic\ Bags} \times 100\%$$

The Pre Ban 2010 plus 2011 normalized number of bags was then compared to Post Ban 2012 normalized number of bags to calculate a **66%** reduction or a drop of **5** plastic bags per survey site.

The city of San Jose conservatively computed the percent reduction by the computing the reduction as a percent of total litter; whereas, we calculated the percent reduction by the average number of plastic bags per survey site. While our method actually produces slightly better results, statistical uncertainty remains as a result of the underlying data.

Creek Cleanup Trash Characterization Results

Creek Cleanup trash characterization was conducted in 2010, 2011, and 2012. Litter surveys of creeks were conducted over a standardized length of 300 feet at each surveyed location. The litter surveys in

2010 and 2011 were conducted Pre-Ordinance and the 2012 litter survey was conducted Post Ordinance.

Table A-3. Creek Litter Survey Results

Litter Audit Year	Number of Sites	Total Litter Items	Number of Plastic Bags	Plastic Bags Per Site	Percent of Total Litter
Pre Ban					
2010	5	5,502	670	134	12.2%
2011	10	16,703	1367	137	8.2%
2010 Plus 2011	**15**	**22,205**	**2037**	**136**	**9.2%**
Post Ban					
2012	10	14,017	513	51	3.7%

City of San Jose's Evaluation of Creek and River Litter Reduction

In Table A-3, the City of San Jose calculated the Pre-Ordinance results by adding the data from the 2010 to the 2011 Creek Litter Surveys for a total of **15** Sites, **22,205** litter items and **2,037** single-use plastic bags for an average of **136** plastic bags per site. The Post Ordinance results are taken from the 2012 Creek Litter Survey for a total of **10** Sites with **14,017** litter items and **513** single-use plastic bags for an average of 51 bags per site. Plastic grocery bags were shown as **12.2%** of total litter in 2010, **8.2%** of total litter in 2011, and **3.7%** of total litter in 2012. The city calculates the overall creek reduction by calculating the reduction of 9.2% to 3.7% of total litter for a reduction of 59.8% or rounded to **59%**. (Romanov, 2012, p. 6)

Critical Analysis of San Jose Evaluation in Creek and River Litter Survey

Table A-4 shows the reduction of plastic bags in creek sites. A distance of 300 feet of creek was assessed for litter at each site. The number of bags found was normalized to the number of plastic bags per site. The 2010 plus 2011 normalized number of bags was compared to the 2012 normalized number of bags to calculate a **62.5%** reduction from 136 to 51 bags per site for a drop of **85** bags per site. The **62.5%** reduction compares well with the **60%** reduction computed by the City of San Jose.

Table A-4. Creek Litter Reduction Results

Litter Audit Year	Number of Sites	Assessment Area (feet)	Number of Plastic Bags	Normalized Number of Plastic Bags	Percent Reduction
Pre Ban					
2010	5	1500	670	134	
2011	10	3000	1367	137	
2010 plus 2011	**15**	**4500**	**2037**	**136**	
Post Ban					
2012	10	3000	513	51	**62.5%**

Storm Drain Catch Basin Litter Surveys

Storm drain catch basins, retrofitted with trash capture screens, were repeatedly sampled in order to establish an accumulation rate for plastic bags in storm drain system. The storm drain catch basis litter survey in addition to counting plastic bags measured the volume and weight of litter.

City of San Jose's Analysis of Storm Drain Litter Rate

In the table in the San Jose memorandum, an average of **3.6** single-use plastic bags/inlet/year Pre-Ordinance and **0.4** single-use plastic bags/inlet/year Post Ordinance was reported. This was computed by the city of San Jose as a reduction of **89%**. (Romanov, 2012, p. 6) The analysis is based upon **80** bags Pre-Ordinance and **9** bags Post Ordinance from a total of **23** sites surveyed before and after the bag ban for a total reduction of **71** plastic bags. (City of San Jose, 2012)

Critical Analysis of Storm Drain Catch Basin Litter Survey

The spreadsheet containing storm drain catch basin results consists of Events 1-4 and Event 5 is confusing. Events 1 to 3 are Pre Ban and Event 4 is Post Ban. The results shown in the above paragraph are contained in a highlighted section of the spreadsheet. The spreadsheet also shows that the number of sites sampled for each of the events. The results reported did not include data from all sites. This was not explained.

Table A-5. Storm Drain Results

Litter Audit Year	Number of Sites	Number of Plastic Bags	Plastic Bags per Site	Percent Reduction
Pre Ban				
Event 1	31	16	0.52	
Event 2	65	50	0.77	
Event 3	62	20	0.32	
Total	**158**	**86**	**0.54**	
Post Ban				
Event 4	69	9	0.13	
Post Ban Reduction		77	0.41	76%

When comparing the total number of plastic bags from the three pre ban events and Post Ban events for a reduction of **86** plastic bags to **9** plastic bags for a reduction of 77 bags or a **76%** reduction. This is also equivalent to a reduction of 0.54 to 0.13 for a 0.41 bag reduction per catch basin. This differs from the reduction calculated by the city because it includes all sites surveyed rather than the selected 23 sites which shows a reduction of 3.6 bags per inlet to 0.4 bag per inlet or a reduction of 89%.

Summary

In Table A-6, the authors present both the City of San Jose calculations for a reduction in plastic bag litter and their own calculations. While the City of San Jose's numbers were fairly close to ours regarding the decrease in plastic bags found in creeks and on-land, the methodology used was flawed and the source data wanting in both cases. With regard to storm drain data, using data from 23 storm

drain catch basins outfitted with trash capture devices is much too small a sample for a city the size of San Jose to provide reasonably accurate results. Serious questions remain with San Jose's calculation of the storm drain plastic bag reduction of 89%. The storm drain results appear to be overstated even though the plastic bag reduction only represents a reduction of 71 plastic bags. Since our calculations were based on the limited data collected, it is also considered suspect.

Table A-6. San Jose Results Compared with this Paper's Results

Survey	San Jose Reduction	Our Calculations	Bags Reduced
On-Land Survey	59%	66%	4.9 bags per site
Creek Survey	60%	62.5%	85 bags per site
Storm Drain Survey	89%	76%	0.41 bags per site

Encl: (9)

Appendix B

Table B-1 contains the estimated cost data for the City of San Jose based upon bag usage statistics for the City of Santa Monica derived from a survey conducted by a student group called Team Marine. Student volunteers from conducted over 50,000 observations of store patrons both before and after the bag ban. The number in parenthesis in the table represents the bag usage statistics from Team Marine. (Team Marine, 2013) Household cost data for the different bag options is derived from the authors' paper titled "Plastic Bag Alternatives Much More Costly to Consumers". For example, annual costs for store provided plastic bags is $20.80, store provided paper bag is $31.20, store purchased paper bags is $78, and reusable bags is $300. (van Leeuwen & Williams, 2013) Based upon Table B-1, the annual cost to San Jose residents for carryout bags more than doubled (2.5 times) even with the high number of people who now choose not use bags! In addition, San Jose residents will now spend an additional $23 million more annually for carryout bags than they did before the ban. This $23 million could be MUCH better spent actually doing something positive to address litter and trash, rather than regulating citizens and businesses.

Table B-1. Pre and Post Ban Cost Estimate for City of San Jose

	Population/ Households	Annual Cost
San Jose Population	984,299	
San Jose Households (3 persons)	328,100	
Pre Ban		
Households using Plastic Bags (69%)	226,389	$4,708,886.42
Households using Paper Bags (5%)	16,405	$511,835.48
Households using Reusable Bags (10%)	32,810	$9,842,990.00
Households using No Bags (15%)	49,215	0.00
Total Pre Ban Cost		**$15,063,711.90**
Post Ban		
Households using Plastic Bags (0%)	0	$0.00
Households using Paper Bags (29%)	95,149	$3,618,779.21
Households using Reusable Bags (35%)	114,835	$34,450,465.00
Households using No Bags (36%)	118,116	$0.00
Total Post Ban Cost		**$38,069,244.21**
Total Cost Increase as a Result of Bag Ban		**$23,005,532.31**

Encl: (9)

WHOLE FOODS
CITY OF WEST HOLLYWOOD
MARCH 7, 2013

Paper bags at the ready at the Whole Foods store checkout.

Photos taken by Stephen Joseph on March 7, 2013 in the City of West Hollywood the plastic bag ban took effect on February 20, 2013.

Photo extracted from Save The Plastic Bag Coalition Appeal of City of Santa Barbara Planning Commission's Certification of Final EIR on Single Use Carryout Bag Ordinance to City Council. Planning Commission Resolution 011-13 certifying EIR adopted August 8, 2013.

Encl: (10)

Appendix B

Draft Santa Barbara County Ordinance

ATTACHMENT
Proposed Model County Ordinance
Single Use Bag Ordinance

DRAFT

Ordinance No.

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA BARBARA AMENDING THE COUNTY CODE BY ADDING CHAPTER 16B PERTAINING TO SINGLE-USE CARRY OUT BAGS AT CERTAIN RETAIL FOOD AND GROCERY STORE ESTABLISHMENTS IN THE COUNTY.

THE BOARD OF SUPERVISORS FOR THE COUNTY OF SANTA BARBARA DOES ORDAIN AS FOLLOWS:

SECTION ONE: CHAPTER 16 of the County of Santa Barbara County Code is amended by adding a new chapter, Chapter 16B ("Single-Use Carry Out Bags"), which reads as follows:

Section 16B-1. Definitions.

The following definitions apply to this Chapter:

A. Customer. Any person purchasing goods from a store.

B. Operator. The person in control of, or having the responsibility for, the operation of a store, which may include, but is not limited to, the owner of the store.

C. Person. Any natural person, firm, corporation, partnership, or other organization or group however organized.

D. Plastic carryout bag. Any bag made predominantly of plastic derived from either petroleum or a biologically-based source, such as corn or other plant sources, which is provided to a customer at the point of sale. "Plastic carryout bag" includes compostable and biodegradable bags but does not include reusable bags, produce bags, or product bags.

E. Postconsumer recycled material. A material that would otherwise be destined for solid waste disposal, having completed its intended end use and product life cycle. "Postconsumer recycled material" does not include materials and by-products generated from, and commonly reused within, an original manufacturing and fabrication process.

F. Produce bag or product bag. Any bag without handles used exclusively to carry produce, meats, or other food items from a display case within a store to the point of sale inside a store or to prevent such food items from coming into direct contact with other purchased items.

G. Recyclable. Material that can be sorted, cleansed, and reconstituted using available recycling collection programs for the purpose of using the altered form in the manufacture of a new product.

H. Recyclable paper carryout bag. A paper bag (of any size) that meets all of the following requirements: 1. contains no old growth fiber; 2. is one hundred percent (100%) recyclable overall and contains a minimum of forty percent (40%) post-consumer recycled material; 3. is capable of composting, consistent with the timeline and specifications of the American Society of Testing and Materials (ASTM) Standard D6400; 4. is accepted for recycling in curbside programs in the County; 5. has printed on the bag the name of the manufacturer, the location (country) where the bag was manufactured, and the percentage of postconsumer recycled material used; and 6. displays the word "Recyclable" in a highly visible manner on the outside of the bag.

I. Reusable bag. A bag with handles that is specifically designed and manufactured for multiple reuse and meets all of the following requirements: 1. has a minimum lifetime of 125 uses, which for purposes of this subsection, means the capability of carrying a minimum of 22 pounds 125 times over a distance of at least 175 feet; 2. has a minimum volume of 15 liters; 3. is machine washable or is made from a material that can be cleaned or disinfected; 4. does not contain lead, cadmium, or any other heavy metal in toxic amounts; 5. has printed on the bag, or on a tag that is permanently affixed to the bag, the name of the manufacturer, the location (country) where the bag was manufactured, a statement that the bag does not contain lead, cadmium, or any other heavy metal in toxic amounts, and the percentage of postconsumer recycled material used, if any; and 6. if made of plastic, is a minimum of at least 2.25 mils thick. This definition may be revised to mirror future state legislation.

J. Store. Any of the following retail establishments located and operating within the County:

1. A store of at least 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 (Part 1.5 (commencing with Section 7200) of Division 2 of the Revenue and Taxation Code) which sells a line of dry grocery or canned goods, or non-food items and some perishable food items for sale or a store that has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code; or

2. A drug store, pharmacy, supermarket, grocery store, convenience food store, food mart, liquor store, or other similar retail store or entity engaged in the retail sale of a limited line of grocery items. Grocery items typically include, but are not limited to, milk, bread, soda, candy and snack foods.

3. All wine/beer tasting rooms including those operating under a type 20 or 21 liquor license issued by the State Department of Alcoholic Beverage Control which do not provide single use plastic bags to customers for the purpose of carrying away goods or material from the point of sale are exempt from the terms of this Chapter..

Section 16B-2. Plastic carryout bags prohibited.

A. No Store shall provide any customer with a plastic carryout bag.

B. The prohibition on providing plastic carryout bags applies only to bags provided by a Store (as defined in this Chapter)for the purpose of carrying away goods from the point of sale within the Store and does not apply to produce bags or product bags supplied by a Store.

Section 16B-3. Permitted bags.

All Stores that elect to provide carryout bags to a customer for the purpose of carrying away goods or other material from the point of sale, subject to the terms of this Chapter, shall provide or make available to a customer only recyclable paper carryout bags or reusable bags. . Nothing in this Chapter prohibits customers from using bags of any type which the customer may bring to the Store themselves or from carrying away goods that are not placed in a bag, in lieu of using bags provided by the Store.

Section 16B-4. Regulation of recyclable paper carryout bags.

A. Any Store that provides a recyclable paper carryout bag to a customer must charge the customer ten cents ($0.10) for each bag provided, except as otherwise allowed by this Chapter.

B. No Store shall rebate or otherwise reimburse a customer any portion of the ten cent ($0.10) charge required in subparagraph A, except as otherwise allowed by this Chapter.

C. All Stores must indicate on the customer receipt the number of recyclable paper carryout bags provided and the total amount charged the customer for such bags.

D. All charges collected by a Store under this Chapter shall be retained by the Store and used for one or more of the following purposes: 1. the costs associated with complying with the requirements of this Chapter; 2. the actual costs of providing recyclable paper carryout bags; 3. the costs of providing low or no cost reusable bags to customers of the Store who are exempted by section 16B-6; or 4. the costs associated with a Store's educational materials or education campaign encouraging the use of reusable bags, if any.

E. All Stores shall report to the Public Works Department Director, on an annual (calendar year) basis, the total number of recyclable paper carryout bags provided, the total amount of monies collected for providing recyclable paper carryout bags, and a summary of any efforts a Store has undertaken to promote the use of reusable bags by customers in the prior year. Such reporting must be done on a form prescribed by the Public Works Department Director, and must be signed by a responsible agent or officer of the Store in order to confirm that the information provided on the form is accurate and complete. Such reports shall be filed no later than ninety (90) days after the end of each year following the year in which this chapter becomes effective and shall only be required for the first three years after adoption of the ordinance.

Section 16B-5. Use of reusable bags.

A. All Stores must provide reusable bags to customers, either for sale or at no charge.

B. Stores are strongly encouraged to educate their staff to promote the use of reusable bags and to post signs and other informational materials encouraging customers to use reusable bags.

Section 16B-6. Exempt customers.

All Stores must provide at the point of sale, free of charge, either reusable bags or recyclable paper carryout bags or both, at the Store's option, to any customer participating either in the California Special Supplemental Food Program for Women, Infants, and Children pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the Health and Safety Code or in the Supplemental Food Program pursuant to Chapter 10 (commencing with Section 15500) of Part 3 of Division 9 of the state Welfare and Institutions Code.

Section 16B-7. Enforcement and violations - penalties.

A. Authority for Investigation and Enforcement. The Public Works Department Director (Director) is hereby authorized to make all necessary and reasonable rules and regulations, subject to the approval of the board of supervisors, needed to enforce the provisions of this chapter. The Director may also request, and shall receive, the assistance and cooperation of other officials of the county to assist in the discharge of these duties.

Enforcement authority includes the authority to investigate all reported or apparent violations of any of the provisions of this chapter. If a violation is determined to exist, the director will attempt to obtain voluntary compliance. If voluntary compliance is not secured within 72 (seventy-two) hours, the director is hereby authorized to enforce and secure compliance through the issuance of a citation/notice to appear.

A citation/notice to appear issued pursuant to this chapter may require an appearance to answer charges whenever the director or his deputy has reasonable cause to believe that the person cited has violated this chapter.

B. Penalties. Any Operator of a Store, as defined herein, who violates any provision of this chapter is guilty of an infraction, and upon conviction thereof, shall be punishable by a fine as follows:

1. One hundred dollars for a first violation;

2. Two hundred dollars for a second violation of the same ordinance within one year; and
3. Fine not exceeding five hundred dollars for each additional violation of the same ordinance within one year.

C.__Remedies Cumulative. The remedies or penalties provided by this chapter are cumulative to each other and to other remedies or penalties available under all other laws of this state and shall not be construed to restrict any remedy provided by law.

Section 16B-8. Operative date.

For those Stores defined in subparagraph (J)1) of section 16B-1, this Chapter shall become operative One Hundred Eighty (180) days after the effective date of the County ordinance adopting this Chapter. For Stores defined in subparagraph J(2) of Section 16B-1, this Chapter shall become operative one year after the effective date of the County ordinance adopting this Chapter.

SECTION TWO: Within two years of the adoption date of this ordinance, the staff of the Public Works Department shall submit a written agenda report to the Board of Supervisors describing, among other things, whether it appears to the Public Works Department that this ordinance has reduced the number of plastic and paper bags used within the unincorporated County by those Stores regulated by this ordinance.

Appendix C

Air Quality and Greenhouse Gas Estimates for the Proposed Ordinance

AIR QUALITY

Existing Air Pollution Emissions

Area	Existing: Total Plastic Bags Used Annually	Existing Ozone: Emissions per year (kg)	Existing AA: Emissions per year (kg)
Unincorporated SB County	71,626,590	1,647	77,643
Total	**71,626,590**	**1,647**	**77,643**

Proposed Air Pollution Emissions by Bag Type

Bag Type	Proposed # of Bags Used per Year	Ozone Emissions (kg) per 1,000 bags	AA Emissions (kg) per 1,000 bags	Proposed: Ozone Emissions per year (kg)	Proposed: AA Emissions per year (kg)
Plastic	3,581,330	0.023	1.084	**82**	**3,882**
Recyclable Paper	21,487,977	0.03	2.06	**645**	**44,265**
Reusable	895,332	0.032	3.252	**29**	**2,912**
			Total	**756**	**51,059**
			Existing	**1,647**	**77,643**
			Net Change (Total minus Existing)	**-892**	**-26,584**
			% Change	**-54%**	**-34%**

Existing Estimated Truck Trips per Day

Carryout Bag Type	Number of Bags per Year	Number of Bags per Truck Load	Truck Trips Per Year	Truck Trips per Day
Plastic	71,626,590	2,080,000	34	0.09

Estimated Truck Trips per Day Following Implementation of the Proposed Ordinance

Carryout Bag Type	Number of Bags per Year	Number of Bags per Truck Load	Truck Trips Per Year	Truck Trips per Day
Plastic	3,581,330	2,080,000	2	0.00
Recyclable Paper	21,487,977	217,665	99	0.27
Reusable	895,332	108,862	8	0.02
		Total	**109**	**0.30**
		Existing Truck Trips for Plastic Bags	34	0.09
		Net New Truck Trips	**74**	**0.20**

Mobile Emissions - Proposed Ordinance

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

GREENHOUSE GAS EMISSIONS

Existing GHG Emissions

Area	Population	Existing Total Plastic Bags Used Annually	Existing CO2e emissions per year (metric tons)	Existing CO2e per person per year (metric tons)
SB County	134,890	71,626,590	1,910	0.0142
Total	**134,890**	**71,626,590**	**1,910**	**0.0142**

Proposed GHG Emissions by Bag Type for Study Area

Use and Disposal					
Carryout Bag Type	**Proposed # of Bags Used per Year**	**GHG Impact Rate (metric tons CO2E)**		**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	3,581,330	0.04 per 1,500 bags		96	0.0007
Recyclable Paper	21,487,977	0.1188 per 1,000 bags		2,553	0.0189
Reusable	895,332	5.24 per 1,000 bags		4,692	0.0348
		Subtotal (Manufacturing, Use, and Disposal)		*7,340*	*0.0544*
Washing					
Carryout Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kWh)**	**Total Electricity Use Per Year (kWh)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	565,473	3.825	2,162,934	510	0.0038
			Subtotal (Washing)	*510*	*0.0038*
			Total GHG Emissions from Proposed Ordinance	**7,850**	**0.0582**
			Existing GHG Emissions	**1,910**	**0.0142**
			Net Change (Total minus Existing)	**5,940**	**0.0440**

Assuming Electricity = 0.524 lbs CO2 per kWh (http://www.pge.com/about/environment/calculator/assumptions.shtml)
Assuming all Cotton Reusable Bags

Proposed GHG Emissions by Jurisdiction

Area	Population	Existing Total Plastic Bags Used Annually	Proposed Plastic Bags (5% Remain)	Proposed Paper Bags (65% Switch to Paper)	Proposed Reusable Bags (30% Switch to Reusable)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	134,890	71,626,590	3,581,330	21,487,977	895,332	7,850	0.0582
Total	**134,890**	**71,626,590**	**3,581,330**	**21,487,977**	**895,332**	**7,850**	**0.0582**

Appendix D

Utilities Calculations for the Proposed Ordinance

Single Use Plastic Bag Ban Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in unincorporated Santa Barbara County per year	**71,626,590**
Number of plastic bags used in unincorporated Santa Barbara County per day	**196,237**

Proposed Ordinance - Assume 95% switch to paper/reusable	Per Day	Per Year
Number of Plastic bags still in use (5% of existing)	9,812	3,581,330
Number of paper bags per day with 30% conversion	58,871	21,487,977
Number of reusable bags per day with 65% conversion	2,453	895,332

Water Use - Ecobilan	Existing Plastic Bag Use
Liters water per 9000 liters groceries	52.6
Liters water per bag per day	0.08
Liters water in Study Area per day	16,056.57
Gallons per day	4,241.70
Millions gallons per day (MGD) in Study	0.00424
MGD per year	1.55

Wastewater - Ecobilan	Existing Plastic Bag Use
Liters water per 9000 liters groceries	50.00
Liters water per bag per day	0.08
Liters water in Study Area per day	15,262.90
Gallons per day	4,032.03
Millions gallons per day (MGD) in Study Area	0.0040
MGD per year	1.47

Water Use - Boustead	Existing Plastic Bag
Gallons per 1000 paper bags (1500	58.00
Gallons per bag	0.04
Gallons water in Study Area per day	7,587.84
Millions gallons per day (MGD) in Study Area	0.01
MGD per year	2.77

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Proposed Plastic Bag Use	Proposed Paper Bag Use	Proposed Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	64.59	821.30	490.5930822
Tons per day	1.42	0.07	0.91	0.54
Tons per year	519.72	25.99	330.44	197.39
Increase from Ordinance (tons/day)	**0.09**			
Increase from Ordinance (tons/year)	**34.09**			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Proposed Plastic Bag Use	Proposed Paper Bag Use	Proposed Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.0042	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	40.94	1,007.84	490.5930822
Tons per day	0.90	0.05	1.11	0.54
Tons per year	329.43	16.47	405.50	197.39
Increase from Ordinance (tons/day)	**0.79**			
Increase from Ordinance (tons/year)	**289.93**			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	895,332	565,473	40	22,618,923	69.4	61,970
			TOTAL	**22,618,923**	**69.4**	**61,970**

*Assumes all bags machine washed, assumes bags washed monthly and 19 bags per wash load

Appendix E

Air Quality and Greenhouse Gas Estimates, and Utilities Calculations for the Alternatives

ALTERNATIVE 2: Ban on Single Use Plastic Bags at all Retail Establishments Except Restaurants

Alternative 2 Air Pollution Emissions by Bag Type

Carryout Bag Type	Alt 2 # of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Alt 2 Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	Alt 2 AA Emissions per year (kg)
Single Use Plastic	716,266	1	0.023	**16**	1	1.084	**776**
Recyclable Paper	24,353,041	1.3	0.03	**731**	1.9	2.06	**50,167**
Reusable	895,332	1.4	0.032	**29**	3	3.252	**2,912**
			Total Alt 2 Emissions	**776**		**Total Alt 2 Emissions**	**53,855**
			Proposed Ordinance	**756**		**Proposed Ordinance**	**51,059**
			Difference	**20**		**Difference**	**2,796**
			Existing	**1,647**		**Existing**	**77,643**
			Net Change (Total minus Existing)	**(872)**		**Net Change (Total minus Existing)**	**(23,788)**

Alternative 2 GHG Emissions by Bag Type for Study Area

Use and Disposal					
Carryout Bag Type	**Alt 2 # of Bags Used per Year**	**GHG Impact Rate (per Bag)**	**GHG Impact Rate (metric tons CO2E)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	716,266	1	0.04 per 1,500 bags	19	0.0001
Recyclable Paper	24,353,041	2.97	0.1188 per 1,000 bags	2,893	0.0214
Reusable	895,332	131	5.24 per 1,000 bags	4,692	0.0348
			Subtotal (Manufacturing, Use, and Disposal)	*7,604*	*0.0564*
Washing					
Carryout Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kw)**	**Total Electricity Use Per Year (kW)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	565,473	3.825	2,162,935	510	0.0038
			Subtotal (Washing)	*510*	*0.0038*
			Total GHG Emissions from Alternative 2	**8,114**	**0.0602**
			Proposed Ordinance Total	7,850	0.0582
			Difference	**264**	**0.0020**
			Existing GHG Emissions	1,910	0.0142
			Net Change (Total minus Existing)	**6,204**	**0.0460**

Existing and Alternative 2 Bag Use

Area	Alt 2 Plastic Bags (1% Remain)	Alt 2 Paper Bags (34% Switch to Paper)	Alt 2 Reusable Bags (65% Switch to Reusable)	Total Bags Used Annually	Alt 2: Ozone Emissions per year (kg)	Alt 2: AA Emissions per year (kg)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	716,266	24,353,041	895,332	25,964,639	776	53,855	8,114	0.0602
Study Area Subtotal	**716,266**	**24,353,041**	**895,332**	**25,964,639**	**776**	**53,855**	**8,114**	**0.0602**
Compared to Proposed Ord.	**(2,865,064)**	**2,865,064**	**Same**	**Same**	**20**	**2,796**	**264**	**0.0020**
Compared to Existing Conditions	**(70,910,324)**	**N/A**	**N/A**	**(45,661,951)**	**(872)**	**(23,788)**	**6,204**	**0.0460**

Estimated Alternative 2 Truck Trips

Bag Type	Alt 2 # of Bags Used per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	716,266	2,080,000	0.3	0.001
Recyclable Paper	24,353,041	217,665	112	0.31
Reusable	895,332	108,862	8	0.02
Alternative 2 Total			**120.45**	**0.33**
Proposed Ordinance Total			**108.67**	**0.30**
Difference			**11.79**	**0.03**
Existing Total for Plastic Bags (without an Ordinance)			34	0.09
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)			**86**	**0.24**

Estimated Alt 2 Mobile Emissions

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Mobile Emissions: Alternative 2	<0.01	0.02	<0.01	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

Alternative 2 - Single Use Plastic Bag Ban Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in SB County per year	**71,626,590**
Number of plastic bags used in participating jurisdictions per day	**196,237**

Alternative 2	Per Day	Per Year
Number of Plastic bags still in use (1% of existing)	1,962	716,266
Number of paper bags per day with 34% conversion	66,721	24,353,041
Number of reusable bags per day with 65% conversion	2,453	895,332

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Alt 2 Plastic Bag Use	Alt 2 Paper Bag Use	Alt 2 Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	12.92	930.80	490.5930822
Tons per day	1.42	0.01	1.03	0.54
Tons per year	519.72	5.20	374.50	197.39
Increase from Alt 2 (tons/day)	**0.16**			
Increase from Alt 2 (tons/year)	**57.36**			
Change from Proposed Ordinance	0.06			
% Change	8%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Alt 2 Plastic Bag Use	Alt 2 Paper Bag Use	Alt 2 Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.00	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	8.19	1,142.22	490.5930822
Tons per day	0.90	0.01	1.26	0.54
Tons per year	329.43	3.29	459.57	197.39
Increase from Alt 2 (tons/day)	**0.91**			
Increase from Alt 2 (tons/year)	**330.82**			
Change from Proposed Ordinance	0.11			
% Change	12%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed Ordinance	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	895,332	565473	40	22,618,920	69.4	61,970
			TOTAL	**22,618,920**	**69.4**	**61,970**
			Change from Proposed Ordinance	**(3)**	**0.0**	**0**

*Assumes bags washed monthly and 19 bags per wash load

ALTERNATIVE 3: Mandatory Charge of $0.25 for Paper Bags

Alt 3 Air Pollution Emissions by Bag Type

Bag Type	Alt 3 # of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Alt 3 Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	Alt 3 AA Emissions per year (kg)
Single Use Plastic	3,581,330	1	0.023	**82**	1	1.084	**3,882**
Recyclable Paper	4,297,595	1.3	0.03	**129**	1.9	2.06	**8,853**
Reusable	1,225,917	1.4	0.032	**39**	3	3.252	**3,987**
			Total Alt 3 Emissions	**251**		**Total Alt 3 Emissions**	**16,722**
			Proposed Ordinance	**756**		**Proposed Ordinance**	**51,059**
			Difference	**(505)**		**Difference**	**(34,337)**
			Existing	**1,647**		**Existing**	**77,643**
			Net Change (Total minus Existing)	**(1,397)**		**Net Change (Total minus Existing)**	**(60,921)**

Alternative 3 GHG Emissions by Bag Type for Study Area

Use and Disposal					
Bag Type	**Alt 3 # of Bags Used per Year**	**GHG Impact Rate (per Bag)**	**GHG Impact Rate (metric tons CO2E)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	3,581,330	1	0.04 per 1,500 bags	96	0.0007
Recyclable Paper	4,297,595	2.97	0.1188 per 1,000 bags	511	0.0038
Reusable	1,225,917	131	5.24 per 1,000 bags***	6,424	0.0476
			Subtotal (Manufacturing, Use, and Disposal)	*7,030*	*0.0521*
Washing					
Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kw)**	**Total Electricity Use Per Year (kW)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	774,263	3.825	2,961,557	698	0.0052
			Subtotal (Washing)	*698*	*0.0052*
			Total GHG Emissions from Alternative 3	**7,728**	**0.0573**
			Proposed Ordinance Total	7,850	0.0582
			Difference	**(122)**	**(0.0009)**
			Existing GHG Emissions	1,910	0.0142
			Net Change (Total minus Existing)	**5,818**	**0.0431**

Existing and Alternative 3 Bag Use

Area	Alt 3 Plastic Bags (5% Remain)	Alt 3 Paper Bags (6% Switch to Paper)	Alt 3 Reusable Bags (89% Switch to Reusable)	Total Bags Used Annually	Alt 3: Ozone Emissions per year (kg)	Alt 3: AA Emissions per year (kg)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	3,581,330	4,297,595	1,225,917	9,104,842	427	36,793	7,728	0.0573
Total	**3,581,330**	**4,297,595**	**1,225,917**	**9,104,842**	**427**	**36,793**	**7,728**	**0.0573**
Compared to Proposed Ordinance	**Same**	**(17,190,382)**	**330,584**	**(16,859,797)**	**(329)**	**(14,266)**	**(122)**	**(0.0009)**
Compared to Existing Conditions	**(68,045,261)**	**N/A**	**N/A**	**(62,521,748)**	**(1,220)**	**(40,850)**	**5,818**	**0.0431**

Estimated Truck Trips

Bag Type	Alt 3 # of Bags Used per Year	Number of Bags per Truck Load	Truck Trips Per Year	Truck Trips per Day
Single Use Plastic	3,581,330	2,080,000	2	0.00
Recyclable Paper	4,297,595	217,665	20	0.05
Reusable	1,225,917	108,862	11	0.03
Alternative 3 Total			**33**	**0.09**
Proposed Ordinance Total			**109**	**0.30**
Difference			**(76)**	**(0.21)**
Existing Total for Plastic Bags (without an Ordinance)			34	0.09
Net Change of Alternative 3 (Alternative3 Total minus Existing Total)			**(2)**	**(0.00)**

Estimated Alt 3 Mobile Emissions

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Mobile Emissions: Alternative 3	(<0.01)	(<0.01)	(<0.01)	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

Alternative 3 - Single Use Carryout Bag Reduction Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in participating jurisdictions per year	**71,626,590**
Number of plastic bags used in participating jurisdictions per day	**196,237**

Alternative 3	Per Day	Per Year
Number of Plastic bags still in use (5% remain)	9,812	3,581,330
Number of paper bags per day with 6%	11,774	4,297,595
Number of reusable bags per day with 89% conversion	3,359	1,225,917

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Alt 3 Plastic Bag Use	Alt 3 Paper Bag Use	Alt 3 Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	64.59	164.26	671.7351433
Tons per day	1.42	0.07	0.18	0.74
Tons per year	519.72	25.99	66.09	270.27
Increase from Alt 3 (tons/day)	**(0.43)**			
Increase from Alt 3 (tons/year)	**(157.38)**			
Change from Proposed Ordinance	(0.52)			
% Change	-150%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Alt 3 Plastic Bag Use	Alt 3 Paper Bag Use	Alt 3 Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.00	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	40.94	201.57	671.7351433
Tons per day	0.90	0.05	0.22	0.74
Tons per year	329.43	16.47	81.10	270.27
Increase from Alt 3 (tons/day)	**0.11**			
Increase from Alt 3 (tons/year)	**38.41**			
Change from Proposed Ordinance	(0.69)			
% Change	-94%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	1,225,917	774,263	40	30,970,526	95.0	84,851
			TOTAL	**30,970,526**	**95.0**	**84,851**
			Change from Proposed Ordinance	**8,351,602**	**25.6**	**22,881**

*Assumes bags washed monthly and 19 bags per wash load

ALTERNATIVE 4: Ban on Both Plastic and Paper Bags

Alternative 4 Air Pollution Emissions by Bag Type

Carryout Bag Type	Alt 4 # of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Alt 4 Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	Alt 3 AA Emissions per year (kg)
Single Use Plastic	3,581,330	1	0.023	**82**	1	1.084	**3,882**
Recyclable Paper	0	1.3	0.03	**0**	1.9	2.06	**0**
Reusable	1,308,563	1.4	0.032	**42**	3	3.252	**4,255**
			Total Alt 4 Emissions	**124**		**Total Alt 4 Emissions**	**8,138**
			Proposed Ordinance	**756**		**Proposed Ordinance**	**51,059**
			Difference	**-631**		**Difference**	**-42,921**
			Existing	**1,647**		**Existing**	**77,643**
			Net Change (Total minus Existing)	**(1,523)**		**Net Change (Total minus Existing)**	**(69,506)**

Alternative 4 GHG Emissions by Bag Type for Study Area

Use and Disposal					
Carryout Bag Type	**Alt 4 # of Bags Used per Year**	**GHG Impact Rate (per Bag)**	**GHG Impact Rate (metric tons CO2E)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	3,581,330	1	0.04 per 1,500 bags	96	0.0007
Recyclable Paper	0	2.97	0.1188 per 1,000 bags	0	0.0000
Reusable	1,308,563	131	5.24 per 1,000 bags***	6,857	0.0508
			Subtotal (Manufacturing, Use, and Disposal)	*6,952*	*0.0515*
Washing					
Carryout Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kw)**	**Total Electricity Use Per Year (kW)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	826,461	3.825	3,161,212	745	0.0055
			Subtotal (Washing)	*745*	*0.0055*
			Total GHG Emissions from Alternative 4	**7,698**	**0.0571**
			Proposed Ordinance Total	7,850	0.0582
			Difference	**-152**	**-0.0011**
			Existing GHG Emissions	1,910	0.0142
			Net Change (Total minus Existing)	**5,788**	**0.0429**

Existing and Alternative 4 Bag Use

Area	Alt 4 Plastic Bags (5% Remain)	Alt 4 Paper Bags (none Remain)	Alt 4 Reusable Bags (95% Switch to Reusable)	Total Bags Used Annually	Alt 4: Ozone Emissions per year (kg)	Alt 4: AA Emissions per year (kg)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	3,581,330	0	1,308,563	4,889,892	124	8,138	7,698	0.0571
Total	**3,581,330**	**0**	**1,308,563**	**4,889,892**	**124**	**8,138**	**7,698**	**0.0571**
Compared to Proposed Ordinance	**0**	**-21,487,977**	**413,230**	**-21,074,747**	**-631**	**(42,921)**	**-152**	**-0.0011**
Compared to Existing Conditions	**(68,045,261)**	**N/A**	**N/A**	**(66,736,698)**	**(1,523)**	**(69,506)**	**5,788**	**0.0429**

Estimated Alternative 4 Truck Trips

Carryout Bag Type	Alt 4 # of Bags Used per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single Use Plastic	3,581,330	2,080,000	2	0.00
Recyclable Paper	0	217,665	0	0.00
Reusable	1,308,563	108,862	12	0.03
Alternative 4 Total			**14**	**0.04**
Proposed Ordinance Total			**109**	**0.30**
Difference			**-95**	**-0.26**
Existing Total for Plastic Bags (without an Ordinance)			34	0.09
Net Change of Alternative 4 (Alternative 3 Total minus Existing Total)			**-21**	**-0.06**

Estimated Alt 4 Mobile Emissions

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Mobile Emissions: Alternative 4	(<0.01)	(<0.01)	(<0.01)	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

Alternative 4 - Single Use Plastic Bag Ban Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in participating jurisdictions per year	**71,626,590**
Number of plastic bags used in participating jurisdictions per day	**196,237**

Alternative 4	Per Day	Per Year
Number of Plastic bags still in use (5% remain)	9,812	3,581,330
Number of paper bags per day with (none) conversion	0	-
Number of reusable bags per day with 95% conversion	3,585	1,308,563

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Alt 4 Plastic Bag Use	Alt 4 Paper Bag Use	Alt 4 Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	64.59	-	717.0206586
Tons per day	1.42	0.07	-	0.79
Tons per year	519.72	25.99	-	288.49
Increase from Alt 4 (tons/day)	**(0.56)**			
Increase from Alt 4 (tons/year)	**(205.25)**			
Change from Proposed Ordinance	(0.66)			
% Change	-89%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Alt 4 Plastic Bag Use	Alt 4 Paper Bag Use	Alt 4 Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.00	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	40.94	-	717.0206586
Tons per day	0.90	0.05	-	0.79
Tons per year	329.43	16.47	-	288.49
Increase from Alt 4 (tons/day)	**(0.07)**			
Increase from Alt 4 (tons/year)	**(24.47)**			
Change from Proposed Ordinance	(0.86)			
% Change	-56%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed Ordinance	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	1,308,563	826,461	40	33,058,426	101.5	90,571
			TOTAL	**33,058,426**	**101.5**	**90,571**
			Change from Proposed Ordinance	**10,439,503**	**32.0**	**28,601**

*Assumes bags washed monthly and 19 bags per wash load

ALTERNATIVE 5: $0.10 Fee on Both Plastic and Paper Bags

Alternative 5 Air Pollution Emissions by Bag Type

Carryout Bag Type	Alt 5 # of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Alt 5 Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	Alt 3 AA Emissions per year (kg)
Single Use Plastic	15,757,850	1	0.023	**362**	1	1.084	**17,082**
Recyclable Paper	10,027,723	1.3	0.03	**301**	1.9	2.06	**20,657**
Reusable	881,558	1.4	0.032	**28**	3	3.252	**2,867**
Total Alt 5 Emissions				**691**	**Total Alt 5 Emissions**		**40,605**
Proposed Ordinance				**756**	**Proposed Ordinance**		**51,059**
Difference				**-64**	**Difference**		**-10,454**
Existing				**1,647**	**Existing**		**77,643**
Net Change (Total minus Existing)				**(956)**	**Net Change (Total minus Existing)**		**(37,038)**

Alternative 5 GHG Emissions by Bag Type for Study Area

Use and Disposal					
Carryout Bag Type	**Alt 5 # of Bags Used per Year**	**GHG Impact Rate (per Bag)**	**GHG Impact Rate (metric tons CO2E)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	15,757,850	1	0.04 per 1,500 bags	420	0.0031
Recyclable Paper	10,027,723	2.97	0.1188 per 1,000 bags	1,191	0.0088
Reusable	881,558	131	5.24 per 1,000 bags***	4,619	0.0342
Subtotal (Manufacturing, Use, and Disposal)				*6,231*	*0.0462*
Washing					
Carryout Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kw)**	**Total Electricity Use Per Year (kW)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	556,773	3.825	2,129,659	502	0.0037
Subtotal (Washing)				*502*	*0.0037*
Total GHG Emissions from Alternative 5				**6,733**	**0.0499**
Proposed Ordinance Total				7,850	0.0582
Difference				**-1,117**	**-0.0083**
Existing GHG Emissions				1,910	0.0142
Net Change (Total minus Existing)				**4,823**	**0.0358**

Existing and Alternative 5 Bag Use

Area	Alt 5 Plastic Bags (5% Remain)	Alt 5 Paper Bags (none Remain)	Alt 5 Reusable Bags (95% Switch to Reusable)	Total Bags Used Annually	Alt 5: Ozone Emissions per year (kg)	Alt 5: AA Emissions per year (kg)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	15,757,850	10,027,723	881,558	26,667,130	691	40,605	6,733	0.0499
Total	**15,757,850**	**10,027,723**	**881,558**	**26,667,130**	**691**	**40,605**	**6,733**	**0.0499**
Compared to Proposed Ordinance	**12,176,520**	**-11,460,254**	**-13,774**	**702,492**	**-64**	**(10,454)**	**-1,117**	**-0.0083**
Compared to Existing Conditions	**(55,868,740)**	**N/A**	**N/A**	**(44,959,460)**	**(956)**	**(37,038)**	**4,823**	**0.0358**

Estimated Alternative 5 Truck Trips

Carryout Bag Type	Alt 5 # of Bags Used per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single Use Plastic	15,757,850	2,080,000	8	0.02
Recyclable Paper	10,027,723	217,665	46	0.13
Reusable	881,558	108,862	8	0.02
Alternative 5 Total			**62**	**0.17**
Proposed Ordinance Total			**109**	**0.30**
Difference			**-47**	**-0.13**
Existing Total for Plastic Bags (without an Ordinance)			34	0.09
Net Change of Alternative 5 (Alternative 3 Total minus Existing Total)			**27**	**0.07**

Estimated Alt 5 Mobile Emissions

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Mobile Emissions: Alternative 5	<0.01	0.01	<0.01	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

Alternative 5 - Single Use Plastic Bag Ban Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in participating jurisdictions per year	**71,626,590**
Number of plastic bags used in participating jurisdictions per day	**196,237**

Alternative 5	Per Day	Per Year
Number of Plastic bags still in use (22% remain)	43,172	15,757,850
Number of paper bags per day with 14% conversion	27,473	10,027,723
Number of reusable bags per day with 64% conversion	2,415	881,558

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Alt 5 Plastic Bag Use	Alt 5 Paper Bag Use	Alt 5 Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	284.18	383.27	483.0454963
Tons per day	1.42	0.31	0.42	0.53
Tons per year	519.72	114.34	154.21	194.35
Increase from Alt 5 (tons/day)	**(0.16)**			
Increase from Alt 5 (tons/year)	**(56.83)**			
Change from Proposed Ordinance	(0.25)			
% Change	-89%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Alt 5 Plastic Bag Use	Alt 5 Paper Bag Use	Alt 5 Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.00	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	180.13	470.33	483.0454963
Tons per day	0.90	0.20	0.52	0.53
Tons per year	329.43	72.47	189.23	194.35
Increase from Alt 5 (tons/day)	**0.35**			
Increase from Alt 5 (tons/year)	**126.63**			
Change from Proposed Ordinance	(0.45)			
% Change	-56%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed Ordinance	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	881,558	556,773	40	22,270,940	68.3	61,016
			TOTAL	**22,270,940**	**68.3**	**61,016**
			Change from Proposed Ordinance	**(347,983)**	**-1.1**	**-953**

*Assumes bags washed monthly and 19 bags per wash load

Alternative 6: Ban Only in Southern Santa Barbara County

Alternative 6 Air Pollution Emissions by Bag Type

Carryout Bag Type	Alt 6 # of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Alt 6 Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	Alt 3 AA Emissions per year (kg)
Single Use Plastic	37,603,960	1	0.023	**865**	1	1.084	**40,763**
Recyclable Paper	10,743,989	1.3	0.03	**322**	1.9	2.06	**22,133**
Reusable	447,666	1.4	0.032	**14**	3	3.252	**1,456**
			Total Alt 6 Emissions	**1,202**		**Total Alt 6 Emissions**	**64,351**
			Proposed Ordinance	**756**		**Proposed Ordinance**	**51,059**
			Difference	**446**		**Difference**	**13,292**
			Existing	**1,647**		**Existing**	**77,643**
			Net Change (Total minus Existing)	**(446)**		**Net Change (Total minus Existing)**	**(13,292)**

Alternative 6 GHG Emissions by Bag Type for Study Area

Use and Disposal					
Carryout Bag Type	**Alt 6 # of Bags Used per Year**	**GHG Impact Rate (per Bag)**	**GHG Impact Rate (metric tons CO2E)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Single Use Plastic	37,603,960	1	0.04 per 1,500 bags	1003	0.0074
Recyclable Paper	10,743,989	2.97	0.1188 per 1,000 bags	1,276	0.0095
Reusable	447,666	131	5.24 per 1,000 bags***	2,346	0.0174
			Subtotal (Manufacturing, Use, and Disposal)	*4,625*	*0.0343*
Washing					
Carryout Bag Type	**# of Loads per Year**	**Electricity Use Per Load (kw)**	**Total Electricity Use Per Year (kW)**	**CO_2E per year (metric tons)**	**CO_2E per Person (metric tons)**
Reusable	282,737	3.825	1,081,467	255	0.0019
			Subtotal (Washing)	*255*	*0.0019*
			Total GHG Emissions from Alternative 6	**4,880**	**0.0362**
			Proposed Ordinance Total	7,850	0.0582
			Difference	**-2,970**	**-0.0220**
			Existing GHG Emissions	1,910	0.0142
			Net Change (Total minus Existing)	**2,970**	**0.0220**

Existing and Alternative 6 Bag Use

Area	Alt 6 Plastic Bags (5% Remain)	Alt 6 Paper Bags (none Remain)	Alt 6 Reusable Bags (95% Switch to Reusable)	Total Bags Used Annually	Alt 6: Ozone Emissions per year (kg)	Alt 6: AA Emissions per year (kg)	CO2e Emissions per year (metric tons)	CO2e per person per year (metric tons)
SB County	37,603,960	10,743,989	447,666	48,795,614	1,202	64,351	4,880	0.0362
Total	**37,603,960**	**10,743,989**	**447,666**	**48,795,614**	**1,202**	**64,351**	**4,880**	**0.0362**
Compared to Proposed Ordinance	**34,022,630**	**-10,743,989**	**-447,666**	**22,830,976**	**446**	**13,292**	**-2,970**	**-0.0220**
Compared to Existing Conditions	**(34,022,630)**	**N/A**	**N/A**	**(22,830,976)**	**(446)**	**(13,292)**	**2,970**	**0.0220**

Estimated Alternative 6 Truck Trips

Carryout Bag Type	Alt 6 # of Bags Used per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single Use Plastic	37,603,960	2,080,000	18	0.05
Recyclable Paper	10,743,989	217,665	49	0.14
Reusable	447,666	108,862	4	0.01
Alternative 6 Total			**72**	**0.20**
Proposed Ordinance Total			**109**	**0.30**
Difference			**-37**	**-0.10**
Existing Total for Plastic Bags (without an Ordinance)			34	0.09
Net Change of Alternative 6 (Alternative 3 Total minus Existing Total)			**37**	**0.10**

Estimated Alt 6 Mobile Emissions

	Emissions (lbs/day)			
	ROG	**NO_x**	**PM_{10}**	
Mobile Emissions: Proposed Ordinance	<0.01	0.02	<0.01	
Mobile Emissions: Alternative 6	<0.01	0.01	<0.01	
Thresholds	*25*	*25*	*80*	
Threshold Exceeded?	***No***	***No***	***No***	

Alternative 6 - Single Use Plastic Bag Ban Ordinance EIR
Utilities Calculations

Conversions/Assumptions	
liters to gallons	0.26417205
Kg to short tons	0.00110231
Gallons to acre-feet	3.06888E-06
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37

2011 Recycle Rate	
plastic bags	11.10%
paper bags	49.50%

Source: EPA, Municipal Solid Waste in the US, 2011 Facts and Figures

Existing Conditions	
Number of plastic bags used in participating jurisdictions per year	**71,626,590**
Number of plastic bags used in participating jurisdictions per day	**196,237**

Alternative 6	Per Day	Per Year
Number of Plastic bags still in use (50% total remain + 5% in southern county)	103,025	37,603,960
Number of paper bags per day with 30% conversion in southern county	29,436	10,743,989
Number of reusable bags per day with 65% conversion only in southern county	1,226	447,666

Solid Waste Generation - Ecobilan	Existing Plastic Bag Use	Alt 6 Plastic Bag Use	Alt 6 Paper Bag Use	Alt 6 Reusable Bag Use
kg waste per 9000 liters groceries (w/EPA recycling)	4.23	4.23	6.13	--
kg waste per bag per day	0.0066	0.0066	0.0140	0.2
kg waste in Study Area per day	1,291.74	678.16	410.65	245.2965411
Tons per day	1.42	0.75	0.45	0.27
Tons per year	519.72	272.85	165.22	98.69
Increase from Alt 6 (tons/day)	**0.05**			
Increase from Alt 6 (tons/year)	**17.05**			
Change from Proposed Ordinance	(0.05)			
% Change	-89%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Solid Waste Generation - Boustead	Existing Plastic Bag Use	Alt 6 Plastic Bag Use	Alt 6 Paper Bag Use	Alt 6 Reusable Bag Use
kg waste per 1000 paper bags (1500 plastic bags)	6.26	6.26	17.12	--
kg waste per bag per day	0.00	0.0042	0.0171	0.2
kg waste in Study Area per day	818.77	429.86	503.92	245.2965411
Tons per day	0.90	0.47	0.56	0.27
Tons per year	329.43	172.95	202.75	98.69
Increase from Alt 6 (tons/day)	**0.40**			
Increase from Alt 6 (tons/year)	**144.96**			
Change from Proposed Ordinance	(0.40)			
% Change	-56%			

Note: reusable bag numbers conservatively assumed all cotton bags and all bags thrown out each year

Water Use From Reusable Bag Cleaning

Washing Method	# of Additional Reusable Bags from Proposed Ordinance	# of Loads per Year	Gallons of Water per Wash Load	Total Water Use (gallons per year)	Total Water Use (AFY)	Total Water Use (gallons per day)
Machine Washed*	447,666	282,737	40	11,309,462	34.7	30,985
			TOTAL	**11,309,462**	**34.7**	**30,985**
			Change from Proposed Ordinance	**(11,309,462)**	**-34.7**	**-30,985**

*Assumes bags washed monthly and 19 bags per wash load