# ENCLOSURE I

# FINAL ENVIRONMENTAL IMPACT REPORT (FEIR)

# ORDINANCES TO BAN PLASTIC CARRYOUT BAGS IN LOS ANGELES COUNTY

# FINAL ENVIRONMENTAL IMPACT REPORT

(SCH # 2009111104)

## VOLUME III


Prepared For:
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## VOLUME I

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**Notes:** *An "R" in front of the table number indicates that the corresponding table contained within the Draft EIR has been revised by way of Section 12.2, Clarifications and Revisions.
** This table has been added to the Draft EIR by way of Section 12.2, Clarifications and Revisions. The letter "A" has been added after the table number to differentiate this new table from the original Table 3.3.5-5 in the Draft EIR. This was done for clarity and to keep all subsequent table numbers consistent between the Draft EIR and Final EIR even with addition of this new table.

This Environmental Impact Report (EIR) analyzes the potential for significant environmental impacts associated with the proposed Ordinances to Ban Plastic Carryout Bags in Los Angeles County (proposed ordinances). The proposed ordinances would be implemented for certain stores within the County of Los Angeles (County), California.

The proposed ordinances consist of an ordinance that would prohibit certain stores and retail establishments from issuing plastic carryout bags in the unincorporated territory of the County, as well as the County's encouragement of the adoption of comparable ordinances by each of the 88 incorporated cities within the County.

## ES.1 EXISTING CONDITIONS

Stores that would be affected by the proposed ordinances currently offer a combination of paper carryout bags, plastic carryout bags, and reusable bags to consumers. Based on a survey of bag usage in the County in 2009, 18 percent of the total number of bags used in stores that do not make plastic carryout bags readily available were reusable bags; however only 2 percent of the total number of bags used in stores that do make plastic carryout bags readily available were reusable bags (Appendix A, *Bag Usage Data Collection Study).*

## ES.2 PROPOSED PROJECT

The proposed ordinances would ban the issuance of plastic carryout bags by any retail establishment, defined herein, that is located in the unincorporated territory or incorporated cities of the County. The retail establishments that would be subject to the proposed ordinances include any that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code.

## ES.3 AREAS OF KNOWN CONTROVERSY [1]

The proposed ordinances involve several areas of known controversy. Several public comments were received during the scoping period for Initial Study for the proposed ordinances that can be grouped into four broad categories: socioeconomic impacts, impacts of compostable bags, impacts to public health, and impacts of plastic carryout bags versus impacts of paper carryout bags.

### Socioeconomic Impacts

During the scoping period for the Initial Study for the proposed ordinances, members of the public (including representatives from the plastic bag industry) indicated concern about the socioeconomic impacts of the proposed ordinances upon the plastic bag manufacturing industry, stores that would be affected by the proposed ordinances, and retail customers. The County will

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

prepare an economic impact analysis of the proposed ordinances for consideration during the decision-making process for the EIR. The economic impact analysis will model various scenarios of impacts to illustrate the potential range of costs that may be caused as an indirect impact of the proposed ordinances.

**Compostable Bags**

During the scoping period for the Initial Study for the proposed ordinances, certain members of the public suggested that the County should consider requiring stores to provide compostable or biodegradable plastic carryout bags as an alternative to offering just plastic or paper carryout bags. However, the proposed ordinances include a ban on the issuance of compostable and biodegradable bags due to the lack of commercial composting facilities in the County that would be needed to process compostable or biodegradable plastic carryout bags.[1] This issue is discussed in more detail in Section 4.0, Alternatives to the Proposed Ordinances, of this EIR.

**Public Health Impacts**

Several public comments were received during the scoping period for the Initial Study for the proposed ordinances that indicated concern about the public health impacts of the use of reusable bags. However, as is the case for any reusable household item that comes into contact with food items, such as chopping boards, tableware, or table linens, reusable bags do not pose a serious public health risk if consumers care for the bags accordingly and/or clean the bags regularly. Similarly, carts, shelves, and conveyor belts at food stores must be kept clean to avoid health risks. Reusable bags that are made of cloth or fabric, by the definition established by the proposed ordinances, must be machine washable. Reusable bags made of durable plastic are not machine washable, but can be rinsed or wiped clean. Commentators do note that the health risks, if any, from reusable bags can be minimized if the consumer takes appropriate steps, such as washing and disinfecting the bags, using them only for groceries and using separate bags for raw meat products, being careful with where they are stored, and allowing bags to dry before folding and storing.[2] A representative of the County Department of Public Health has stated that the public health risks of reusable bags are minimal.[3]

**Impacts of Plastic Carryout Bags versus Impacts of Paper Carryout Bags**

Several public comments (including those from representatives of the plastic bag industry) were received during the scoping period for Initial Study for the proposed ordinances that indicated concern that the proposed ordinances would cause an increase in the number of paper carryout bags used in the County, which would cause corresponding impacts to the environment. As a result of these public comments, impacts of paper carryout bags on air quality pollutant emissions, greenhouse gas emissions, wastewater generation, water consumption, energy consumption, eutrophication, solid waste generation, and water quality have been addressed throughout Section 3.0, Existing Conditions, Impacts, Mitigation, and Level of Significance after Mitigation, of this EIR.

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[1] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[2] Dragan, James, County of Los Angeles, Department of Public Health, Los Angeles, CA. 17 March 2010 to 9 April 2010. E-mail correspondence with Nilda Gemeniano, County of Los Angeles, Department of Public Works, Alhambra, CA.

[3] Dragan, James, County of Los Angeles, Department of Public Health, Los Angeles, CA. 17 March 2010 to 9 April 2010. E-mail correspondence with Nilda Gemeniano, County of Los Angeles, Department of Public Works, Alhambra, CA.

During the scoping period for the Initial Study, public comments were received that indicated concern that an increase in paper carryout bags would lead to increased numbers of delivery trucks required to transport paper carryout bags to stores. However, as detailed in Section 3.1, Air Quality, and Section 3.3, Greenhouse Gas Emissions, the number of delivery trucks required as a potential indirect impact of the proposed ordinances would be minimal, and therefore would not be expected to result in significant impacts upon traffic and transportation.

During the scoping period for the Initial Study, public comments were received about the potential impacts of plastic carryout bags with regard to aesthetics, particularly at litter hotspots in the County. As the proposed ordinances aim to reduce the amount of plastic carryout bags in litter in the County, the proposed ordinances would not be expected to cause indirect adverse impacts to aesthetics, and no further analysis is warranted.

During the scoping period for the Initial Study, public comments were received about the potential impacts of plastic carryout bags with regard to depletion of fossil fuel resources. As the proposed ordinances aim to decrease the number of plastic carryout bags used throughout the County, there would be no expected adverse impacts upon fossil fuel reserves, and no further analysis is warranted.

## ES.4 ISSUES TO BE RESOLVED

The analysis undertaken in support of this EIR determined that there are several environmental issue areas related to CEQA that are not expected to have significant impacts resulting from implementation of the proposed project. These issue areas are agriculture and forest resources, aesthetics, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, and transportation and traffic. These issue areas, therefore, were not carried forward for detailed analysis in the EIR. Certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, which may lead to potentially significant environmental impacts; therefore, the County has decided to carry forward five environmental issues for more detailed analysis in this EIR: air quality, biological resources, greenhouse gas emissions, hydrology and water quality, and utilities and service systems.

## ES.5 SUMMARY OF IMPACTS FOR THE PROPOSED ORDINANCES

The analysis undertaken in support of this EIR evaluated whether implementation of the proposed ordinances would cause significant impacts to air quality, biological resources, greenhouse gas emissions, hydrology and water quality, and utilities and service systems. Table ES.5-1, *Summary of Impacts*, summarizes the impacts related to each issue area analyzed that might result or can be reasonably expected to result from implementation of the proposed ordinances.

## TABLE ES.5-1
## SUMMARY OF IMPACTS

| Impact | Level of Significance |
|---|---|
| **Air Quality** | |
| The proposed ordinances may indirectly result in an increased demand for paper carryout bags, which may subsequently result in increased criteria pollutant emissions from the manufacture, distribution, and disposal of paper carryout bags, which would be offset to some degree by the anticipated reduction in plastic carryout bags and increase in reusable bags. | The analysis undertaken for this EIR determined that impacts related to air quality that would be expected to arise from implementation of the proposed ordinances would be below the level of significance. Therefore, no mitigation measures are required. |
| **Biological Resources** | |
| The proposed ordinances would be expected to result in beneficial impacts to biological resources. | The analysis undertaken for this EIR determined that no significant adverse impacts related to biological resources would be expected to arise from implementation of the proposed ordinances. Therefore, no mitigation measures are required. |
| **Greenhouse Gas Emissions** | |
| The proposed ordinances may indirectly result in an increased demand for paper carryout bags. The increase in demand for paper carryout bags may result in increased greenhouse gas emissions during the manufacture, distribution, and disposal of paper carryout bags, which would be offset to some degree by the anticipated reduction in plastic carryout bags and increase in reusable bags. | The analysis undertaken for this EIR determined that direct impacts related to greenhouse gas emissions that would be expected to arise from implementation of the proposed ordinances would be below the level of significance. However, because there are no local, regional, State, or federal regulations establishing significance on a cumulative level, and because certain representatives of the plastic bag industry have claimed that paper bags are significantly worse for the environment from a greenhouse gas (GHG) emissions perspective, on this basis, and specific to this project only, and because the County is attempting to evaluate the impacts of the project from a very conservative worst-case scenario, it can be determined that the impacts may have the potential to be cumulatively significant. There are no feasible mitigation measures for these cumulative impacts, so the consideration of alternatives is required. However, GHG emissions from any paper carryout bag manufacturing facilities or landfills affected by the proposed ordinances will be controlled by the owners of the facilities in accordance with any applicable regional, State, and federal regulations pertaining to GHG emissions. |

**TABLE ES.5-1**
**SUMMARY OF IMPACTS, Continued**

| | |
|---|---|
| **Hydrology and Water Quality** | |
| The proposed project may indirectly result in an increased demand for paper carryout bags. The increase in demand for paper carryout bags may result in increased eutrophication impacts during the manufacture of paper carryout bags, which would be offset, to some degree, by positive impacts to surface water quality caused by anticipated reductions in the use of plastic carryout bags. | The analysis undertaken for this EIR determined that impacts related to hydrology and water quality that would be expected to arise from implementation of the proposed ordinances would be below the level of significance. Therefore, no mitigation measures are required. |
| **Utilities and Service Systems** | |
| The proposed project may indirectly result in an increased demand for paper carryout bags. The increased demand for paper carryout bags may result in increased water consumption, energy consumption, wastewater generation, and solid waste generation due to the manufacture, distribution, and disposal of paper carryout bags, which would be offset, to some degree, by the anticipated reduction in plastic carryout bags. | The analysis undertaken for this EIR determined that impacts related to utilities and service systems that would be expected to arise from implementation of the proposed ordinances would be below the level of significance. Therefore, no mitigation measures are required. |

## ES.6 ALTERNATIVES TO THE PROPOSED ORDINANCES

As a result of the formulation process for the proposed ordinances, the County explored alternatives to the proposed ordinances to assess their ability to meet most of the objectives of the proposed ordinances and provide additional beneficial impacts to the environment. Alternative ordinances were recommended during the scoping process and were evaluated in relation to the objectives of the proposed ordinances and the ability of the alternatives to result in additional beneficial impacts to the environment (Section 4.0). Five alternatives to the proposed ordinances required under CEQA have been carried forward for detailed analysis in this EIR:

- No Project Alternative
- Alternative 1, Ban Plastic and Paper Carryout Bags in Los Angeles County
- Alternative 2, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags in Los Angeles County
- Alternative 3, Ban Plastic Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County
- Alternative 4, Ban Plastic and Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

Although the No Project Alternative would reduce potential impacts to air quality and GHG emissions compared with the proposed ordinances, impacts to biological resources, hydrology and water quality, and utilities and service systems would be exacerbated, rather than avoided or reduced. In addition, the No Project Alternative is incapable of meeting any of the basic objectives of the proposed ordinances established by the County. As with the proposed ordinances, and when considering that the County is attempting to evaluate the impacts resulting from paper carryout bags from a conservative worst-case scenario, Alternatives 2 and 3 may have the potential

to result in cumulatively considerable impacts to GHG emissions. However, Alternative 2 would be expected to reduce consumption of paper carryout bags through implementation of a fee. Alternative 3 would result in additional benefits to biological resources as a result of reduced consumption of plastic carryout bags and would still meet all of the objectives identified by the County. Unlike the proposed ordinances, Alternatives 1 and 4 would not be expected to result in cumulatively considerable impacts to GHG emissions and would be expected to result in additional beneficial impacts, while still meeting all of the objectives identified by the County. Alternative 4 is anticipated to result in the greatest reduction in use of both plastic and paper carryout bags, and is considered to be the environmentally superior alternative.

# *SECTION 1.0*
# *INTRODUCTION*

The project, as defined by CEQA, being considered by the County consists of proposed Ordinances to Ban Plastic Carryout Bags in Los Angeles County (proposed ordinances). This "project" would entail adoption of an ordinance to ban plastic carryout bags issued by certain stores in the unincorporated territories of the County, and the adoption of comparable ordinances by the 88 incorporated cities within the County. This EIR has been prepared by the County to assess the environmental consequences of the proposed ordinances to ban plastic carryout bags in the unincorporated areas of the County as well as in the 88 incorporated cities. The County is the lead agency for the County ordinance pursuant to CEQA, and the individual incorporated cities within the County would be the lead agencies for their respective city ordinances, should the cities decide to adopt comparable ordinances.

## 1.1 PURPOSE AND SCOPE OF EIR

The County has prepared this EIR to support the fulfillment of the six major goals of CEQA (Section 15002 of the State CEQA Guidelines):

- To disclose to the decision makers and the public significant environmental effects of the proposed activities.
- To identify ways to avoid or reduce environmental damage.
- To prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures.
- To disclose to the public reasons for agency approvals of projects with significant environmental effects.
- To foster interagency coordination in the review of projects.
- To enhance public participation in the planning process.

Although the EIR neither controls nor anticipates the ultimate decision on the proposed ordinances, the County (and other agencies that rely on this EIR) must consider the information in the EIR and make appropriate findings, where necessary.

### 1.1.1 Intent of CEQA

As provided in the State CEQA Guidelines (California Code of Regulations Section 15000 *et seq.*), public agencies are charged with the duty to avoid or minimize environmental damage where feasible. In discharging this duty, the County has an obligation to balance a variety of public objectives, including economic, environmental, and social issues (Section 15021 of the State CEQA Guidelines). The findings and conclusions of the EIR regarding environmental impacts do not control the County's or any of the 88 incorporated cities' discretion to approve, deny, or modify the proposed ordinances, but instead are presented as information intended to aid the decision-making process. Sections 15122 through 15132 of the State CEQA Guidelines describe the required content of an EIR: a description of the project and the environmental setting (existing conditions), an environmental impact analysis, mitigation measures, alternatives, significant irreversible environmental changes, growth-inducing impacts, and cumulative impacts. As a program-level EIR, this document focuses on the changes in the environment that would be expected to result from implementation of the proposed ordinance within the unincorporated territories of the County, as well as potential changes in the environment that would be expected to

result from implementation of similar ordinances in the 88 incorporated cities in the County. The County will review and consider the information in the EIR, along with any other relevant information, in making final decisions regarding the proposed ordinance for the unincorporated territories of the County (Section 15121 of the State CEQA Guidelines).

### 1.1.2 Environmental Review Process

A Notice of Preparation (NOP) concerning the EIR for the proposed ordinances was circulated for a 30-day review period that began on December 1, 2009, and closed on January 4, 2010. An Initial Study was prepared to focus the environmental topic areas to be analyzed in the EIR. Copies of the NOP and the comment letters submitted in response to the Initial Study are included in this document (Appendix D, *Initial Study and Comment Letters*). The Initial Study prepared for the proposed ordinances identified the contents of the EIR on environmental issue areas potentially subject to significant impacts.

The NOP and Initial Study were sent to the State Clearinghouse on November 30, 2009, and distributed to various federal, State, regional and local government agencies. A public Notice of Availability (NOA) of the NOP was provided in the *Los Angeles Times*. The NOP and Initial Study were mailed (or e-mailed) directly to approximately 480 agencies and interested parties. The NOP advertised six public scoping meetings for interested parties to receive information on the proposed ordinances and the CEQA process, as well as providing an opportunity for the submittal of comments. The scoping meetings facilitated early consultation with interested parties in compliance with Section 15082 of the State CEQA Guidelines. The meetings were held on December 7, 8, 9, 10, 11, and 14, 2009, at the following seven locations:

- East Los Angeles College, 1700 Avenida Cesar Chavez, Monterey Park, California 91754
- Yvonne B. Burke Community and Senior Center, 4750 West 62nd Street (Baldwin Hills / Ladera Heights Area), Los Angeles, California 90056
- County of Los Angeles Department of Public Works (LACDPW) headquarters, Conference Room C, 900 South Fremont Avenue, Alhambra, California 91803
- Calabasas Library, Founder's Hall, 101 Civic Center Way, Calabasas, California 91302
- Steinmetz Senior Center, 1545 South Stimson Avenue, Hacienda Heights, California 91745
- Castaic Regional Sports Complex, 31230 North Castaic Road, Castaic, California 91384
- Jackie Robinson Park, 8773 East Avenue R, Littlerock, California 93543

A total of 18 individuals attended the scoping meetings. The County requested information from the public related to the range of actions under consideration and alternatives, mitigation measures, and significant effects to be analyzed in depth in the EIR. All verbal and written comments related to environmental issues that were provided during public review of the NOP and at scoping meetings were considered in the preparation of this EIR. This EIR considers alternatives that are capable of avoiding or reducing significant effects of the proposed ordinances. The comment period for the NOP and Initial Study closed on January 4, 2010. A total of five comment letters were received in response to the NOP and Initial Study (Appendix D).

Based on the analysis undertaken in the Initial Study, the County determined that the proposed ordinances may have a significant effect on the environment and that the preparation of an EIR would be required. As a result of the analysis undertaken in the Initial Study, it was determined that the proposed ordinances would not be expected to result in impacts to aesthetics, agriculture and forest resources, cultural resources, geology and soils, hazards and hazardous materials, land

use and planning, mineral resources, noise, population and housing, public services, recreation, or transportation and traffic.[1] Those issue areas will receive no further analysis. However, the analysis in the Initial Study, which noted certain arguments raised by certain members of the plastic bag industry, concluded that the proposed ordinances may have the potential to result in significant impacts related to five environmental topics, which are the subject of the detailed evaluation undertaken in this EIR:

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

The Draft EIR has been distributed to various federal, state, regional, and local government agencies and interested organizations and individuals for a 45-day public review period. The Draft EIR was provided to the State Clearinghouse on June 1, 2010, for additional distribution to agencies. In addition, a public NOA of the EIR will appear in *Los Angeles Times* and will be mailed directly to interested parties who request the document. The dates of the public review period are specified on the transmittal memo accompanying this Draft EIR. In addition, copies of this Draft EIR are available during the public review period at the following locations:

Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, California 91107
Contact: Dr. Laura Watson for an appointment at (626) 683-3547

County of Los Angeles Department of Public Works
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803
Contact: Mr. Coby Skye for an appointment at (626) 458-5163

Written comments on this Draft EIR should be transmitted during the public review period and received by 5:00 p.m. on July 16, 2010, at the following location:

County of Los Angeles Department of Public Works
Attn: Mr. Coby Skye
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803
Telephone: (626) 458-5163
E-mail: CSkye@dpw.lacounty.gov

Written comments provided by the general public and public agencies will be evaluated and written responses will be prepared for all comments received during the designated comment period. Upon completion of the evaluation, a Final EIR will be prepared and provided to the

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

County for certification of compliance with CEQA, and for review and consideration as part of the decision-making process for the proposed ordinances.

## 1.2 ORGANIZATION AND CONTENT

This Draft EIR consists of the following sections:

- **Section ES, Executive Summary,** provides a summary of the existing setting, proposed ordinances, identified significant impacts of the proposed ordinances, and mitigation measures. Those alternatives that were considered to avoid significant effects of the proposed ordinances are identified in the executive summary. In addition, the executive summary identifies areas of controversy known to the County, including issues raised by agencies and the public. The executive summary includes a list of the issues to be resolved, including the choice among alternatives and whether or how to mitigate significant effects of the proposed ordinances.

- **Section 1.0**, **Introduction,** provides information related to the purpose and scope of the EIR, environmental review process, and the organization and content of the EIR.

- **Section 2.0, Project Description,** provides the location and boundaries of the proposed ordinances, statement of objectives, a description of the technical, economic, and environmental characteristics of the proposed ordinances, considering the principal engineering proposals and supporting public service facilities. The project description identifies the intended uses of the EIR, including the list of agencies that are expected to use the EIR in their respective decision-making processes, a list of the related discretionary actions (permits and approvals) required to implement the proposed ordinances, and a list of any related environmental review and consultation requirements required by federal, state, or local laws, regulations, or policies.

- **Section 3.0, Existing Conditions, Significance Thresholds, Impacts, Mitigation Measures, and Level of Significance after Mitigation,** describes existing conditions found within the County and related areas; lists the thresholds used to assess the potential for the proposed ordinances to result in significant impacts; evaluates the potential impacts on environmental resources that may be generated by the proposed ordinances including the cumulative impacts of the proposed project in conjunction with other related projects in the area; identifies available mitigation measures to reduce significant impacts; and assesses the effectiveness of proposed measures to reduce identified impacts to below the level of significance. This portion of the EIR is organized by the applicable environmental topics resulting from the analysis undertaken in the Initial Study.

- **Section 4.0, Alternatives to the Proposed Ordinances,** describes a range of reasonable alternatives to the proposed ordinances. CEQA requires that the EIR explore feasible alternatives that would avoid or substantially lessen any of the significant effects of the proposed ordinances. To be feasible, an alternative must be capable of attaining most of the basic objectives of the proposed ordinances. CEQA requires an evaluation of the comparative impacts of the proposed

ordinances, action alternatives to the proposed ordinances, and the no-project alternative.

- **Section 5.0, Significant Environmental Effects That Cannot Be Avoided If the Proposed Ordinance Is Implemented,** summarizes the significant effects of the proposed ordinances.

- **Section 6.0, Significant Irreversible Environmental Changes,** evaluates potential uses of non-renewable resources and potential irreversible changes that may occur as a result of the proposed ordinances.

- **Section 7.0, Growth-inducing Impacts,** evaluates the potential for the proposed ordinances to foster economic growth or population growth, either directly or indirectly, in the surrounding environment.

- **Section 8.0, Organizations and Persons Consulted,** provides a list of all governmental agencies, community groups, and other organizations consulted during the preparation of this EIR.

- **Section 9.0, Report Preparation Personnel,** provides a list of all personnel that provided technical input to this EIR.

- **Section 10.0, References,** lists all sources, communications, and correspondence used in the preparation of this EIR.

- **Section 11.0, Distribution List,** provides a distribution list of agencies receiving this Draft EIR that was made available during the 45-day public review period.

# *SECTION 2.0*
# *PROJECT DESCRIPTION*

Consistent with the requirements of Section 15124 of the State CEQA Guidelines, the project description of the proposed ordinances includes the location and boundaries of the proposed ordinances; a brief characterization of the existing conditions of bag usage within the County; a statement of objectives for the proposed ordinances; a general delineation of the technical, economic, and environmental characteristics of the proposed ordinances; and a statement describing the intended uses of the EIR. The "project," as defined by CEQA, being considered by the County consists of adoption of an ordinance to ban the issuance of plastic carryout bags by certain stores in the unincorporated territory of the County, and the adoption of comparable ordinances by the 88 incorporated cities within the County.

## 2.1 PROPOSED PROJECT LOCATION

The proposed ordinances would affect an area of approximately 2,649 square miles encompassing the unincorporated territories of the County of Los Angeles, and 1,435 square miles encompassing the incorporated cities of the County. The affected areas are bounded by Kern County to the north, San Bernardino County to the east, Orange County to the southeast, the Pacific Ocean to the southwest, and Ventura County to the west. Both San Clemente and Santa Catalina Islands are encompassed within the territory of the County and thus are areas that would be affected by the proposed ordinances (Figure 2.1-1, *Project Location Map*). There are approximately 140 unincorporated communities located within the five County Supervisorial Districts.[1]

## 2.2 BACKGROUND

### 2.2.1 Contribution of Plastic Carryout Bags to Litter Stream

The California Integrated Waste Management Board (CIWMB) estimates that plastic grocery and other merchandise bags make up 0.4 percent of California's overall disposed waste stream by weight,[2] but have been shown to make a more significant contribution to litter, particularly within catch basins. The City of San Francisco Litter Audit in 2008 showed that plastic materials were the second most prevalent form of litter, with 4.7 percent of all litter collected being unidentified miscellaneous plastic litter, and branded plastic retail bags constituting 0.6 percent of the total number of large litter items collected.[3] As an example of the prevalence of plastic bag litter found in catch basins, during the Great Los Angeles River Clean Up, which collected trash from 30 catch basins in the Los Angeles River, it was observed that 25 percent by weight and 19 percent by volume of the trash collected consisted of plastic bags.[4] Results of a California Department of

[1] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

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

[3] City of San Francisco, San Francisco Environment Department. 2008. *The City of San Francisco Streets Litter Re-audit*. Prepared by: HDR; Brown, Vence & Associates, Inc.; and MGM Management Environmental and Management Service. San Francisco, CA. Available at: http://www.sfenvironment.org/downloads/library/2008_litter_audit.pdf

[4] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

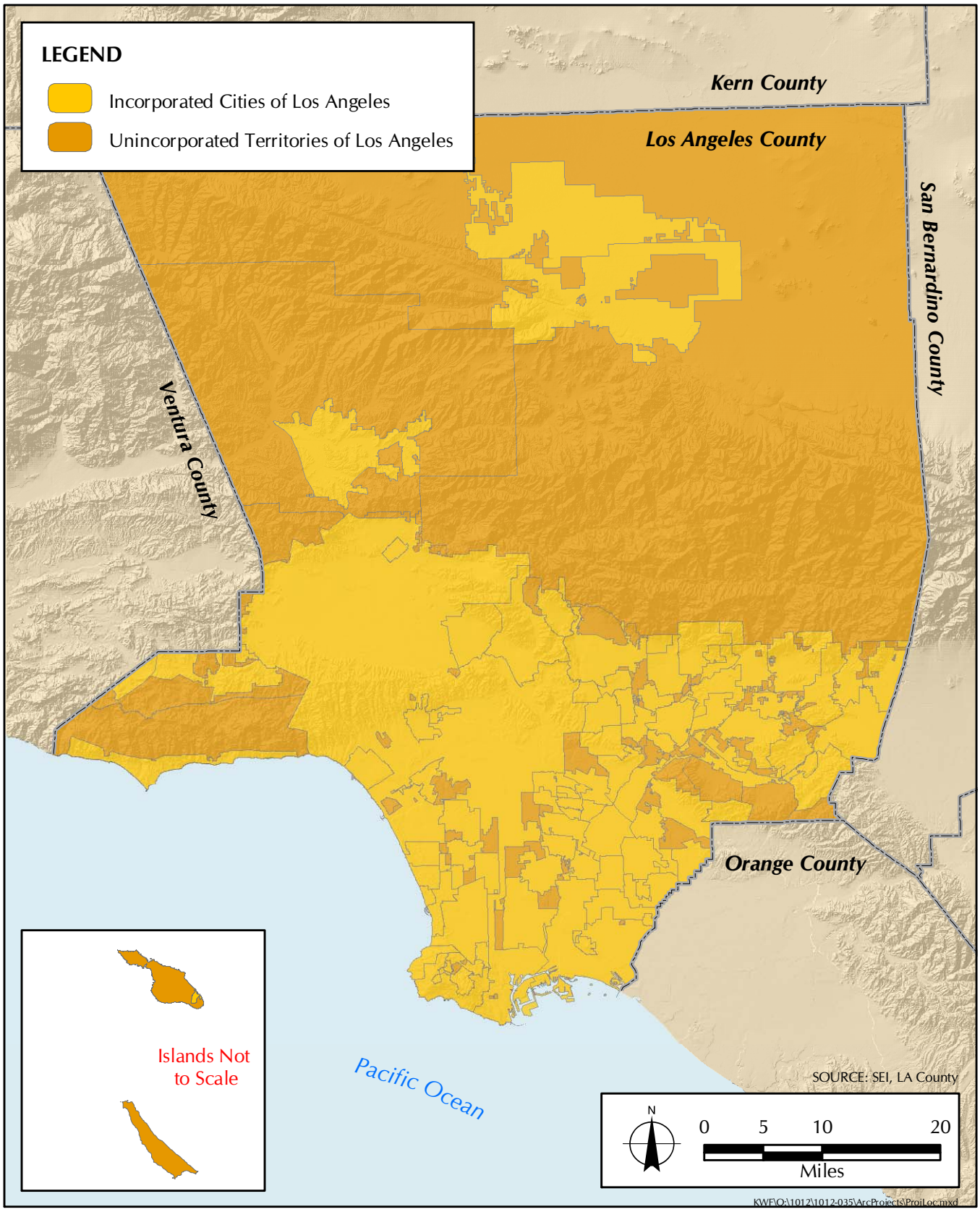


**FIGURE 2.1-1**

Project Location Map

Transportation (Caltrans) study of catch basins alongside freeways in Los Angeles indicated that plastic film composed 7 percent by mass and 12 percent by volume of the total trash collected.[5] According to research conducted by the Los Angeles County Department of Public Works (LACDPW), approximately 6 billion plastic carryout bags are consumed in the County each year, which is equivalent to approximately 1,600 bags per household per year.[6,7,8] Public agencies in California spend more than $375 million each year for litter prevention, cleanup, and disposal.[9] The County of Los Angeles Flood Control District alone spends more than $18 million annually for prevention, cleanup, and enforcement efforts to reduce litter.[10,11,12,13]

### 2.2.2 County Motion

On April 10, 2007, the County Board of Supervisors instructed the County Chief Administrative Officer to work with the Director of Internal Services and the Director of Public Works to solicit input from outside environmental protection and grocer organizations related to three areas and report their findings and accomplish the following:

1. Investigate the issue of polyethylene plastic and paper sack consumption in the County, including the pros and cons of adopting a policy similar to that of San Francisco;
2. Inventory and assess the impact of the current campaigns that urge recycling of paper and plastic sacks; and
3. Report back to the Board of Supervisors on findings and recommendations to reduce grocery and retail sack waste, any impact an ordinance similar to the one proposed in San Francisco would have on recycling efforts in Los Angeles County, and any unintended consequences of the ordinance.[14,15]

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[5] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

[6] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[7] U.S. Census Bureau. 2000. "State & County Quick Facts: Los Angeles County, California." Available at: http://quickfacts.census.gov/qfd/states/06/06037.html

[8] At an average of slightly fewer than three persons per household

[9] California Department of Transportation. Accessed on: September 2009. "Facts at a Glance." *Don't Trash California*. Available at: http://www.donttrashcalifornia.info/pdf/Statistics.pdf

[10] Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2009. Available at: http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2009/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/Principal%20Permittee%20Annual%20Report.pdf

[11] Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2008. Available at: http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2008/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/Principal%20Permittee%20&%20County%20Annual%20Report%20FY07-08.pdf

[12] Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2007. Available at: http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2007/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/Annual%20Rpt%2006-07.pdf

[13] Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2006. Available at: http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2006/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/PrincipalPermittee_AnnualReportFY05-06.pdf

[14] County of Los Angeles Board of Supervisors. 10 April 2007. *Board of Supervisors Motion*. Los Angeles, CA.

In response to the directive of the Board of Supervisors, the LACDPW prepared and submitted a staff report, *An Overview of Carryout Bags in Los Angeles County*, (LACDPW Report) in August 2007.[16]

As noted in the LACDPW Report, the County is responsible for numerous solid waste management functions throughout the County, pursuant to the California Integrated Waste Management Act of 1989 [Assembly Bill (AB) 939].[17]

#### *2.2.2.1 The County's Solid Waste Management Function in the Unincorporated County Area*

- Implements source reduction and recycling programs in the unincorporated County areas to comply with the State of California's (State's) 50 percent waste reduction mandate. In 2004, the County was successful in documenting a 53 percent waste diversion rate for the unincorporated County areas.
- Operates seven Garbage Disposal Districts providing solid waste collection, recycling, and disposal services for over 300,000 residents.
- Implements and administers a franchise solid waste collection system which, once fully implemented, will provide waste collection, recycling, and disposal services to over 700,000 residents, and will fund franchise area outreach programs to enhance recycling and waste reduction operations in unincorporated County areas that formerly operated under an open market system.

#### *2.2.2.2 The County's Solid Waste Management Function Countywide*

- Implements a variety of innovative Countywide recycling programs, including: Smart Gardening to teach residents about backyard composting and water wise gardening; Waste Tire Amnesty for convenient waste tire recycling; the convenient Environmental Hotline and Environmental Resources Internet Outreach Program; interactive Youth Education/Awareness Programs; and the renowned Household Hazardous/Electronic Waste Management and Used Oil Collection Programs.
- Prepares and administers the Countywide Siting Element, which is a planning document that provides for the County's long-term solid waste management disposal needs.
- Administers the Countywide Integrated Waste Management Summary Plan which describes how all 89 of the jurisdictions Countywide, acting independently and collaboratively, are complying with the State's waste reduction mandate.
- Provides staff for the Los Angeles County Solid Waste Management Task Force (Task Force). The Task Force is comprised of appointees from the League of California Cities, the County Board of Supervisors, the City of Los

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[15] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[16] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[17] California State Assembly. Assembly Bill 939, "Integrated Waste Management Act," Chapter 1095.

Angeles, solid waste industries, environmental groups, governmental agencies, and the private sector. The County performs the following Task Force functions:

- Reviews all major solid waste planning documents prepared by all 89 jurisdictions prior to their submittal to the California Integrated Waste Management Board;
- Assists the Task Force in determining the levels of needs for solid waste disposal, transfer and processing facilities; and
- Facilitates the development of multi-jurisdictional marketing strategies for diverted materials.[18]

#### *2.2.2.3 Key Findings of the LACDPW Report*

The LACDPW Report identified four key findings:

1. Plastic carryout bags have been found to significantly contribute to litter and have other negative impacts on marine wildlife and the environment.
2. Biodegradable carryout bags are not a practical solution to this issue in Los Angeles County because there are no local commercial composting facilities able to process the biodegradable carryout bags at this time.
3. Reusable bags contribute toward environmental sustainability over plastic and paper carryout bags.
4. Accelerating the widespread use of reusable bags will diminish plastic bag litter and redirect environmental preservation efforts and resources toward "greener" practices.[19]

### 2.2.3 Definitions

For the purposes of this EIR, the following terms are defined as follows:

- *Reusable bag(s)*: a bag with handles that is specifically designed and manufactured for multiple reuse and is either (a) made of cloth or other machine-washable fabric, or (b) made of durable plastic that is at least 2.25 mils thick.
- *Paper carryout bag(s)*: a carryout bag made of paper that is provided by a store to a customer at the point of sale.
- *Plastic carryout bag(s)*: a plastic carryout bag, excluding a reusable bag but including a compostable plastic carryout bag, that is provided by a store to a customer at the point of sale.
- *Compostable plastic carryout bag(s)*: a plastic carryout bag that (a) conforms to California labeling law (Public Resources Code Section 42355 et seq.), which requires meeting the current American Society for Testing and Materials (ASTM) standard specifications for compostability; (b) is certified and labeled as meeting the ASTM standard by a recognized verification entity, such as the Biodegradable Product

[18] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors,* Preface. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[19] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA, p. 1. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

Institute; and (c) displays the word "compostable" in a highly visible manner on the outside of the bag (Appendix B).

- *Recyclable paper bag(s)*: a paper bag that (a) contains no old growth fiber, (b) is 100-percent recyclable overall and contains a minimum of 40-percent postconsumer recycled content, (c) is compostable, and (d) displays the words "reusable" and "recyclable" in a highly visible manner on the outside of the bag.

### 2.2.4 Single Use Bag Bans and Fees

There are currently three city and county governments in California that have imposed bans on plastic carryout bags: City and County of San Francisco, City of Malibu, and City of Palo Alto. In addition, there is a plastic carryout bag fee ordinance in effect in the District of Columbia.

***City and County of San Francisco***

The City and County of San Francisco adopted an ordinance to ban non-compostable plastic carryout bags, which became effective on November 20, 2007.[20] This ordinance, known as the Plastic Bag Reduction Ordinance, stipulates that all stores shall provide only the following as checkout bags to customers: recyclable paper bags, compostable plastic carryout bags, and/or reusable bags.[21] The ordinance further defines stores as a retail establishment located within the geographical limits of the City and County of San Francisco that meets either of the following requirements:

(1) A full-line, self-service supermarket with gross annual sales of 2 million dollars ($2,000,000) or more, which sells a line of dry grocery, canned goods, or nonfood items and some perishable items. For purposes of determining which retail establishments are supermarkets, the City shall use the annual updates of the Progressive Grocer Marketing Guidebook and any computer printouts developed in conjunction with the guidebook.

(2) A retail pharmacy with at least five locations under the same ownership within the geographical limits of San Francisco.

Since adoption of the ordinance, initial feedback from the public has been positive and the use of reusable bags has increased.[22] There has been no reported negative public health issues (salmonella, *e. coli*, food poisoning, *etc.*) related to the increased use of reusable bags.[23] As a result of the ordinance, San Francisco has not noted an increase in the number of waste discharge permits or air quality permits required for paper bag manufacturing in the district, nor has there been a noticeable increase in traffic congestion in proximity to major supermarkets due to

[20] City and County of San Francisco. "Plastic Bag Reduction Ordinance." Web site. Available at: http://www.sfgov.org/site/sf311csc_index.asp?id=71355

[21] *San Francisco Environment Code*, Chapter 17, Section 1703.

[22] Galbreath, Rick, County of San Francisco, California. 10 May 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

[23] Galbreath, Rick, County of San Francisco, California. 10 May 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

increased paper bag delivery trucks.[24] San Francisco has also not noticed any increase in eutrophication in waterways due to increased use of paper bags.[25]

Although no studies have been performed to document the potential impacts of the ordinance upon plastic carryout bag litter in storm drains, field personnel from the Public Utilities Commission have noted a reduction in the amount of plastic carryout bags in catch-basins and have noted that fewer bags are now being entangled in equipment, which can often slow or stop work in the field.[26]

### *City of Malibu*

On May 27, 2008, the City of Malibu adopted an ordinance banning plastic carryout bags: Chapter 9.28.020, Ban on Shopping Bags, provides that no affected retail establishment, restaurant, vendor or nonprofit vendor shall provide plastic bags or compostable plastic bags to customers.[27] Further, this same section of the ordinance prohibits any person from distributing plastic carryout bags or compostable plastic carryout bags at any City facility or any event held on City property.

Since the adoption of this ordinance, the City of Malibu has noted a generally positive reaction from the public and an increase in the use of reusable bags.[28]

### *City of Palo Alto*

On March 30, 2009, the City of Palo Alto adopted an ordinance banning plastic carryout bags: Chapter 5.35 of Title 5, Health and Sanitation, of the Palo Alto Municipal Code provides that all supermarkets in the City of Palo Alto will only provide reusable bags and/or recyclable paper bags. Retail establishments in the City of Palo Alto are required to provide paper bags either as the only option for customers, or alongside the option of plastic bags.[29] If the retail establishment offers a choice between paper and plastic, the ordinance requires that the customer be asked whether he or she requires or prefers paper bags or plastic bags.[30] All retail establishments and supermarkets were to comply with the requirements of this ordinance by September 18, 2009.

Since the adoption of this ordinance, the City of Palo Alto has received a mostly positive reaction from the public. Due to the lack of available baseline data and the fact that the ordinance is relatively recent, the City of Palo Alto has not been able to quantify the potential increase in use of reusable bags.[31]

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[24] Galbreath, Rick, County of San Francisco, California. 10 May 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

[25] Galbreath, Rick, County of San Francisco, California. 10 May 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

[26] Hurst, Karen, San Francisco Public Utilities Commission, California. 18 May 2010. Telephone conversation with Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, California.

[27] *Malibu Municipal Code*, Title 9, "Public Peace and Welfare," Chapter 9.28, "Ban on Shopping Bags," Section 9.28.020.

[28] Nelson, Rebecca, City of Malibu Department of Public Works, Malibu, California. 22 April 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

[29] *Palo Alto Municipal Code*, Title 5, "Health and Sanitation," Chapter 5.35, Section 5.35.020.

[30] *Palo Alto Municipal Code*, Title 5, "Health and Sanitation," Chapter 5.35, Section 5.35.020.

[31] Bobel, Phil, City of Palo Alto Department of Public Works, Palo Alto, California. 22 April 2010. Telephone conversation with Angelica SantaMaría, County of Los Angeles, Department of Public Works, Alhambra, California.

### *District of Columbia*

The District of Columbia adopted an ordinance that became effective on September 23, 2009, to implement the provisions of the Anacostia River Clean Up and Protection Act of 2009. The ordinance stipulates that a retail establishment shall charge each customer making a purchase from the establishment a fee of 5 cents ($0.05) for each disposable carryout bag provided to the customer with the purchase.[32]

The tax, one of the first of its kind in the nation, is designed to change consumer behavior and limit pollution in the Chesapeake Bay watershed.[33] Under regulations created by the District of Columbia Department of the Environment, bakeries, delicatessens, grocery stores, pharmacies, and convenience stores that sell food, as well as restaurants and street vendors, liquor stores and "any business that sells food items," must charge the tax on paper or plastic carryout bags. The ordinance also regulates disposable carryout bags used by retail establishments.

Since the adoption of this ordinance, the District of Columbia has seen a marked decrease in the number of bags consumed. In its first assessment of the new law, the District of Columbia Office of Tax and Revenue estimates that city food and grocery establishments issued about 3.3 million bags in January, which suggests a significant decrease.[34] Prior to the bag tax taking effect on January 1, 2010, the Office of the Chief Financial Officer had estimated that approximately 22.5 million bags were being issued per month in 2009.[35]

### *Efforts outside the United States*

*Denmark*

In 1994, Denmark levied a tax on suppliers of both paper and plastic carryout bags. Denmark experienced an initial reduction of 60 percent in total use of disposable bags, with a slight increase in this rate over time.[36]

*Ireland*

In 2002, Ireland levied a nationwide tax on plastic shopping bags that is paid directly by consumers. Known as the "PlasTax," the 0.15-euro levy is applied at the point-of-sale to retailers and is required to be passed on directly to the consumer as an itemized line on any invoice. The PlasTax applies to all single-use, plastic carry bags, including biodegradable polymer bags. It does not apply to bags for fresh produce, reusable bags sold for 0.70+ euro, or to bags holding goods sold on board a ship or plane or in an area of a port or airport exclusive to intended passengers.[37]

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[32] *District of Columbia Municipal Regulations*, Title 21, Chapter 10, "Retail Establishment Carryout Bags," Section 1001.

[33] Craig, Tim. 29 March 2010. "Bag tax raises $150,000, but far fewer bags used." *The Washington Post*. Available at: http://voices.washingtonpost.com/dc/2010/03/bag_tax_raises_150000_but_far.html?wprss=dc

[34] Craig, Tim. 29 March 2010. "Bag tax raises $150,000, but far fewer bags used." *The Washington Post*. Available at: http://voices.washingtonpost.com/dc/2010/03/bag_tax_raises_150000_but_far.html?wprss=dc

[35] Craig, Tim. 29 March 2010. "Bag tax raises $150,000, but far fewer bags used." *The Washington Post*. Available at: http://voices.washingtonpost.com/dc/2010/03/bag_tax_raises_150000_but_far.html?wprss=dc

[36] GHK Ltd. May 2007. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme*. Prepared for: Environmental Protection Department, Hong Kong, China.

[37] Nolan-ITU Pty Ltd., et al. December 2002. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags –Analysis of Levies and Environmental Impacts: Final Report*, p.21. Sydney, Australia.

Since implementation of the PlasTax, plastic carryout bag usage in Ireland initially declined 90 to 95 percent, and subsequently leveled off closer to 75 percent of the original value.[38,39]

*Australia*

The Environmental Protection and Heritage Council in Australia has been very active in attempting to reduce plastic carryout bag use. Retailers support single-use carryout bag reductions via a voluntary "Retailers Code." As a result, from 2002 to 2005, plastic carryout bag use fell from 5.95 billion bags to 3.92 billion bags, and then fell again to 3.36 billion bags in 2006, which represents a 44-percent decrease over four years from voluntary activities. However, consumption of plastic carryout bags rose back up to 3.93 billion bags in 2007, a 17-percent increase from 2006.[40]

*Taiwan*

In 2003, the Taiwanese government set a direct charge to consumers as part of a wider waste-reduction initiative. The charge resulted in a 68-percent reduction in plastic carryout bag use; however, there was also a significant rate of conversion to paper bags and alternative bags. The initial ban on thin plastic carryout bags was withdrawn from application to storefront restaurants following an increase in total plastic use and problems with compliance.[41]

### 2.2.5 Litigation History

Numerous city and county governments in California have attempted to impose bans on plastic carryout bags that have been challenged by certain members of the plastic bag industry, including the Save the Plastic Bag Coalition.

***Coalition to Support Plastic Bag Recycling vs. City of Oakland***

On November 21, 2007, the Coalition to Support Plastic Bag Recycling petitioned for a Writ of Mandate against the City of Oakland for its adopted plastic bag ordinance. On April 17, 2008, the Alameda Superior Court in California invalidated the City of Oakland's ordinance banning plastic carryout bags, and the tentative decision was adopted as final by the court.[42] The City of Oakland ordinance was subsequently revoked by the City Council.

***Save the Plastic Bag Coalition vs. City of Manhattan Beach***

On June 12, 2008, the City of Manhattan Beach issued a Notice of Intent to Adopt a Negative Declaration for a proposed ordinance to ban certain retailers in the City of Manhattan Beach from providing plastic carryout bags to customers at the point of sale. On June 18, 2008, the Save the

[38] Cadman, James, Suzanne Evans, Mike Holland and Richard Boyd. August 2005. *Proposed Plastic Bag Levy -- Extended Impact Assessment: Volume 1: Main Report: Final Report*, p.7. Edinburgh, Scotland: Scottish Executive.

[39] GHK Ltd. May 2007. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme*. Prepared for: Environmental Protection Department, Hong Kong, China.

[40] Environment Protection and Heritage Council. April 2008. *Decision Regulatory Impact Statement: Investigation of options to reduce the impacts of plastic bags*. Adelaide, Australia.

[41] GHK Ltd. May 2007. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme*. Prepared for: Environmental Protection Department, Hong Kong, China.

[42] California Superior Court in and for the County of Alameda. 17 April 2008. Tentative Decision Granting Petition for Writ of Mandate. Coalition to Support Plastic Bag Recycling vs. City of Oakland et al. Case No. RG07-339097. Available at: http://www.savetheplasticbag.com/UploadedFiles/Oakland%20ruling%20on%20plastic%20bag%20ordinance.pdf

Plastic Bag Coalition (Coalition) filed formal legal objections with the City of Manhattan Beach on the premise that the ordinance should not be exempt from further environmental analysis under CEQA. On July 1, 2008, the Manhattan Beach City Council held a hearing to vote on a proposed ordinance to ban plastic carryout bags.[43] On the day of the hearing, the Coalition filed supplemental legal objections to the proposed ordinance and testified at the City Council hearing, at which the City Council voted to adopt the ordinance to ban plastic bags. On August 12, 2008, the Coalition filed a lawsuit against the City of Manhattan Beach for adopting the ordinance without first preparing an EIR.[44] On February 20, 2009, the Los Angeles Superior Court ruled that the City of Manhattan Beach should have prepared an EIR for the ordinance.[45] The trial court found that substantial evidence supported a fair argument that the ordinance may cause increased use of paper bags, which may have a significant negative impact on the environment, thus requiring an EIR for further evaluation of the potential environmental impacts.[46] On January 27, 2010, the Court of Appeal affirmed the trail court decision and vacated the ordinance and disallowed reenactment, pending preparation of an EIR.[47] On April 23, 2010, the California Supreme Court granted review of this decision.

***Save the Plastic Bag Coalition vs. Los Angeles County***

On July 17, 2008, the Coalition filed a lawsuit against Los Angeles County for adopting the voluntary Single Use Bag Reduction and Recycling Program (Program) on January 22, 2008. The Coalition claimed that the County should have prepared an EIR before it adopted the voluntary Program, and that the County did not have the power to ban plastic carryout bags.[48] The County claimed that the voluntary Program did not require preparation of an EIR because it was not a "project" under CEQA, since participation in the Program was voluntary. The County also acknowledged that the action by the Board of Supervisors on January 22, 2008, specifically noted that prior to considering the adoption of any ordinance banning plastic bags, it would complete any necessary environmental review under CEQA.

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[43] Save the Plastic Bag Coalition. July 2008. *Supplemental Objections to the City of Manhattan Beach, California*. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20supplemental%20objections%20to%20Manhattan%20Beach.pdf

[44] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 12 December 2008. Action filed: 12 August 2008. Petitioner's Notice of Motion and Motion for Preliminary Injunction Staying Plastic Bag Ordinance; Declarations of Stephen L. Joseph, Peter M. Grande and Catherine Brown. Save the Plastic Bag Coalition v. City of Manhattan Beach, City Council of Manhattan Beach. Case No. BS116362. On behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20mot%20for%20preliminary%20inj%20against%20Manhattan%20Beach.pdf

[45] Superior Court of California, County of Los Angeles. Hearing on Petition for Writ of Mandate. Save the Plastic Bag Coalition v. City of Manhattan Beach et al. Case No. BS116362. Ruling: 20 February 2009. Available at: http://www.savetheplasticbag.com/UploadedFiles/Manhattan%20Beach%20ruling.pdf

[46] Court of Appeal of the State of California, Second Appellate District, Division Five. Decision: 27 January 2009. Appeal from a judgment of the Superior Court of Los Angeles County, David P. Yaffe, Judge. Save the Plastic Bag Coalition v. City of Manhattan Beach. Available at: http://www.savetheplasticbag.com/UploadedFiles/Manhattan%20Beach%20appeal%20decision.pdf

[47] Court of Appeal of the State of California, Second Appellate District, Division Five. Decision: 27 January 2009. Appeal from a judgment of the Superior Court of Los Angeles County, David P. Yaffe, Judge. Save the Plastic Bag Coalition v. City of Manhattan Beach. Available at: http://www.savetheplasticbag.com/UploadedFiles/Manhattan%20Beach%20appeal%20decision.pdf

[48] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 16 July 2008. First Amended Verified Petition for Writ of Mandate Under the California Environmental Quality Act and Declaratory Judgment. Save the Plastic Bag Coalition v. County of Los Angeles, Board of Supervisors of the County of Los Angeles, and County of Los Angeles, Department of Public Works. Case No. BS115845. Action Filed: 17 July 2008. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com//UploadedFiles/STPB%20LA%20County%20Complaint.pdf

The Los Angeles Superior Court conducted the writ hearing on April 29, 2010. Shortly following the hearing, the Coalition contacted the County and settled with the County on the CEQA issue and dismissed its CEQA claim with prejudice on May 3, 2010. On this same day, the Superior Court issued its order in favor of the County on the Declaratory Judgment and denying the petition.[49] The Superior Court held that the declaratory relief requested by the Coalition, namely, that AB 2449 preempts the County's authority to ban plastic bags, cannot be granted because the issue is not ripe. In reaching this conclusion, the Superior Court noted that the January 22, 2008, Board of Supervisors action approved creation of the framework for a voluntary program for single-use bag reduction and recycling that had voluntary goals, and directed that an ordinance banning plastic bags be drafted subject to certain contingencies, including completion of any necessary environmental review under CEQA. The Court could not evaluate the issue of preemption as requested by the Coalition without an ordinance in place banning plastic bags.

***Save the Plastic Bag Coalition vs. City of Palo Alto***

On September 17, 2008, the Coalition filed formal legal objections with the City of Palo Alto, California, regarding its proposed plastic bag ban ordinance.[50] The Coalition filed further formal legal objections with the City of Palo Alto on February 13, 2009, and March 16, 2009, regarding its proposed plastic bag ban ordinance. The City of Palo Alto adopted the ordinance in March 2009 banning plastic bags at four stores. On April 21, 2009, the Coalition filed a lawsuit against the City of Palo Alto for adopting an ordinance banning plastic bags without preparing an EIR.[51] The City of Palo Alto and the Coalition settled their case on July 28, 2009. In the settlement agreement, the City of Palo Alto agreed not to expand the ordinance to any more stores without first preparing an EIR.[52] The original ordinance is still in effect.

***Save the Plastic Bag Coalition vs. Santa Clara County***

On November 19, 2008, the Coalition filed formal legal objections with Santa Clara County regarding its proposed plastic bag ordinance.[53]

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[49] Superior Court of California, County of Los Angeles. 3 May 2010. Decision on Petition for Writ of Mandate and Declaratory Relief, Save the Plastic Bag Coalition v. County of Los Angeles, *et al*. Los Angeles Superior Court Case No. BS115845.

[50] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 17 September 2009. Letter to City of Palo Alto Planning Department, Palo Alto, California. Subject: Objections to Proposed Negative Declaration and Notice of Intent to File Lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20objections%20to%20Palo%20Alto%20negative%20declaration.pdf

[51] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 20 April 2009. Verified Petition for Writ of Mandate Under the California Environmental Quality Act. Save the Plastic Bag Coalition v. City of Palo Alto. Case No. 1-09-CV-140463. Action Filed: 21 April 2009. Filed on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20Petition%20against%20Palo%20Alto.pdf

[52] Law Offices of Stephen L. Joseph, Esq., Tiburon, California, on behalf of Save the Plastic Bag Coalition, San Francisco, California. 27 July 2009. *Settlement Agreement and Mutual Releases*. Agreement between Save the Plastic Bag Coalition, San Francisco, CA, and City of Palo Alto, CA. On behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20Palo%20Alto%20settlement.pdf

[53] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 19 November 2008. Letter to Kathy Kretchmer, Esq., County of Santa Clara, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%20to%20Santa%20Clara%20County%201.pdf

***Save the Plastic Bag Coalition vs. City of San Diego***

On November 28, 2008, the Coalition filed formal legal objections with the City of San Diego regarding its proposed plastic bag ordinance.[54]

***Save the Plastic Bag Coalition vs. City of Santa Monica***

On January 12, 2009, the Coalition filed formal objections with the City of Santa Monica for its failure to prepare an EIR for a proposed plastic bag ordinance.[55] The City of Santa Monica initiated preparation of an EIR, and released its Notice of Preparation in March 2010.

***Save the Plastic Bag Coalition vs. City of Morgan Hill***

On January 26, 2009, the Coalition filed formal objections with the City of Morgan Hill regarding its proposed plastic bag ordinance because the City of Morgan Hill did not prepare an EIR.[56]

***Save the Plastic Bag Coalition vs. City of Mountain View***

On January 26, 2009, the Coalition filed formal objections with the City of Mountain View regarding the City's failure to prepare an EIR for a proposed plastic bag ordinance.[57]

***Save the Plastic Bag Coalition vs. City of San Jose***

On January 29, 2009, the Coalition filed formal objections with the City of San Jose regarding a proposed plastic bag ordinance.[58] On September 18, 2009, the Coalition filed further formal legal objections with the City of San Jose.[59] On October 22, 2009, the City of San Jose issued a Notice

[54] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 28 November 2008. Letter to City Council and City Attorney, City of San Diego, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%20to%20San%20Diego%201.pdf

[55] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 12 January 2009. Letter to Mayor, City Council, Director, and City Attorney, City of Santa Monica, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20CEQA%20objections%20to%20Santa%20Monica%20plastic%20bag%20ban%20ordinance.pdf

[56] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 26 January 2009. Letter to Mayor and City Council, City of Morgan Hill, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%201%20to%20Morgan%20Hill.pdf

[57] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 26 January 2009. Letter to Mayor and City Council, City of Mountain View, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%201%20to%20Mountain%20View.pdf

[58] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 29 January 2009. Letter to Mayor, City Council, Director, and City Attorney, City of San Jose, California. Subject: Proposed plastic bag ordinance; CEQA demand; legal objections; notice of intent to file lawsuit. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%201%20to%20San%20Jose.pdf

[59] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 18 September 2009. Letter to Mayor, City Council, Director, and City Attorney, City of San Jose, California. Subject: CEQA demand and objection; objection and notice of intent to litigate regarding plastic bag ban; objection and notice of intent to litigate regarding plastic bag fee. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%202%20to%20San%20Jose.pdf

of Preparation of a Draft EIR for the proposed single-use plastic carryout bag ordinance, and held a public scoping meeting on November 12, 2009. The period for comments on the scope of the EIR ended on November 30, 2009. The City of San Jose has since scheduled citywide community meetings for April and May 2010 to discuss the proposed ordinance.

***Save the Plastic Bag Coalition vs. City of Encinitas***

On September 17, 2009, the Coalition filed formal legal objections with the City of Encinitas regarding its proposed plastic bag ban ordinance.[60]

## 2.3 EXISTING CONDITIONS

### 2.3.1 Plastic Carryout Bags

In 1977, supermarkets began offering to customers plastic carryout bags designed for single use.[61,62] By 1996, four out of every five grocery stores were using plastic carryout bags.[63,64] Plastic carryout bags have been found to contribute substantially to the litter stream and to have adverse effects on marine wildlife.[65,66,67] The prevalence of litter from plastic bags in the urban environment also compromises the efficiency of systems designed to channel storm water runoff. Furthermore, plastic bag litter leads to increased clean-up costs for the County, Caltrans, and other public agencies.[68,69,70] Plastic bag litter also contributes to environmental degradation and degradation of the quality of life for County residents and visitors. In particular, the prevalence of plastic bag litter in the storm water system and coastal waterways hampers the ability of, and exacerbates the cost to, local agencies to comply with the National Pollution Discharge Elimination System (NPDES)

[60] Law Offices of Stephen L. Joseph, Esq., Tiburon, California. 17 September 2009. Letter to Mayor and City Council, City of Encinitas, California. Subject: CEQA demand and objection; objection and notice of intent to litigate regarding plastic bag ban; objection and notice of intent to litigate regarding plastic bag fee. Prepared on behalf of Save the Plastic Bag Coalition, San Francisco, CA. Available at: http://www.savetheplasticbag.com/UploadedFiles/STPB%20letter%20to%20City%20of%20Encinitas.pdf

[61] SPI: The Plastics Industry Trade Association. 2007. Web site. Available at: http://www.plasticsindustry.org/

[62] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[63] SPI: The Plastics Industry Trade Association. 2007. Web site. Available at: http://www.plasticsindustry.org/

[64] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[65] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at : http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[66] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[67] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[68] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[69] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[70] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

and total maximum daily loads (TMDL) limits for trash, pursuant to the federal Clean Water Act (CWA).[71,72]

The CIWMB estimates that approximately 3.9 percent of plastic waste can be attributed to plastic carryout bags related to grocery and other merchandise, which represents approximately 0.4 percent of the total waste stream in California.[73,74] Several organizations have studied the effects of plastic litter: Caltrans conducted a study on freeway storm water litter;[75] the Friends of Los Angeles River conducted a waste characterization study on the Los Angeles River;[76] the City of Los Angeles conducted a waste characterization study on 30 storm drain basins;[77] and LACDPW conducted a trash reduction and a waste characterization study of street sweeping and trash capture systems near and within the Hamilton Bowl, located in Long Beach, California.[78] These studies concluded that plastic film (including plastic bag litter) composed between 7 to 30 percent by mass and between 12 to 34 percent by volume of the total litter collected. Despite the implementation of best management practices (BMPs), installation of litter control devices such as cover fences for trucks, catch basins, and facilities to prevent airborne bags from escaping, and despite the use of roving patrols to pick up littered bags, plastic bag litter remains prevalent throughout the County.[79] AB 2449 requires all supermarkets (grocery stores with more than $2 million in annual sales) and retail businesses of at least 10,000 square feet with a licensed pharmacy to establish a plastic carryout bag recycling program at each store. Starting on July 1, 2007, each store must provide a clearly marked bin that is easily available for customers to deposit plastic carryout bags for recycling. The stores' plastic bags must display the words "please return to a participating store for recycling."[80] In addition, the affected stores must make reusable bags available to their patrons. These bags can be made of cloth, fabric, or plastic with a thickness of 2.25 mils or greater.[81] The stores are allowed to charge their patrons for reusable bags.[82] Store operators must maintain

[71] *United States Code*, Title 33, Section 1313, "Water Quality Standards and Implementation Plans." Clean Water Act, Section 303(d).

[72] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

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

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

[75] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

[76] Friends of the Los Angeles River and American Rivers. 2004. *Great Los Angeles River*. Los Angeles and Nevada City, CA.

[77] City of Los Angeles, Sanitation Department of Public Works. June 2006. *Technical Report: Assessment of Catch Basin Opening Screen Covers*. Los Angeles, CA.

[78] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[79] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[80] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

[81] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

[82] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

program records for a minimum of three years and make the records available to the local jurisdiction.[83]

### 2.3.2 Paper Bags

The production, distribution, and disposal of paper carryout bags also have known adverse effects on the environment.[84,85] There is a considerable amount of energy that is used, trees that are felled, and pollution that is generated in the production of paper carryout bags.[86,87] The CIWMB determined in the 2004 Statewide Waste Characterization Study that approximately 117,000 tons of paper carryout bags are disposed of each year by consumers throughout the County. This amount accounts for approximately 1 percent of the total 12 million tons of solid waste generated each year.[88] However, paper bags have the potential to biodegrade if they are sufficiently exposed to oxygen, sunlight, moisture, soil, and microorganisms (such as bacteria); they are denser and less susceptible to becoming airborne; and they generally have a higher recycling rate than do plastic bags. The U.S. Environmental Protection Agency (USEPA) reported that the recycling rate for high-density polyethylene plastic bags and sacks was 11.9 percent in 2007, compared to a recycling rate of 36.8 percent of paper bags and sacks.[89] Therefore, based upon the available evidence, paper carryout bags are less likely to become litter than are plastic carryout bags.

### 2.3.3 Reusable Bags

Reusable bags offer an alternative to plastic carryout bags, compostable plastic carryout bags, and paper carryout bags. The utility of a reusable bag has been noted in various reports, such as the 2008 report by Green Seal, which estimates the life of a reusable bag as being between two and five years.[90] In 1994, the Green Seal report encouraged an industry standard of a minimum of 300 reusable bag uses; today, Green Seal recommends a more ambitious standard of a minimum of 500 uses under wet conditions (bag testing under wet conditions is more stringent testing).[91]

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[83] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[84] County of Los Angeles, Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

[85] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[86] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

[87] County of Los Angeles, Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

[88] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/publications/localasst/34004005.pdf

[89] U.S. Environmental Protection Agency. November 2008. "Table 21: Recovery of Products in Municipal Solid Waste, 1960 to 2007." *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf. The referenced table included the recovery of post-consumer wastes for the purposes of recycling or composting, it did not include conversion/fabrication scrap. The report includes the recovery of plastic bags, sacks, and wraps (excluding packaging) for a total of 9.1 percent of plastic recovered in this category. The County of Los Angeles conservatively estimates that the percentage of plastic bags in this category for the County of Los Angeles is less than 5 percent.

[90] Green Seal, Inc. is an independent non-profit organization that uses science-based standards and the power of the marketplace to provide recommendations regarding sustainable products, standards, and practices.

[91] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-

Furthermore, life cycle studies for plastic products have documented the adverse impacts related to various types of plastic and paper bags; however, life cycle studies have also indicated that reusable bags[92] are the preferable option to both paper bags and plastic bags.[93,94,95]

Reusable bags are intended to provide a viable alternative to the use of paper or plastic carryout bags.[96] Currently, some stores within the County, such as certain Whole Foods divisions, do not offer plastic carryout bags at checkout and instead offer reusable bags for sale and provide rebates if its patrons bring their own reusable bags. Other stores, such as certain Ralph's divisions, offer reusable bags for purchase at registers and offer various incentives such as store rewards or store credit to customers who use reusable bags.[97]

### 2.3.4 Voluntary Single Use Bag Reduction and Recycling Program

On January 22, 2008, the County Board of Supervisors approved a motion to implement the voluntary Single Use Bag Reduction and Recycling Program (Alternative 5) in partnership with large supermarkets and retail stores, the plastic bag industry, environmental organizations, recyclers and other key stakeholders. The program aims to promote the use of reusable bags, increase at-store recycling of plastic bags, reduce consumption of single-use bags, increase the post-consumer recycled material content of paper bags, and promote public awareness of the effects of litter and consumer responsibility in the County. The voluntary program establishes benchmarks for measuring the effectiveness of the program, seeking a 30-percent decrease in the disposal rate of carryout plastic bags from the fiscal year 2007–2008 usage levels by July 1, 2010, and a 65-percent decrease by July 1, 2013.[98]

The County identified three tasks to be undertaken by the County, stores, and manufacturers as part of the voluntary program's key components:

1. Large supermarket and retail stores: develop and implement store-specific programs such as employee training, reusable-bag incentives, and efforts related to consumer education

16_reusable_bag_proposed_revised_standard_background%20document.pdf

[92] Reusable bag manufacturers are also expected to enforce industry standards and recommendations to avoid adverse environmental impacts, including the use of recycled materials.

[93] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[94] Boustead Consulting & Associates, Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Available at: http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212

[95] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by: ICF International. San Francisco, CA.

[96] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[97] Ralphs Grocery Company. 2009. "Doing Your Part: Try Reusable Shopping Bags." Web site. Available at: http://www.ralphs.com/healthy_living/green_living/Pages/reusable_bags.aspx

[98] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

2. Manufacturer and trade associations: encourage members to participate in the program, provide technical assistance and marketing recommendations, and coordinate with large supermarkets and stores
3. County of Los Angeles Working Group: facilitate program meetings, determine specific definitions for target stores, establish a framework describing participant levels and participation expectations, and develop and coordinate program specifics such as educational material, reduction strategies, establishment of disposal rates and measurement methodology, progress reports, and milestones

In March 2008, the County provided each of the 88 incorporated cities in the County with a sample "Resolution to Join" letter that extended to the cities an opportunity to join the County in the abovementioned activities related to the Single Use Plastic Bag Reduction and Recycling Program. The letter invited the cities to join the County in a collaborative effort and to take advantage of the framework already developed by the County. Information related to the LACDPW's efforts was presented to all 88 cities regarding the proposed ordinances and their actions.

There are currently 11 cities within the County that have signed resolutions to join the County in its efforts and in adopting similar ordinances for their respective cities: Agoura Hills, Azusa, Bell, Glendale, Hermosa Beach, Lomita, Pico Rivera, Pomona, Redondo Beach, Santa Fe Springs, and Signal Hill. These cities have implemented a variety of public education and outreach efforts to encourage participation within their cities, including developing public education brochures, running public service announcements on their city's cable television channel, establishing committees focused on community outreach, and distributing recycled-content reusable bags at community events.

The County is currently evaluating the efficacy of volunteer programs, including its own Single Use Bag Reduction and Recycling Program, in relation to the disposal rate of plastic carryout bags using three criteria:[99] (1) the reduction in consumption of plastic carryout bags, (2) the total number of plastic carryout bags recycled at stores, and (3) the total number of plastic carryout bags recycled via curbside recycling programs.

Since August 2007, the County has facilitated meetings that have been attended by representatives of grocery stores, plastic bag industry groups, environmental organizations, waste management industry groups, various governmental entities, interested members of the public, and others. The County has led further efforts to disseminate outreach materials, attend community events, work with cities within the County, visit stores, and provide and solicit support for reusable bags. The Plastic Recycling Corporation of California, a consultant of the American Chemistry Council, has visited grocery stores within the County to provide stores and consumers with additional information and assistance to enhance their plastic bag recycling programs.

These endeavors were undertaken in an effort to increase the participation of grocery stores, to shift consumer behavior to the use of recycled plastic bags, and to encourage a considerable transition to the use of reusable bags.

[99] Methodology consumption rates based upon plastic bags generated in fiscal year 2007–2008, as provided in data reported to the California Integrated Waste Management Board as required by AB 2449. The methodology is described in its entirety in *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*, published by County of Los Angeles, Department of Public Works, Environmental Programs Division. Alhambra, CA.

### 2.3.5 General Plan Land Use Designation

The proposed ordinances would apply to stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, an alternative to the proposed ordinances being studied in this EIR considers application of the proposed ordinances to all supermarkets, pharmacies, and convenience stores within the County with no limits on square footage or sales volumes.

### 2.3.6 Zoning

#### *2.3.6.1 Unincorporated Territories of the County of Los Angeles*

The Los Angeles County Code (County Code) contains ordinances that regulate zoning within the unincorporated territories of the County: Title 22, Planning and Zoning, the County Code provides for planning and zoning within these unincorporated territories and includes zones and districts for each of the 140 unincorporated communities.[100] As with the land use designation, the stores may occur within any of the seven general zoning designations: (1) Residential, (2) Agricultural, (3) Commercial, (4) Industrial, (5) Publicly Owned Property, (6) Special Purpose and Combining, and (7) Supplemental Districts (such as equestrian, setback, flood protection, or community standards districts). Chapter 22.46 of Title 22 establishes procedures for consideration of specific plans within the unincorporated territories, which further describe the zoning within each of the communities.[101] The proposed ordinance would not require any changes to the established land use zoning designations.

#### *2.3.6.2 Incorporated Cities of the County of Los Angeles*

The affected stores may occur within any of the zoning designations that allow for commercial or retail uses defined by the 88 incorporated cities within the County. The proposed ordinances would not require any changes to the established zoning ordinances in any of the incorporated cities.

## 2.4 STATEMENT OF OBJECTIVES

### 2.4.1 Program Goals

The County is seeking to substantially reduce the operational cost and environmental degradation associated with the use of plastic carryout bags in the County, particularly the component of the litter stream composed of plastic bags, and reduce the associated government funds used for prevention, clean-up, and enforcement efforts.

The County has identified five goals of the proposed ordinances, listed in order of importance: (1) litter reduction, (2) blight prevention, (3) coastal waterways and animal and wildlife protection, (4) sustainability (as it relates to the County's energy and environmental goals), and (5) landfill disposal reduction.

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[100] *Los Angeles County Code*, Title 22: "Planning and Zoning." Available at: http://ordlink.com/codes/lacounty/index.htm

[101] *Los Angeles County Code*, Title 22: "Planning and Zoning," Chapter 22.46. Available at: http://ordlink.com/codes/lacounty/index.htm

### 2.4.2 Countywide Objectives

The proposed ordinance program would have six objectives:

- Conduct outreach to all 88 incorporated cities of the County to encourage adoption of comparable ordinances
- Reduce the Countywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007, to fewer than 800 plastic bags per household in 2013
- Reduce the Countywide contribution of plastic carryout bags to litter that blights public spaces Countywide by 50 percent by 2013
- Reduce the County's, Cities', and Flood Control District's costs for prevention, clean-up, and enforcement efforts to reduce litter in the County by $4 million
- Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 50,000 residents (5 percent of the population) with an environmental awareness message
- Reduce Countywide disposal of plastic carryout bags in landfills by 50 percent from 2007 annual amounts

### 2.4.3 City Objectives

If using a comparable standard to that of the County's standard, cities would implement objectives comparable with the Countywide objectives. Should the cities prepare different objectives, those objectives may need to be evaluated to determine what further CEQA analysis would be required, if any.

## 2.5 PROPOSED PROJECT

On January 22, 2008, the County Board of Supervisors instructed the Chief Executive Officer, working with the Director of Public Works and County Counsel, to prepare a draft ordinance by April 1, 2009, (subsequently revised to as early as September 2010) banning plastic bags for consideration by the Board of Supervisors. The draft ordinance would ban the issuance of plastic bags at large supermarkets and retail stores in the unincorporated territories of the County. Any necessary environmental review in compliance with CEQA would be completed before the Board of Supervisors would consider the draft ordinance.[102,103]

The proposed ban on the issuance of plastic carryout bags consists of an ordinance to be adopted prohibiting certain retail establishments from issuing plastic carryout bags in the unincorporated territories of the County. The County would also encourage adoption of comparable ordinances by each of the 88 incorporated cities in the County.

As previously mentioned, there are currently 11 cities within the County that have signed resolutions to join the County in adopting similar ordinances in their cities. The analysis of the proposed ordinances in this EIR anticipates the adoption of similar proposed ordinances for each of the 88 incorporated cities within the County.

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[102] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

[103] County of Los Angeles Board of Supervisors. 22 January 2008. *Minutes of the Board of Supervisors.* Los Angeles, CA.

The proposed ordinances aim to significantly reduce the number of plastic carryout bags that are disposed of or that enter the litter stream by ensuring that certain retail establishments located in the County will not distribute or make available to customers any plastic carryout bags or compostable plastic bags.

The proposed ordinances being considered would ban the issuance of plastic carryout bags by any retail establishment, defined herein, that is located in the unincorporated territory or incorporated cities of the County. The retail establishments that would be affected by the proposed ordinances include any that (1) meet the definition of a "supermarket" as stated in the California Public Resources Code, Section 14526.5; or (2) are buildings with over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code.

In addition, the County is considering expanding the scope of the proposed County ordinance, which would affect the unincorporated territories of the County, to include all supermarkets, pharmacies, and convenience stores with no limits on square footage or sales volumes. The County is also considering expanding the scope of the proposed County ordinance to include a performance standard for reusable bags. If the County chooses to expand the scope of the ordinance or include a performance standard for reusable bags, it may recommend that the 88 incorporated cities of the County consider the same in any proposed ordinances.

On March 12, 2010, the County Chief Executive Office notified the Board of Supervisors that the Final EIR and draft ordinance would be presented to the Board of Supervisors for consideration as early as September 2010. Based on the EIR scoping meetings, it was determined that more in-depth research and secondary source data would be appropriate to further substantiate the technical information and findings in the EIR.

### 2.5.1 Transition Period Assumption

Should the proposed ordinances be adopted, it is anticipated that there would be a transition period during which consumers would switch to reusable bags. The County anticipates that a measurable percentage of affected consumers would subsequently use reusable bags (this percentage includes consumers currently using reusable bags) once the proposed ordinances take effect. The County further anticipates that some of the remaining consumers, those who choose to forgo reusable bags, may substitute plastic carryout bags with paper carryout bags where paper carryout bags are available.

## 2.6 INTENDED USES OF THE EIR

The County of Los Angeles is the lead agency for the proposed County ordinance, and the individual incorporated cities within the County would be the lead agencies for their respective city ordinances, should the cities decide to adopt comparable ordinances. The County Board of Supervisors will consider certification of the EIR and has authorization to render a decision on the proposed ordinance that would affect the County's unincorporated territories. Section 11, Distribution List, of this Draft EIR, lists all reviewing agencies that have been notified of the proposed ordinances.

## 2.7 ORDINANCE ALTERNATIVES

During the initial conceptual phases of the proposed ordinances, several alternatives were considered and analyzed. A total of five project alternatives were evaluated for the proposed ordinances. The No Project Alternative, which is required by the State CEQA Guidelines, was also assessed and all five alternatives have been carried forward for detailed analysis in this EIR. The five alternatives to the proposed ordinances are as follows:

- No Project Alternative
- Alternative 1, Ban Plastic and Paper Carryout Bags in Los Angeles County
- Alternative 2, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags in Los Angeles County
- Alternative 3, Ban Plastic Carryout Bags for all Supermarkets and Other Grocery Stores, Convenience Stores, and Pharmacies and Drug Stores in Los Angeles County
- Alternative 4, Ban Plastic and Paper Carryout Bags for all Supermarkets and Other Grocery Stores, Convenience Stores, and Pharmacies and Drug Stores in Los Angeles County

Section 4.0, Alternatives to the Proposed Ordinances, of this EIR describes the alternatives, evaluates potential environmental impacts of each alternative, and analyzes the ability of each alternative to meet the objectives of the proposed ordinances.

# *SECTION 3.0*
# *EXISTING CONDITIONS, IMPACTS, MITIGATION, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION*

This section of the EIR evaluates the potential of the proposed ordinances to result in significant impacts to the environment, and provides a full scope of environmental analysis in conformance with the State CEQA Guidelines.

The Initial Study for the proposed ordinances determined that there was no evidence that the proposed ordinances would cause significant environmental effects related to 12 environmental resources: aesthetics, agriculture and forestry resources, cultural resources, geology and soils, hazards and hazardous materials, land use and planning, mineral resources, noise, population and housing, public services, recreation, or transportation and traffic.[1] However, the Initial Study identified the potential for the proposed ordinances to result in significant impacts to 5 environmental resources warranting further analysis: air quality, biological resources, greenhouse gas emissions, hydrology and water quality, and utilities and service systems.

For each environmental resource, this section describes the regulatory framework, existing conditions, thresholds of significance, impact analysis, mitigation measures for significant impacts, and level of significance after mitigation. The applicable federal, State, regional, county, and local statutes and regulations that govern individual environmental resources that must be considered by the County Board of Supervisors in the decision-making process are included in the regulatory framework described for each environmental resource. The existing conditions portion of the analysis has been prepared in accordance with the State CEQA Guidelines, and includes a description of existing carryout bags available in the County, and current programs and other related ordinances intended to reduce carryout bag use. The existing conditions are described based on literature review and archived resources, agency coordination, and field surveys. Significance thresholds were established in accordance with Appendix G, Environmental Checklist Form, of the State CEQA Guidelines.[2] The potential for cumulative impacts was considered as a result of scoping and agency consultation. Mitigation measures were derived from public and agency input. The level of significance after mitigation was evaluated in accordance with the thresholds of significance and the effectiveness of the proposed mitigations to reduce potentially significant impacts to below the significance threshold. The impact analysis contained in this environmental document is based solely on the implementation of the proposed ordinances as described in Section 2.0, Project Description, of this Draft EIR.

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[2] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

## 3.1 AIR QUALITY

As a result of the Initial Study,[1] it was identified that the proposed ordinances may have the potential to result in significant impacts to air quality. Therefore, this issue has been carried forward for detailed analysis in this EIR. This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts to air quality and identify potential alternatives. Certain plastic bag industry representatives have claimed that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, which may lead to increased emissions of criteria pollutants; therefore, the County has decided to present the analysis of air quality in the EIR.

The analysis of air quality consists of a summary of the regulatory framework to be considered during the decision-making process, a description of the existing conditions within the County, thresholds for determining if the proposed ordinances would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to air quality has been analyzed in accordance with Appendix G of the State CEQA Guidelines;[2] the methodologies and significance thresholds provided by the County General Plan,[3] the National Ambient Air Quality Standards (NAAQS),[4] the California Ambient Air Quality Standards (CAAQS),[5] and the CAA;[6] guidance provided by the South Coast Air Quality Management District (SCAQMD),[7] Antelope Valley Air Quality Management District (AVAQMD),[8] and California Air Resources Board (CARB);[9] and a review of public comments received during the scoping period for the Initial Study for the proposed ordinances.

Data on existing air quality in the SCAQMD portion of the South Coast Air Basin (SCAB) and the AVAQMD portion of the Mojave Desert Air Basin (MDAB), in which the unincorporated territory and the 88 incorporated cities of the County are located, is monitored by a network of air monitoring stations operated by the California Environmental Protection Agency (Cal/EPA), CARB, and the SCAQMD and AVAQMD. The conclusions contained herein reflect guidelines established by SCAQMD's *CEQA Air Quality Handbook*.[10]

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[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[2] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[3] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[4] U.S. Environmental Protection Agency. Updated 14 July 2009. *National Ambient Air Quality Standards (NAAQS)*. Available at: http://www.epa.gov/air/criteria.html

[5] California Air Resources Board. Reviewed 5 March 2008. *California Ambient Air Quality Standards (CAAQS)*. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

[6] U.S. Environmental Protection Agency. 2005. Federal Clean Air Act, Title I, Air Pollution Prevention and Control. Available at: http://www.epa.gov/oar/caa/contents.html

[7] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[8] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[9] Jeannie Blakeslee, Office of Climate Change, California Air Resources Board, Sacramento, CA. 16 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[10] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

### 3.1.1 Regulatory Framework

This regulatory framework identifies the federal, State, regional, and local laws that govern the regulation of air quality and must be considered by the County when rendering decisions on projects that would have the potential to result in air emissions.

Responsibility for attaining and maintaining ambient air quality standards in California is divided between the CARB and regional air pollution control or air quality management districts. Areas of control for the regional districts are set by CARB, which divides the state into air basins. These air basins are based largely on topography that limits air flow, or by county boundaries. The unincorporated territory of the County is within the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB (Figure 3.1.1-1, *Air Quality Management Districts within the County of Los Angeles*).

#### ***Federal***

*Federal Clean Air Act*

The federal Clean Air Act (CAA) requires that federally supported activities must conform to the State Implementation Plan (SIP), whose purpose is that of attaining and maintaining the NAAQS. Section 176(c) of the CAA as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (United States Code, Title 23), the Federal Transit Administration,[11] and metropolitan planning organizations determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of Code of Federal Regulations, Title 40, Parts 51 and 93, apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.[12]

The USEPA sets NAAQS for the criteria pollutants ($O_3$, $NO_x$, $SO_x$, CO, $PM_{10}$, and $PM_{2.5}$). Existing national standards and State standards were considered in the evaluation of air quality impacts for the proposed ordinances (Table 3.1.1-1, *Ambient Air Quality Standards)*. Primary standards are designed to protect public health, including sensitive individuals such as children and the elderly, whereas secondary standards are designed to protect public welfare, such as visibility and crop or material damage. The CAA requires the USEPA to routinely review and update the NAAQS in accordance with the latest available scientific evidence. For example, the USEPA revoked the annual suspended particulate matter ($PM_{10}$) standard in 2006 due to a lack of evidence linking health problems to long-term exposure to $PM_{10}$ emissions. The 1-hour standard for ozone ($O_3$) was revoked in 2005 in favor of a new 8-hour standard that is intended to be more protective of public health.

[11] U.S. Environmental Protection Agency. 26 September 1996. "Approval and Promulgation of Implementation Plans and Redesignation of Puget Sound, Washington for Air Quality Planning Purposes: Ozone." In *Federal Register, 61* (188). Available at: http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/e1f3db8b006eff1a88256dcf007885c6/$FILE/61%20FR%2050438%20Seattle%20Tacoma%20Ozone%20MP.pdf

[12] U.S. Environmental Protection Agency. 15 August 1997. "Transportation Conformity Rule Amendments: Flexibility and Streamlining." In *Federal Register, 62* (158). Available at: http://www.epa.gov/EPA-AIR/1997/August/Day-15/a20968.htm


**FIGURE 3.1.1-1**

Air Quality Management Districts within the County of Los Angeles

## TABLE 3.1.1-1
## AMBIENT AIR QUALITY STANDARDS

| | National | | State |
|---|---|---|---|
| **Air Pollutant** | **Primary** | **Secondary** | **Standard** |
| Ozone ($O_3$)[1] | 0.08 ppm, 8-hr avg. (1997)<br>0.075 ppm, 8-hr avg. (2008) | 0.08 ppm, 8-hr avg. (1997)<br>0.075 ppm, 8-hr avg. (2008) | 0.09 ppm, 1-hr avg.<br>0.07 ppm, 8-hr avg. |
| Carbon monoxide (CO) | 9 ppm, 8-hr avg.<br>35 ppm, 1-hr avg. | None | 9 ppm, 8-hr avg.<br>20 ppm, 1-hr avg. |
| Nitrogen dioxide ($NO_2$) | 0.053 ppm, annual avg. | 0.053 ppm, annual avg. | 0.03 ppm, annual avg.<br>0.18 ppm, 1-hr avg. |
| Sulfur dioxide ($SO_2$) | 0.03 ppm, annual avg.<br>0.14 ppm, 24-hr avg. | 0.5 ppm, 3-hr avg. | 0.25 ppm, 1-hr<br>0.04 ppm, 24-hr avg. |
| Suspended particulate matter ($PM_{10}$) | 150 $\mu g/m^3$, 24-hr avg. | 150 $\mu g/m^3$, 24-hr avg. | 50 $\mu g/m^3$, 24-hr avg.<br>20 $\mu g/m^3$, annual avg. |
| Fine particulate matter ($PM_{2.5}$) | 35 $\mu g/m^3$, 24-hr avg.<br>15 $\mu g/m^3$, annual avg. | 35 $\mu g/m^3$, 24-hr avg.<br>15 $\mu g/m^3$, annual avg. | 12 $\mu g/m^3$, annual avg. |
| Sulfates ($SO_4$) | --- | --- | 25 $\mu g/m^3$, 24-hr avg. |
| Lead (Pb) | 1.5 $\mu g/m^3$, calendar quarter<br>0.15 $\mu g/m^3$, rolling 3-month avg. | 1.5 $\mu g/m^3$, calendar quarter<br>0.15 $\mu g/m^3$, rolling 3-month avg. | 1.5 $\mu g/m^3$, 30-day avg. |
| Hydrogen sulfide ($H_2S$) | --- | --- | 0.03 ppm, 1-hr avg. |
| Vinyl chloride | --- | --- | 0.01 ppm, 24-hr avg. |
| Visibility-reducing particles | --- | --- | Extinction coefficient of 0.23 per kilometer — visibility of 10 miles or more (0.07–30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent (8-hr avg.) |

**NOTES**:
1. The 1997 standard of 0.08 ppm will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition to the 2008 ozone standard of 0.075 ppm.
2. ppm = parts per million by volume
3. avg. = average
4. $\mu g/m3$ = micrograms per cubic meter

**SOURCES:**
1. U.S. Environmental Protection Agency. Updated 14 July 2009. *National Ambient Air Quality Standards (NAAQS)*. Available at: http://www.epa.gov/air/criteria.html
2. California Air Resources Board. Reviewed 5 March 2008. *California Ambient Air Quality Standards (CAAQS)*. Available at: http://www.arb.ca.gov/research/aaqs/caaqs/caaqs.htm

The 1990 amendments to the CAA divide the nation into five categories of planning regions ranging from "marginal" to "extreme," depending on the severity of their pollution, and set new timetables for attaining the NAAQS. Attainment deadlines are from 3 years to 20 years, depending on the category. The SCAB as a whole is an extreme non-attainment area for $O_3$, and Antelope Valley is a severe-17 non-attainment area for $O_3$. The County is currently designated as a severe-17 non-attainment area for $O_3$, a non-attainment area for fine particulate matter ($PM_{2.5}$), and a serious non-attainment area for

$PM_{10}$,[13] but the SCAB has achieved the federal 1-hour and 8-hour carbon monoxide (CO) air quality standards since 1990 and 2002, respectively, and the County has met the federal air quality standards for nitrogen dioxide ($NO_2$) since 1992.[14] Although the SCAB as a whole is designated as a non-attainment area for $PM_{10}$, the County is currently in compliance of federal $PM_{10}$ standards at all monitoring stations.[15] The Antelope Valley is unclassified for the federal $PM_{10}$ standards.

Areas designated as severe-17 for non-attainment of the federal 8-hour $O_3$ standard, such as the County, are required to reach attainment levels within 17 years of designation. Areas designated as serious for non-attainment of the federal $PM_{10}$ air quality standard have a maximum of 10 years to reduce $PM_{10}$ emissions to attainment levels. All non-attainment areas for $PM_{2.5}$ have 3 years after designation to meet the $PM_{2.5}$ standards. The SCAB has until 2021 to achieve the 8-hour $O_3$ standards and until 2010 to achieve the $PM_{2.5}$ air quality standards.[16] Section 182(e)(5) of the federal CAA allows the USEPA administrator to approve provisions of an attainment strategy in an extreme area that anticipates development of new control techniques or improvement of existing control technologies if a state has submitted enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

Non-attainment areas classified as serious or worse are required to revise their respective air quality management plans to include specific emission reduction strategies to meet interim milestones in implementing emission controls and improving air quality. The USEPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within 2 years of federal notification, the USEPA is required to develop a Federal Implementation Plan (FIP) for the identified non-attainment area or areas.

***State***

*California Clean Air Act*

The California CAA of 1988 requires all air pollution control districts in the state to aim to achieve and maintain State ambient air quality standards for $O_3$, CO, and $NO_2$ by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. There are no planning requirements for the State $PM_{10}$ standard. The CARB, which became part of Cal/EPA in 1991, is responsible for meeting State requirements of the federal CAA, administrating the California CAA, and establishing the CAAQS. The California CAA, amended in 1992, requires all air districts in the state to aim to achieve and maintain the CAAQS. The CAAQS are generally stricter than national standards for the same pollutants, but there is no penalty for non-attainment. California has also established standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles, for which there are no national standards (Table 3.1.1-1).

[13] U.S. Environmental Protection Agency. 15 August 2008. *The Green Book Nonattainment Areas for Criteria Pollutants*. Available at: http://www.epa.gov/oar/oaqps/greenbk/

[14] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[15] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[16] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

### *Regional*

*South Coast Air Quality Management District*

The SCAQMD, which monitors air quality within the County, has jurisdiction over an area of approximately 10,743 square miles and a population of over 16 million. The 1977 Lewis Air Quality Management Act created SCAQMD to coordinate air quality planning efforts throughout Southern California. This act merged four county air pollution agencies into one regional district to improve air quality in Southern California. SCAQMD is responsible for monitoring air quality as well as planning, implementing, and enforcing programs designed to attain and maintain federal and State ambient air quality standards in the district. In addition, SCAQMD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

On a regional level, SCAQMD and the Southern California Association of Governments (SCAG) have responsibility under State law to prepare the Air Quality Management Plan (AQMP), which contains measures to meet State and federal requirements. When approved by CARB and the USEPA, the AQMP becomes part of the SIP.

The most recent update to the SCAQMD AQMP was prepared for air quality improvements to meet both State and federal CAA planning requirements for all areas under AQMP jurisdiction. On September 27, 2007, the update was adopted by CARB for inclusion in the SIP. The AQMP sets forth strategies for attaining the federal $PM_{10}$ and $PM_{2.5}$ air quality standards and the federal 8-hour $O_3$ air quality standard, as well as for meeting State standards at the earliest practicable date. With the incorporation of new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling, the 2007 AQMP focuses on $O_3$ and $PM_{2.5}$ attainments.

SCAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills, was adopted by SCAQMD in 1985 to limit landfill emissions to prevent public nuisance and protect public health. Rule 1150.1 applies to all active landfills in the SCAB and requires the installation of a control system that is designed to reduce VOC emissions by at least 98 percent.

*Antelope Valley Air Quality Management District*

The Antelope Valley portion of the County was detached from the SCAQMD when AB 2666 (Knight) established the AVAQMD in 1997. The Antelope Valley, located in the western MDAB portion of northern Los Angeles County, is bounded by the San Gabriel Mountains to the south and west, the Kern County border to the north, and the San Bernardino County border to the east. Antelope Valley exceeds the federal $O_3$ standards. At a public hearing held on June 26, 2008, CARB approved an SIP revision for attainment of the 8-hour $O_3$ NAAQS in Antelope Valley. The AVAQMD Federal 8-Hour Ozone Attainment Plan provides planning strategies for attainment of the 8-hour NAAQS for $O_3$ by 2021, by targeting reductions in the emissions of volatile organic compounds (VOCs) and nitrogen oxide ($NO_x$).[17] As with SCAQMD Rule 1150.1, AVAQMD Rule 1150.1 requires emission controls for active landfills within the AVAQMD portion of the MDAB.

[17] Antelope Valley Air Quality Management District. 20 May 2008. *AVAQMD Federal 8-Hour Ozone Attainment Plan.* Lancaster, CA.

***Local***

*County of Los Angeles General Plan*

The jurisdiction of the proposed County ordinance is within the County; therefore, development in the area is governed by the policies, procedures, and standards set forth in the County General Plan. The proposed ordinance would be expected to be consistent with the County General Plan governing air quality and would not be expected to result in a change to the population growth assumption used by the SCAG for attainment planning. The County General Plan has developed goals and policies for improving air quality in the County. Many policies are transportation-based because of the direct link between air quality and the circulation element. There is one objective and related policy relevant to the proposed ordinance that is capable of contributing toward avoiding and reducing the generation of air pollutants:[18]

- **Objective:** To support local efforts to improve air quality.
- **Policy:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling, and improved public transportation.

*City General Plans*

Any incorporated cities in the County that adopt individual ordinances will need to determine if they must comply with the adopted air quality policies set forth in the respective city general plans, if any.

### 3.1.2 Existing Conditions

***South Coast Air Basin***

The unincorporated territory of the County is located primarily in the SCAB, which comprises a 6,745-square-mile area encompassing all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The northern portion of the County is located within the MDAB, which includes the eastern portion of Kern County, the northeastern portion of Los Angeles County, San Bernardino County, and the eastern-most portion of Riverside County. The analysis of existing conditions related to air quality includes a summary of pollutant levels prior to implementation of the proposed ordinances.

The County portion of the SCAB is a subregion of SCAQMD and is in an area of high air pollution potential due to its climate and topography. The climate of the SCAB is characterized by warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This mild climatological pattern is interrupted infrequently by extremely hot summers, winter storms, or Santa Ana winds. The SCAB is a coastal plain bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. During the dry season, the Eastern Pacific High-Pressure Area (a semi-permanent feature of the general hemispheric circulation pattern) dominates the weather over much of Southern California, resulting in a mild climate tempered by cool sea breezes with light average wind speed. High mountains surround the rest of the SCAB perimeter, contributing to the variation of rainfall, temperature, and winds in the SCAB.

[18] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

The MDAB is composed of four air districts: the Kern County Air Pollution Control District, the AVAQMD, the Mojave Desert Air Quality Management District, and the eastern portion of the SCAQMD. The County portion of the MDAB is located within the AVAQMD, and its climate is characterized by hot, dry summers; mild winters; infrequent rainfalls; moderate to high wind episodes; and low humidity. The large majority of the MDAB is relatively rural and sparsely populated. The MDAB contains a number of mountain ranges interspersed with long broad valleys that often contain dry lakes. The Sierra Nevada Mountains provide a natural barrier to the north, preventing cold air masses from Canada and Alaska from moving down into the MDAB. Prevailing winds in the MDAB are out of the west and southwest, caused by air masses pushed onshore in Southern California by differential heating and channeled inland through mountain passes. During the summer months, the MDAB is influenced by the Eastern Pacific High-Pressure Area, inhibiting cloud formation and encouraging daytime solar heating. The San Gabriel and San Bernardino mountain ranges block the majority of cool moist costal air from the south, so the MDAB experiences infrequent rainfalls. The County portion of the MDAB, as recorded at a monitoring site in Lancaster, averages fewer than 8 inches of precipitation per year[19] and is classified as a dry-hot desert climate.[20]

***Temperature Inversions***

Consistent with the conditions throughout the SCAB, the non-desert portion of the County frequently experiences temperature inversions, a condition characterized by an increase in temperature with an increase in altitude. In a normal atmosphere, temperature decreases with altitude; in a temperature inversion condition, as the pollution rises it reaches an area where the ambient temperature exceeds the temperature of the pollution, thereby limiting vertical dispersion of air pollutants and causing the pollution to sink back to the surface, trapping it close to the ground. During summer, the interaction between the ocean surface and the low layer of the atmosphere creates a marine layer. With an upper layer of warm air mass over the cool marine layer, air pollutants are prevented from dispersing upward. Additional air quality problems in the non-desert portion of the County can be attributed to the bright sunshine, which causes a reaction between hydrocarbons and oxides of nitrogen to form $O_3$. Peak $O_3$ concentrations in the non-desert portion of the County over the past two decades have occurred at the base of the mountains around Azusa and Glendora. Both the peak $O_3$ concentrations and the number of days the standards were exceeded decreased everywhere in the non-desert portion of the County throughout the 1990s. During fall and winter, the greatest pollution problems are CO and $NO_x$ emissions, which are trapped and concentrated by the inversion layer. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). In the morning, CO levels are relatively high due to cold temperatures and the large number of cars traveling. High CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the non-desert portion of the County are associated with heavy traffic. However, CO concentrations have also dropped significantly throughout the non-desert portion of the County as a result of strict new emission controls and reformulated gasoline sold in winter months. $NO_2$ levels are also generally higher during fall and winter days.

[19] Western Regional Climate Center. 5 April 2006. *Period of Record General Climate Summary—Precipitation.* Available at: http://www.wrcc.dri.edu/cgi-bin/cliGCStP.pl?cateha

[20] Antelope Valley Air Quality Management District. May 2005. *Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=916

***Emission Sources***

Emissions within the non-desert portion of the County are generated daily from vehicle exhaust emissions, industry, agriculture, and other anthropogenic activities. The Mojave Desert portion of the County is also affected by similar local and regional emission sources. Transportation of pollutants from other regions, such as the SCAB, causes a significant impact to the air quality conditions within the Mojave Desert portion of the County.

***Source Receptor Area***

The SCAQMD is divided into source receptor areas, based on similar meteorological and topographical features. Sources receptor areas 1 through 13 are located within the County. The ambient air quality data in the SCAQMD portion of the County and the applicable State standards indicates exceedances for the applicable State standards or federal standards for $O_3$ and particulate matter (Table 3.1.2-1, *Summary of 2006–2008 Ambient Air Quality Data in the SCAQMD Portion of the* County). Background CO concentration in the County is established because CO concentrations are typically used as an indicator of the conformity with CAAQS, and estimated changes in CO concentrations generally reflect operational air quality impacts associated with projects. The highest reading of the CO concentrations over the past three years is defined by SCAQMD as the background level. A review of SCAQMD data for the County from 2006 to 2008 indicates that the 1- and 8-hour background concentrations are approximately 8 parts per million (ppm) and 6.4 ppm, respectively. The existing 1- and 8-hour background concentrations do not exceed the California CO standards of 20 ppm and 9.0 ppm, respectively.

**TABLE 3.1.2-1**
**SUMMARY OF 2006–2008 AMBIENT AIR QUALITY DATA**
**IN THE SCAQMD PORTION OF THE COUNTY**

| Pollutants | Pollutant Concentration & Standards | Number of Days Above State Standard | | |
|---|---|---|---|---|
| | | 2006 | 2007 | 2008 |
| Ozone | Maximum 1-hr concentration (ppm) | 0.18 | 0.158 | 0.160 |
| | Exceed 0.09 ppm (State 1-hr standard)? | Yes | Yes | Yes |
| | Maximum 8-hr concentration (ppm) | 0.128 | 0.116 | 0.131 |
| | Exceed 0.07 ppm (State 8-hr standard)? | Yes | Yes | Yes |
| Carbon monoxide | Maximum 1-hr concentration (ppm) | 8 | 8 | 6 |
| | Days > 20 ppm (State 1-hour standard) | 0 | 0 | 0 |
| | Maximum 8-hr concentration (ppm) | 6.4 | 5.1 | 4.3 |
| | Days > 9.0 ppm (State 8-hr standard) | 0 | 0 | 0 |
| Nitrogen dioxide | Maximum 1-hr Concentration (ppm) | 0.14 | 0.12 | 0.13 |
| | Days > 0.18 ppm (State 1-hr standard) | 0 | 0 | 0 |
| $PM_{10}$ | Maximum 24-hr concentration ($\mu g/m^3$) | 117 | 131+ | 98 |
| | Exceed 50 $\mu g/m^3$ (State 24-hr standard)? | Yes | Yes | Yes |
| $PM_{2.5}$ | Maximum Annual Average ($\mu g/m^3$) | 16.7 | 16.8 | 15.7 |
| | Exceed State standard (12 $\mu g/m^3$ annual arithmetic mean)? | Yes | Yes | Yes |
| Sulfur dioxide | Maximum 24-hr concentration (ppm) | 0.010 | 0.011 | 0.012 |
| | Days > 0.25 ppm (State 24-hr standard) | 0 | 0 | 0 |

**SOURCE:** South Coast Air Quality Management District. Accessed on: 20 January 2010. *Historical Data by Year*. Available at: http://www.aqmd.gov/smog/historicaldata.htm

Air quality data in the AVAQMD portion of the County is monitored at the Lancaster–Division Street Monitoring Station, located at 43301 Division Street, Lancaster, California 93535. This station measures particulate matter ($PM_{10}$), $O_3$, CO, and $NO_2$. A summary of the air quality data from 2007 to 2009 at the Lancaster–Division Street monitoring station indicates exceedances for the applicable State standards or federal standards for $O_3$ and suspended particulate matter ($PM_{10}$) (Table 3.1.2-2, *Summary of 2007–2009 Ambient Air Quality Data in the AVAQMD Portion of the County).*

**TABLE 3.1.2-2**
**SUMMARY OF 2007–2009 AMBIENT AIR QUALITY DATA**
**IN THE AVAQMD PORTION OF THE COUNTY**

| Pollutants | Pollutant Concentration & Standards | Number of Days Above State Standard | | |
|---|---|---|---|---|
| | | 2007 | 2008 | 2009 |
| Ozone | Maximum 1-hr concentration (ppm) | 0.118 | 0.116 | 0.122 |
| | Days > 0.09 ppm (State 1-hr standard) | 16 | 18 | 22 |
| | Maximum 8-hr concentration (ppm) | 0.101 | 0.103 | 0.102 |
| | Days > 0.07 ppm (State 8-hr standard) | >1* | 59 | 70 |
| Carbon monoxide | Maximum 1-hr concentration (ppm) | 2.5 | 2.2 | 1.8 |
| | Days > 20 ppm (State 1-hour standard) | 0 | 0 | 0 |
| | Maximum 8-hr concentration (ppm) | 1.2 | 1.0 | 1.1 |
| | Days > 9.0 ppm (State 8-hr standard) | 0 | 0 | 0 |
| $PM_{10}$ | Maximum 24-hr concentration ($\mu g/m^3$) | 86 | 153 | 199 |
| | Days > 50 $\mu g/m^3$ (State 24-hr standard) | 8 | 16 | 5 |
| Nitrogen dioxide | Maximum 1-hr concentration (ppm) | 0.064 | 0.062 | 0.065 |
| | Days > 0.18 ppm (State 1-hr standard | 0 | 0 | 0 |

**NOTE:** * AVAQMD did not report the number of days that exceeded the State 8-hr standard in 2007.
**SOURCE:** Antelope Valley Air Quality Management District. Accessed on: 20 January 2010. Web site. "Annual Air Monitoring Reports." Lancaster, CA. Available at: http://www.avaqmd.ca.gov/index.aspx?page=98

### *Sensitive Receptors*

Some persons, such as those with respiratory illnesses or impaired lung function due to other illnesses, the elderly over 65 years of age, and children under 14 years of age, can be particularly sensitive to emissions of criteria pollutants. Facilities and structures where these sensitive people live or spend considerable amounts of time are known as sensitive receptors. Land uses identified to be sensitive receptors by SCAQMD in the *CEQA Air Quality Handbook* include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. There are many sensitive receptors located throughout the unincorporated territory of the County and the incorporated cities.

## 3.1.3 Significance Thresholds

The potential air quality impacts from the proposed ordinances may occur on a local and regional scale. The potential for the proposed ordinances to result in impacts related to air quality was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines, namely, would the proposed ordinances have the potential for one or more of five potential effects:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- 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 release in emissions which exceed quantitative thresholds for $O_3$ precursor)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

The County relies on significance thresholds recommended by the SCAQMD in the *CEQA Air Quality Handbook*, as revised in November 1993 and approved by the SCAQMD Board of Directors, to determine whether projects will have significant impacts to air quality.[21] The SCAQMD's emission thresholds apply to all federally regulated air pollutants except lead, which is not exceeded in the SCAB. The AVAQMD also provides guidelines and significance thresholds for performing air quality analyses in CEQA documents and states that the methodologies as presented in the latest SCAQMD *CEQA Air Quality Handbook* are acceptable for projects under the jurisdiction of the AVAQMD.[22] The SCAQMD is currently in the process of preparing a new air quality handbook, *AQMD Air Quality Analysis Guidance Handbook*. Chapters 2, 3, and 4 related to air quality background information and the roles of regulatory agencies are available online at the SCAQMD Web site. Other chapters will be posted on the site as they become available. The chapters completed to date make no change in significance thresholds or analysis methodology.

***Significance Criteria***

The proposed ordinances do not involve any construction activities; therefore, the air quality impacts of the proposed ordinances are not analyzed in comparison to construction emission thresholds of significance provided by SCAQMD or AVAQMD. However, four significance criteria are relevant to the consideration of the proposed ordinances:

- Daily SCAQMD and AVAQMD operational emissions thresholds for CO, VOCs, $NO_x$, $SO_x$, $PM_{2.5}$, and $PM_{10}$ (Table 3.1.3-1, *Daily Operational Emission Thresholds of Significance*)
- The CAAQS for the 1- and 8-hour periods of CO concentrations of 20 ppm and 9.0 ppm, respectively; if CO concentrations currently exceed the CAAQS, then an incremental increase of 1.0 ppm over no-project conditions for the 1-hour period would be considered a significant impact; an incremental increase of 0.45 ppm over the no-project conditions for the 8-hour period would be considered significant
- Emissions of toxic air contaminants
- Odor nuisance pursuant to SCAQMD's Rule 402

[21] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[22] Antelope Valley Air Quality Management District. May 2005. *Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=916

**TABLE 3.1.3-1**
**DAILY OPERATIONAL EMISSION THRESHOLDS OF SIGNIFICANCE**

| Criteria Air Pollutant | SCAQMD Project Operation Threshold (lbs/day) | AVAQMD Project Operation Threshold (lbs/day) |
|---|---|---|
| Carbon monoxide (CO) | 550 | 548 |
| Volatile organic compounds (VOCs) | 55 | 137 |
| Nitrogen oxides ($NO_x$) | 55 | 137 |
| Sulfur oxides ($SO_x$) | 150 | 137 |
| Fine particulate matter ($PM_{2.5}$) | 55 | N/A |
| Particulate matter ($PM_{10}$) | 150 | 82 |

**SOURCES:**
1. South Coast Air Quality Management District, 1993.
2. Antelope Valley Air Quality Management District, 2005.

### 3.1.4 Impact Analysis

This section analyzes the potential for significant impacts to air quality that would occur from implementation of the proposed ordinances. Air quality impacts of a project generally fall into four major categories:

(1) *Construction Impacts*: temporary impacts, including airborne dust from grading, demolition, and dirt hauling and gaseous emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings.
Construction emissions vary substantially from day to day, depending on the level of construction activity (which varies by construction phase) and weather conditions.

(2) *Operational Regional Impacts*: primarily gaseous emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

(3) *Operational Local Impacts*: increases in pollutant concentrations, primarily CO, resulting from traffic increases in the immediate vicinity of a project, as well as any toxic and odor emissions generated on site.

(4) *Cumulative Impacts*: air quality changes resulting from the incremental impact of the project when added to other projects in the vicinity.

The consideration of construction impacts is not relevant to the proposed ordinances because plastic carryout bags, paper carryout bags, and reusable bags are all currently manufactured and generally available in the marketplace.

#### *Assessment Methods and Models*

Based on a survey of bag usage in the County conducted by Sapphos Environmental, Inc., reusable bags made up 18 percent of the total number of bags used in stores that did not make plastic carryout bags readily available to customers. However, reusable bags made up only 2 percent of the total number of bags used in stores that did make plastic carryout bags readily available (Appendix A). Therefore, it is reasonable to estimate that a ban on the issuance of plastic carryout bags would increase the number of reusable bags used by customers by at least 15 percent. Accordingly, one can assume that in a conservative worst-case scenario, the proposed ordinances would potentially prompt an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags. For the purposes of this EIR, the analysis will assume both an 85-percent conversion and a 100-percent conversion from use of plastic carryout bags to use of paper carryout bags in order to quantify the potential worst-case air quality impacts.

*Life Cycle Assessments*

During the scoping period for the Initial Study for the EIR for the proposed ordinances, concerns were raised that the proposed ordinances might be expected to have an indirect impact upon air quality due to a potential increase in the production, manufacture, distribution, and disposal of paper carryout bags. One way to analyze these indirect impacts is to review available life cycle assessments (LCAs) that quantify the air pollutant emissions of various types of bags. An LCA assesses environmental impacts by analyzing the entire life cycle of a product, process, or activity, including extraction and processing of raw materials, manufacturing, transportation and distribution, use/reuse/maintenance, recycling, and final disposal.[23] An LCA considers each individual process within specific geographical boundaries, identifies relevant inputs (such as energy, water, and raw materials), and calculates outputs (such as air emissions) that are associated with each process. Although this method enables very specific and detailed analyses, its extensive data requirements make it highly complicated. The comparison of two LCAs of the same product can be challenging due to differences in system boundaries, differences in the definition of a particular product, different functional units and input parameters, and the application of different methodologies. When comparing LCAs for different types of bags produced and disposed in different countries, material selection, manufacturing technologies, energy mixes, and end-of-life fates can be widely different and are not always comparable.[24]

*URBEMIS Model*

The methodology used in this EIR to analyze operational air quality impacts is consistent with the methods described in the 1993 *CEQA Air Quality Handbook*.[25] The CARB URBEMIS 2007, version 9.2.4, was used to estimate operational emissions from truck delivery trips to and from the stores that would be affected by the proposed ordinances. URBEMIS is a computer program used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; area sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 model directly calculates VOCs, $NO_x$, CO, $SO_2$, $PM_{10}$, $PM_{2.5}$, and $CO_2$ emissions. SCAQMD and AVAQMD regional significance thresholds were used to compare the proposed ordinances' regional operational emission impacts to determine significance. The concentrations and emissions of lead (Pb) were not analyzed for the proposed ordinances because the proposed ordinances do not contain an industrial component that is considered a Pb emission source, and the manufacture of plastic carryout bags is not a process that involves Pb.[26]

*EMFAC 2007 Model*

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed ordinances' air pollutant emissions caused by delivery trucks trips, based on the expected vehicle fleet mix, vehicle speeds, commute distances, and temperature conditions for the estimated effective date of the proposed ordinances. The EMFAC 2007, version 2.3, which is imbedded within the URBEMIS

[23] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[24] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[25] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[26] U.S. Environmental Protection Agency. November 1983. *Control of Volatile Organic Compound Emissions from Manufacture of High-Density Polyethylene, Polypropylene, and Polystyrene Resins*.

2007 model, includes emission factors for criteria pollutants. In this analysis, vehicle speeds, commute distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 models. The vehicle fleet mix was defined as a mixture of light to heavy trucks (less than 3,750 pounds and up to 60,000 pounds). The percentage of each type of truck was based on the ratios defined by EMFAC 2007 for the County (Table 3.1.4-1, *Vehicle Fleet Mix*).

**TABLE 3.1.4-1**
**VEHICLE FLEET MIX**

| Fleet Percentage | Vehicle Type | Non-catalyst Percentage | Catalyst Percentage | Diesel Percentage |
|---|---|---|---|---|
| 0 | Light auto | N/A | N/A | N/A |
| 15.8 | Light truck less than 3,750 lbs | 2.3 | 91.6 | 6.1 |
| 53.1 | Light truck 3,751–5,750 lbs | 1 | 98.5 | 0.5 |
| 23.2 | Medium truck 5,751–8,500 lbs | 0.9 | 99.1 | 0 |
| 3.5 | Light-heavy truck 8,501–10,000 lbs | 0 | 71.4 | 28.6 |
| 1.1 | Light-heavy truck 8,501–10,000 lbs | 0 | 42.9 | 57.1 |
| 2.1 | Medium-heavy truck 14,001–33,000 lbs | 0 | 10 | 90 |
| 1.2 | Heavy-heavy truck 33,001–60,000 lbs | 0 | 1.9 | 98.1 |
| 0 | Other bus | N/A | N/A | N/A |
| 0 | Urban bus | N/A | N/A | N/A |
| 0 | Motorcycle | N/A | N/A | N/A |
| 0 | School bus | N/A | N/A | N/A |
| 0 | Motor home | N/A | N/A | N/A |

**NOTE:** lbs = pounds

***Construction Impacts***

The proposed ordinances do not involve any construction activities; therefore, there would be no regional or localized construction impacts. The consideration of construction impacts is not relevant to the proposed ordinances because plastic carryout bags, paper carryout bags, and reusable bags are all currently manufactured and generally available in the marketplace.

***Operational Impacts***

The proposed ordinances would not be anticipated to cause significant impacts to air quality, once implemented. Long-term air emissions within the unincorporated territories of the County could result from both stationary sources (i.e., area sources from natural gas combustion, consumer products, architectural coatings, and landscape fuel) and mobile sources. The proposed ordinances do not include any elements that would directly increase emissions from stationary sources, and the proposed ordinances would not directly cause an increase in vehicle trips in the County. Therefore, direct daily emissions of all six criteria pollutants ($O_3$, $NO_x$, $SO_2$, CO, $PM_{10}$, and $PM_{2.5}$) due to area and mobile sources would be expected to be below the level of significance. However, during the scoping period for the Initial Study for this EIR, concerns were raised that the proposed ordinances may have the potential to cause indirect impacts upon air quality. These potential indirect impacts are evaluated in more detail below.

*Indirect Emissions Based on Life Cycle Assessments*

Comparisons of LCAs for plastic versus paper provide varying results on the environmental impacts, although several studies show that production of plastic carryout bags generally produces less air pollutant emissions than does the production of paper carryout bags.[27, 28,29,30] For example, in the Franklin Study performed in 1990, plastic carryout bags were found to contribute 63 percent to 73 percent less air emissions than paper carryout bags contribute.[31] This contrasts with a more recent study in 2000, the CIT Ekologik Study, which found that the production of paper carryout bags contributes significantly less air emissions than does the production of plastic carryout bags.[32]

However, the majority of LCAs and other studies that compare plastic, paper, and reusable bags concur that a switch to reusable bags would result in the most beneficial impacts to air quality.[33,34,35,36] Although the production, manufacture, distribution, and eventual disposal of reusable bags does cause air pollutant emissions, as is the case with any manufactured product, these emissions are significantly reduced when calculated on a per-use basis. Banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, so the air quality impacts are anticipated to be reduced. Also, the County is considering expanding the scope of the proposed County ordinance to include a performance standard for reusable bags, which could further reduce air quality impacts.

Ecobilan Study

Ecobilan, a department of PricewaterhouseCoopers that provides analysis of the environmental performance of products and services,[37] prepared a comprehensive LCA in 2004 that shows the impacts of paper carryout bags, reusable low-density polyethylene plastic bags, and plastic carryout bags made of high-density polyethylene upon the emission of various air pollutants.[38] The Ecobilan Study presents emissions of $NO_x$, $SO_x$, CO, VOCs, and particulates in terms of grams per 9,000 liters of groceries packed, which is assumed to be a typical volume of groceries purchased annually in

[27] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

[29] Fenton, R. 1991. *The Winnipeg Packaging Project: Comparison of Grocery Bags*. Department of Economics, University of Winnipeg: Manitoba, Canada.

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

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

[32] CIT Ekologik, Chalmers Industriteknik. 2000. *Distribution in Paper Sacks*. Goteborg, Sweden.

[33] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[34] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, Australia.

[35] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[36] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

[37] Ecobilan. Company Web site. Accessed on: 8 March 2010. Available at: https://www.ecobilan.com/uk_who.php

[38] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

France per customer.[39] The results of the Ecobilan Study were used to analyze the potential emissions of criteria pollutants due to an 85-percent conversion and a 100-percent conversion of use of plastic carryout bags to use of paper carryout bags. The Ecobilan LCA was chosen above the other studies reviewed during preparation of this EIR because it is relatively recent; contains relatively sophisticated modeling and data processing techniques; considers a wide range of environmental indicators; considers paper, plastic, and reusable bags; was critically reviewed by the French Environment and Energy Management Agency; and contains detailed emission data for individual pollutants.

In order to make the Ecobilan data more applicable to bag usage in the County, the emissions were calculated in terms of pounds per liter of groceries packed, multiplied by the number of liters of groceries per bag, and then multiplied by an overly conservative estimate of the number of bags that are currently used per day in the unincorporated territories of the County and in the 88 incorporated cities. This method was used to estimate the current criteria pollutant emissions per day resulting from plastic carryout bags [Table 3.1.4-2, *Criteria Pollutant Emissions Due to Plastic Carryout Bag LCA Based on Ecobilan Data (Existing Conditions)*] and the criteria pollutant emissions that could be anticipated given an 85-percent and 100-percent conversion from plastic to paper carryout bags (Table 3.1.4-3*, Criteria Pollutant Emissions Due to Paper Carryout Bag LCA Based on Ecobilan Data*; Table 3.1.4-4*, Estimated Daily Emission Changes Due to 85-Percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data*; Table 3.1.4-5, *Estimated Daily Emission Changes Due to 100-Percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data*; and Appendix C*, Calculation Data*). The criteria pollutant emissions due to plastic carryout bags (Table 3.1.4-2) can be considered as the existing conditions.

These calculations were performed using the assumption that there are 67 stores in the unincorporated territory of the County[40] and 462 stores in the incorporated cities of the County that would be affected by the proposed ordinances (Appendix C).[41] It was assumed that each store currently uses approximately 10,000 plastic carryout bags per day.[42] It is important to note that this number is likely very high, as it is more than twice the bag average reported by the California Department of Resources Recycling and Recovery (CalRecycle) in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[43] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average per store in the County unincorporated and incorporated areas, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario.

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[39] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[40] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated areas would be affected by the proposed County ordinance.

[41] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or higher. Database accessed on: 29 April 2010.

[42] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[43] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, California Department of Public Works, Alhambra, CA.

## TABLE 3.1.4-2
## CRITERIA POLLUTANT EMISSIONS DUE TO PLASTIC CARRYOUT BAG LCA BASED ON ECOBILAN DATA (EXISTING CONDITIONS)

| Emissions Sources | Air Pollutant Emissions (Pounds/Day) | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | Particulates |
| Emissions attributed to the 67 stores in the unincorporated territory of the County (assuming 10,000 plastic carryout bags used per day per store) | 87 | 62 | 111 | 54 | 44 |
| Emissions attributed to the 462 stores in the incorporated cities of the County (assuming 10,000 plastic carryout bags used per day per store) | 601 | 429 | 764 | 371 | 304 |
| **Total emissions** | **688** | **492** | **874** | **425** | **348** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.

## TABLE 3.1.4-3
## CRITERIA POLLUTANT EMISSIONS DUE TO PAPER CARRYOUT BAG LCA BASED ON ECOBILAN DATA

| Emission Sources | Air Pollutant Emissions (Pounds/Day) | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emissions attributed to the 67 stores in the unincorporated territory of the County (assuming 6,836 paper carryout bags used per day per store)[2] | 65 | 167 | 21 | 60 | 11 |
| Emissions attributed to the 462 stores in the incorporated cities of the County (assuming 6,836 paper carryout bags used per day per store)[2] | 450 | 1,150 | 148 | 414 | 75 |
| **Total emissions** | **515** | **1,317** | **169** | **473** | **86** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic carryout bag use to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836].

A comparison of the plastic carryout bag–related emissions and paper carryout bag–related emissions indicates that conversion to paper carryout bags under the proposed ordinances would be expected to decrease emissions of VOCs, $SO_x$, CO, and PM, but would be expected to increase emissions of $NO_x$ (Table 3.1.4-4, *Estimated Daily Emission Changes Due to 85-percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data*). According to the Ecobilan data, the majority of emissions associated with plastic carryout bags and paper carryout bags come from material

production and bag manufacturing processes, rather than bag use, transportation, or disposal.[44] When considering VOCs, $SO_x$, CO, and PM, a conversion from plastic to paper carryout bags would reduce the daily air emissions, resulting in an overall improvement in air quality. However, the conversion from plastic to paper carryout bags would result in an increase in $NO_x$ emissions. Accordingly, this result is largely a tradeoff and is inconclusive because the conversion from plastic to paper carryout bags would be expected to result in both beneficial and adverse impacts to air quality, depending on which criteria pollutants are analyzed.

These results cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD for the SCAB or by AVAQMD for the MDAB because the operational thresholds are intended for specific projects located in the SCAB and MDAB, whereas LCA data cover all stages of production, distribution, and end-of-life procedures related to a particular product. The manufacture and production of paper carryout bags appears not to occur in the SCAB or the MDAB, with manufacturing facilities located in other air basins in the United States and in other countries that may have different emission thresholds and regulations.

It is also important to note that any indirect increase in air pollutant emissions from paper carryout bag manufacturing facilities that would be affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[45] or from countries outside of the United States, such as Canada,[46] it is not necessary to extrapolate LCA data to determine emission levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB.

[44] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[45] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

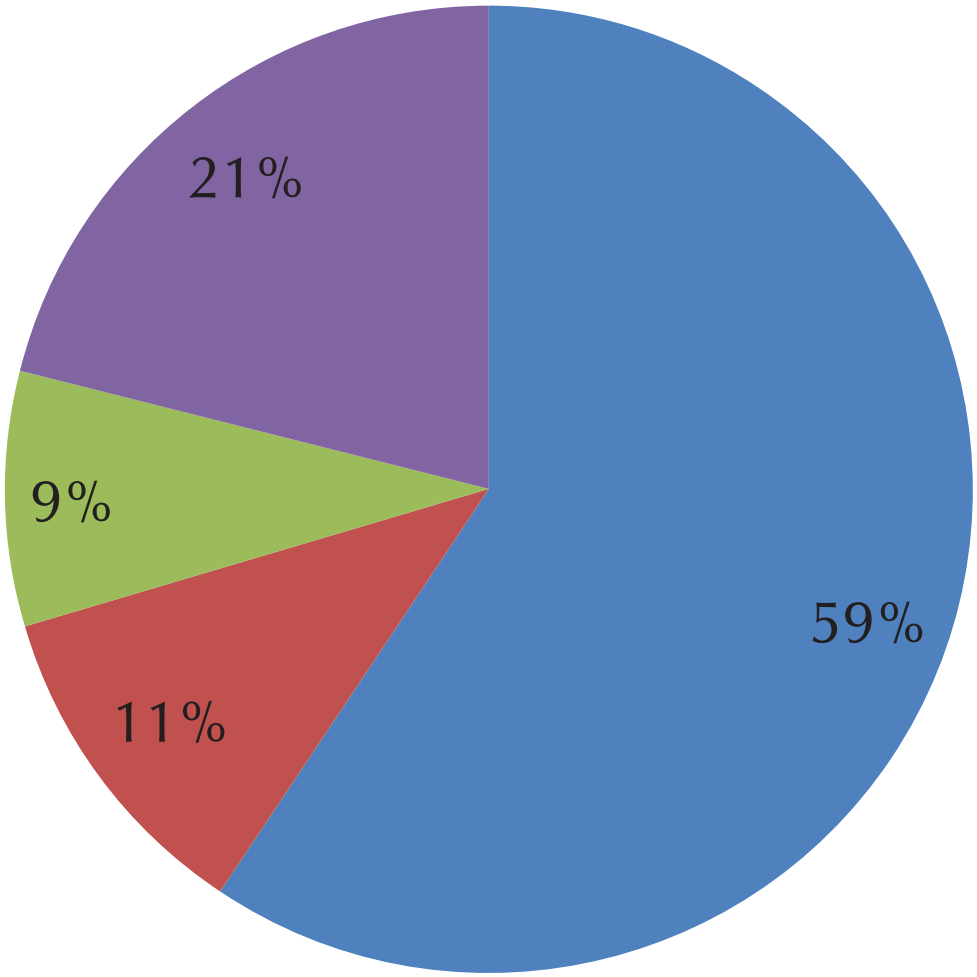
[46] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada

## TABLE 3.1.4-4
## ESTIMATED DAILY EMISSION CHANGES DUE TO 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA

| Emission Sources | Air Pollutants (Pounds/Day)[3] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes attributed to an 85-percent conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County[2] | -32 | 80 | -93 | -3 | -35 |
| Emission changes attributed to an 85-percent conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County[2] | -219 | 548 | -638 | -19 | -241 |
| **Total Emissions** | **-251** | **628** | **-731** | **-22** | **-276** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so an 85-percent conversion from plastic to paper carryout bag use would result in each store using approximately 5,811paper carryout bags per day [0.85 * 10,000 x (14/20.48) = 5,811].
3. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data in Table 3.1.4-2 from the data in Table 3.1.4-3.

Similar conclusions would be true if one were to apply the Ecobilan data in the unlikely worst-case scenario of 100-percent conversion from plastic to paper carryout bags (Table 3.1.4-5, *Estimated Daily Emission Changes Due to 100-percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data*). As before, when considering VOCs, $SO_x$, CO, $NO_x$, and PM, a conversion from plastic to paper carryout bags would reduce the total weight of daily air emissions, resulting in an overall improvement in air quality. However, the conversion from plastic to paper carryout bags would result in increased $NO_x$ emissions. As before, this result is largely a tradeoff and is inconclusive because the conversion from plastic to paper carryout bags would be expected to result in both beneficial and adverse impacts to air quality, depending on which criteria pollutants are analyzed. The emissions of $NO_x$ mainly occur during the processes of paper production and bag manufacturing (Figure 3.1.4-1, *Percentage of $NO_x$ Emissions Attributed to Each Process within the Ecobilan LCA*).




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

**FIGURE 3.1.4-1**
Percentage of NOx Emissions Attributed to Each Process within the Ecobilan LCA

## TABLE 3.1.4-5
## ESTIMATED DAILY EMISSION CHANGES DUE TO 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA

| Emission Sources | Air Pollutants (Pounds/Day)[3] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes caused by a 100-percent conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County[2] | -22 | 105 | -89 | 6 | -33 |
| Emission changes caused by an 100-percent conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County[2] | -151 | 721 | -616 | 43 | -229 |
| **Total Emissions** | **-173** | **825** | **-705** | **49** | **-263** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836].
3. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data in Table 3.1.4-2 from the data in Table 3.1.4-3.

The Ecobilan Study also presented an LCA analysis of a reusable polyethylene bag that is approximately 2.8 mils thick, weighs 44 grams, and holds 37 liters of groceries. The conclusion from the analysis was that this particular reusable polyethylene bag has a smaller impact on air pollutant emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of four times (Table 3.1.4-6, *Estimated Daily Emissions Due to Reusable Bags Used Four Times Based on Data Ecobilan*, as compared to Table 3.1.4-2).[47] The impacts of the reusable polyethylene bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how air quality impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the air quality impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon air quality. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce air quality impacts.

[47] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

## TABLE 3.1.4-6
## ESTIMATED DAILY EMISSIONS DUE TO REUSABLE BAGS USED FOUR TIMES BASED ON ECOBILAN DATA

| Emission Sources | Air Pollutants (Pounds/Day) | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emissions assuming 10,000 reusable bags used per day in the 67 stores in the unincorporated territory of the County[2] | 27 | 44 | 16 | 40 | 31 |
| Emissions assuming 10,000 reusable bags used per day in the 462 stores in the incorporated cities of the County[2] | 189 | 303 | 111 | 277 | 212 |
| **Total Emissions** | **216** | **347** | **127** | **317** | **242** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. Based on each reusable bag being used 4 times. Emissions are reduced further when the bags are used additional times.

Boustead Study

Boustead Consulting & Associates (Boustead) prepared an LCA on behalf of the Progressive Bag Affiliates in 2007. The Progressive Bag Alliance was founded in 2005 and is a group of American plastic carryout bag manufacturers who advocate recycling plastic shopping bags as an alternative to banning the bags.[48] In 2007, they became the Progressive Bag Affiliates of the American Chemistry Counsel.

This LCA analyzes three types of grocery bags: (1) a traditional plastic carryout bag, (2) a compostable plastic carryout bag (a blend of 65 percent EcoFlex, 10 percent polylactic acid, and 25 percent calcium carbonate), and (3) a paper carryout bag made using at least 30 percent recycled fibers.[49] The Boustead Study presents air emissions in terms of milligrams per thousand bags. In order to make the data more applicable to the County, emissions were converted to pounds per day, based on the number of stores that would be affected by the proposed ordinances and the average number of bags used per day per store [Table 3.1.4-7, *Plastic Carryout Bag LCA Criteria Pollutant Emissions Based on Boustead Data (Existing Conditions)*, and Table 3.1.4-8, *Paper Carryout Bag LCA Criteria Pollutant Emissions Based on Boustead Data*].

[48] Progressive Bag Affiliates. Web site accessed 21 May 2010. Available at: http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=6983

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

## TABLE 3.1.4-7
## PLASTIC CARRYOUT BAG LCA CRITERIA POLLUTANT EMISSIONS BASED ON BOUSTEAD DATA (EXISTING CONDITIONS)

| Emissions Sources | Air Pollutant Emissions (Pounds/Day) | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | Particulates |
| Emissions due to the 67 stores in the unincorporated territory of the County (assuming 10,000 plastic carryout bags used per day per store) | 1 | 67 | 100 | 75 | 21 |
| Emissions due to the 462 stores in the incorporated cities of the County (assuming 10,000 plastic carryout bags used per day per store) | 10 | 462 | 686 | 514 | 146 |
| **Total Emissions** | **12** | **529** | **786** | **589** | **167** |

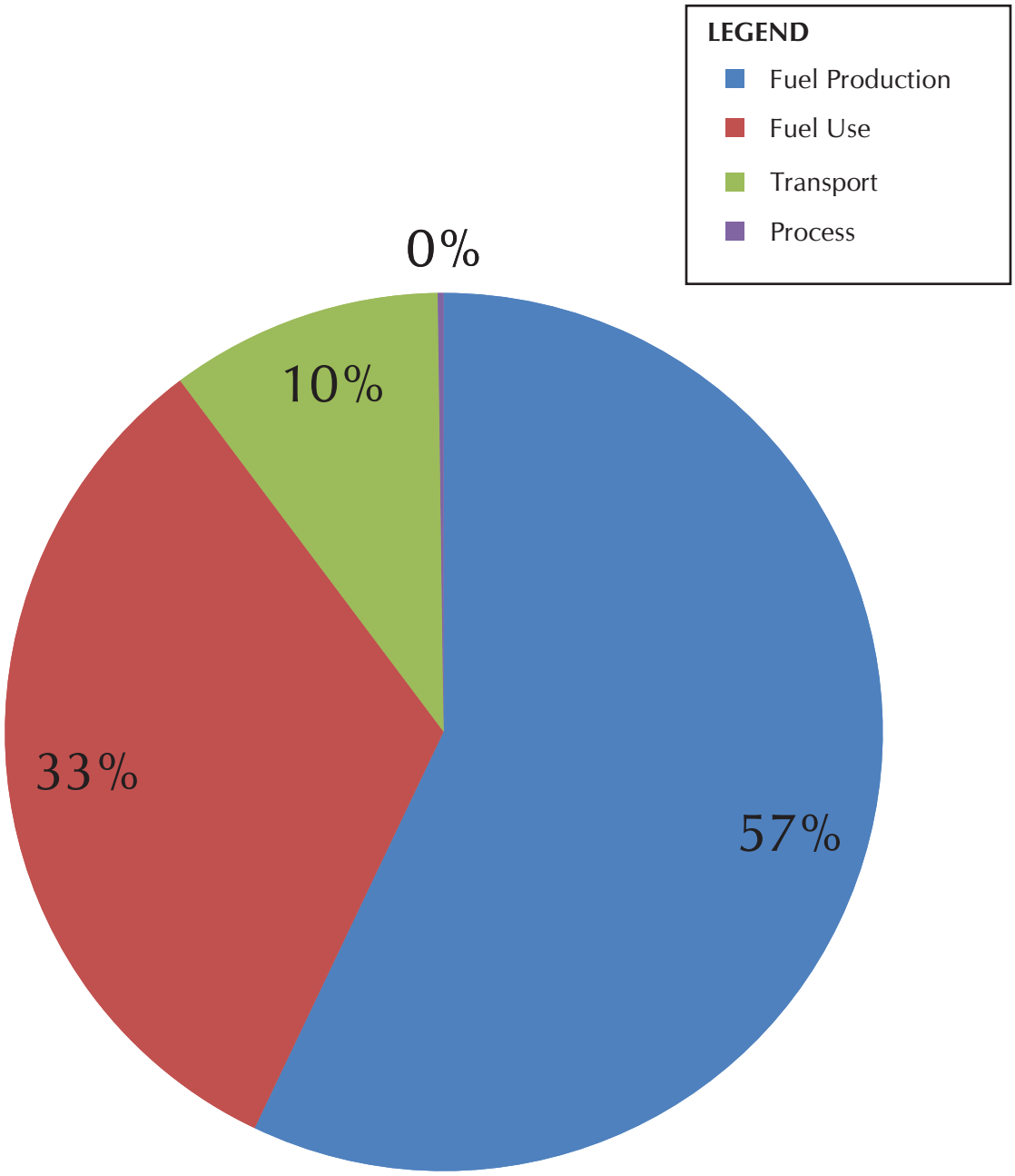
**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTE:**
1. Total VOCs are reported as non-methane VOC.

## TABLE 3.1.4-8
## PAPER CARRYOUT BAG LCA CRITERIA POLLUTANT EMISSIONS BASED ON BOUSTEAD DATA

| Emissions Sources | Air Pollutant Emissions (Pounds/Day) | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | Particulates |
| Emissions due to the 67 stores in the unincorporated territory of the County (assuming 8,203 paper carryout bags used per day per store)[2] | 0 | 267 | 122 | 585 | 129 |
| Emissions due to the 462 stores in the incorporated cities of the County (assuming 8,203 paper carryout bags used per day per store)[2] | 0 | 1,838 | 842 | 4,031 | 891 |
| **Total Emissions** | **0** | **2,105** | **965** | **4,616** | **1,020** |

**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. Total VOCs are reported as non-methane VOC.
2. The calculations presented here assume an approximately 1:1.5 ratio of plastic carryout bag use to paper carryout bag use.

A comparison of the plastic carryout bag–related emissions and paper carryout bag–related emissions indicates that conversion to paper carryout bags under the proposed ordinances would be expected to decrease emissions of VOCs, but would be expected to increase emissions of SOx, $NO_x$, PM, and CO to a lesser extent (Table 3.1.4-9, *Estimated Daily Emission Changes Due to 85-percent Conversion from Plastic to Paper Carryout Bags Based on Boustead Data,* and Table 3.1.4-10, *Estimated Daily Emission Changes Due to 100-percent Conversion from Plastic to Paper Carryout Bags Based on Boustead Data*). According to the Boustead data, the majority of emissions associated with plastic carryout bags and paper carryout bags come from fuel production, rather than bag usage or transportation (Figure 3.1.4-2, *Percentage of $NO_x$ Emissions Attributed to Each Process within the*




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

**FIGURE 3.1.4-2**
Percentage of NOx Emissions Attributed to Each Process within the Boustead LCA

*Boustead LCA*).[50] Fuel production is defined as processing operations, apart from transport, that result in the delivery of fuel or energy to a final consumer. The Boustead Study did not include details of individual criteria pollutant emissions due to disposal of paper and plastic carryout bags. When considering the total mass of $SO_x$, CO, $NO_x$, and PM, a conversion from plastic to paper carryout bags would increase the total weight of daily air emissions, resulting in an overall reduction in air quality.

These results are considerably different than those obtained from the Ecobilan data. The LCA results cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD for the SCAB because the operational thresholds are intended for specific projects located in the SCAB, whereas LCA data cover all stages of production, distribution, and end-of-life procedures related to a particular product. The manufacture and production of paper carryout bags appears not to occur in the SCAB or MDAB, with manufacturing facilities located in other air basins in the United States and in other countries, which may have different emission thresholds and regulations.

As noted before, any indirect increase in air pollutant emissions from paper carryout bag manufacturing facilities that would be affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas or the SCAB and MDAB—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[51] or from countries outside of the United States, such as Canada,[52] it is not necessary to extrapolate LCA data to determine emission levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB.

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

[51] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[52] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada

## TABLE 3.1.4-9
## ESTIMATED DAILY EMISSION CHANGES DUE TO 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA

| Emission Sources | Air Pollutants (Pounds/Day)[3] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes corresponding to a 100-percent conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County[2] | -1 | 160 | 4 | 422 | 89 |
| Emission changes corresponding to a 100-percent conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County[2] | -10 | 1,100 | 30 | 2,912 | 612 |
| **Total Emissions** | **-12** | **1,260** | **34** | **3,335** | **701** |

**SOURCE:**
Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. Total VOCs are reported as non-methane VOC.
2. The calculations presented here assume an approximately 1:1.5 ratio of plastic carryout bag use to paper carryout bag use.
3. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data in Table 3.1.4-7 from the data in Table 3.1.4-8.

## TABLE 3.1.4-10
## ESTIMATED DAILY EMISSION CHANGES DUE TO 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA

| Emission Sources | Air Pollutants (Pounds/Day)[3] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes corresponding to an 85-percent conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County[2] | -1 | 200 | 23 | 510 | 108 |
| Emission changes corresponding to an 85-percent conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County[2] | -10 | 1,376 | 156 | 3,517 | 746 |
| **Total Emissions** | **-12** | **1,575** | **179** | **4,027** | **854** |

**SOURCE:**
Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. Total VOCs are reported as non-methane VOC.
2. The calculations presented here assume an approximately 1:1.5 ratio of plastic carryout bag use to paper carryout bag use.
3. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data in Table 3.1.4-7 from the data in Table 3.1.4-8.

Franklin Study

Franklin Associates Ltd., an LCA consulting company, prepared an LCA in 1990 to compare the environmental impacts of paper carryout bags and those of plastic carryout bags.[53] As with the Boustead Study, the Franklin Study concludes that paper carryout bags emit more CO, $NO_x$, $SO_x$, and PM than do plastic carryout bags, but less VOCs. The Franklin Study does not present atmospheric emissions of each type of criteria pollutant individually, but instead only states the total air pollutant emissions. The Franklin Study also does not provide details about which processes during the life cycle are responsible for the majority of the air pollutant emissions. It is also important to note that the Franklin Study was prepared in 1990, so assumptions about technology use, environmental conditions, raw materials, and energy use will likely have changed since the study was prepared. Therefore, a quantitative analysis of the Franklin Study would have limited relevance to the proposed ordinances.

Conclusions from LCAs

Application of the LCA data in the manner presented above must be interpreted carefully. The different LCAs analyzed present very different results about criteria pollutant emissions from paper and plastic carryout bags, due to the different parameters, models, and assumptions used. The three LCAs reviewed here agree that a 100-percent conversion from plastic carryout bags to paper carryout bags would result in an increase in $NO_x$ emissions and a decrease in VOC emissions. However, the quantitative number for the emissions varies widely. For example, the 100-percent conversion from plastic to paper carryout bags would result in an increase in $NO_x$ emissions of between 825 to 1,575 pounds per day for the entire County, depending on which LCA is used. The data from the Ecobilan Study indicates that a conversion from plastic to paper carryout bag use would decrease emissions of $SO_x$, CO, and PM. However, the data from the Boustead Study shows that a conversion from plastic to paper carryout bag use would increase emissions of these criteria pollutants. These seemingly conflicting results emphasize the particularity of each study and the importance of understanding study boundaries, inputs, and methodologies.[54] These conflicting results also illustrate the speculative nature of the results when using LCA data from the various studies.

The Boustead and Ecobilan LCAs agree that the majority of criteria pollutant emissions originate from processes that occur early on in the life cycle of paper and plastic carryout bags, such as raw material extraction and product manufacturing (Figure 3.1.4-1 and Figure 3.1.4-2). Any indirect increase in air pollutant emissions from paper carryout bag manufacturing facilities that would be affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas or the SCAB and MDAB—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[55] or from countries outside of the United States, such as Canada,[56] it is not necessary to extrapolate LCA data to determine emission

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

[54] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[55] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[56] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada.

levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB. The results from the analysis for the LCAs presented in this EIR demonstrate the largely speculative nature of the analysis due to the large number of assumptions used in the studies and the challenges inherent in applying the results of these studies to Los Angeles County. Section 15145 of the State CEQA Guidelines states that "if, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact."[57] Aside from being speculative, it is also not necessary to extrapolate LCA data to determine emission levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB, when it appears that paper carryout bag manufacturing does not occur in the County unincorporated and incorporated areas or the SCAB and MDAB.

Coordination with SCAQMD further indicates that evaluating indirect impacts of the proposed ordinances due to increases in the production of paper carryout bags would be beyond the level of analysis usually required for CEQA documents because emissions from paper carryout bag manufacturing would not necessarily occur in the SCAB, and any quantifiable analysis would be speculative.[58] AVAQMD similarly suggested that using the results from LCAs would be "very difficult" and "nebulous" due to the large number of assumptions and details contained within the calculations.[59]

Criteria Pollutant Emissions Resulting from Disposal of Paper Carryout Bags in Landfills

Ecobilan data indicates that approximately 21 percent of the $NO_x$ emissions generated during the life cycle of paper carryout bags can be attributed to end of life (Figure 3.1.4-1). The end-of-life data includes emissions due to transport of waste from households to landfills. However, the LCA data assumes a typical disposal scenario for French households, which assumes that a large percentage of solid waste is incinerated, an assumption that is not accurate for the County. If an alternative scenario is used where all bags go to landfills at the end of life and are not incinerated, $NO_x$ emissions are significantly reduced. Using the Ecobilan data for the end of life for plastic and paper carryout bags for a scenario in which all bags go to landfills at the end of life and are not incinerated, and adjusting for USEPA 2007 recycling rates, the increase in $NO_x$ emissions from transport of paper carryout bags to landfills due to an 85-percent conversion from the use of plastic carryout bags to use of paper carryout bags throughout the entire County would be approximately 40 pounds per day (Table 3.1.4-11, *Estimated $NO_x$ Emission Increases Due to End of Life Based on Data From Ecobilan*). A 100-percent conversion from plastic to paper carryout bags throughout the entire County would be expected to generate approximately 50 pounds of $NO_x$ emissions per day throughout the County. Even though these results generated from the LCA data may not be applicable to the operational thresholds of significance, which are intended for discrete projects, these results would still be below the level of significance if compared to the operational thresholds of significance set by SCAQMD for the SCAB and AVAQMD for the MDAB.

[57] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[58] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[59] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

## TABLE 3.1.4-11
## ESTIMATED NOx EMISSION INCREASES DUE TO END OF LIFE
## BASED ON ECOBILAN DATA

| Emission Sources | Air Pollutant NOx (Pounds/Day) | |
|---|---|---|
| | 85-percent Conversion from Plastic Bags to Paper Bags[1,2] | 100-percent Conversion from Plastic Bags to Paper Bags[1,2] |
| Conversion from plastic bags to paper bags in the 67 stores in the unincorporated territory of the County | 5 | 6 |
| Conversion from plastic bags to paper bags in the 462 stores in the incorporated cities of the County | 35 | 44 |
| **Total Emissions** | **40** | **50** |

**SOURCES:**

1. Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

**NOTES:**

1. Assuming 36.8 percent of paper bags are diverted from landfills, based on the 2007 USEPA recycling rate for paper bags and sacks.
2. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic bags per day, so a 100-percent conversion from plastic bag to paper bag use would result in each store using 6,836 paper bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic bag to paper bag use would result in each store using 5,811 paper bags per day.

It is important to note that the impacts to air quality due to end of life may be even lower, given that calculations done with the Ecobilan Study are based on an unlikely worst-case scenario that does not take into account the potential for an increased number of customers using reusable bags as a result of the proposed ordinances. In addition, the assumption that every store above 10,000 square feet currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to approximately 5,000 plastic carryout bags per day.[60]

Emissions Resulting from Increased Delivery Trips

During the scoping period for the Initial Study for this EIR, concerns were raised that the proposed ordinances might be expected to indirectly impact air quality due to a potential increase in the distribution of paper carryout bags. Unlike emissions generated from manufacturing facilities, emissions resulting from paper carryout bag deliveries to stores would all occur within the County, and therefore would be applicable to the SCAQMD and AVAQMD operational thresholds of significance. An URBEMIS 2007 simulation was performed to assess the air quality impacts of additional truck trips that would be required to deliver paper carryout bags.

To quantify the number of delivery trucks, a worst-case scenario was assumed where the proposed ordinances would result in an 85- to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags. The SCAQMD was consulted regarding this methodology and they agreed that the only air quality emissions affected by the proposed ordinances that could reasonably be

[60] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, California Department of Public Works, Alhambra, CA.

quantified and presented in this EIR would be emissions due to potential increases in delivery trips.[61] The AVAQMD also agreed that quantifying vehicle miles traveled would be the most effective way of quantifying the indirect air quality impacts due to the proposed ordinances.[62]

Based on data provided by a supermarket in the County, it was assumed that an average delivery truck would hold 24 pallets, with each pallet carrying 48 cases, and each case containing 2,000 plastic carryout bags.[63] Therefore, a typical delivery truck would be able to transport 2,304,000 plastic carryout bags.[64]

Number of plastic carryout bags per truck =
24 pallets x 48 cases x 2,000 plastic carryout bags per case =
2,304,000 plastic carryout bags per truck

For paper carryout bags, it was assumed each of the 24 pallets would contain 18 cases, and each case would contain 500 paper carryout bags. Therefore, a typical delivery truck would be able to transport 216,000 paper carryout bags.[65]

Number of paper carryout bags per truck =
24 pallets x 18 cases x 500 paper carryout bags per case =
216,000 paper carryout bags per truck

According to the above calculations, an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would require approximately 9 times the number of trucks currently required to deliver carryout bags to supermarkets,[66] and a 100-percent conversion from use of plastic carryout bags to use of paper carryout bags would require approximately 11 times the number of trucks.[67] However, several studies, including the Franklin, Ecobilan, and Boustead Studies, have stated that it can be reasonable to assume that paper carryout bags can hold approximately 1.5 times the amount of groceries than plastic carryout bags hold,[68,69,70] which is consistent with the one-time trial performed by Sapphos Environmental, Inc. (Appendix A). Based on that assumption, an 85- to 100-percent conversion from plastic to paper carryout bags would be expected to result in

[61] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[62] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[63] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[64] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[65] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[66] (0.85 x 2,304,000 plastic carryout bags per truck) / 216,000 paper carryout bags per truck = 9

[67] 2,304,000 plastic carryout bags per truck / 216,000 paper carryout bags per truck = 11

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

[69] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

approximately 6 to 7 times the number of trucks currently required to deliver carryout bags to supermarkets, respectively.[71,72]

Sapphos Environmental, Inc. also compared the volume of plastic and paper carryout bags available from Uline, a bag distribution company with a location in Los Angeles. According to Uline, 1,000 plastic carryout bags measuring 12 inches by 7 inches by 15 inches each (not including the handles) and with a thickness of 0.5 mil are packed into a flat box measuring 12 inches by 12 inches by 5 inches.[73] According to the same source, 500 paper grocery bags (without handles) measuring 12 inches by 17 inches by 7 inches are packaged in a box measuring 24 inches by 18 inches by 12 inches.[74] Therefore, the volume of 1,000 of these particular plastic carryout bags is equal to approximately 720 square inches, and the volume of 1,000 of these particular paper carryout bags is equal to approximately 10,368 square inches. According to this calculation, paper carryout bags occupy approximately 14.4 times more volume than do plastic carryout bags. Based solely on these volumes and the usable volume ratio for these particular bags, it can be assumed that an 85- to 100-percent conversion to paper carryout bags would require approximately 11 to 13 times the number of delivery truck trips that plastic carryout bags currently require.[75,76]

An increase in demand for reusable bags would also result in additional transport of reusable bags to stores. However, due to the fact that reusable bags are designed to be used multiple times, the number of reusable bags required would be expected to be far less than the number of carryout bags currently used. Therefore, it can be reasonably expected that a conversion from plastic carryout bags to reusable bags would result in a smaller number of delivery trips than the number of delivery trips required as a result of a conversion from plastic carryout bags to paper carryout bags. Therefore, when considering delivery truck trips, a 100-percent conversion from plastic carryout bags to paper carryout bags would be the worst-case scenario.

In order to model a conservative worst-case scenario, it was assumed that a 100-percent conversion from plastic to paper carryout bags would require 13 times the number of delivery trips currently required to transport carryout bags to stores, which is the largest increase in delivery trips calculated above. Assuming that in the unincorporated territories of the County there are 67 stores that would be affected by the proposed ordinances, each using 10,000 plastic carryout bags per day, a 100-percent conversion to paper carryout bags would be expected to result in fewer than 4 additional truck trips per day.[77] Assuming that in the 88 incorporated cities of the County there are 462 stores that would be affected by the proposed ordinances, with each store using 10,000 plastic carryout bags

[71] 0.85 x (2,304,000 plastic carryout bags per truck / 216,000 paper carryout bags per truck) x (1 paper carryout bag / 1.5 plastic carryout bags) = approximately 6 times the number of truck trips required

[72] (2,304,000 plastic carryout bags per truck / 216,000 paper carryout bags per truck) x (1 paper carryout bag / 1.5 plastic carryout bags) = approximately 7 times the number of truck trips required

[73] Amanda (last name not provided), Uline. 26 January 2010. Telephone correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

[74] Amanda (last name not provided), Uline. 26 January 2010. Telephone correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

[75] (0.85 x 10,368 square inches / 720 square inches) x (12-inch x 7-inch x 15-inch plastic carryout bag / 12-inch x 7-inch x 17-inch paper carryout bag) = approximately 11 times the number of truck trips required

[76] (10,368 square inches / 720 square inches) x (12-inch x 7-inch x 15-inch plastic carryout bag / 12-inch x 7-inch x 17-inch paper carryout bag) = approximately 13 times the number of truck trips required

[77] 67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck x 13 = approximately 4 daily truck trips

per day, a 100-percent conversion to paper carryout bags would be expected to result in approximately 26 additional truck trips required per day.[78]

URBEMIS 2007 was used to calculate the criteria pollutant emissions that would be anticipated to result in fewer than 4 additional truck trips per day to and from the 67 stores in the unincorporated territories of the County, and approximately 26 additional truck trips per day to and from the 462 stores in the 88 incorporated cities of the County (Table 3.1.4-12, *Estimated Daily Operational Emissions Due to Delivery Truck Trips)* (Appendix C). The unmitigated emissions from delivery truck trips would be expected to be well below the SCAQMD and AVAQMD thresholds of significance (Table 3.1.4-12). Therefore, the operational impacts of the proposed ordinances would be expected to be below the level of significance.

**TABLE 3.1.4-12**
**ESTIMATED DAILY OPERATIONAL EMISSIONS DUE TO DELIVERY TRUCK TRIPS**

| Emission Sources | Air Pollutants (Pounds/Day) | | | | | |
|---|---|---|---|---|---|---|
| | VOCs | $NO_x$ | CO | $SO_x$ | $PM_{2.5}$ | $PM_{10}$ |
| 4 delivery truck trips in the unincorporated territory of the County | 0.04 | 0.08 | 0.50 | 0.00 | 0.02 | 0.09 |
| 26 delivery truck trips in the incorporated cities of the County | 0.22 | 0.51 | 3.25 | 0.00 | 0.12 | 0.61 |
| **Total Emissions** | **<1** | **1** | **4** | **0** | **<1** | **1** |
| **SCAQMD Threshold** | **55** | **55** | **550** | **150** | **55** | **150** |
| **AVAQMD Threshold** | **137** | **137** | **548** | **137** | **-** | **82** |
| **Exceedance of Significance?** | **No** | **No** | **No** | **No** | **No** | **No** |

According to the analysis presented in this EIR, an unlikely worst-case scenario of a 100-percent conversion from use of plastic carryout bags to use of paper carryout bags in the unincorporated territory and the 88 incorporated cities of the County would be expected to result in emissions of criteria pollutants from mobile sources that would be below the SCAQMD operational thresholds of significance. In addition, it is important to note that one of the primary intentions of the proposed ordinances is not to cause consumers to change from using plastic carryout bags to using paper carryout bags, but to send an environmental awareness message to at least 50,000 residents to encourage the use of reusable bags. The increase in use of reusable bags will decrease the number of truck trips required to deliver both plastic carryout bags and paper carryout bags.

*Indirect Local Impacts*

CO is considered a localized problem under Section 9.4 of the *CEQA Air Quality Handbook*; thus, additional analysis is required when a project is likely to expose sensitive receptors to CO hotspots. As described above, the proposed ordinances would not be expected to generate a substantial number of vehicle trips. In addition, any trips generated due to delivery of bags to stores would be dispersed throughout the County and would not be concentrated in any particular area. Therefore, no significant increase in CO concentrations at sensitive receptor locations would be expected, and localized operational CO emissions would be below the level of significance.

[78] 462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck x 13 = approximately 26 daily truck trips

Toxic air contaminants can result from manufacturing industries, automobile repair facilities, and diesel particulate emissions associated with heavy-duty equipment operations. The proposed ordinances would not include any elements that would generate a substantial number of heavy-duty equipment operations or daily truck trips in a localized area and would not directly involve manufacturing industries or automobile repair facilities. Any indirect increase in toxic air contaminant emissions from paper carryout bag manufacturing facilities affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas or the SCAB and MDAB—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Therefore, there would be no expected toxic air contaminant emissions as a result of the proposed ordinances, and there would be no corresponding significant impacts to human health.

According to the *CEQA Air Quality Handbook*, odor nuisances are associated with land uses and industrial operations including agricultural uses, waste water treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities.[79] Since the proposed ordinances do not fall into any of these categories, operational odor impacts from the proposed ordinances would be expected to be below the level of significance. Any indirect increase in odor emissions from paper carryout bag manufacturing facilities that would be affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas or the SCAB and MDAB—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Any indirect increase in odor emissions from the decomposition of paper carryout bags in landfills within the County would also be controlled by the individual landfills in compliance with AVAQMD Rule 1150.1 or SCAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills.

Daily operational emissions, toxic air contaminant levels, and odor impacts would be expected to be below the level of significance. Consequently, the long-term exposure of sensitive receptors within the County to air pollutants would be expected to be below the level of significance.

***Cumulative Impacts***

SCAQMD's methodological framework was used to assess the cumulative impacts of the proposed ordinances. In order to assess cumulative impacts based on the AQMP's forecasts of attainment of ambient air quality standards set forth in the federal and State CAAs, this methodological framework considers forecasted regional growth projections from SCAG. As described above, results from LCAs vary widely but indicate that an increase in paper carryout bag manufacturing would cause an increase in $NO_x$ emissions and would decrease emissions of VOCs. Quantification of these indirect emission impacts is speculative given the conflicting data between the various studies, and any indirect increase in air pollutant emissions from paper carryout bag manufacturing facilities affected by the proposed ordinances—though it appears none are located in the County unincorporated and incorporated areas or the SCAB and MDAB—would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Since there appears to be no manufacturing and production of paper carryout bags in SCAB and MDAB, there would be no impacts to air quality resulting wherefrom. Any indirect increase in air pollutant emissions from the decomposition of paper carryout bags in landfills within the County would be controlled by the individual landfills in compliance with AVAQMD Rule 1150.1 or SCAQMD Rule 1150.1. Therefore, indirect air quality impacts due to a potential increase in the demand for paper

[79] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

carryout bag manufacturing would be expected to be below the level of significance. Since the proposed ordinances would not be expected to create a significant impact on air quality within the SCAQMD or the AVAQMD, would not be expected to create a significant number of vehicle trips, and would not be expected to promote employment or population growth, the proposed ordinances would be expected to cause a less than significant cumulative air quality impact. Implementation of the proposed ordinances would be consistent with the policies, plans, and regulations for air quality set forth by the County. Any related projects in the County must also comply with the County's air quality regulations. Therefore, implementation of the proposed ordinances would not be expected to result in cumulative impacts when considered with construction and operation of the related past, present, or reasonably foreseeable, probable future projects.

### 3.1.5 Mitigation Measures

The analysis undertaken for this environmental compliance document determined that the proposed ordinances would not result in significant adverse impacts related to air quality. Therefore, no mitigation measures would be required.

### 3.1.6 Level of Significance after Mitigation

Implementation of the proposed ordinances would not result in a significant adverse impact related to air quality that would need to be reduced to below the level of significance through the implementation of mitigation measures.

## 3.2 BIOLOGICAL RESOURCES

As a result of the Initial Study, the County determined that the proposed ordinances would not be expected to result in significant adverse impacts to biological resources.[1] However, one of the County's basic purposes in considering the proposed ordinances is to provide improved fresh and free water aquatic habitats for plant and wildlife resources through the reduction of total litter through the banning of plastic carryout bags issued by certain stores. Therefore, the biological resources issue area has been carried forward for detailed analysis to characterize the anticipated effects of such ordinances on biological resources.

The analysis of biological resources consists of a summary of the regulatory framework to be considered in the decision-making process, as well as a description of the existing conditions within the County, thresholds for determining the significant level of impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. Biological resources within the County were evaluated with regard to a query of the California Natural Diversity Database (CNDDB) for the U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangle maps that include an approximately 2,649-square-mile area encompassing the unincorporated territory of the County and an approximately 1,435-square-mile area encompassing the incorporated cities of the County; published and unpublished literature; a survey of over 200 stores in the County regarding plastic carryout bag usage habits of consumers in grocery stores;[2] a review of public comments received during the scoping period for the Initial Study for the proposed ordinances; and information from the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and National Marine Fisheries Service (NMFS).

The CIWMB estimates that approximately 147,038 tons of plastic grocery and other merchandise bags were disposed of in California in 2003, about 0.4 percent of the state's overall waste stream by weight.[3] CIWMB states, "plastic film, especially grocery bags, constitutes a high percentage of litter, which is unsightly, costly to clean up, especially when it enters marine environments, and causes serious negative impacts to shore birds and sea life."[4] Currently, CIWMB estimates that less than 5 percent of plastic film in California is recycled.[5]

During the 2008 International Coastal Cleanup conducted by the Ocean Conservancy, 400,000 volunteers picked up 6.8 million pounds of trash from lakes, rivers, streams, and ocean beaches around the world. Of the items collected, 1 in every 10 items was a plastic bag. A total of 1,377,141 plastic bags were collected during the cleanup, which was 12 percent of the total number of items collected. Plastic bags were the second most prevalent form of marine debris collected during the cleanup, after cigarettes / cigarette filters.[6]

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[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[2] Sapphos Environmental, Inc. 22 January 2010. *Bag Usage Data Collection Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[3] California Integrated Waste Management Board. December 2004. *Statewide Waste Characterization Study*. Sacramento, CA.

[4] California Integrated Waste Management Board. Accessed on: 1 March 2010. *Plastic Film Cooperative Recycling Initiative. Problem Statement.* Available at: http://www.calrecycle.ca.gov/Plastics/Film/#Problem

[5] California Integrated Waste Management Board. Accessed on: 1 March 2010. *Plastic Film Cooperative Recycling Initiative. Problem Statement.* Available at: http://www.calrecycle.ca.gov/Plastics/Film/#Problem

[6] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

The National Marine Debris Monitoring Program, funded by the USEPA, used standardized methodology to monitor marine debris in the United States over a five-year period. The most abundant debris items surveyed nationally during this monitoring program were straws, plastic beverage bottles, and plastic bags. The survey indicated that approximately 50 percent of all marine debris in the United States originates from land-based activities, and approximately 30 percent of all marine debris originates from general sources, including plastic bottles and plastic bags. The survey showed a substantial increase in general source items over the five-year monitoring period, with an average annual increase of 5.4 percent. The national survey results indicated that plastic bags with a seam of less than 1 meter in length made up 9 percent of the total number of items recorded.[7]

Plastics break down into smaller pieces over time eventually forming tiny particles of plastics that are often called microplastics.[8] However, plastics are chemically resistant and do not biodegrade, so they persist in the marine environment.[9] A 2002 study of the coastal ocean near Long Beach, California, showed that average plastic density during the study was eight pieces per cubic meter. The average mass of plastic was two and a half times greater than that of plankton, and was even greater after a storm.[10]

A study performed in Washington, District of Columbia (DC), showed that plastic bag trash accounted for 45 percent of the number of items of trash collected in tributary streams, and was the most abundant type of trash in the streams, probably due to the amount of brush and vegetation in streams that can snag the bags. More than 20 percent of trash in rivers was also attributed to plastic bags. Paper products were not found in the streams except in localized areas, and were not present downstream. The study stated that political action to eliminate the use of free plastic carryout bags would effectively remove a significant portion of trash from streams and rivers.[11]

The California Ocean Protection Council has adopted a strategy to reduce marine debris. Based on the evidence that plastic carryout bags pose a significant threat to marine wildlife, the strategy recommends a fee or a ban on plastic bags as part of the top three priority actions to reduce marine debris.[12] Ireland, Denmark, Italy, Belgium, and Switzerland have instituted a fee on plastic carryout bags, with Ireland's 20-cent (Euro) fee resulting in a more than 90-percent reduction in the use of plastic bags since the fee was imposed in March 2002.[13]

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[7] Sheavly, S.B. 2007. *National Marine Debris Monitoring Program: Final Program Report, Data Analysis and Summary*. Prepared for US Environmental Protection Agency by Ocean Conservancy, Grant Number X83053401-02. 76 pp.

[8] Thompson, R. C. 7 May 2004. "Lost at Sea: Where Is All the Plastic?" In *Science, 304* (5672): 843.

[9] Andrady, Anthony L. and Mike A. Neal. 2009. "Applications and Societal Benefits of Plastics." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1977–1984.

[10] Moore, C.J., S.L. Moore, S.B. Weisberg, G.L. Lattin, and A.F. Zellers. October 2002. "A Comparison of Neustonic Plastic and Zooplankton Abundance in Southern California's Coastal Waters." In *Marine Pollution Bulletin*, *44* (10): 1035–1038.

[11] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment.

[12] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[13] Convery, F., S. McDonnell, S. Ferreira. 2007. "The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy." In *Environmental and Resource Economics*, *38*: 1–11.

### 3.2.1 Regulatory Framework

This regulatory framework identifies the federal, State, and local statutes, ordinances, or policies that govern the conservation and protection of biological resources that must be considered by the County when rendering decisions on projects that would have the potential to affect biological resources.

***Federal***

*Federal Endangered Species Act*

The purpose of the federal Endangered Species Act (ESA) is to provide a means to conserve the ecosystems that endangered and threatened species depend on and to provide a program for conservation and recovery of these species. The federal ESA defines species as "endangered" and "threatened" and provides regulatory protection for any species thus designated. Section 9 of the federal ESA prohibits the take of species listed by the USFWS as threatened or endangered. The federal ESA defines *take* as an action "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in such conduct." In recognition that take cannot always be avoided, Section 10(a) of the federal ESA includes provisions for take that is incidental to, but not the purpose of, otherwise lawful activities. Section 10(a)(1)(B) permits (incidental take permits) may be issued if taking is incidental and does not jeopardize the survival and recovery of the species in the wild.

Volunteers participating in the 2008 International Coastal Cleanup discovered 47 animals and birds entangled or trapped by plastic bags, including 1 amphibian, 9 birds, 24 fish, 11 invertebrates, and 2 reptiles.[14] Therefore, plastic bag usage has the potential to jeopardize federally endangered and threatened species by harming, wounding, killing, and trapping them. In banning the issuance of plastic carryout bags while encouraging the use of reusable bags, the proposed ordinances would help advance the goal of the federal ESA to protect wildlife.

Section 7(a)(2) of the federal ESA requires all federal agencies, including the USFWS, to evaluate proposed projects with respect to any species proposed for listing or already listed as endangered or threatened and their critical habitat, if any is proposed or designated. Federal agencies must undertake programs for the conservation of endangered and threatened species, and are prohibited from authorizing, funding, or carrying out any action that will jeopardize a listed species or destroy or modify its critical habitat.

The federal ESA declares, "individuals, organizations, states, local governments, and other non-Federal entities are affected by the designation of critical habitat only if their actions occur on Federal lands, require a Federal permit, license, or other authorization, or involve Federal funding."

*Migratory Bird Treaty Act*

The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, capture, kill, or possess or attempt to do the same to any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the United States, Great Britain, Mexico, Japan, and the countries of the former Soviet Union. As with the federal ESA, the MBTA authorizes the U.S. Secretary of the Interior to issue permits

[14] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

for incidental take. Due to the potential for plastic bag litter to entangle or trap birds,[15,16] the proposed ordinances would be expected to contribute to the MBTA in its goal to protect migratory birds.

*Section 404 of the Federal Clean Water Act*

Section 404 of the federal CWA, which is administered by the U.S. Army Corps of Engineers (USACOE), regulates the discharge of dredged and fill material into waters of the United States. The USACOE has established a series of nationwide permits that authorize certain activities in waters of the United States, provided that a proposed activity can demonstrate compliance with standard conditions. Normally, the USACOE requires an individual permit for an activity that will affect an area equal to or in excess of 0.3 acre of waters of the United States. Projects that result in impacts to less than 0.3 acre of waters of the United States can normally be conducted pursuant to one of the nationwide permits, if consistent with the standard permit conditions. The USACOE also has discretionary authority to require an Environmental Impact Statement for projects that result in impacts to an area between 0.1 and 0.3 acre. Use of any nationwide permit is contingent upon the activities having no impacts to endangered species. Under the CWA, the term ''pollution'' means the manmade or man-induced alteration of the chemical, physical, biological, and radiological integrity of water. Due to the fact that plastic products are considered floatable material that are a component of pollution under the CWA, the proposed ordinances would serve to reduce pollutant discharge into the waters of the United States in accordance with the goals of the CWA.

*Marine Mammal Protection Act*

The Marine Mammal Protection Act (MMPA) was enacted on October 21, 1972. All marine mammals are protected under the MMPA. The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

Congress passed the MMPA of 1972 based on the following findings and policies:

- Some marine mammal species or stocks may be in danger of extinction or depletion as a result of human activities
- These species or stocks must not be permitted to fall below their optimum sustainable population level ("depleted")
- Measures should be taken to replenish these species or stocks
- There is inadequate knowledge of the ecology and population dynamics
- Marine mammals have proven to be resources of great international significance

The MMPA was amended substantially in 1994 to provide for the following:

- Certain exceptions to the take prohibitions, such as for Alaska Native subsistence and permits and authorizations for scientific research
- A program to authorize and control the taking of marine mammals incidental to commercial fishing operations

[15] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[16] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, DC.

- Preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction
- Studies of pinniped-fishery interactions

***State***

*California Endangered Species Act*

The California ESA prohibits the taking of listed species except as otherwise provided in State law. Unlike the federal ESA, the California ESA applies the take prohibitions to species petitioned for listing (State candidates). State lead agencies are required to consult with the CDFG to ensure that any actions undertaken by that lead agency are not likely to jeopardize the continued existence of any State-listed species or result in destruction or degradation of required habitat. The CDFG is authorized to enter into memoranda of understanding with individuals, public agencies, universities, zoological gardens, and scientific or educational institutions to import, export, take, or possess listed species for scientific, educational, or management purposes. The California ESA was considered due to the potential for State-listed rare, threatened, or endangered species to be present. Plastic bag usage jeopardizes the State's endangered and threatened species through the potential for plastic bag litter to harm, wound, kill, or trap wildlife.[17,18] The National Research Council's 2008 report *Tackling Marine Debris in the 21st Century* also states that plastics are able to absorb, concentrate, and deliver toxic compounds to organisms that eat the plastic.[19] In banning the issuance of plastic bags while encouraging the use of reusable bags, the proposed ordinances would contribute to the California ESA in its goal to protect wildlife.

*Section 2080 and 2081 of the State Fish and Game Code*

Section 2080 of the State Fish and Game Code (Code) states,

> No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act, or the California Desert Native Plants Act.

Under Section 2081 of the Code, the CDFG may authorize individuals or public agencies to import, export, take, or possess, any State-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through permits or memoranda of understanding if (1) the take is incidental to an otherwise lawful activity, (2) impacts of the authorized take are minimized and fully mitigated, (3) the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and (4) the applicant ensures adequate funding to implement the measures required by CDFG. The CDFG shall make this determination based on the best scientific and other information that is reasonably available and shall include consideration of the species' capability to survive and

[17] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[18] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, DC.

[19] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, DC.

reproduce. Section 2081 of the Code was considered due to the potential for State-listed rare, threatened, or endangered species to be present. Use of plastic bags jeopardizes the State's endangered and threatened species through the potential for plastic bag litter to harm, wound, kill, or trap wildlife.[20,21] In banning the issuance of plastic bags while encouraging the use of reusable bags, the proposed ordinances would contribute to the Code, Sections 2080 and 2081, in its goal to protect wildlife.

*Native Plant Protection Act*

The Native Plant Protection Act includes measures to preserve, protect, and enhance rare and endangered native plants. The definitions of *rare* and *endangered* differ from those contained in the California ESA. However, the list of native plants afforded protection pursuant to this act includes those listed as rare and endangered under the California ESA. The Native Plant Protection Act provides limitations on take as follows: "...no person will import into this State, or take, possess, or sell within this State" any rare or endangered native plant, except in compliance with provisions of the act. Individual land owners are required to notify the CDFG at least 10 days in advance of changing land uses to allow the CDFG to salvage any rare or endangered native plant material. The Native Plant Protection Act was considered in this analysis due to the potential for State-listed rare, threatened, or endangered plant species to be present within the County.

*Section 3503 and 3503.5 of the State Fish and Game Code*

These sections of the Code provide regulatory protection to resident and migratory birds and all birds of prey within the state, including the prohibition of the taking of nests and eggs unless otherwise provided for by the Code. Due to the potential of plastic bag litter to entangle or trap birds,[22,23] the proposed ordinances to ban the issuance of carryout plastic bags would contribute to Section 3503 and 3503.5 of the Code in the goal to protect resident and migratory birds and birds of prey.

*Section 1600 of the State Fish and Game Code*

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California are subject to the regulatory authority of the CDFG pursuant to Sections 1600 through 1603 of the Code, requiring preparation of a Streambed Alteration Agreement. Under the Code, a *stream* is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Included in this definition are watercourses with surface or subsurface flows that support or have supported riparian vegetation. The CDFG also has jurisdiction within altered or artificial waterways based on the value of those waterways to fish and wildlife, and also has jurisdiction over dry washes that carry water ephemerally during storm events. In banning the issuance of plastic carryout bags, which contribute to

[20] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[21] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, DC.

[22] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[23] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, DC.

litter found in waterways,[24,25] the proposed ordinances would contribute to Section 1600 of the Code in its goal to protect waterways.

***County***

*County of Los Angeles General Plan*

The Conservation, Open Space, and Recreation element of the County General Plan aims to preserve and protect ecological areas and biotic resources. The following four policies are relevant to the proposed ordinances:[26]

1. Preserve significant ecological areas by appropriate measures, including preservation, mitigation, and enhancement.
2. Protect the quality of the coastal environment. Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resource conservation principles.
3. Preserve and restore marine resources emphasizing the shore and near shore zone, especially lagoons and salt water marshes.
4. Protect watershed, streams, and riparian vegetation to minimize water pollution, soil erosion and sedimentation, maintain natural habitats, and aid in groundwater recharge.

*City General Plans*

Any incorporated city in the County that adopts individual ordinances will need to determine if they have to comply with the adopted policies regarding biological resources set forth in the respective city general plans, if any.

### 3.2.2 Existing Conditions

Listed species are those species provided special legal protection under the federal ESA, the California ESA, or both. A federally or State-listed endangered species is a species that is in danger of extinction throughout all or a significant portion of its range. A federally or State-listed threatened species is one that is likely to become endangered in the absence of special protection or management efforts provided by the listing. A candidate species is one that is proposed by the federal or State government for listing as endangered or threatened.

Sensitive species are those that are not listed by the federal or State government as endangered, threatened, or candidate species, but which are categorized by the federal government as a federal species of concern, or by the State government as a species of special concern or fully protected species. Federal species of concern is a term-of-art that describes a taxon whose conservation status may be of concern to the USFWS, but that does not have official status. In addition, the sensitive species include those designated as such by the Bureau of Land Management and the U.S. Forest Service.

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[24] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment.

[25] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[26] County of Los Angeles Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

### *Methods*

The biological resources within the County were evaluated with regard to a query of the CNDDB for the USGS 7.5-minute series topographic quadrangles that include an approximately 2,649-square-mile area encompassing the unincorporated territory of the County and an approximately 1,435-square-mile area encompassing the incorporated cities of the County, and published and unpublished literature to provide a baseline description of the existing biological resources including plant communities; endangered, threatened, rare, or sensitive plant and wildlife species; and wetland or stream course areas potentially subject to USACOE or CDFG jurisdiction. Terrestrial and marine communities will be addressed separately to describe the effects of litter on marine ecosystems found downstream of the County.

### *Plant Communities*

A *plant community* is defined as a regional element of vegetation characterized by the presence of certain dominant species.[27] The plant communities described in this section are described in accordance with the definitions provided in *Preliminary Descriptions of the Terrestrial Natural Communities of California*[28] and cross-referenced to the vegetation series described in *A Manual of California Vegetation*.[29]

Below are some of the important plant communities found in the County. There are numerous other plant communities based on vegetation type, but included here are the broadest category of the most common plant communities found in the County in order to limit space and to give a brief overview.

Coastal Sage Scrub is the most endangered plant community in California and is found along the coast in Central and Southern California, from the San Francisco Bay Area in the north, through the Oxnard Plain of Ventura County, the Los Angeles Basin, most of Orange County, parts of Riverside County, coastal San Diego County, and the northwestern corner of Mexico's Baja California state, including the region around Tijuana and Ensenada. A number of rare and endangered species occur in coastal scrub habitats. World Wildlife Fund estimates that only 15 percent of the coastal sage scrublands remain undeveloped.[30]

Chaparral is composed of broad-leaved evergreen shrubs, bushes, and small trees, often forming dense thickets. Chaparral has its center in California and occurs continuously over wide areas of mountainous to sloping topography. Chaparral vegetation is valuable for watershed protection in areas with steep, easily eroded slopes.

Oak Woodlands once covered much of the foothills and plains of the region. The Los Angeles basin and San Fernando Valley were noted for their extensive savannas of coast live oak, valley oak, and Canyon live oak, which is more common at higher elevations. California walnut woodlands once occurred in foothills around inland valleys in the northern portion of the region. A few vernal pools are scattered among the oak savannas and grasslands. Riparian woodlands once lined streams and

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[27] Munz, Philip A. and D.D. Keck, 1949. "California Plant Communities." In *El Aliso*, *2* (1): 87–105.

[28] Holland, R.F.1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Sacramento, CA: California Department of Fish and Game, Resources Agency.

[29] Sawyer and Keeler-Wolf, 2009. *A Manual of California Vegetation*. Second Edition. Sacramento, CA: California Native Plant Society.

[30] World Wildlife Fund. Accessed on: 19 March 2010. Web site. Available at: http://www.worldwildlife.org/wildworld/profiles/terrestrial/na/na1201_full.html

supported several species of willow, cottonwoods, sycamore, coast live oak, ash, white alder, and a diverse flora of herbaceous plants, shrubs, and vines.

Creosote Bush Scrub consists of shrubs that are 2 to 10 feet tall, widely spaced, and usually have bare ground between. Growth occurs form winter to early spring (or rarely at other seasons) if rainfall is sufficient. Shrubs may be dormant for long periods. Many species of ephemeral herbs may flower in late February and March if the winter rains are sufficient. This is the basic creosote shrub of the Colorado Desert and constitutes a very sensitive and important wildlife area.

Riparian plant communities are found along the banks of a river, stream, lake or other body of water. Riparian habitats are ecologically diverse and may be home to a wide range of plants, insects, and amphibians that make them ideal for different species of birds. Riparian areas can be found in many types of habitats, including grassland, wetland and forest environments. All riparian plant communities are protected.

***Rare, Threatened, and Endangered Species***

As a result of a query of the CNDDB for the USGS 7.5-minute series topographic quadrangles for the County, and consultation with experts on the areas biological resources, 29 plant species and 33 wildlife species federally or State designated as rare, threatened, or endangered were identified as having the potential to occur in the County (Table 3.2.2-1, *Listed Species with the Potential to Occur in the County)*.[31]

**TABLE 3.2.2-1**
**LISTED SPECIES WITH THE POTENTIAL TO OCCUR IN THE COUNTY**

| Common Name | Scientific Name | Federal Status | State Status |
|---|---|---|---|
| **Amphibians** | | | |
| arroyo toad | *Anaxyrus californicus* | Endangered | None |
| California red-legged frog | *Rana draytonii* | Threatened | None |
| Sierra Madre yellow-legged frog | *Rana muscosa* | Endangered | None |
| **Birds** | | | |
| American peregrine falcon | *Falco peregrinus anatum* | Delisted | Endangered |
| bald eagle | *Haliaeetus leucocephalus* | Delisted | Endangered |
| Belding's savannah sparrow | *Passerculus sandwichensis beldingi* | None | Endangered |
| California black rail | *Laterallus jamaicensis coturniculus* | None | Threatened |
| California condor | *Gymnogyps californianus* | Endangered | Endangered |
| California least tern | *Stern antillarum browni* | Endangered | Endangered |
| coastal California gnatcatcher | *Polioptila californica californica* | Threatened | None |
| least Bell's vireo | *Vireo bellii pusillus* | Endangered | Endangered |
| San Clemente loggerhead shrike | *Lanius ludovicianus mearnsi* | Endangered | None |
| San Clemente sage sparrow | *Amphispiza belli clementeae* | Threatened | None |
| southwestern willow flycatcher | *Empidonax traillii extimus* | Endangered | Endangered |

[31] California Department of Fish and Game. 2009. *Rarefind 3: California Natural Diversity Database*. Sacramento, CA.

## TABLE 3.2.2-1
## LISTED SPECIES WITH THE POTENTIAL TO OCCUR IN THE COUNTY, Continued

| Common Name | Scientific Name | Federal Status | State Status |
|---|---|---|---|
| Swainson's hawk | *Buteo swainsoni* | None | Threatened |
| western snowy plover | *Charadrius alexandrinus nivosus* | Threatened | None |
| western yellow-billed cuckoo | *Coccyzus americanus occidentalis* | Candidate | Endangered |
| Xantus's murrelet | *Synthliboramphus hypoleucus* | Candidate | Threatened |
| **Fish** | | | |
| Mohave tui chub | *Gila bicolor mohavensis* | Endangered | Endangered |
| Santa Ana sucker | *Catostomus santaanae* | Threatened | None |
| southern steelhead - Southern California ESU | *Oncorhynchus mykiss irideus* | Endangered | None |
| tidewater goby | *Eucyclogobius newberryi* | Endangered | None |
| unarmored threespine stickleback | *Gasterosteus aculeatus williamsoni* | Endangered | Endangered |
| **Invertebrates** | | | |
| El Segundo blue butterfly | *Euphilotes battoides allyni* | Endangered | None |
| Palos Verdes blue butterfly | *Glaucopsyche lygdamus palosverdesensis* | Endangered | None |
| **Mammals** | | | |
| Mohave ground squirrel | *Xerospermophilus mohavensis* | None | Threatened |
| Nelson's antelope squirrel | *Ammospermophilus nelsoni* | None | Threatened |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | Endangered | None |
| San Clemente Island fox | *Urocyon littoralis clementae* | None | Threatened |
| Santa Catalina Island fox | *Urocyon littoralis catalinae* | Endangered | Threatened |
| **Plants** | | | |
| Agoura Hills dudleya | *Dudleya cymosa* ssp. *agourensis* | Threatened | None |
| beach spectaclepod | *Dithyrea maritima* | None | Threatened |
| Brand's star phacelia | *Phacelia stellaris* | Candidate | None |
| Braunton's milk-vetch | *Astragalus brauntonii* | Endangered | None |
| California orcutt grass | *Orcuttia californica* | Endangered | Endangered |
| Catalina Island mountain-mahogany | *Cercocarpus traskiae* | Endangered | Endangered |
| coastal dunes milk-vetch | *Astragalus tener* var. *titi* | Endangered | Endangered |
| Gambel's water cress | *Nasturtium gambelii* | Endangered | Threatened |
| island rush-rose | *Helianthemum greenei* | Threatened | None |
| Lyon's pentachaeta | *Pentachaeta lyonii* | Endangered | Endangered |
| marcescent dudleya | *Dudleya cymosa* ssp. *marcescens* | Threatened | Rare |
| marsh sandwort | *Arenaria paludicola* | Endangered | Endangered |
| Mt. Gleason paintbrush | *Castilleja gleasonii* | None | Rare |
| Nevin's barberry | *Berberis nevinii* | Endangered | Endangered |

**TABLE 3.2.2-1**
**LISTED SPECIES WITH THE POTENTIAL TO OCCUR IN THE COUNTY, Continued**

| Common Name | Scientific Name | Federal Status | State Status |
|---|---|---|---|
| salt marsh bird's-beak | *Cordylanthus maritimus* ssp. *maritimus* | Endangered | Endangered |
| San Clemente Island bedstraw | *Galium catalinense* ssp. *acrispum* | None | Endangered |
| San Clemente Island bird's-foot trefoil | *Lotus argophyllus* var. *adsurgens* | None | Endangered |
| San Clemente Island bush-mallow | *Malacothamnus clementinus* | Endangered | Endangered |
| San Clemente Island larkspur | *Delphinium variegatum* ssp. *kinkiense* | Endangered | Endangered |
| San Clemente Island lotus | *Lotus dendroideus* var. *traskiae* | Endangered | Endangered |
| San Clemente Island paintbrush | *Castilleja grisea* | Endangered | Endangered |
| San Clemente Island woodland star | *Lithophragma maximum* | Endangered | Endangered |
| San Fernando Valley spineflower | *Chorizanthe parryi* var. *fernandina* | Candidate | Endangered |
| Santa Cruz Island rock cress | *Sibara filifolia* | Endangered | None |
| Santa Monica dudleya | *Dudleya cymosa* ssp. *ovatifolia* | Threatened | None |
| Santa Susana tarplant | *Deinandra minthornii* | None | Rare |
| slender-horned spineflower | *Dodecahema leptoceras* | Endangered | Endangered |
| spreading navarretia | *Navarretia fossalis* | Threatened | None |
| thread-leaved brodiaea | *Brodiaea filifolia* | Threatened | Endangered |
| Ventura Marsh milk-vetch | *Astragalus pycnostachyus* var. *lanosissimus* | Endangered | Endangered |
| **Reptiles** | | | |
| desert tortoise | *Gopherus agassizii* | Threatened | Threatened |
| island night lizard | *Xantusia riversiana* | Threatened | None |

***Marine Species***

Fifteen marine species that occur in Southern California off the coast of Los Angeles County are listed as either endangered or threatened under the ESA under the jurisdiction of the NMFS (Table 3.2.2-2, *Endangered and Threatened Species under the Jurisdiction of the NMFS with the Potential to Occur off the Coast of the County*). Marine mammals (cetaceans, pinnipeds) are also protected under the MMPA. The NMFS Office of Protected Resources works in collaboration with NMFS regional offices, science centers, and partners to develop and implement a variety of programs for the protection, conservation, and recovery of the approximately 160 marine mammal stocks listed under the MMPA. The entire list of marine species that are listed as endangered and threatened under the ESA under the jurisdiction of the NMFS is available in a recent issue of the USFWS Endangered Species Bulletin and at the Office of Protected Resources of the National Oceanographic and Atmospheric Administration.[32,33]

[32] U.S. Fish and Wildlife Service. Summer 2009. *Endangered Species Bulletin*, *34* (2). Washington, D.C.

[33] National Oceanic and Atmospheric Administration, Office of Protected Species. Accessed on: 5 March 2010. Web site. Available at: http://www.nmfs.noaa.gov/pr/species/esa

## TABLE 3.2.2-2
## ENDANGERED AND THREATENED MARINE SPECIES UNDER THE JURISDICTION OF THE NMFS WITH THE POTENTIAL TO OCCUR OFF THE COAST OF THE COUNTY

| Species Name | Year Listed | Status | Range in Northern Pacific |
|---|---|---|---|
| **Cetaceans (whales, dolphins, and porpoises)** | | | |
| blue whale (*Balaenoptera musculus*) | 1970 | E | Northern Pacific; California/Mexico population |
| fin whale (*Balaenoptera physalus*) | 1970 | E | Northern Pacific; California/Oregon/Washington population |
| humpback whale (*Megaptera novaeangliae*) | 1970 | E | Northern Pacific; California/Oregon/Washington population |
| killer whale (*Orcinus orca*) | 2005 | E | Northern Pacific; California/Oregon/Washington population[3] |
| North Pacific right whale (*Eubalaena japonica*) | 1970[4] (2008) | E | Northern Pacific; includes animals in California |
| Sei whale (*Balaenoptera borealis)* | 1970 | E | Northern Pacific; includes animals in California |
| sperm whale (*Physeter macrocephalus*) | 1970 | E | Northern Pacific; California/Oregon/Washington population |
| **Pinnipeds (seals, sea lions, and walruses)** | | | |
| Guadalupe fur seal (*Arctocephalus townsendi*) | 1985 | T | Northern Pacific; includes San Miguel Island, California population |
| **Marine Turtles** | | | |
| green turtle (*Chelonia mydas*) | 1978 | T | Northern Pacific; includes animals in California |
| leatherback turtle (*Dermochelys coriacea*) | 1970 | E | Northern Pacific; includes animals in California |
| loggerhead turtle (*Caretta caretta*) | 1978 | T | Northern Pacific; includes animals in California |
| olive ridley turtle (*Lepidochelys olivacea*) | 1978 | T | Northern Pacific; includes animals in California |
| **Marine and Anadromous Fish** | | | |
| steelhead trout (*Oncorhynchus mykiss*) | 1997 | E | Northern Pacific; Southern California population |
| **Marine Invertebrates** | | | |
| black abalone (*Haliotis cracherodii*) | 2009 | E | Northern Pacific; includes animals in California |
| white abalone (*Haliotis sorenseni*) | 2001 | E | Entire Range: Point Conception, California to Punta Abreojos, Baja California |

**KEY:** E = Endangered; T = Threatened; DPS = Distinct Population Segment

**NOTES:**

1. Candidate and proposed species under the ESA are not listed. Eighty-two of 89 (92 percent) candidate species are various species of corals; 5 species are proposed species.
2. Manatees and sea otters are listed under the ESA, but fall under the jurisdiction of the USFWS.
3. The Southern Resident component of this population is the only listed Distinct Population Segment.
4. Originally listed as the "Northern Right Whale" in 1970; relisted as the North Pacific Right Whale in 2008.

Six marine species that occur in Southern California off the coast of Los Angeles County are listed as species of concern under the jurisdiction of the NMFS (Table 3.2.2-3, *Marine Species of Concern under the Jurisdiction of the NMFS with the Potential to Occur off the Coast of the County*). Species of concern are those species about which the NMFS has some concerns regarding status and threats,

but for which insufficient information is available to indicate a need to list the species under the ESA. The entire list of marine species that are listed as species of concern under the jurisdiction of the NMFS is available at the Office of Protected Resources of the National Oceanographic and Atmospheric Administration.[34]

**TABLE 3.2.2-3**
**MARINE SPECIES OF CONCERN UNDER THE JURISDICTION OF THE NMFS WITH THE POTENTIAL TO OCCUR OFF THE COAST OF THE COUNTY**

| Species Name | Status | Range in Northern Pacific |
|---|---|---|
| **Fishes and Sharks** | | |
| bocaccio (*Sebastes paucispinis*) | Species of concern | Northern Pacific; Pacific-Southern DPS (Northern California to Mexico) |
| cowcod (*Sebastes levis*) | Species of concern | Entire Range: Central Oregon to Central Baja California |
| dusky shark (*Carcharhinus obscurus*) | Species of concern | Northern Pacific; includes Southern California |
| Pacific hake (*Merluccius productus*) | Species of concern | Northern Pacific; Georgia Basin DPS; includes Southern California |
| **Marine Invertebrates** | | |
| green abalone (*Haliotis fulgens*) | Species of concern | Entire Range: Point Conception, California to Bahia de Magdalena, Gulf of California, Mexico |
| pink abalone (*Haliotis corrugata*) | Species of concern | Northern Pacific; Point Conception to Bahia de Tortuga, Gulf of California, Mexico |

**KEY:** DPS = Distinct Population Segment

Seven marine species (6 avian species; 1 mammal) that occur in Southern California off the coast of Los Angeles County are listed as either endangered or threatened under the ESA under the jurisdiction of the USFWS or the CDFG (Table 3.2.2-4, *Endangered and Threatened Species under the Jurisdiction of the USFWS and/or the CDFG*).

[34] National Oceanic and Atmospheric Administration. Accessed on: 5 March 2010. Proactive Conservation Program: Species of Concern. Available at: http://www.nmfs.noaa.gov/pr/species/concern

## TABLE 3.2.2-4
## ENDANGERED AND THREATENED SPECIES UNDER THE JURISDICTION OF THE USFWS AND/OR CDFG

| Species Name | Year Listed | Status | Range in California |
|---|---|---|---|
| **Birds** | | | |
| short-tailed albatross (*Phoebastria albatrus*) | 2000 | FE | Formerly included Southern California (offshore) in the 19th Century; few records since;[2] does not breed |
| bald eagle (*Haliaeetus leucocephalus*) | 1971 | SE | Includes Southern California, where it breeds |
| Western snowy plover (*Charadrius alexandrinus nivosus*) | 1993 | FT | Includes Southern California, where it breeds |
| California least tern (*Sterna antillarum browni*) | 1970 (F); 1971 (S) | FE, SE | Includes Southern California, where it breeds |
| marbled murrelet (*Brachyramphus marmoratus*) | 1992 | FT, SE | Includes Southern California, where it does not breed; generally scarce in winter |
| Xantus's murrelet (*Synthliboramphus hypoleucus*) | 2004 | ST | Includes Southern California, where it breeds in the Channel Islands |
| **Mammals** | | | |
| Southern sea otter (*Enhydra lutris nereis*) | 1977 | FT | California: San Mateo County in the north to Santa Barbara County in the south, southern sea otters live in the nearshore waters along the mainland coastline of California. A small population of sea otters lives at San Nicolas Island as a result of translocation efforts initiated in 1987 |

**KEY:**
FE = Federally Endangered
FT = Federally Threatened
SE = State Endangered
ST = State Threatened

**NOTE:**
1. Candidate and Proposed Species under the ESA are not listed.

**SOURCE:**
1. California Bird Records Committee (Hamilton, R.A., M.A. Patten, and R.A. Erickson; Eds.). 2007. *Rare Birds in California*. Camarillo, CA: Western Field Ornithologists.

Eleven avian marine species that occur in Southern California off the coast of the County are listed as species of special concern under the jurisdiction of the CDFG (Table 3.2.2-5, *Species of Special Concern under the Jurisdiction of the CDFG*).[35] Species of special concern are those species about which the CDFG has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA.

[35] Shuford, W.D., and T. Gardali, eds. 2008. "California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California." In *Studies of Western Birds, 1*. Western Field Ornithologists, Camarillo, CA, and California Department of Fish and Game, Sacramento, CA.

**TABLE 3.2.2-5**
**SPECIES OF SPECIAL CONCERN UNDER THE JURISDICTION OF THE CDFG**

| Species Name | Status | Priority Level | Range in California |
|---|---|---|---|
| American white pelican (*Pelecanus erythrorhynchos*) | Special concern | 1 | Includes Southern California, where it does not breed |
| tufted puffin (*Fratercula cirrhata*) | Special concern | 1 | Includes Southern California; formerly bred in the Channel Islands; recently recolonized Prince Island (off San Miguel Island); occurs more widely offshore in winter |
| brant (*Branta bernicla*) | Special concern | 2 | Includes Southern California; does not breed |
| ashy storm-petrel (*Oceanodroma homochroa*) | Special concern | 2 | Includes Southern California; breeds in the Channel Islands |
| black tern (*Chlidonias niger*) | Special concern | 2 | Includes Southern California, where it does not breed |
| fork-tailed storm-petrel (*Oceanodroma furcata*) | Special concern | 3 | Includes Southern California (offshore), where it does not breed |
| black storm-petrel (*Oceanodroma melania*) | Special concern | 3 | Southern California (offshore); breeds at Sutil and Santa Barbara Islands |
| snowy plover (*Charadrius alexandrinus*) (Interior Population) | Special concern | 3 | Includes Southern California, where the interior population does not breed |
| gull-billed tern (*Gelochelidon nilotica*) | Special concern | 3 | Southern California; along the coast, has bred in San Diego County since 1986 |
| black skimmer (*Rynchops niger*) | Special concern | 3 | Includes Southern California; along the coast, breeds in Los Angeles, Orange and San Diego Counties |
| Cassin's auklet (*Ptychoramphus aleuticus*) | Special concern | 3 | Includes Southern California; breeds in the Channel Islands |

### *Wetlands and Watersheds*

As a result of the literature review, including the CNDDB previously prepared jurisdictional reports, and a review of the National Wetland Inventory Map for the USGS 7.5-minute series topographic quadrangle maps for the County, multiple wetland or riparian areas were identified within the County as potentially subject to regulatory jurisdiction by the USACOE pursuant to Section 404 of the federal CWA, or subject to jurisdiction by the CDFG pursuant to Section 1600 of the Code.[36] A watershed is the area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or groundwater. The County is comprised of several major watersheds, including the Antelope Watershed, the Santa Clara River watershed, the Los Angeles River watershed, the San Gabriel River

[36] California Department of Fish and Game. 2009. *Rarefind 3: California Natural Diversity Database*. Sacramento, CA

watershed, the Malibu Creek watershed, the Ballona Creek watershed, the Dominguez Channel watershed, and the San Pedro Channel Islands.

The Los Angeles River is the heart of the 871-square-mile Los Angeles River watershed. The watershed encompasses the Santa Susanna Mountains to the west, the San Gabriel Mountains to the north and east, and the Santa Monica Mountains and Los Angeles coastal plain to the south. South of the City of Los Angeles, the river flows through the Cities of Vernon, Maywood, Bell, Bell Gardens, Cudahy, South Gate, Lynwood, Compton, Paramount, and Carson on its way to Long Beach. The Rio Hondo joins the Los Angeles River at South Gate from the east, connecting it to the San Gabriel River. The last tributary mingling with the Los Angeles River is Compton Creek. South of Compton Creek, the river flows down between a concrete or rock channel into the estuary in Long Beach, right by the Queen Mary. The last several miles of the river are soft-bottom and lined with rock riprap, and are a noted location for migratory birds and shorebirds.[37]

The San Gabriel River Watershed is located in the eastern portion of the County, bounded by the San Gabriel Mountains to the north, most of San Bernardino and Orange County to the east, the division of the Los Angeles River from the San Gabriel River to the west, and the Pacific Ocean to the south. The San Gabriel River runs from the San Gabriel Mountains to the Pacific Ocean. The watershed is composed of approximately 640 square miles of land, with 26 percent of its total area developed. The major tributaries to the San Gabriel River include Walnut Creek, San Jose Creek, Coyote Creek, and numerous storm drains.[38]

Ballona Creek is approximately 9 miles long and drains the Los Angeles basin from the Santa Monica Mountains on the north, the Harbor Freeway (State Route 110) on the east, and the Baldwin Hills on the south. The watershed comprises about 130 square miles, composed of all or parts of the Cities of Beverly Hills, Culver City, Inglewood, Los Angeles, Santa Monica, West Hollywood, and unincorporated Los Angeles County. The major tributaries to Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drains. Ballona Creeek empties into the Santa Monica Bay at the Ballona Wetlands. These wetlands, the largest in the County, once encompassed over 2,000 acres, but have since been greatly reduced and degraded by urban development.[39]

The Santa Clara River flows approximately 100 miles from near Acton, California, to the Pacific Ocean. Some of the major tributaries to the Upper Santa Clara River Watershed include Castaic Creek, San Francisquito Canyon, Bouquet Canyon, Sand Canyon, Mint Canyon, and the Santa Clara River South Fork. The river supports a variety of flora and fauna, and extensive patches of high-quality riparian habitat.[40]

The Dominguez Channel watershed comprises approximately 110 square miles of land in the southern portion of the County. The Dominguez Channel watershed is defined by a complex network of storm drains and smaller flood control channels. The Dominguez Channel extends from the Los Angeles

[37] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

[38] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

[39] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

[40] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

International Airport to the Los Angeles Harbor, and drains large, if not all, portions of the Cities of Inglewood, Hawthorne, El Segundo, Gardena, Lawndale, Redondo Beach, Torrance, Carson, and Los Angeles. The remaining land areas within the watershed drain to several debris basins and lakes or directly to the Los Angeles and Long Beach Harbors. [41]

The Malibu Creek watershed is located in the northwest corner of the County, bounded on the north, west, and east by the Santa Monica Mountains, and on the south by the Pacific Ocean. The Malibu Creek watershed is composed of approximately 109 square miles, and its major tributaries are Las Virgenes Creek, Triunfo Creek, and Cold Creek. The watershed comprises all or parts of the Cities of Agoura Hills, Calabasas, Malibu, Thousand Oaks, Westlake Village, and unincorporated Los Angeles County and Ventura County.[42]

***Corridors***

As a result of the literature review, including the CNDDB,[43] and a review of the USGS 7.5-minute series topographic quadrangles for the County, multiple migratory wildlife corridors were determined to be present within the County. The Pacific Flyway is a major north-south route of travel for migratory birds in the Americas, extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds, or traveling to over wintering sites. Along the Pacific Flyway, there are many key rest stops where birds of many species gather, sometimes in the millions, to feed and regain their strength before continuing. Some species may remain in these rest stops for the entire season, but most stay a few days before moving on.

### 3.2.3 Significance Thresholds

The potential for the proposed ordinances to result in impacts related to biological resources was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. A project would normally be considered to have a significant impact to biological resources when the potential for any one of the following six thresholds is reached:

- Have a substantial adverse effect, through either direct or indirect modification of more than 10 percent of potentially suitable or occupied habitat, or direct take, to any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS
- Have an adverse effect on 10 percent of existing riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS
- Have a substantial adverse effect on more than 0.3 acre of federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means

[41] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

[42] The River Project. Accessed on: 19 March 2010. "Know Your Watershed." Web site. Available at: http://www.theriverproject.org/lariver.html

[43] California Department of Fish and Game. 2009. *Rarefind 3: California Natural Diversity Database*. Sacramento, CA

- Interfere with the movement of any native resident or migratory fish or wildlife species such that migratory patterns are eliminated from within the proposed project area or reduce the use of native wildlife nursery sites by 10 percent of more
- Conflict with the policies established by the County of Los Angeles General Plan to provide protection for threatened and endangered species
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan

### 3.2.4 Impact Analysis

Due to the prevalence of plastic bag litter[44,45,46] and associated microplastics[47] in the marine environment and the success of plastic bag fees in the District of Columbia and other countries to reduce plastic carryout bag use and disposal,[48,49] it can be concluded that a ban on the issuance of plastic carryout bags in the County would result in a reduction in plastic bag litter in the marine environment and corresponding potentially beneficial impacts upon biological resources.

The proposed ordinances would also be expected to increase consumer use of reusable bags and paper carryout bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream is much lower than the number of paper or plastic carryout bags, which are generally only used once or twice. The smaller number of reusable bags in the waste stream means that reusable bags are less likely to be littered and less likely to end up in wildlife habitats. Paper bags have also not been widely noted to have adverse impacts upon biological resources. A study performed in Washington, DC, showed that paper bags were not found in streams except in localized areas, and were not present downstream.[50] Unlike plastic, paper is compostable;[51] the paper used to make standard paper carryout bags is originally derived from wood pulp, which is naturally a biodegradable material. Due to paper's biodegradable properties, paper bags do not persist in the marine environment for as long as plastic bags.[52]

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[44] Ocean Conservancy. *A Rising Tide of Ocean Debris and What We Can Do About It. International Coastal Cleanup 2009 Report.* Available at: http://www.oceanconservancy.org/pdf/A_Rising_Tide_full_lowres.pdf

[45] Sheavly, S.B. 2007. *National Marine Debris Monitoring Program: Final Program Report, Data Analysis and Summary*. Prepared for US Environmental Protection Agency by Ocean Conservancy, Grant Number X83053401-02. p. 76.

[46] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment: Bladensburg, MD.

[47] Moore, C.J., S.L. Moore, S.B. Weisberg, G.L. Lattin, A.F. Zellers. October 2002. "A Comparison of Neustonic Plastic and Zooplankton Abundance in Southern California's Coastal Waters." In *Marine Pollution Bulletin*, *44* (10): 1035–1038.

[48] Convery, F., S. McDonnell and S. Ferreira. 2007. "The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy." In *Environmental and Resource Economics*, *38*: 1–11.

[49] Craig, Tim. 29 March 2010. "Bag tax raises $150,000, but far fewer bags used." *The Washington Post.* Available at: http://voices.washingtonpost.com/dc/2010/03/bag_tax_raises_150000_but_far.html?wprss=dc

[50] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[51] County of Los Angeles, Department of Public Works. Accessed on: 28 April 2010. *Backyard Composting*. Web site. Available at: http://dpw.lacounty.gov/epd/sg/bc.cfm

[52] Andrady, Anthony L. and Mike A. Neal. 2009. "Applications and Societal Benefits of Plastics." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1977–1984.

### *Impacts to State-designated Sensitive Habitats*

The proposed ordinances would not expected to result in adverse impacts to State-designated sensitive habitats. There are many State-designated sensitive habitats in the County, but the proposed ordinances would not have any direct adverse impacts upon these habitats. Floatable trash has been noted to inhibit the growth of aquatic vegetation, decreasing spawning areas and habitats for fish and other living organisms.[53] The proposed ordinances intend to reduce the amount of litter attributed to plastic bag waste, which would be expected to result in only potentially beneficial indirect impacts upon State-designated sensitive habitats by reducing the amount of litter in these areas. Therefore, there are no expected adverse impacts to State-designated sensitive habitats.

### *Impacts to Rare, Threatened, and Endangered Species*

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to species listed as rare, threatened, or endangered pursuant to the federal and State ESAs. Twenty-two marine species that occur in Southern California off the coast of Los Angeles County are listed as either endangered or threatened under the ESA (Tables 3.2.2-2 and 3.2.2-4). According to the Regional Water Quality Control Board (RWQCB) for the Los Angeles Region, trash has potentially harmful impacts to species, and plastic bags are one of the most common items of trash observed by RWQCB staff.[54] Seabirds, sea turtles, and marine mammals that feed on or near the ocean surface are especially prone to ingesting plastic debris that floats.[55,56,57] The impacts include fatalities as a result of ingestion, starvation, suffocation, infection, drowning, and entanglement.[58,59] The recovery plan for the endangered leatherback turtle *(Dermochelys coriacea)* lists ingestion of marine debris, including plastic bags, as one of the factors threatening this species. The recovery plan says that leatherback turtles consume floating plastic, including plastic bags, because they appear to mistake the floating plastic for jellyfish.[60] The recovery plans for the threatened green turtle *(Chelonia mydas)*, loggerhead turtle *(Caretta caretta)*, and olive ridley turtle *(Lepidochelys olivacea)* also note plastic bag ingestion as a threat to those species.[61, 62,63] Ingestion of plastics is also noted as a threat in the recovery plan for the

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[53] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[54] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[55] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[56] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts.

[57] U.S. Environmental Protection Agency. August 2002. *Assessing and Monitoring Floatable Debris.* Washington, DC.

[58] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[59] Gregory, Murray R. 2009. "Environmental Implications of Plastic debris in Marine Settings –Entanglement, Ingestion, Smothering, Hangers-on, Hitch-hiking and Alien Invasions." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 2013–2025.

[60] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. *Recovery Plan for U.S. Pacific Populations of the Leatherback Turtle*. Available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_leatherback_pacific.pdf

[61] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. *Recovery Plan for U.S. Pacific Populations of the East Pacific Green Turtle*. Available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_green_eastpacific.pdf

[62] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. *Recovery Plan for U.S. Pacific Populations of the Loggerhead Turtle*. Available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_loggerhead_pacific.pdf

federally endangered short-tailed albatross *(Phoebastria albatrus)*.[64] Preventing trash from entering water bodies, such as the Los Angeles River, has the potential to improve habitats and aquatic life.[65] The proposed ordinances would be anticipated to reduce the amount of trash entering water bodies in the County.[66] Therefore, there would be no expected adverse impacts to species listed as rare, threatened, or endangered pursuant to the federal and State ESAs; however, the proposed ordinances are anticipated to result in beneficial impacts to rare, threatened, or endangered species.

***Impacts to Sensitive Species***

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to sensitive species designated as species of special concern by the CDFG or the NMFS: 6 marine species that occur in Southern California off the coast of the County are listed as species of concern under NMFS (Table 3.2.2-3), and 11 avian marine species that occur in Southern California off the coast of the County are listed as species of special concern under CDFG jurisdiction (Table 3.2.2-5). The presence of plastic film is known to be a persistent problem in the marine environment that has potentially adverse impacts upon marine and avian species.[67,68,69,70,71,72] Therefore, preventing trash from entering water bodies, such as the Los Angeles River, has the potential to improve habitats and aquatic life.[73] The proposed ordinances would be anticipated to reduce the amount of trash entering water bodies in the County.[74] Therefore, there would be no expected adverse impacts to sensitive species designated as species of special concern by the CDFG or the NMFS, but the proposed ordinances would be anticipated to result in beneficial impacts to species of special concern.

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[63] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 1998. *Recovery Plan for U.S. Pacific Populations of the Olive Ridley Turtle*. Available at: http://www.nmfs.noaa.gov/pr/pdfs/recovery/turtle_oliveridley.pdf

[64] U.S. Fish and Wildlife Service. September 2008. *Short-tailed Albatross Recovery Plan*. Available at: http://alaska.fws.gov/fisheries/endangered/pdf/stal_recovery_plan.pdf

[65] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[66] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[67] Moore, Charles James. October 2008. "Synthetic Polymers in the Marine Environment: A Rapidly Increasing, Long-term Threat." In *Environmental Research*, *108* (2): 131–139.

[68] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[69] National Research Council. 2008. "Tackling Marine Debris in the 21st Century." Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. Washington, D.C.

[70] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[71] Arthur, C., J. Baker and H. Bamford (eds). 2009. "Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris. Sept 9–11, 2008." NOAA Technical Memorandum NOS-OR&R-30.

[72] David, K., A. Barnes, Francois Galgani, Richard C. Thompson and Morton Barlaz. 2009. "Accumulation and Fragmentation of Plastic Debris in Global Environments." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1985–1998.

[73] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[74] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

### *Impacts to Locally Important Species*

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to locally important species. The presence of plastic film is known to be a persistent problem in the marine environment that has potentially adverse impacts upon species.[75,76,77,78,79,80] Therefore, preventing trash from entering water bodies, such as the Los Angeles River, has the potential to improve habitats and aquatic life.[81] The proposed ordinances would be anticipated to reduce the amount of trash entering water bodies in the County.[82] Therefore, there would be no expected adverse impacts to locally important species, but the proposed ordinances would be anticipated to result in beneficial impacts to locally important species.

### *Impacts to Federally Protected Wetlands*

The proposed ordinances would not be expected to result in adverse impacts to federally protected wetlands pursuant to Section 404 of the CWA. The proposed ordinances would be anticipated to improve surface water quality by reducing the potential for plastic carryout bags to end up in surface waters.[83] Therefore, there would be no expected adverse impacts to federally protected wetlands pursuant to Section 404 of the CWA; however, the proposed ordinances would be anticipated to result in beneficial impacts to federally protected wetlands.

### *Impacts to Migratory Corridors and/or Nursery Sites*

The proposed ordinances would not be expected to result in adverse impacts to known migratory routes or nursery sites. Plastic litter has been known to block sea turtle hatchling migration.[84] The

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[75] Moore, Charles James. October 2008. "Synthetic Polymers in the Marine Environment: A Rapidly Increasing, Long-term Threat." In *Environmental Research*, *108* (2): 131–139.

[76] California Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[77] National Research Council of the National Academies, Committee on the Effectiveness of National and International Measures to Prevent and Reduce Marine Debris and Its Impacts. 2008. *Tackling Marine Debris in the 21st Century*. Washington, D.C.: National Academies Press.

[78] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[79] Arthur, C., J. Baker and H. Bamford (eds). 2009. "Proceedings of the International Research Workshop on the Occurrence, Effects and Fate of Microplastic Marine Debris. Sept 9–11, 2008." National Oceanic and Atmospheric Administration Technical Memorandum NOS-OR&R-30.

[80] David, K., A. Barnes, Francois Galgani, Richard C. Thompson and Morton Barlaz. 2009. "Accumulation and Fragmentation of Plastic Debris in Global Environments." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1985–1998.

[81] Regional Water Quality Control Board, Los Angeles Region. Revised 27 July 2007. "Trash Total Maximum Daily Loads for the Los Angeles River Watershed." Los Angeles, CA.

[82] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[83] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[84] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

proposed ordinances would be anticipated to reduce the amount of plastic carryout bag litter in the County.[85] Therefore, there would be no expected adverse impacts from the proposed ordinances to migratory routes or nursery sites; however, the proposed ordinances would be anticipated to result in potential beneficial impacts to migratory routes or nursery sites.

***Conflict with the Policies Established by the County of Los Angeles General Plan to Provide Protection for Threatened and Endangered Species***

The proposed ordinances would not be expected to conflict with policies established by the County General Plan. The proposed ordinances would be consistent with the goals of the County General Plan to preserve and protect ecological areas and biotic resources. Therefore, there would be no expected adverse impacts with local policies related to threatened or endangered species.

***Conflict with the Provisions of an Adopted Habitat Conservation Plan or Natural Community Conservation Plan***

The proposed ordinances would not be expected to conflict with an adopted Habitat Conservation Plan or Natural Community Conservation Plan, or other approved state, local, or regional plan. There are several plans throughout the County with the aim to protect habitats and species including the Newhall Farm Seasonal Crossings Habitat Conservation Plan and the Linden H. Chandler Preserve PV Blue Reintroduction Habitat Conservation Plan. As the proposed ordinances would be anticipated to reduce the amount of plastic carryout bag litter in the County,[86] the proposed ordinances would not be anticipated to conflict with the provisions of an adopted conservation plan in the County. The reduction of plastic bag litter in the various habitats throughout the County would be expected to result only in potentially beneficial impacts to species and habitats, thereby conforming to the requirements of adopted conservation plans. Therefore, there would be no expected adverse impacts to locally important species.

***Cumulative Impacts***

The incremental impact of the proposed ordinances, when evaluated in relation to the closely related past, present, or reasonably foreseeable, probable future projects, would not be expected to cause significant adverse impacts to biological resources. Therefore, implementation of the proposed ordinances would not cause an incremental impact when considered with the related past, present, reasonably foreseeable, probable future projects.

### 3.2.5 Mitigation Measures

Implementation of the proposed ordinances would not be expected to result in significant adverse impacts to biological resources. Therefore, no mitigation is required.

[85] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[86] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

### 3.2.6 Level of Significance after Mitigation

Implementation of the proposed ordinances would not be expected to result in a significant adverse impact related to biological resources that would need to be reduced to below the level of significance.

## 3.3 GREENHOUSE GAS EMISSIONS

As a result of the Initial Study,[1] it was identified that the proposed ordinances may have the potential to result in significant impacts to greenhouse gas (GHG) emissions. Certain representatives of the plastic bag industry have claimed that banning the issuance of plastic carryout bags could result in the increased manufacture of paper carryout bags, which may lead to increased emissions of GHGs; therefore, the County has decided to present the analysis of GHG emissions in this EIR.

Between 1980 and 2007, the number of plastic bags manufactured in the United States has more than doubled (Table 3.3-1*, Plastic and Paper Bag Production from 1980 to 2007*). During the same period, the number of paper bags manufactured in the United States decreased nearly three fold (Table 3.3-1).

**TABLE 3.3-1**
**PLASTIC AND PAPER BAG PRODUCTION FROM 1980 TO 2007**

| Year | Plastic Bags and Sacks Produced (thousands of tons) | Paper Bags and Sacks Produced (thousands of tons) |
|---|---|---|
| 1980 | 390 | 3,380 |
| 1990 | 940 | 2,440 |
| 2000 | 1,650 | 1,490 |
| 2004 | 1,810 | 1,270 |
| 2005 | 1,640 | 1,120 |
| 2006 | 1,830 | 1,080 |
| 2007 | 1,010 | 1,140 |

**SOURCE:** U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

The analysis of GHG emissions consists of a summary of the regulatory framework to be considered in the decision-making process, a description of the existing conditions within the County, thresholds for determining if the proposed ordinances would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to GHG emissions has been analyzed in accordance with Appendix G of the State CEQA Guidelines.[2]

As discussed in Section 3.1, Air Quality, the unincorporated territory and the 88 incorporated cities of the County are within the SCAQMD portion of the SCAB and the AVAQMD portion of the Mojave MDAB. Significance thresholds for GHG emissions have not yet been adopted by SCAQMD or AVAQMD. Methodologies and modeling tools used to assess impacts to GHG emissions from the proposed ordinances have been undertaken in accordance with guidance provided by regulatory publications from the CAPCOA,[3] the State of California Attorney General,[4] CARB,[5] and the California

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles. Pasadena, CA.

[2] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[3] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[4] California Department of Justice, Office of the Attorney General. 21 May 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[5] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at:

Governor's Office of Planning and Research (OPR); [6] direct coordination with SCAQMD, [7] AVAQMD,[8] and CARB;[9] and a review of public comments received during the scoping period for the Initial Study for the proposed ordinances.

### 3.3.1 Greenhouse Gases and Effects

The six GHGs regulated by the Kyoto Protocol and AB 32 include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), sulphur hexafluoride ($SF_6$), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). These gases trap the energy from the sun and help maintain the temperature of the Earth's surface, creating a process known as the greenhouse effect. The sun emits solar radiation and provides energy to the Earth. Six percent of the solar radiation emitted by the sun is reflected back by the atmosphere surrounding the Earth, 20 percent of the solar radiation is scattered and reflected by clouds, 19 percent of the solar radiation is absorbed by the atmosphere and clouds, 4 percent of the solar radiation is reflected back to the atmosphere by the Earth's surface, and 51 percent of the solar energy is absorbed by the Earth. GHGs such as $CO_2$ and $CH_4$ are naturally present in the atmosphere. The presence of these gases prevents outgoing infrared radiation from escaping the Earth's surface and lower atmosphere, allowing incoming solar radiation to be absorbed by living organisms on Earth. Without these GHGs, the earth would be too cold to be habitable; however, an excess of GHGs in the atmosphere can cause global climate change by raising the Earth's temperature, resulting in environmental consequences related to snowpack losses, flood hazards, sea-level rises, and fire hazards.

Global climate change results from a combination of three factors: 1) natural factors such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; 2) natural processes within the Earth's climate system, such as changes in ocean circulation; and 3) anthropogenic activities, such as fossil fuel combustion, deforestation, reforestation, urbanization, and desertification, that change the composition of atmospheric gases. In its 2007 climate change synthesis report to policymakers, the Intergovernmental Panel on Climate Change (IPCC) concluded that "global GHG emissions due to human activities have grown since pre-industrial times, with an increase of 70 percent between 1970 and 2004."[10] Therefore, significant attention is being given to the anthropogenic causes of the increased GHG emissions level. In the review of regulatory publications from CAPCOA, [11] CARB,[12] the California Attorney General,[13] and OPR,[14] there is a consensus on the closely associated

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http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[6] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[7] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[8] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[9] Jeannie Blakeslee, Office of Climate Change, California Air Resources Board, Sacramento, CA. 16 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[10] Intergovernmental Panel on Climate Change. Approved 12–17 November 2007. *Climate Change 2007: Synthesis Report, Summary for Policymakers*, p. 5. Valencia, Spain. Available at: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

[11] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[12] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

relationship between fossil fuel combustion, in conjunction with other human activities, and GHG emissions. In California, GHG emissions are largely contributed by the transportation sector, which was responsible for 35 percent and 38 percent of statewide 1990 and 2004 GHG emissions, respectively; followed by the electricity generation sector, which was responsible for 25 percent of statewide emissions in 1990 and 2004; the industrial sector, which was responsible for 24 percent and 20 percent of statewide 1990 and 2004 GHG emissions; and the commercial sector, which was responsible for 3 percent of statewide emissions in 1990 and 2004 (Figure 3.3.1-1, *California 1990 GHG Emissions,* and Figure 3.3.1-2, *California 2004 GHG Emissions*).[15]

The characteristics and effects of three GHGs and a group of fluorinated GHGs, including $SF_6$, HFCs, and PFCs, are described to set the context for the analysis.

***Carbon Dioxide ($CO_2$)***

$CO_2$ is a colorless, odorless, and nonflammable gas that is the most abundant GHG in the Earth's atmosphere after water vapor. $CO_2$ enters the atmosphere through natural process such as respiration and forest fires, and through human activities such as the burning of fossil fuels (oils, natural gas, and coal) and solid waste, deforestation, and industrial processes. $CO_2$ absorbs terrestrial infrared radiation that would otherwise escape to space, and therefore plays an important role in warming the atmosphere. $CO_2$ has a long atmospheric lifetime of up to 200 years, and is therefore a more important GHG than water vapor, which has a residence time in the atmosphere of only a few days. $CO_2$ provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of $CO_2$ is equal to 1.

***Methane ($CH_4$)***

$CH_4$ is a principal component of natural gas and consists of a single carbon atom bonded to four hydrogen atoms. It is formed and released to the atmosphere by biological processes from livestock and other agricultural practices and by the decay of organic waste in anaerobic environments such as municipal solid waste landfills. $CH_4$ is also emitted during the production and transport of coal, natural gas, and oil. $CH_4$ is about 21 times more powerful at warming the atmosphere than $CO_2$ (a GWP of 21). Its chemical lifetime in the atmosphere is approximately 12 years. The relatively short atmospheric lifetime of $CH_4$, coupled with its potency as a GHG, makes it a candidate for mitigating global warming over the near-term. $CH_4$ can be removed from the atmosphere by a variety of processes such as the oxidation reaction with hydroxyl radicals (OH), microbial uptake in soils, and reaction with chlorine (Cl) atoms in the marine boundary layer.

***Nitrous Oxide ($N_2O$)***

$N_2O$ is a clear and colorless gas with a slightly sweet odor. $N_2O$ has a long atmospheric lifetime (approximately 120 years) and heat trapping effects about 310 times more powerful than carbon dioxide on a per molecule basis (a GWP of 310). $N_2O$ is produced by both natural and human-related sources. The primary anthropogenic sources of $N_2O$ are agricultural soil management such as soil

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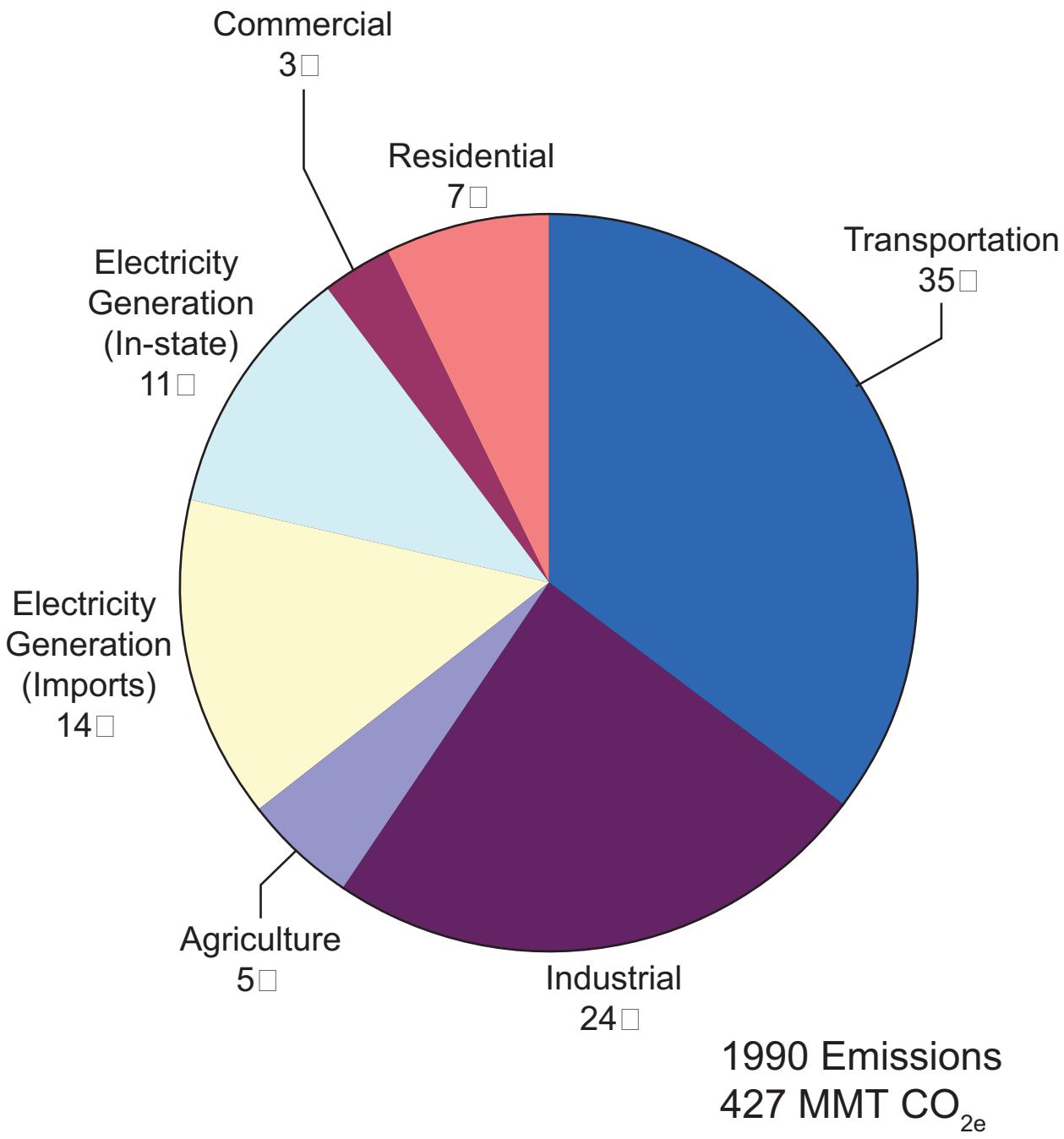
[13] California Department of Justice, Office of the Attorney General. Updated 9 December 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

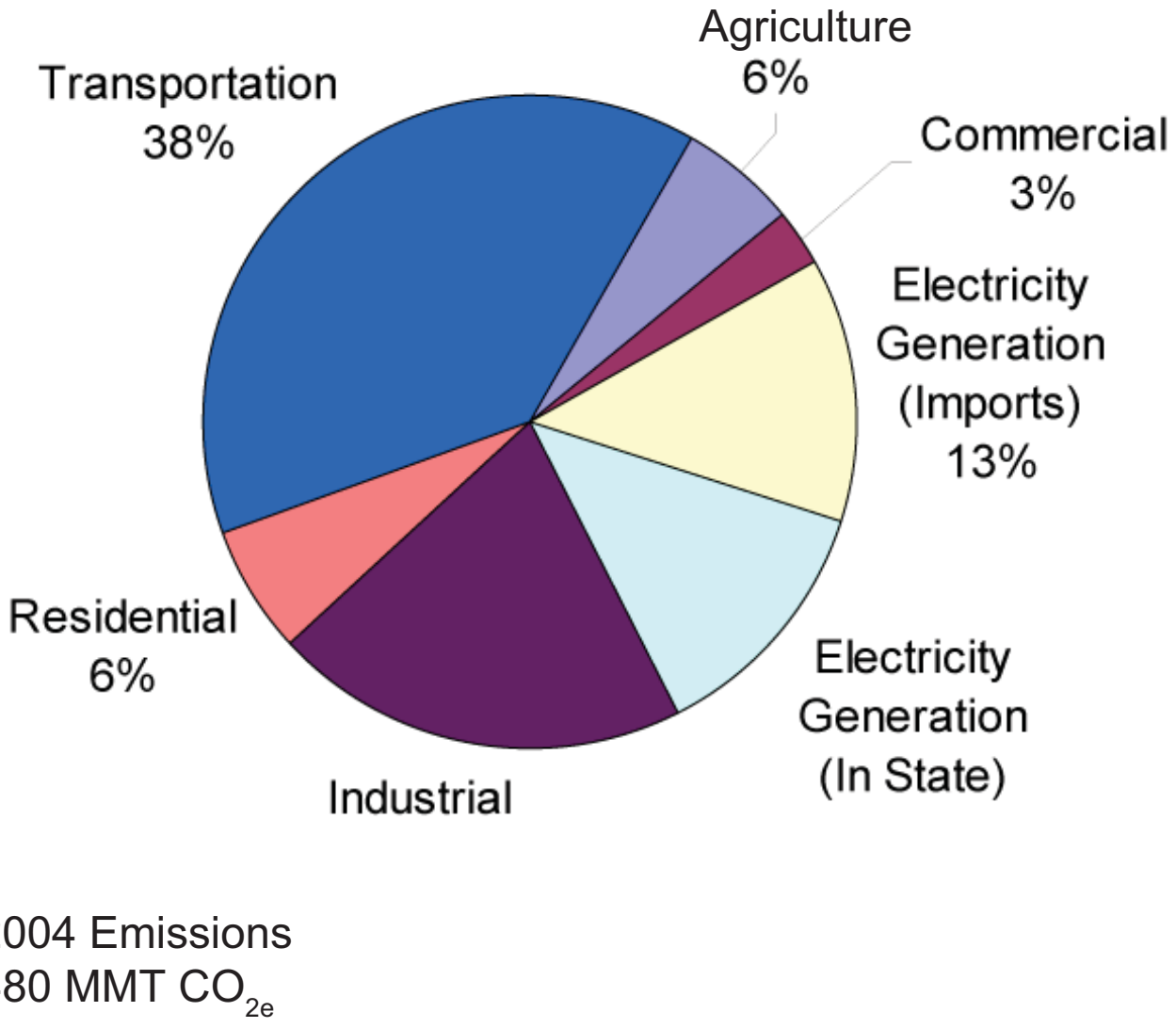
[14] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[15] California Air Resources Board. 16 November 2007. *California 1990 Greenhouse Gas Emissions Level and 2020 Limit*. Sacramento, CA.




**SOURCE:** California Air Resources Board. 2007. "California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit." Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm

**FIGURE 3.3.1-1**
California 1990 GHG Emissions




**SOURCE:** California Air Resources Board. 2007. "California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit." Available at: http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm

**FIGURE 3.3.1-2**
California 2004 GHG Emissions

cultivation practices, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, and production of adipic and nitric acids. The natural process of producing $N_2O$ ranges from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

***Fluorinated Gases***

HFCs, PFCs, and $SF_6$ are synthetic, powerful GHGs that are emitted from a variety of industrial processes, including aluminum production, semiconductor manufacturing, electric power transmission, magnesium production and processing, and the production of HCFC-22. Fluorinated gases are being used as substitutes for ozone-depleting chlorofluorocarbons (CFCs). Fluorinated gases are typically emitted in small quantities; however, they have high global warming potentials of between 140 and 23,900.[16]

### 3.3.2 Regulatory Framework

This regulatory framework identifies the federal, State, regional, and local laws that govern the regulation of GHG emissions and must be considered by the County when rendering decisions on projects that would have the potential to result in GHG emissions.

In October 2007, the CARB published a list of 44 early action measures to reduce GHG emissions in California.[17] This regulatory framework identifies State guidance on early GHG emissions reduction measures that warrants consideration by the County.

While the regulatory framework is discussed in detail below, it is important to note that the Governor's Office of Planning and Research (OPR) has been tasked with developing CEQA guidelines with regard to GHG emissions. OPR has indicated that many significant questions must be answered before a consistent, effective, and workable process for completing climate change analyses can be created for use in CEQA documents. No federal or State agency (e.g. USEPA, CARB, or SCAQMD) responsible for managing air quality emissions has promulgated a global warming significance threshold that may be used in reviewing newly proposed projects. On a local level, the County has not adopted a climate change significance threshold. Neither the CEQA Statutes nor the CEQA Guidelines establish thresholds of significance or particular methodologies for performing an impact analysis. The determination of significance is left to the judgment and discretion of the lead agency.

***Federal***

*Federal Clean Air Act*

The federal CAA requires that federally supported activities must conform to the State Implementation Plan (SIP), whose purpose is that of attaining and maintaining the NAAQS. Section 176 (c) of the CAA as amended in 1990, established the criteria and procedures by which the Federal Highway Administration (United States Code, Title 23), the Federal Transit Administrations,[18] and metropolitan

[16] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1*. Los Angeles, CA.

[17] California Air Resources Board. October 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*. Available at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf

[18] U.S. Environmental Protection Agency. 26 September 1996. "Approval and Promulgation of Implementation Plans and Redesignation of Puget Sound, Washington for Air Quality Planning Purposes: Ozone." In *Federal Register*, *61* (188). Available at:

planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to SIPs. The provisions of Code of Federal Regulations, Title 40, Parts 51 and 93,[19] apply in all non-attainment and maintenance areas for transportation-related criteria pollutants for which the area is designated non-attainment or has a maintenance plan.

The USEPA sets NAAQS. Primary standards are designed to protect public health, including sensitive individuals such as the children and the elderly, whereas secondary standards are designed to protect public welfare, such as visibility and crop or material damage. The CAA requires the USEPA to routinely review and update the NAAQS in accordance with the latest available scientific evidence. For example, the USEPA revoked the annual $PM_{10}$ standard in 2006 due to a lack of evidence linking health problems to long-term exposure to $PM_{10}$ emissions. The 1-hour standard for $O_3$ was revoked in 2005 in favor of a new 8-hour standard that is intended to be more protective of public health.

Areas designated as severe-17 for non-attainment of the federal 8-hour $O_3$ standard, such as the County, are required to reach attainment levels within 17 years after designation. Areas designated as Serious for non-attainment of the federal $PM_{10}$ air quality standard have a maximum of 10 years to reduce $PM_{10}$ emissions to attainment levels. All non-attainment areas for $PM_{2.5}$ have 3 years after designation to meet the $PM_{2.5}$ standards. The SCAB has until 2021 to achieve the 8-hour $O_3$ standards and 2010 to achieve the $PM_{2.5}$ air quality standards.[20] Section 182(e)(5) of the federal CAA allows the USEPA administrator to approve provisions of an attainment strategy in an "extreme" area that anticipates development of new control techniques or improvement of existing control technologies if the State has submitted enforceable commitments to develop and adopt contingency measures to be implemented if the anticipated technologies do not achieve planned reductions.

Non-attainment areas that are classified as Serious or Worse are required to revise their air quality management plans to include specific emission reduction strategies in order to meet interim milestones in implementing emission controls and improving air quality. The USEPA can withhold certain transportation funds from states that fail to comply with the planning requirements of the CAA. If a state fails to correct these planning deficiencies within two years of federal notification, the USEPA is required to develop a federal implementation plan for the identified non-attainment area or areas.

***State***

*California Clean Air Act*

The California CAA of 1988 requires all air-pollution control districts in the State to endeavor to achieve and maintain State ambient air quality standards by the earliest practicable date and to develop plans and regulations specifying how they will meet this goal. On April 2, 2007, the Supreme Court ruled in *Massachusetts, et al. v. Environmental Protection Agency, et al.* (549 U.S. 1438; 127 S. Ct. 1438) that the CAA gives the USEPA the authority to regulate emissions of GHGs, including $CO_2$, $CH_4$, $N_2O$, and fluorinated gases, such as HFCs, PFCs, and $SF_6$,[21] thereby legitimizing GHGs as air pollutants under the CAA.

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http://yosemite.epa.gov/r10/airpage.nsf/283d45bd5bb068e68825650f0064cdc2/e1f3db8b006eff1a88256dcf007885c6/$FILE/61%20FR%2050438%20Seattle%20Tacoma%20Ozone%20MP.pdf

[19] U.S. Environmental Protection Agency. 15 August 1997. "Transportation Conformity Rule Amendments: Flexibility and Streamlining." In *Federal Register, 62* (158). Available at: http://www.epa.gov/EPA-AIR/1997/August/Day-15/a20968.htm

[20] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[21] U.S. Supreme Court. 2 April 2007. *Massachusetts, et al., v. Environmental Protection Agency, et al.* 549 U.S. 1438; 127 S. Ct. 1438. Washington, DC.

*Executive Order S-3-05*

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. Recognizing that California is particularly vulnerable to the impacts of climate change, Executive Order S-3-05 establishes statewide climate change emission reduction targets to reduce $CO_{2equivalent}$ ($CO_{2e}$) to the 2000 level (473 million metric tons) by 2010, to the 1990 level (427 million metric tons of $CO_{2e}$) by 2020, and to 80 percent below the 1990 level (85 million metric tons of $CO_{2e}$) by 2050 (Table 3.3.2-1, *California Business-as-usual Greenhouse Gas Emissions and Targets*).[22,23] The executive order directs the Cal/EPA Secretary to coordinate and oversee efforts from multiple agencies (i.e., Secretary of the Business, Transportation and Housing Agency; Secretary of the Department of Food and Agriculture; Secretary of the Resources Agency; Chairperson of the Air Resources Board; Chairperson of the Energy Commission; and President of the Public Utilities Commission) to reduce GHG emissions to achieve the target levels. In addition, the Cal/EPA Secretary is responsible for submitting biannual reports to the governor and State legislature that outline 1) progress made toward reaching the emission targets, 2) impacts of global warming on California's resources, and 3) measures and adaptation plans to mitigate these impacts. To further ensure the accomplishment of the targets, the Secretary of Cal/EPA created a Climate Action Team made up of representatives from agencies listed above to implement global warming emission reduction programs and report on the progress made toward meeting the statewide GHG targets established in this executive order. In 2006, the first report was released and identified that "the climate change emission reduction targets [could] be met without adversely affecting the California economy," and "when all [the] strategies are implemented, those underway and those needed to meet the Governor's targets, the economy will benefit."[24]

**TABLE 3.3.2-1**
**CALIFORNIA BUSINESS-AS-USUAL GREENHOUSE GAS EMISSIONS AND TARGETS**

| California Business-as-usual Greenhouse Gas Emissions and Targets (Million Metric Tons of $CO_{2Equivalent}$) | | | | | |
|---|---|---|---|---|---|
| **Year** | **1990** | **2000** | **2010** | **2020** | **2050** |
| Business-as-usual emissions | 427 | 473 | 532 | 596 | 762[1] |
| Target emissions | — | — | 473 | 427 | 85 |

**SOURCE:** California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change.* Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

**NOTE:**

1. The CARB has not yet projected 2050 emissions under a business-as-usual scenario; therefore, 2050 business-as-usual emissions were calculated assuming a linear increase of emissions from 1990 to 2050.

*Assembly Bill 32: Global Warming Solutions Act of 2006*

In September 2006, Governor Arnold Schwarzenegger signed into law the Global Warming Solutions Act, or AB 32, which requires a statewide commitment and effort to reduce GHG emissions to 1990 levels by 2020 (25 percent below business-as-usual).[25] This intended reduction in GHG emissions

[22] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[23] California Climate Action Team. 3 April 2006. *Climate Action Team Report to Governor Schwarzenegger and the California Legislature.* Sacramento, CA.

[24] California Climate Action Team. 12 January 2006. *Final Draft of Chapter 8 on Economic Assessment of the Draft Climate Action Team Report to the Governor and Legislature.* Sacramento, CA.

[25] California Air Resources Board. Assembly Bill 32, California Climate Solutions Act of 2006. Sacramento, CA. Available at: http://www.arb.ca.gov/cc/docs/ab32text.pdf

will be accomplished with an enforceable statewide cap on GHG emissions, which will be phased in 2012. To effectively implement the cap, AB 32 requires CARB to develop appropriate regulations and establish a mandatory reporting system to track and monitor global warming emissions levels from stationary sources.

This bill is the first statewide policy in the United States to mitigate GHG emissions and to include penalties for non-compliance. Consistent with goals and targets set by other actions taking place at the regional and international levels, AB 32 sets precedence in inventorying and reducing GHG emissions.

In passing AB 32, the State legislature acknowledged that global warming and related effects of climate change are a significant environmental issue, particularly the anthropogenic causes that are believed to be largely attributable to increased concentration of GHGs in the atmosphere. The proposed ordinances would primarily impact the commercial sector, as it intends to ban retail establishments from distributing plastic carryout bags. Any potential decrease or increase in GHG emissions that could be attributed to the proposed ordinances would have the potential to impact statewide GHG emissions; therefore, potential incremental contributions to GHG emissions are analyzed in this EIR.

*Executive Order S-20-06*

On October 17, 2006, Governor Arnold Schwarzenegger signed Executive Order S-20-06, which calls for continued efforts and coordination among State agencies on the implementation of GHG emission reduction policies and AB 32 and Health and Safety Code (Division 25.5) through the design and development of a market-based compliance program.[26] In addition, Executive Order S-20-06 requires the development of GHG reporting and reduction protocols and a multi-state registry through joint efforts among CARB, Cal/EPA, and the California Climate Action Registry (CCAR). Executive Order S-20-06 directs the Secretary for Environmental Protection to coordinate with the Climate Action Team to develop a plan to create incentives for market-based mechanisms that have the potential of reducing GHG emissions.[27]

*California Senate Bill 97*

Approved by Governor Arnold Schwarzenegger on August 24, 2007, Senate Bill (SB) 97 is designed to work in conjunction with the State CEQA Guidelines and AB 32. Pursuant to the State CEQA Guidelines, the OPR is required to prepare for and develop proposed guidelines for implementation of CEQA by public agencies. Pursuant to AB 32, the CARB is required to monitor and regulate emission sources of GHGs that cause global warming in order to reduce GHG emissions. SB 97 states, "SB 97 requires OPR, by July 1, 2009, to prepare, develop, and transmit to the [CARB] guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption."[28] As directed by SB 97, the Natural Resources Agency adopted amendments to the CEQA Guidelines for GHG emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

[26] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

[27] California Governor. 2006. Executive Order S-20-06. Sacramento, CA.

[28] California Governor's Office of Planning and Research. 24 August 2007. Senate Bill No. 97, Chapter 185. Available at: http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf

In addition, OPR and CARB are required to periodically update the guidelines to incorporate new information or criteria established by CARB pursuant to AB 32. SB 97 applies to any environmental documents, including an EIR, a Negative Declaration, a Mitigated Negative Declaration, or other documents required by CEQA that have not been certified or adopted by the CEQA lead agency by the date of the adoption of the regulations.

*State of California Office of the Attorney General Guidance Letter on California Environmental Quality Act, Addressing Global Warming Impacts at the Local Agency Level*

On May 21, 2008, the California Office of the Attorney General provided guidance to public agencies on how to address global warming impacts in CEQA documents. In the publication entitled *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*, the Office of Attorney General directs public agencies to take a leadership role in integrating sustainability into public projects by providing 52 project-level mitigation measures for consideration in the development of projects.[29] In addition, the Office of Attorney General has negotiated four settlement agreements under CEQA, all of which require the project proponents to consider sustainable design for projects and feasible mitigation measures and alternatives to substantially lessen global warming related effects.

*State of California Office of Planning and Research Technical Advisory*

On June 19, 2008, the California OPR provided guidance on how to address climate change in CEQA documents. In the technical advisory, *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, OPR issues technical guidance on how to perform GHG analyses in the interim before further State guidelines become available.[30]

*California Climate Action Registry*

Established in 2001, the CCAR is a private non-profit organization originally formed by the State of California. The CCAR serves as a voluntary GHG registry and has taken a leadership role on climate change by developing credible, accurate, and consistent GHG reporting standards and tools for businesses, government agencies, and non-profit organizations to measure, monitor, and reduce GHG emissions. For instance, the CCAR General Reporting Protocol, version 3.1, dated January 2009, provides the principles, approach, methodology, and procedures required for voluntary GHG emissions reporting by businesses, government agencies, and non-profit organizations. In 2007, the County became a member of the CCAR and has committed its efforts to monitor, report, and reduce GHG emissions pursuant to its participation in the CCAR.

***Regional***

*South Coast Air Quality Management District*

The SCAQMD, which monitors air quality within the County, has jurisdiction over an area of approximately 10,743 square miles and a population of over 16 million. The 1977 Lewis Air Quality Management Act created SCAQMD to coordinate air quality planning efforts throughout Southern

[29] California Department of Justice, Office of the Attorney General. 21 May 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[30] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

California. This act merged four county air pollution agencies into one regional district to improve air quality in Southern California. SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain federal and State Ambient Air Quality Standards in the district. In addition, SCAQMD is responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or related stationary sources do not create net emission increases.

On a regional level, SCAQMD and the Southern California Association of Governments (SCAG) have responsibility under State law to prepare the Air Quality Management Plan (AQMP), which contains measures to meet State and federal requirements. When approved by CARB and the USEPA, the AQMP becomes part of the SIP.

The most recent update to the SCAQMD AQMP was prepared for air quality improvements to meet both State and federal CAA planning requirements for all areas under AQMP jurisdiction. This update was adopted by CARB for inclusion in the SIP on September 27, 2007. The AQMP sets forth strategies for attaining the federal $PM_{10}$ and $PM_{2.5}$ air quality standards and the federal 8-hour $O_3$ air quality standard, as well as meeting State standards at the earliest practicable date. With the incorporation of new scientific data, emission inventories, ambient measurements, control strategies, and air quality modeling, the 2007 AQMP focuses on $O_3$ and $PM_{2.5}$ attainments.

SCAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills, was adopted by SCAQMD in 1985 to limit landfill emissions to prevent public nuisance and protect public health. Rule 1150.1 applies to all active landfills in the SCAB and requires the installation of a control system that is designed to reduce total organic carbon emissions including $CH_4$.

On September 5, 2008, the SCAQMD Governing Board approved the SCAQMD Climate Change Policy, which directs SCAQMD to assist the State, cities, local governments, businesses, and residents in areas related to reducing emissions that contribute to global warming.[31]

Pursuant to the policy, the SCAQMD will accomplish the following:

a. Establish climate change programs
b. Implement SCAQMD command-and-control and market-based rules
c. Review and comment on future legislation related to climate change and GHGs
d. Prioritize projects that reduce both criteria and toxic pollutants and GHG emissions
e. Provide guidance on analyzing GHG emissions and identify mitigation measures to CEQA projects
f. Provide revisions to *SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning*[32] consistent with the State guidance to include information on GHG strategies as a resource for local governments
g. Update the SCAQMD's GHG inventory in conjunction with each AQMP and assist local governments in developing GHG inventories
h. Reduce SCAQMD climate change impacts

[31] South Coast Air Quality Management District. 5 September 2008. *SCAQMD Climate Change Policy*. Diamond Bar, CA. Available at: http://www.aqmd.gov/hb/2008/September/080940a.htm

[32] South Coast Air Quality Management District. 6 May 2005. *Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning.* Diamond Bar, CA.

i. Inform the public on various aspects of climate change, including understanding impacts, technology advancement, public education, and other emerging aspects of climate change science

Therefore, SCAQMD Climate Change Policy aims to decrease SCAQMD's carbon footprint, assist businesses and local governments with implementation of climate change measures, and provide information regarding climate change to the public.

*Antelope Valley Air Quality Management District*

The Antelope Valley portion of the County was detached from the SCAQMD when AB 2666 (Knight) established the AVAQMD in 1997 due to the fact that the Antelope Valley portion of the County is located in a different air basin than the rest of the SCAQMD. The Antelope Valley, located in the western MDAB portion of north Los Angeles County, is bounded by the San Gabriel Mountains to the south and west, the Kern County border to the north, and the San Bernardino County border to the east. Antelope Valley exceeds the federal $O_3$ standards. At a public hearing held on June 26, 2008, the CARB approved an SIP revision for attainment of the 8-hour $O_3$ NAAQS in the Antelope Valley. The AVAQMD Federal 8-Hour Ozone Attainment Plan provides planning strategies for attainment of the 8-hour NAAQS for $O_3$ by 2021, by targeting reductions in the emissions of VOCs and $NO_x$.[33]

As with SCAQMD Rule 1150.1, AVAQMD Rule 1150.1 requires the installation of a control system that is designed to reduce total organic carbon emissions from active landfills including $CH_4$.

***Local***

*County of Los Angeles General Plan*

The jurisdiction of the proposed County ordinance is within the County; therefore, development in the area is governed by the policies, procedures, and standards set forth in the County General Plan. The proposed ordinance would be expected to be consistent with the County General Plan governing air quality and would not be expected to result in a change to the population growth assumption used by the SCAG for attainment planning. The County General Plan has developed goals and policies for improving air quality in the County. Many policies are transportation-based because of the direct link between air quality and the circulation element. There is one objective and related policy relevant to the County's proposed ordinance that is capable of contributing toward avoiding and reducing the generation of GHG emissions:[34]

- **Objective:** To support local efforts to improve air quality.
- **Policy:** Actively support strict air quality regulations for mobile and stationary sources, and continued research to improve air quality. Promote vanpooling, carpooling, and improved public transportation.

[33] Antelope Valley Air Quality Management District. 20 May 2008. *AVAQMD Federal 8-Hour Ozone Attainment Plan*. Lancaster, CA.

[34] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA. Available at: http://ceres.ca.gov/docs/data/0700/791/HYPEROCR/hyperocr.html

*City General Plans*

Any incorporated city within the County that adopts individual ordinances based on the proposed County ordinance will need to determine if they must comply with the adopted GHG emission policies set forth in the respective city general plans, if any.

*County of Los Angeles Energy and Environmental Policy*

The County Board of Supervisors adopted a Countywide energy and environmental policy (Policy No. 3.045), which became effective on December 19, 2006.[35] The goal of this policy is to provide guidelines for development, implementation, and enhancement of energy conservation and environmental programs within the County. The policy established an Energy and Environmental Team to coordinate the efforts of various County departments, established a program to integrate sustainable technologies into its Capital Project Program, established an energy consumption reduction goal of 20 percent by the year 2015 in County facilities, and became a member of the CCAR to assist the County in establishing goals for reducing GHG emissions. In addition, the policy included four program areas to promote green design and operation of County facilities and reduce the County's environmental footprint. Goals and initiatives for each program area are included as follows:

Energy and Water Efficiency

- Implementing and monitoring energy and water conservation practices
- Implementing energy and water efficiency projects
- Enhancing employee energy and water conservation awareness through education and promotions

Environmental Stewardship

- Investigating requirements and preferences for environmentally friendly packaging, greater emphasis on recycled products, and minimum energy efficiency standards for appliances
- Placing an emphasis on recycling and landfill volume reduction within County buildings
- Investigating the use of environmentally friendly products
- Supporting environmental initiatives through the investigation of existing resource utilization

Public Outreach and Education

- Implementing a program that provides County residents with energy-related information, including energy and water conservation practices, utility rates and rate changes, rotating power outage information, emergency power outage information, and energy efficiency incentives
- Seeking collaboration with local governments, public agencies, and County affiliates to strengthen regional, centralized energy and environmental

[35] County of Los Angeles, Board of Supervisors. 19 December 2006. "Policy No. 3.045, Energy and Environmental Policy." *Los Angeles County Board of Supervisors Policy Manual*. Available at: http://countypolicy.co.la.ca.us/

management resources and identify and develop opportunities for information and cost sharing in energy management and environmental activities

Sustainable Design

- Enhancing building sustainability through the integration of green, sustainable principles into the planning, design, and construction of County capital projects, which complement the functional objectives of the project, extend the life cycle / useful life of buildings and sites, optimize energy and water use efficiency, improve indoor environmental quality and provide healthy work environments, reduce ongoing building maintenance requirements, and encourage use and reuse of environmentally friendly materials and resources
- Establishing a management approach that instills and reinforces the integration of sustainable design principles into the core competency skill set of the County's planner, architects, engineers, and project managers
- Establishing practical performance measures to determine the level of sustainability achieved relative to the objectives targeted for the individual project and overall capital program

### 3.3.3 Existing Conditions

***South Coast Air Basin and Mojave Desert Air Basin***

The southern portion of the County falls within the SCAQMD and is located within the SCAB, which is composed of a 6,745-square-mile area and encompasses all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties (Figure 3.1.1-1). The northern portion of the County falls within the AVAQMD and is located within the MDAB, which includes the eastern portion of Kern County, the northeastern portion of Los Angeles County, San Bernardino County, and the easternmost portion of Riverside County (Figure 3.1.1-1). The analysis of existing conditions related to GHG emissions includes a summary of GHG emission levels prior to implementation of the proposed ordinances.

The County portion, including the incorporated cities, of the SCAB is a subregion of SCAQMD and is in an area of high air pollution potential due to its climate, topography, and urbanization. The climate of the SCAB is characterized by warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This mild climatological pattern is interrupted infrequently by extremely hot summers, winter storms, or Santa Ana winds. The SCAB is a coastal plain bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east; and the San Diego County line to the south. During the dry season, the Eastern Pacific High-Pressure Area (a semi-permanent feature of the general hemispheric circulation pattern) dominates the weather over much of Southern California, resulting in a mild climate tempered by cool sea breezes with light average wind speed. High mountains surround the rest of the SCAB's perimeter, contributing to the variation of rainfall, temperature, and winds in the SCAB.

The MDAB is composed of four air districts: the Kern County Air Pollution Control District, the AVAQMD, the Mojave Desert Air Quality Management District, and the eastern portion of the SCAQMD. The County portion of the MDAB is located within the AVAQMD, and its climate is characterized by hot, dry summers; mild winters; infrequent rainfalls; moderate to high wind episodes; and low humidity. The large majority of the MDAB is relatively rural and sparsely populated. The MDAB contains a number of mountain ranges interspersed with long, broad valleys

that often contain dry lakes. The Sierra Nevada Mountains provide a natural barrier to the north, preventing cold air masses from Canada and Alaska from moving down into the MDAB. Prevailing winds in the MDAB are out of the west and southwest, caused by air masses pushed onshore in Southern California by differential heating and channeled inland through mountain passes. During the summer months, the MDAB is influenced by the Eastern Pacific High-Pressure Area, inhibiting cloud formation and encouraging daytime solar heating. The San Gabriel and San Bernardino mountain ranges block the majority of cool, moist coastal air from the south, so the MDAB experiences infrequent rainfalls. The County portion of the MDAB, as recorded at a monitoring site in the City of Lancaster, averages fewer than 8 inches of precipitation per year[36] and is classified as a dry-hot desert climate.[37]

***Greenhouse Gas Emissions***

GHG emissions within the non-desert portion of the County are generated daily from vehicle exhaust emissions, industry, agriculture, and other anthropogenic activities. The Mojave Desert portion of the County is also affected by similar local and regional emission sources.

In order to establish a reference point for future GHG emissions, $CO_{2e}$ emissions are projected based on an unregulated business-as-usual GHG emissions scenario that does not take into account the reductions in GHG emissions required by Executive Order S-3-05 or AB 32. The CARB has stated that California contributed 427 million metric tons of GHG emissions in $CO_{2e}$ in 1990, and under a business-as-usual development scenario, would contribute approximately 596 million metric tons of $CO_{2e}$ emissions in 2020, presenting a linear upward trend in California's total GHG emissions levels (Figure 3.3.3-1, *California Business-as-usual Emissions and Targets*).

To characterize the GHG emissions business-as-usual conditions for the County, information on County population was collected from SCAG. It has been projected that the County would increase its population from approximately 10.6 million in 2010 to approximately 12.0 million in 2030.[38] Using the current $CO_{2e}$ emissions factor of 14 metric tons per capita,[39] the County would be expected to be responsible for approximately 149 million metric tons of $CO_{2e}$ emissions in 2010 under a business-as-usual emissions scenario, and each year, more GHGs would be expected to be emitted by the County than the previous year due to the increase in population (Table 3.3.3-1, *Characterization of Business-as-usual and Target GHG Emissions for the County*). Using the target emissions necessary for compliance with AB 32 reduction goals,[40] the County would be responsible for approximately 141 million metric tons of $CO_{2e}$ emissions in 2010 and 70 million metric tons of $CO_{2e}$ emissions in 2030 (Table 3.3.3-1). The 2010 data presented in Table 3.3.3-1 was used for the GHG analysis for the proposed ordinances, which will be submitted to the County Board of Supervisors for consideration in 2010.

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[36] Western Regional Climate Center. 5 April 2006. *Period of Record General Climate Summary—Precipitation*. Available at: http://www.wrcc.dri.edu/cgi-bin/cliGCStP.pl?cateha

[37] Antelope Valley Air Quality Management District. May 2005. *Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Available at: http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=916

[38] Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc., Pasadena, CA.

[39] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

[40] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*, p. 118 Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

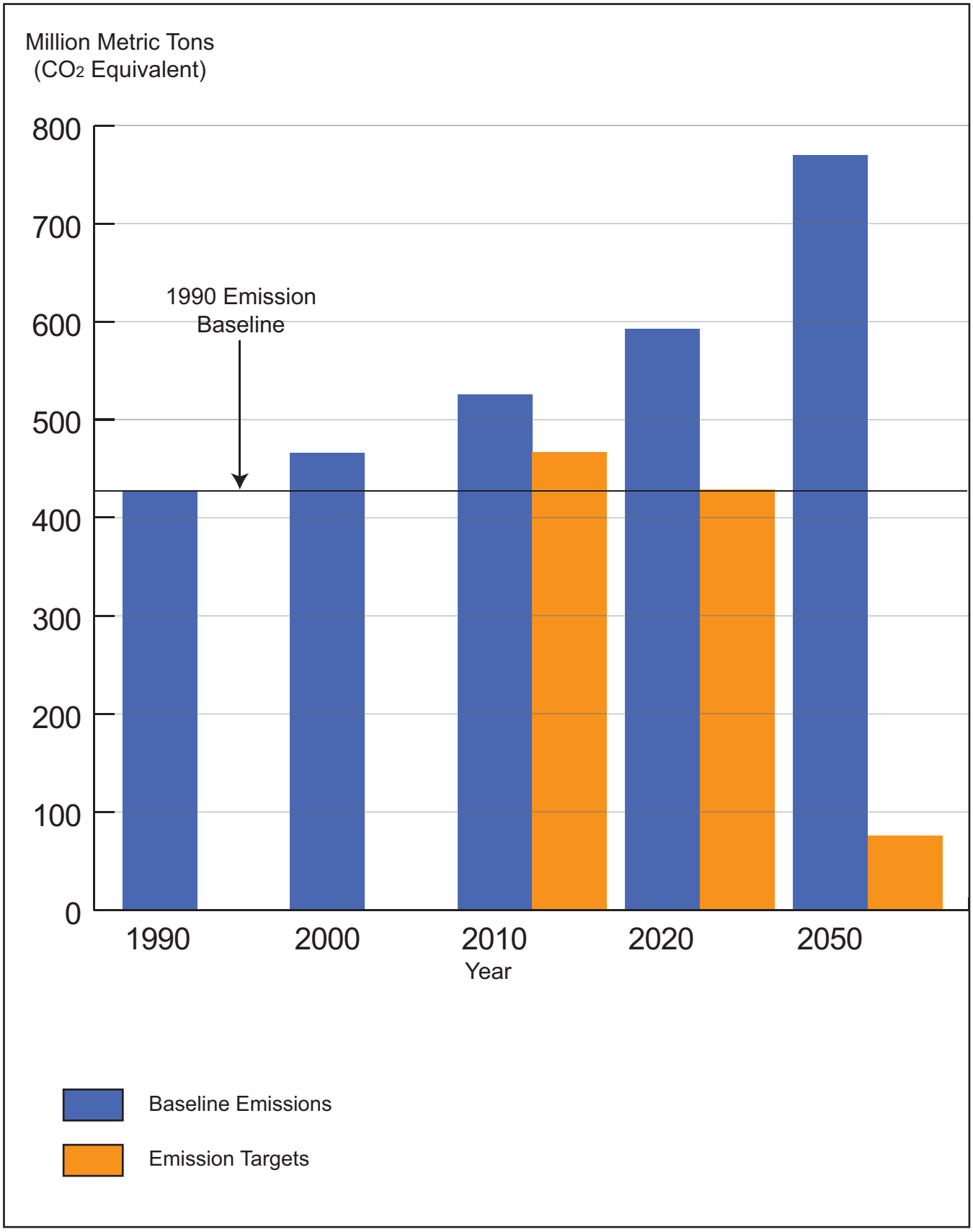


**FIGURE 3.3.3-1**
California Business as Usual Emissions and Targets

**TABLE 3.3.3-1**
**CHARACTERIZATION OF BUSINESS-AS-USUAL AND TARGET GHG EMISSIONS FOR THE COUNTY**

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | **2010** | **2013** | **2015** | **2020** | **2025** | **2030** |
| Population | 10,615,700 | 10,829,233 | 10,971,589 | 11,329,802 | 11,678,528 | 12,015,892 |
| CARB business-as-usual emission factor (metric tons of $CO_{2e}$/SP) | 14 | 14 | 14 | 14 | 14 | 14 |
| **Total business-as-usual County GHG emissions (million metric tons of $CO_{2e}$)** | **149** | **152** | **154** | **159** | **163** | **168** |
| CARB target emission factors (metric tons of $CO_{2e}$/SP) | 13.3 | 12.2 | 11.4 | 9.6 | 7.7 | 5.8 |
| **Total target County GHG emissions (million metric tons of $CO_{2e}$)** | **141** | **132** | **126** | **108** | **90** | **70** |

**SOURCES:**
1. Javier Minjares, Southern California Association of Governments. 2 June 2008. E-mail to William Meade, Sapphos Environmental, Inc. Pasadena, CA.
2. California Air Resources Board. 2008. *Summary of Population, Employment, and GHG Emissions Projections Data*. Sacramento, CA.

### 3.3.4 Significance Thresholds

The GHG emission impacts of the proposed ordinances may occur on a regional and global scale. The potential for the proposed ordinances to result in impacts related to GHG emissions was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines, namely, would the proposed ordinances have any of the following effects:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases

The State has not determined significance thresholds for evaluating potential impacts on GHG emissions under CEQA, beyond the general, qualitative questions contained in Appendix G of the State CEQA Guidelines. However, the County has analyzed the potential of the proposed ordinances to result in significant impacts related to GHG emissions based on the review of regulatory and

professional publications, the guidance on analyzing GHG emissions under CEQA provided by the California Office of the Attorney General[41] and OPR,[42] and the CARB.[43]

***Significance Criteria***

There are two significance criteria relevant to the consideration of the proposed ordinances:

- Inconsistency with laws and regulations in managing GHG emissions
- Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 million metric tons or 9.6 metric tons of $CO_{2e}$ per capita) by 2020 as required by AB 32

### 3.3.5 Impact Analysis

Methodology to assess the impacts of the proposed ordinances on GHG emissions has not been developed by SCAQMD, AVAQMD, or State or federal agencies. No quantitative significance thresholds have been established to determine the proposed ordinances' direct or indirect impacts on GHG emissions. Given the absence of methodology and quantitative thresholds to evaluate GHG emissions impacts of the proposed ordinances and the challenges associated with determining criteria for significance with regard to GHG emissions, the proposed ordinances' GHG emission impacts were analyzed both qualitatively and quantitatively based on a review of available data, modeling results, and life cycle assessments (LCAs).

This section analyzes the potential for significant impacts to GHG emissions that would be expected to occur from implementation of the proposed ordinances. The six GHGs regulated by AB 32 include $CO_2$, $CH_4$, $N_2O$, $SF_6$, HFCs, and PFCs. $SF_6$ is a gas that is used as insulation in electric power transmission and distribution equipment. Due to the fact that the proposed ordinances would not result in the construction of power transmission lines or the use of electrical power equipment, emissions of $SF_6$ would not be relevant to the proposed ordinances. PFCs and HFCs are also not applicable because they are refrigerants that would not be used as a direct result of the proposed ordinances, or in the manufacturing process of paper, plastic, or reusable bags. Therefore, the analysis of GHG emissions in this EIR focuses on $CO_2$, $CH_4$, and $N_2O$ emissions, which may occur as a result of the manufacture, distribution, and disposal of paper, plastic, or reusable bags. The emissions of $CO_2$, $CH_4$, and $N_2O$ are reported as $CO_{2e}$.

GHG emission impacts of projects are normally categorized into three major categories:

(1) *Construction Impacts*: temporary impacts, including GHG emissions from heavy equipment, delivery and dirt hauling trucks, employee vehicles, and paints and coatings.

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[41] California Department of Justice Office of the Attorney General. 21 May 2008. *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[42] California Governor's Office of Planning and Research. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Technical Advisory. Sacramento, CA.

[43] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

There are no construction impacts of the proposed ordinances because plastic carryout bags, paper carryout bags, and reusable bags are all currently manufactured and generally available in the marketplace.

(2) *Regional Operational Impacts*: direct GHG emissions from natural gas and electricity usage and vehicles traveling to and from a project site.

(3) *Cumulative Impacts*: GHG emissions resulting from the incremental impact of the project when added to other projects in the vicinity.

***Assessment Methods and Models***

Based on a survey of bag usage in the County conducted by Sapphos Environmental, Inc., reusable bags made up approximately 18 percent of the total number of carryout bags used in stores that did not make plastic carryout bags readily available to customers; however, reusable bags made up only approximately 2 percent of the total number of bags used in stores that did make plastic carryout bags readily available (Appendix A). Therefore, it is reasonable to estimate that a ban on the issuance of plastic carryout bags would increase the number of reusable bags used by customers by at least 15 percent. Accordingly, it can be assumed that, in a reasonable worst-case scenario, the proposed ordinances would potentially prompt an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags by store customers. Over time, however, as the proposed ordinances stay in effect and public education efforts are undertaken, the percentage of reusable bags used should increase, and the percentage of paper carryout bags used should decrease. For the purposes of this EIR, the analysis will analyze both an 85-percent conversion and a 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags in order to quantify the potential worst-case GHG emissions.

*Life Cycle Assessments*

During the scoping period for the Initial Study for the EIR for the proposed ordinances, concerns were raised by certain members of the plastic bag industry that the proposed ordinances might be expected to have an indirect impact upon GHG emissions due to a potential increase in the production, manufacture, distribution, and disposal of paper carryout bags. For the purposes of this EIR, GHG emissions will be evaluated in three main areas; (1) potential indirect GHG emissions resulting from the life cycle of carryout bags, (2) potential indirect GHG emissions resulting from the disposal of carryout bags in landfills, and (3) potential indirect GHG emissions resulting from increased delivery truck trips. One way to analyze these indirect impacts is to review available LCAs that quantify GHG emissions of various types of bags. An LCA assesses environmental impacts by analyzing the entire life cycle of a product, process, or activity, including extraction and processing of raw materials, manufacturing, transportation and distribution, use/reuse/maintenance, recycling, and final disposal.[44] An LCA considers each individual process within specific geographical boundaries, identifies relevant inputs (such as energy, water, and raw materials), and calculates outputs (such as GHG emissions) that are associated with each process. Although this method enables very specific and detailed analyses, the extensive data requirements of the method make it highly complicated. The comparison of two LCAs of the same product can be challenging due to differences in system boundaries, differences in the definition of a particular product, different functional units and input parameters, and the application of different methodologies. When comparing LCAs for different types of carryout bags produced and disposed in different countries, material selection, manufacturing technologies, energy mixes, and end-of-life fates can differ widely and are not always comparable.[45]

[44] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[45] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by

*URBEMIS Model*

The methodology used in this EIR to analyze GHG emission impacts due to delivery truck trips is consistent with the methods described in the 1993 *CEQA Air Quality Handbook*.[46] The URBEMIS 2007, version 9.2.4, was used to estimate operational emissions from truck delivery trips to and from the stores that would be affected by the proposed ordinances. URBEMIS is a computer program that can be used to estimate emissions associated with land development projects in California such as residential neighborhoods, shopping centers, and office buildings; area sources such as gas appliances, wood stoves, fireplaces, and landscape maintenance equipment; and construction projects. The URBEMIS 2007 model directly calculates $CO_2$ emissions. URBEMIS does not currently estimate $CH_4$ and $N_2O$ emissions from combustion sources. However, $CO_2$ emissions reported from URBEMIS in this EIR are essentially the same as $CO_{2e}$ emissions because $CH_4$ and $N_2O$ emissions from mobile sources are negligible in comparison to $CO_2$ emissions.

*EMFAC 2007 Model*

The CARB Emissions Factors (EMFAC) 2007 model, version 2.3, was used to evaluate the proposed ordinances' GHG emissions caused by delivery truck trips, based on the expected vehicle fleet mix, vehicle speeds, trip distances, and temperature conditions for the estimated effective date of the proposed ordinances. The EMFAC 2007, version 2.3, which is imbedded within the URBEMIS 2007 model, includes emission factors for $CO_2$. In this analysis, vehicle speeds, trip distances, and temperature conditions were based on the default values in the URBEMIS 2007 and EMFAC 2007 models. The simulations assume summer conditions, which result in a conservative, higher-emission scenario. The vehicle fleet mix was defined as a mixture of light to heavy trucks (less than 3,750 pounds and up to 60,000 pounds). The percentage of each type of truck was based on the ratios defined by EMFAC 2007 for the County (Table 3.3.5-1, *Vehicle Fleet Mix*).

**TABLE 3.3.5-1**
**VEHICLE FLEET MIX**

| Fleet Percentage | Vehicle Type | Non-catalyst Percentage | Catalyst Percentage | Diesel Percentage |
|---|---|---|---|---|
| 0 | Light auto | N/A | N/A | N/A |
| 15.8 | Light truck less than 3,750 lbs | 2.3 | 91.6 | 6.1 |
| 53.1 | Light truck 3751–5,750 lbs | 1 | 98.5 | 0.5 |
| 23.2 | Medium truck 5,751–8,500 lbs | 0.9 | 99.1 | 0 |
| 3.5 | Light-heavy truck 8,501–10,000 lbs | 0 | 71.4 | 28.6 |
| 1.1 | Light-heavy truck 8,501–10,000 lbs | 0 | 42.9 | 57.1 |
| 2.1 | Medium-heavy truck 14,001–33,000 lbs | 0 | 10 | 90 |
| 1.2 | Heavy-heavy truck 33,001–60,000 lbs | 0 | 1.9 | 98.1 |
| 0 | Other bus | N/A | N/A | N/A |
| 0 | Urban bus | N/A | N/A | N/A |
| 0 | Motorcycle | N/A | N/A | N/A |
| 0 | School bus | N/A | N/A | N/A |
| 0 | Motor home | N/A | N/A | N/A |

**NOTE:** lbs = pounds

ICF International. San Francisco, CA.

[46] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

### *Construction Impacts*

The proposed ordinances do not involve any construction activities; therefore, there would be no regional or localized construction impacts. The consideration of construction impacts is not relevant to the proposed ordinances because plastic carryout bags, paper carryout bags, and reusable bags are all currently manufactured and generally available in the marketplace.

### *Operational Impacts*

The proposed ordinances would not be expected to have significant impacts on GHG emissions, once implemented. Long-term GHG emissions within the unincorporated territory and incorporated cities of the County can result from both stationary sources (i.e., area sources from natural gas combustion, consumer products, architectural coatings, and landscape fuel) and mobile sources. The proposed ordinances do not include any elements that would directly increase emissions from stationary sources, and the proposed ordinances would not directly cause an increase in vehicle trips in the County. Therefore, direct daily emissions of GHGs due to direct area and mobile sources would be expected to be below the level of significance. However, during the scoping period for the Initial Study for this EIR for the proposed ordinances, commenters raised concerns that the proposed ordinances may have the potential to cause indirect impacts upon GHG emissions. These potential indirect impacts are evaluated in more detail below.

The proposed ordinances would ban the issuance of plastic carryout bags, and would be expected to result in several beneficial indirect impacts related to GHG emissions. As will be discussed in more detail in this section, beneficial impacts to GHG emissions may occur as a result of a reduction in the manufacture, transport, and disposal of plastic carryout bags. However, during the scoping period for the Initial Study for this EIR for the proposed ordinances, members of the public raised concerns that the proposed ordinances might have an indirect adverse impact upon GHG emissions due to a potential increase in the production and distribution of paper carryout bags. In addition, there were concerns about GHG emissions that may occur due to the release of $CH_4$ into the atmosphere as a byproduct of the decomposition of paper carryout bags in landfills.

From 1990 to the present day, GHG emissions have been increasing (Table 3.3.2-1); however, from 1990 to 2007, the production of paper carryout bags in the United States has decreased approximately three fold (Table 3.3-1). The USEPA reported that the majority of GHG emissions in the United States can be attributed to the energy sector, which accounted for 86.3 percent of total United States GHG emissions in 2007 due to stationary and mobile fuel combustion.[47] The industrial sector accounted for only 4.9 percent of United States GHG emissions in 2007.[48] In the industrial sector, the top 10 contributors to GHG emissions, which account for more than 90 percent of the total GHG emissions from the industrial sector, include substitution of ozone-depleting substances; iron and steel production and metallurgical coke production; cement production; nitric acid production; HCFC production, specifically, HCFC-22; lime production; ammonia production and urea consumption; electrical transmission and distribution; aluminum production; and limestone and dolomite use. Although the production of plastic, paper, and reusable carryout bags can be categorized as part of the industrial sector, it is not included in the top 10 contributors. Therefore, evidence indicates that the manufacture of paper carryout bags is not one of the major contributors to total GHG emissions.

[47] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

[48] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

*Indirect Emissions Based on Life Cycle Assessments*

Comparisons of product LCAs for plastic versus paper provide varying results on the environmental impacts, although several studies show that production of plastic carryout bags generally produces less GHG emissions than the production of paper carryout bags.[49,50] The majority of LCAs and other studies that compare plastic, paper, and reusable bags concur that a switch to reusable bags would result in the most beneficial impacts to GHG emissions.[51,,52,53,54,55,56,57]

Although the production, manufacture, distribution, and eventual disposal of reusable bags does generate GHG emissions, as is the case with any manufactured product, these emissions are significantly reduced when calculated on a per-use basis. As banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced. Also, the County is considering expanding the scope of the proposed County ordinance to include a performance standard for reusable bags, which would further reduce GHG emission impacts.

Ecobilan Study

Ecobilan prepared a comprehensive LCA[58] in 2004 that shows the impacts of paper carryout bags, reusable low-density polyethylene plastic bags, and plastic carryout bags made of high-density polyethylene upon the emission of GHGs.[59] The Ecobilan Study presents GHGs emissions in terms of grams per 9,000 liters of groceries packed, which is assumed to be the typical volume of groceries purchased annually in France per customer.[60] The results of the Ecobilan Study were used to analyze the potential emissions of GHGs due to a conservative worst-case scenario of an 85-percent conversion and a 100-percent conversion of plastic carryout bag use to paper carryout bag use. The Ecobilan LCA was chosen above the other studies reviewed during preparation of this EIR because it is relatively recent; contains relatively sophisticated modeling and data processing techniques; considers a wide range of environmental indicators; considers paper, plastic, and reusable bags; was

[49] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[50] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for the Progressive Bag Affiliates.

[51] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, AU.

[52] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[53] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[54] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

[55] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[56] Herrera et al. January 2008. *Alternatives to Disposable Shopping Bags and Food Service Items Volume I and II*. Prepared for: Seattle Public Utilities.

[57] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[58] Ecobilan. Accessed on: 8 March 2010. Company Web site. Available at: https://www.ecobilan.com/uk_who.php

[59] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[60] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

critically reviewed by the French Environment and Energy Management Agency; and contains detailed emission data for individual pollutants.

In order to better apply the Ecobilan data to bag usage to the County, the emissions were calculated in terms of tons of $CO_{2e}$ per liter of groceries packed, multiplied by the number of liters of groceries per bag, and then multiplied by the estimated number of plastic carryout bags currently used per day in the unincorporated territories of the County and in the 88 incorporated cities of the County. This method was used to estimate the current GHG emissions per day resulting from plastic carryout bags and the GHG emissions that could be anticipated given an 85-percent conversion from plastic to paper carryout bags (Appendix C, *Calculation Data)*.

These calculations were performed assuming that there are 67 stores in the unincorporated territory of the County and 462 stores in the incorporated cities of the County that would be affected by the proposed ordinances.[61,62] It was assumed that each store currently uses approximately 10,000 plastic carryout bags per day.[63] It is important to note that this number is likely very high, as it is more than twice the bag average reported by the California Department of Resources Recycling and Recovery in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[64] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average per store in the County unincorporated and incorporated areas, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario.

A comparison of the emissions of the life cycle of plastic carryout bags and paper carryout bags indicates that 85 percent conversion to paper carryout bags within the entire County (both the unincorporated territories and the 88 incorporated cities) would increase emissions of GHGs by approximately 54 metric tons per day, which is approximately 19,700 metric tons per year, or 0.002 metric tons per capita per year (Table 3.3.5-2, *GHG Emissions Based on Ecobilan Data Using 85-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C*)*.

[61] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated territories would be affected by the proposed County ordinance.

[62] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or higher. Accessed on: 29 April 2010.

[63] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[64] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

## TABLE 3.3.5-2
## GHG EMISSIONS BASED ON ECOBILAN DATA USING 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 85-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[2] | Metric Tons Per Year Per Capita[2] |
| Emissions in the 67 stores in the unincorporated territory of the County[1] | 11.35 | 6.83 | 2,493 | 0.000 | 9.6 |
| Emissions in the 462 stores in the incorporated cities of the County[1] | 78.30 | 47.10 | 17,190 | 0.002 | |
| **Total Emissions in the County[1]** | **89.65** | **53.93** | **19,683** | **0.002** | |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**NOTES:**

1. The Ecobilan Study assumed a volume of 14 liters for plastic carryout bags and 20.48 liters for paper carryout bags. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so an 85-percent conversion from plastic to paper carryout bag use would result in each store using approximately 5,811 paper carryout bags per day [0.85 x 10,000 x (14/20.48) = 5,811].
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

Further, if one were to apply the Ecobilan data in the unlikely worst-case scenario of 100 percent conversion from plastic to paper carryout bag use, a comparison of the emissions of plastic carryout bags and paper carryout bags indicates that 100-percent conversion to paper carryout bags within the entire County would increase emissions of GHGs by approximately 79 metric tons per day, which is approximately 28,900 metric tons per year, or approximately 0.003 metric tons per capita per year (Table 3.3.5-3, *GHG Emissions Based on Ecobilan Data Using 100-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C).

## TABLE 3.3.5-3
## GHG EMISSIONS BASED ON ECOBILAN DATA USING 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| Emission Areas | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 100-percent Conversion from Plastic to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[2] | Metric Tons Per Year Per Capita[2] |
| Emissions in the 67 stores in the unincorporated territory of the County[1] | 11.35 | 10.04 | 3,664 | 0.000 | 9.6 |
| Emissions in the 462 stores in the incorporated cities of the County[1] | 78.30 | 69.22 | 25,267 | 0.002 | |
| **Total Emissions in the County[1]** | **89.65** | **79.26** | **28,931** | **0.003** | |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**NOTES:**
1. The Ecobilan Study assumed a volume of 14 liters for plastic carryout bags and 20.48 liters for paper carryout bags. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836].
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

The Ecobilan Study also presented an LCA analysis of a reusable bag that is approximately 2.8 mils thick, weighs 44 grams, and holds 37 liters of groceries. The conclusion from the analysis was that this particular reusable bag has a smaller impact on GHG emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.3.5-4, *Estimated Daily Emission Changes Due to Reusable Bags Used Three Times Based on Ecobilan Data,* and Appendix C).[65] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how GHG emission impacts of reusable bag manufacture are reduced the more times a bag is used. As banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bag use to reusable bag use would be anticipated to have reduced impacts upon GHG emissions. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which may further reduce GHG emission impacts.

[65] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

## TABLE 3.3.5-4
## ESTIMATED DAILY EMISSION CHANGES DUE TO REUSABLE BAGS USED THREE TIMES BASED ON ECOBILAN DATA

| Emission Areas | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Reduction Resulting from 100-percent Conversion from Plastic Carryout Bags to Reusable Bags Used Three Times[1,2] | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 67 stores in the unincorporated territory of the County | 11.35 | -1.44 | -526 | 0.000 | 9.6 |
| Emissions in the 462 stores in the incorporated cities of the County | 78.30 | -9.94 | -3,627 | 0.000 | |
| **Total Emissions in the County** | **89.65** | **-11.38** | **-4,154** | **0.000** | |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Based on each reusable bag being used three times; emissions are reduced further when the bags are used additional times.
2. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.
3. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

Boustead Study

Boustead Consulting & Associates (Boustead) prepared an LCA on behalf of the Progressive Bag Affiliates in 2007.[66] This LCA analyzes three types of grocery bags: a traditional plastic carryout bag, a compostable plastic carryout bag (a blend of 65 percent EcoFlex, 10 percent polylactic acid, and 25 percent calcium carbonate), and a paper carryout bag made using at least 30 percent recycled fibers.[67] The Boustead Study presents GHG emissions in terms of tons of $CO_{2e}$ per thousand bags. In order to make the data more applicable to the County, emissions were converted based on the number of stores that would be affected by the proposed ordinances and the average number of bags used per day per store (Table 3.3.5-5, *GHG Emissions Based on Boustead Data Using 85-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C). A comparison between the emissions of the life cycle of plastic carryout bags and the life cycle of paper carryout bags indicates that 85-percent conversion to paper carryout bags within the entire County (both the unincorporated territories and the 88 incorporated cities) would increase GHG emissions by approximately 105 metric tons per day, which is approximately 38,300 metric tons per year, or 0.004 metric ton per capita per year (Table 3.3.5-5 and Appendix C).

[66] The Progressive Bag Alliance was founded in 2005 and is a group of American plastic bag manufacturers who advocate recycling plastic shopping bags as an alternative to banning the bags. In 2007, they became the Progressive Bag Affiliates of the American Chemistry Counsel. Available at: http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=6983

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

## TABLE 3.3.5-5
## GHG EMISSIONS BASED ON BOUSTEAD DATA USING 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| Emission Areas | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 85-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 67 stores in the unincorporated territory of the County[1] | 17.87 | 13.28 | 4,846 | 0.000 | 9.6 |
| Emissions in the 462 stores in the incorporated cities of the County[1] | 123.20 | 91.56 | 33,419 | 0.003 | |
| **Total Emissions in the County[1]** | **141.07** | **104.84** | **38,265** | **0.004** | |

**SOURCE:**
Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so an 85-percent conversion from plastic use to paper carryout bag use would result in each store using 5,811 paper carryout bags per day [0.85 x 10,000 x (14/20.48) = 5,811].
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

Further, if one were to apply the Boustead data in the unlikely worst-case scenario of 100-percent conversion from plastic to paper carryout bags throughout the entire County, a comparison between emissions of plastic carryout bags and emissions of paper carryout bags indicates that 100-percent conversion to paper carryout bags would increase emissions of GHGs by approximately 148 metric tons per day, which is approximately 54,100 metric tons per year, or approximately 0.005 metric tons per capita per year (Table 3.3.5-6, *GHG Emissions Based on Boustead Data Using 100-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C). These results are fairly different than those obtained from the Ecobilan data, emphasizing the uncertainly in utilizing LCA data.

## TABLE 3.3.5-6
## GHG EMISSIONS BASED ON BOUSTEAD DATA USING 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| Emission Areas | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 100-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 67 stores in the unincorporated territory of the County[1] | 17.87 | 18.77 | 6,852 | 0.001 | 9.6 |
| Emissions in the 462 stores in the incorporated cities of the County[1] | 123.20 | 129.46 | 47,252 | 0.004 | |
| **Total Emissions in the County**[1] | **141.07** | **148.23** | **54,104** | **0.005** | |

**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100 percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836].
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

ExcelPlas Report

The Department of the Environment and Heritage in Australia commissioned a study by ExcelPlas to investigate the environmental impacts of degradable plastic carryout bags in comparison to standard plastic carryout bags, reusable plastic bags, reusable paper bags, and reusable calico bags.[68] The results of the ExcelPlas report are particular to Australia and contain different assumptions and inputs than the other LCAs previously analyzed. Under the scenario of an 85-percent conversion from plastic to paper carryout bags, the ExcelPlas data indicates that an 85-percent conversion to paper carryout bags would increase emissions of GHGs by approximately 202 metric tons per day, which is approximately 73,700 metric tons per year, or approximately 0.007 metric tons per capita per year (Table 3.3.5-7, *GHG Emissions Based on ExcelPas Data Using 85-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C). Under the worst-case scenario of a 100-percent conversion from plastic carryout bags to paper carryout bags, the ExcelPlas data indicates that 100-percent conversion to paper carryout bags under the proposed ordinances would increase emissions of GHGs by approximately 248 metric tons per day, which is approximately 90,700 metric tons per year, or approximately 0.009 metric tons per capita per year (Table 3.3.5-8, *GHG Emissions Based on ExcelPas Data Using 100-percent Conversion from Plastic to Paper Carryout Bags,* and Appendix C). However, as with the previous LCAs discussed in this EIR, the results from the ExcelPlas Study are speculative given that the numbers conflict with those from the other LCAs and the fact that the ExcelPlas study was prepared for Australia rather than the County. Further, this LCA data cover all stages of production, distribution, and end-of-life procedures related to a particular product. It is also important to note that the ExcelPlas Study assumes that paper carryout bags and the plastic carryout bags have the same carrying capacity, which contradicts the carrying capacity assumptions in the other LCAs reviewed in this EIR.

[68] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

## TABLE 3.3.5-7
## GHG EMISSIONS BASED ON EXCELPLAS DATA USING 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| Emission Areas | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 85-percent Conversion from Plastic to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 67 stores in the Unincorporated Territory of the County[1] | 7.83 | 25.57 | 9,333 | 0.001 | 9.6 |
| Emissions in the 462 stores in the Incorporated Cities of the County[1] | 54.02 | 176.32 | 64,355 | 0.006 | |
| **Total Emissions in the County[1]** | **61.85** | **201.88** | **73,688** | **0.007** | |

**SOURCE:** ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

**NOTES:**

1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so an 85-percent conversion from plastic to paper carryout bag use would result in each store using 8,500 paper carryout bags per day.
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

## TABLE 3.3.5-8
## GHG EMISSIONS BASED ON EXCELPLAS DATA USING 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 100-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 67 stores in the Unincorporated Territory of the County[1] | 7.83 | 31.46 | 11,484 | 0.001 | 9.6 |
| Emissions in the 462 stores in the Incorporated Cities of the County[1] | 54.02 | 216.96 | 79,191 | 0.007 | |
| **Total Emissions in the County[1]** | **61.85** | **248.43** | **90,676** | **0.009** | |

**SOURCE:** ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

**NOTES:**

1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 10,000 paper carryout bags per day.
2. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

The ExcelPlas Study concluded that, of all bags studied, reusable bags had the lowest GHG emission impacts over the total life cycle.[69] A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in annual GHG emission savings of approximately 6 kilograms per household.[70] Banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, thus the GHG emission impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon GHG emissions. In addition, the County is considering expanding the scope of its proposed ordinance to include a performance standard for reusable bags that would further reduce GHG emission impacts.

Conclusions from LCAs

Application of the LCA data in the manner presented above must be interpreted carefully. The different LCAs analyzed present very different results about GHG emissions from paper carryout bags and plastic carryout bags, due to the different parameters, models, and assumptions used. The LCAs reviewed in this analysis do agree that an 85-percent and 100-percent conversion from plastic carryout bags to paper carryout bags would result in some increase in GHG emissions. However, the quantitative number for the emissions varies widely. For example, the 85-percent conversion from plastic to paper carryout bags in the entire County would yield increases in GHG emissions ranging from 19,700 to 73,700 metric tons per year, depending on which LCA is used (Table 3.3.5-9, *GHG Emissions Due to 85- and 100-percent Conversion from Plastic to Paper Carryout Bags Based on Various Studies,* and Appendix C). For a 100-percent conversion from plastic to paper carryout bags in the entire County, increases in GHG emissions range between 28,900 and 90,700 metric tons per year, depending on which LCA is used (Table 3.3.5-9 and Appendix C).

These seemingly conflicting results emphasize the particularity of each study and the importance of understanding study boundaries, inputs, and methodologies.[71] It is also incorrect to assume that any increases to GHG emissions would not be regulated. The Ecobilan LCA states that the majority of GHG emissions originate from processes that occur early on in the life cycle of paper and plastic carryout bags, such as product manufacturing. Any indirect increase in GHG emissions from paper carryout bag manufacturing facilities that would be affected by the proposed ordinances would be controlled by the owners of the paper carryout bag manufacturing facilities in compliance with applicable local, regional, and national air quality standards. Coordination with SCAQMD further indicates that evaluation of indirect impacts of the proposed ordinances due to increases in the manufacturing of paper carryout bags would be speculative.[72] AVAQMD similarly suggested that using the results from LCAs would be "very difficult" and "nebulous" due to the large number of assumptions and details contained within the calculations.[73]

[69] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[70] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

[71] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[72] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[73] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

**TABLE 3.3.5-9**
**GHG EMISSIONS DUE TO 85- AND 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON VARIOUS STUDIES**

| LCA | Increase Resulting from 85-percent Conversion | | Increase Resulting from 100-percent Conversion | |
|---|---|---|---|---|
| | Metric Tons Per Year | Metric Tons Per Year Per Capita | Metric Tons Per Year | Metric Tons Per Year Per Capita |
| Ecobilan | 19,700 | 0.002 | 28,900 | 0.003 |
| Boustead | 38,300 | 0.004 | 54,100 | 0.005 |
| ExcelPlas | 73,700 | 0.007 | 90,700 | 0.009 |
| **Emission Targets** | | | | |
| California's GHG Target Emissions for 2020 | 427 million | 9.6 | 427 million | 9.6 |
| County's GHG Target Emissions for 2020 | 108 million | 9.6 | 108 million | 9.6 |

Now that the analysis has been performed for each of the various studies, it is important to look at the quantitative results (1) in context with the GHG emission reduction goals of both California and the County and (2) in a cumulative context. If looking at GHG emissions of $CO_{2e}$ in terms of metric tons per year, concluding that the proposed ordinances would result in GHG emissions in excess of 19,000 to 73,000 metric tons per year for 85-percent conversion from plastic to paper carryout bags, and 28,000 to 90,000 metric tons per year for 100-percent conversion, does appear significant when considered out of context. However, because every nation is an emitter of GHGs and GHGs contribute to global climate change, GHG emissions from individual projects like the proposed ordinances must be considered on a global scale. Due to the fact that more than 28 billion tons of $CO_2$ were emitted to the Earth's atmosphere due to human activities in 2006 alone, GHG emissions on a project level are not generally found to be significant, and it is more useful to consider GHG emissions in a cumulative context.[74]

In addition, while the Ecobilan, Boustead, and ExcelPas Studies are far from perfect and make a number of assumptions that may not be accurate for the County, the GHG emission impacts from an 85- and 100-percent conversion from plastic to paper carryout bags would be expected to be below the level of significance when considering that California's GHG emissions target for 2020 is 427 million metric tons per year (Table 3.3.2-1 and Table 3.3.5-9) and the County's GHG emissions target for 2020 is 108 million metric tons per year (Table 3.3.3-1 and Table 3.3.5-9). For an 85-percent conversion to paper carryout bags, the LCA results presented above would be equivalent to between 0.005 and 0.017 percent of the target 2020 emissions for California and 0.018 and 0.068 percent of the target 2020 emissions for the County. For a 100-percent conversion to paper carryout bags, the LCA results presented above would be equivalent to between 0.007 and 0.021 percent of the target 2020 emissions for California and 0.027 and 0.084 percent of the target 2020 emissions for the County.

As the proposed ordinances could affect the entire County, and the resultant indirect GHG emissions would not occur at any one particular facility, it is reasonable to also consider the indirect GHG

[74] United Nations Statistics Division, Millennium Development Goals indicators: Carbon dioxide emissions ($CO_2$), thousand metric tons of $CO_2$ (collected by Carbon Dioxide Information Analysis Center). Available at: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=

emissions on a per-person, or per capita, basis. If analyzing GHG emissions in terms of per capita per year, which takes into account the population of the entire County, an 85 and 100-percent conversion from plastic to paper carryout bags would be expected to be below the level of significance. For an 85-percent conversion to paper carryout bags, the LCA results presented above indicate that the proposed ordinances would indirectly generate between 0.002 and 0.007 metric tons of $CO_{2e}$ per capita, which is between 0.02 and 0.07 percent of the target 2020 carbon footprint per capita of 9.6 metric tons of $CO_{2e}$ per capita suggested by CARB in order to achieve the goals of AB 32. For a 100-percent conversion to paper carryout bags, the LCA results presented above indicate that the proposed ordinances would indirectly generate between 0.003 and 0.009 metric tons of $CO_{2e}$ per capita, which is between 0.03 and 0.09 percent of the target 2020 carbon footprint per capita of 9.6 metric tons of $CO_{2e}$ suggested by CARB. As carryout bags form such a small percentage of the daily carbon footprint per person, it would not be reasonable to assume that the proposed ordinances would result in GHG emissions that would conflict with the goals of AB 32.

The GHG emissions impacts for 85-percent and 100-percent conversion from plastic to paper carryout bags would be expected to be below the level of significance in comparison with the global anthropogenic emissions of GHGs, which was over 28 billion tons of $CO_2$ in 2006 alone.[75] If viewed apart from the GHG emissions produced by activities elsewhere in the world, the mass of GHG emissions generated by individual projects such as the proposed ordinances would be so minute that the concentration of GHGs in the Earth's atmosphere would essentially remain the same. Therefore, the project's individual GHG emission impact is considered to be below the level of significance, and further analysis should be discussed in a cumulative context (see Cumulative Impacts subsection, page 3.3-36). It is important to note that the individual impacts may be even lower, given that calculations done with the various studies are based on an unlikely worst-case scenario that does not take into account the potential for an increased number of customers using reusable bags. In addition, the assumption that every store above 10,000 square feet currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to approximately 5,000 plastic carryout bags per day.[76]

GHG Emissions Resulting from Disposal of Paper Carryout Bags in Landfills

Ecobilan data indicates that approximately 18 percent of the GHG emissions generated during the life cycle of paper carryout bags can be attributed to end of life. The end of life data includes emissions due to transport of waste from households to landfills. However, the LCA data assumes that a large percentage of solid waste is incinerated, an assumption that is not accurate for the County. Using the Ecobilan data for the end of life for plastic and paper carryout bags and adjusting for the alternative scenario where all bags go to landfills at the end of life and are not incinerated, and further adjusting for USEPA 2007 recycling rates, the GHG emissions from landfills due to an 85-percent conversion from the use of plastic carryout bags to use of paper carryout bags throughout the County would be approximately 19,025 metric tons per year, which is equivalent to approximately 0.0018 metric ton per capita (Table 3.3.5-10, *Estimated GHG Emissions Increases Due to End of Life Based on Ecobilan Data,* and Appendix C). A 100-percent conversion from plastic to paper carryout bags throughout the County would be expected to generate approximately 22,427 metric tons of GHG emissions per year, which is equivalent to approximately 0.0021 metric ton per capita. These results are likely to be

[75] United Nations Statistics Division, Millennium Development Goals indicators: Carbon dioxide emissions ($CO_2$), thousand metric tons of $CO_2$ (collected by Carbon Dioxide Information Analysis Center). Available at: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=

[76] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

overestimates for the County, as emissions from active landfills in the County are strictly controlled by SCAQMD Rule 1150.1 and AVAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills. However, even under the worst-case scenario as presented here, the increases resulting from 85 and 100-percent conversion would be expected to be below the level of significance when considered in context with California's 2020 GHG emissions target of 427 million metric tons per year (Table 3.3.2-1) and the County's 2020 GHG emissions target of 108 million metric tons per year (Table 3.3.3-1). For an 85-percent conversion to paper carryout bags on a metric tons per year basis, the LCA results presented above would be equivalent to 0.0045 percent of the target 2020 emissions for California and 0.018 percent of the County's target 2020 emissions. For a 100-percent conversion to paper carryout bags, the LCA results presented above would be equivalent to 0.0053 percent of the target 2020 emissions for California and 0.021 percent of the target 2020 emissions for the County. Therefore, the project's individual GHG emission impact is considered to be below the level of significance, and further analysis should be discussed in a cumulative context (see Cumulative Impacts subsection on page 3.3-36).

**TABLE 3.3.5-10**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE**
**BASED ON ECOBILAN DATA**

| Emission Sources | GHG Emissions (Metric Tons $CO_{2e}$ Per Year) | |
|---|---|---|
| | Increase Resulting from 85-percent Conversion from Plastic to Paper Carryout Bags[1] | Increase Resulting from 100-percent Conversion from Plastic to Paper Carryout Bags[1] |
| Conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County | 2,410 | 2,840 |
| Conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County | 16,615 | 19,586 |
| **Total Emissions** | **19,025** | **22,427** |

**SOURCES:**
1. Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf
**NOTE:**
1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

The Boustead Study indicates that the majority of GHG emissions (approximately 60 percent) associated with the life cycle of paper carryout bags occur during decomposition in landfills. In fact, the Boustead Study states that, from all operations just prior to disposal, the resulting $CO_{2e}$ emissions are more than 20 percent greater for the plastic carryout bag compared to the paper carryout bag, if it is assumed that paper carryout bags hold 1.5 times the amount of groceries than plastic carryout bags hold.[77] Using the Boustead data, it can be extrapolated that under a scenario where 85 percent of customers would switch to using paper carryout bags as an indirect result of the proposed

[77] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*, Table 26B. Prepared for: Progressive Bag Affiliates.

ordinances, the disposal of paper carryout bags in landfills would have the potential to result in the emissions of 52,200 metric tons of $CO_{2e}$ per year for the entire County (Table 3.3.5-11, *Estimated GHG Emissions Increases Due to End of Life Based on Boustead Data,* and Appendix C). Alternatively, based on a scenario where 100 percent of customers would switch to using paper carryout bags as an indirect result of the proposed ordinances, the disposal of paper carryout bags in landfills would have the potential to result in the emissions of 62,100 metric tons of $CO_{2e}$ per year for the entire County (Table 3.3.5-11 and Appendix C ). These results are between approximately 0.05 percent to 0.06 percent of the 2020 target emissions for the County (108 million metric tons) and approximately 0.01 percent of the 2020 target emissions for California (427 million metric tons). While these results are significantly higher than those calculated using Ecobilan data, which emphasizes the uncertainty in using LCA data to estimate GHG emissions, the impacts are still below the level of significance.

In addition, the Boustead Study calculates GHG emissions for end-of-life using 20 year $CO_2$ equivalents,[78] which means that $CH_4$ is considered to have 62 times the global warming potential of $CO_2$. It is standard practice to use 100 year $CO_2$ equivalents when calculating $CO_{2e}$, which means that $CH_4$ emissions are considered to have 23 times the global warming potential compared to $CO_2$.[79] The non-standard method of calculating $CO_{2e}$ for end of life in the Boustead Study causes the results to be elevated and not directly comparable to $CO_{2e}$ for end of life calculated in other LCAs.

**TABLE 3.3.5-11**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE**
**BASED ON BOUSTEAD DATA**

| Emission Sources | GHG Emissions (Metric Tons $CO_{2e}$ Per Year) | |
|---|---|---|
| | Increase Resulting from 85-percent Conversion from Plastic to Paper Carryout Bags[1] | Increase Resulting from 100-percent Conversion from Plastic to Paper Carryout Bags[1] |
| Conversion from plastic to paper carryout bags in the 67 stores in the unincorporated territory of the County | 6,616 | 7,870 |
| Conversion from plastic to paper carryout bags in the 462 stores in the incorporated cities of the County | 45,619 | 54,265 |
| **Total Emissions** | **52,235** | **62,134** |

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

**NOTE:**

1. Assuming 21 percent of paper carryout bags are diverted from landfills and 5.2 percent of plastic carryout bags are diverted from landfills.

[78] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*, Table 26B. Prepared for: Progressive Bag Affiliates.

[79] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1*. Los Angeles, CA.

Conclusions from LCAs

GHG emission impacts resulting from landfills for an 85- and 100-percent conversion to paper carryout bags would be expected to be below the level of significance. According to the Ecobilan Study, the increase in GHG emissions due to the disposal of paper carryout bags in landfills would be between approximately 0.0045 percent to 0.018 percent of the 2020 target emissions for the County (108 million metric tons) and between approximately 0.0053 to 0.021 percent of the 2020 target emissions for California (427 million metric tons). Under the Boustead Study, GHG emission impacts resulting from landfills for an 85- and 100-percent conversion to paper carryout bags would be between approximately 0.05 percent to 0.06 percent of the 2020 target emissions for the County (108 million metric tons) and approximately 0.01 percent of the 2020 target emissions for California (427 million metric tons). It is important to note that the impacts may be even lower, given that calculations done with the Ecobilan and Boustead Studies are based on an unlikely worst-case scenario that does not take into account the potential for an increased number of customers using reusable bags as a result of the proposed ordinances. In addition, the assumption that every store above 10,000 square feet currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to approximately 5,000 plastic carryout bags per day.[80]

GHG Emissions Resulting from Increased Delivery Trips

During the scoping period for the Initial Study for this EIR, commenters raised concerns that the proposed ordinances might indirectly impact GHG emissions due to a potential increase in the distribution of paper carryout bags. Unlike emissions generated by manufacturing facilities, which appear not be located within the County, GHG emissions generated by the delivery of paper carryout bags to affected stores would occur within the County, and therefore these emissions would be considered regional impacts. An URBEMIS 2007 simulation was performed to assess the air quality impacts of additional truck trips that would be required to deliver paper carryout bags. To quantify the number of delivery trucks, a worst-case scenario was assumed where the proposed ordinances would result in an 85- to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags. The SCAQMD was consulted regarding this methodology and concurred that the only GHG emissions that would be expected to result from implementation of the proposed ordinances that could be quantified and presented in this EIR would be emissions due to potential increases in delivery truck trips.[81] AVAQMD agreed with the SCAQMD's suggestion that quantifying vehicle trips would be the most defensible way of quantifying the GHG emission impacts of the proposed ordinances.[82] Assuming a scenario where the proposed ordinances would result in 85-percent conversion of plastic carryout bag use to paper carryout bag use, a simulation using URBEMIS 2007, v.9.2.4, was used to assess the GHG emission impacts of additional truck trips that would be required to deliver paper carryout bags to the affected stores.

[80] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

[81] Garcia, Daniel, Air Quality Specialist, South Coast Air Quality Management District, Diamond Bar, CA. 21 January 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[82] Banks, Bret, Operations Manager, Antelope Valley Air Quality Management District, Lancaster, CA. 8 March 2010. Telephone correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

Based on data provided by a supermarket in the County,[83] an average delivery truck could hold 24 pallets each carrying 48 cases, and each case would contain 2,000 plastic carryout bags. Therefore, a typical delivery truck could be expected to transport 2,304,000 plastic carryout bags.[84]

Number of plastic carryout bags per delivery truck:

24 pallets x 48 cases x 2,000 plastic carryout bags per case =
2,304,000 plastic carryout bags per truck

For paper carryout bags, it was assumed that each of the 24 pallets would contain 18 cases, and each case would contain 500 paper carryout bags. Therefore, a typical delivery truck could be expected to carry 216,000 paper carryout bags.[85]

Number of paper carryout bags per delivery truck:

24 pallets x 18 cases x 500 paper carryout bags per case =
216,000 paper carryout bags per truck

According to the above calculations, an 85-percent conversion from plastic carryout bags to paper carryout bags would require approximately 9 times the number of trucks currently required to deliver carryout bags to supermarkets,[86] and a 100-percent conversion from use of plastic carryout bags to use of paper carryout bags would require approximately 11 times the number of delivery trucks.[87] However, several studies, including the Franklin, Ecobilan, and Boustead studies, have stated that it can be reasonably assumed that paper carryout bags can hold approximately 1.5 times the amount of groceries than plastic carryout bags can hold,[88,89,90] which is consistent with the one-time trial performed by Sapphos Environmental, Inc. (Appendix A). Based on that assumption, an 85- to 100-percent conversion from plastic to paper carryout bags would be expected to result in approximately 6 to 7 times the number of delivery trucks currently required to deliver carryout bags to supermarkets, respectively.[91,92]

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[83] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[84] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[85] Crandall, Rick, Director of Environmental Stewardship, Albertsons, Los Angeles, CA. 25–26 January 2010. E-mail correspondence with Laura Watson, Sapphos Environmental, Inc., Pasadena, CA.

[86] (0.85 x 2,304,000 plastic bags per truck) / 216,000 paper carryout per truck ≈ 9

[87] 2,304,000 plastic bags per truck / 216,000 paper carryout bags per truck ≈ 11

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

[89] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

[91] 0.85 x (2,304,000 plastic carryout bags per truck / 216,000 paper carryout bags per truck) x (1 paper carryout bag / 1.5 plastic carryout bags) ≈ 6 times the number of truck trips required

[92] (2,304,000 plastic bags per truck / 216,000 paper carryout bags per truck) x (1 paper carryout bag / 1.5 plastic carryout bags) ≈ 7 times the number of truck trips required

Sapphos Environmental, Inc. also compared the volume of standard plastic and the volume of paper carryout bags available from Uline, a bag distribution company with a location in Los Angeles. According to Uline, 1,000 plastic carryout bags each measuring 12 inches by 7 inches by 15 inches (not including the handles) and with a thickness of 0.5 mil are packaged into a flat box measuring 12 inches by 12 inches by 5 inches.[93] According to the same source, 500 paper grocery bags (without handles) measuring 12 inches by 17 inches by 7 inches are packaged into a box measuring 24 inches by 18 inches by 12 inches.[94] Therefore, the combined volume of 1,000 of these particular plastic carryout bags is equal to approximately 720 cubic inches:

12 inches x 12 inches x 5 inches = 720 cubic inches

Whereas the combined volume of 1,000 of these particular paper carryout bags is equal to approximately 10,368 cubic inches:

For packaging 500 paper carryout bags: 24 inches x 18 inches x 12 inches = 5,184 cubic inches
For packaging 1,000 paper carryout bags: 5,184 cubic inches x 2 = 10,368 cubic inches

According to this calculation, paper carryout bags occupy approximately 14.4 times more volume than plastic carryout bags occupy.

10,368 cubic inches / 720 cubic inches = 14.4

Based solely on these volumes and usable volume ratio for these particular bags, it can be assumed that an 85- to 100-percent conversion to paper carryout bags would require approximately 11 to 13 times the number of delivery truck trips that plastic carryout bags currently require.[95,96]

14.4 / 1.13 = 12.7 x 85 percent = 10.8 ~ 11
14.4 / 1.13 = 12.7 x 100 percent = 12.7 ~ 13

An increase in demand for reusable bags would also result in additional transport of reusable bags to stores. However, due to the fact that reusable bags are designed to be used multiple times, the number of reusable bags required would be expected to be far less than the number of carryout bags currently used. Therefore, it can be reasonably expected that a conversion from plastic carryout bags to reusable bags would require fewer delivery trips than would be required as a result of a conversion from plastic to paper carryout bags. Therefore, when considering delivery truck trips, a 100-percent conversion from plastic carryout bags to paper carryout bags would be the worst-case scenario.

In order to model a conservative worst-case scenario, it was assumed that a 100-percent conversion from plastic to paper carryout bags would require 13 times the number of delivery trips currently required to transport carryout bags to stores, which is the largest increase in delivery trips calculated above. Assuming that in the unincorporated territories of the County there are 67 stores that would

[93] Amanda (last name not provided), Uline. 26 January 2010. Telephone correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

[94] Amanda (last name not provided), Uline. 26 January 2010. Telephone correspondence with Leanna Guillermo, Sapphos Environmental, Inc., Pasadena, CA.

[95] (0.85 x 10,368 square inches / 720 square inches) x (12-inch x 7-inch x 15-inch plastic carryout bag / 12-inch x 7-inch x 17-inch paper carryout bag) ≈ 11 times the number of truck trips required

[96] (10,368 square inches / 720 square inches) x (12-inch x 7-inch x 15-inch plastic carryout bag / 12-inch x 7-inch x 17-inch paper carryout bag) ≈ 13 times the number of truck trips required

be affected by the proposed County ordinance, each using 10,000 plastic carryout bags per day, a 100-percent conversion scenario would result in fewer than 4 additional truck trips required per day (Table 3.3.5-12, *Potential Increases in Delivery Truck Trips as a Result of the Proposed Ordinances*).[97] Assuming that in the 88 incorporated cities of the County there are 462 stores that would be affected by the proposed ordinances in the 88 incorporated cities of the County, with each store using 10,000 plastic carryout bags per day, a 100-percent conversion scenario would result in approximately 26 additional truck trips required per day (Table 3.3.5-12).[98]

**TABLE 3.3.5-12**
**POTENTIAL INCREASES IN DELIVERY TRUCK TRIPS AS A RESULT OF THE PROPOSED ORDINANCES**

| County Area | Total Stores | Plastic Carryout Bags/ Store/Day | Total Plastic Carryout Bags/Day | Plastic Carryout Bags/ Truck[(a)] | Truck Trips Needed to Deliver Plastic Carryout Bags | Factor for Increased Trips Due to Conversion from Plastic to Paper Carryout Bags | Additional Trips Required to Deliver Paper Carryout Bags |
|---|---|---|---|---|---|---|---|
| Unincorporated areas | 67 | 10,000 | 670,000 | 2,304,000 | 0.29 | 13 | 4 |
| Incorporated cities | 462 | 10,000 | 4,620,000 | 2,304,000 | 2.01 | 13 | 26 |

**NOTE:** Data provided by Albertsons

The GHG emissions that would be anticipated to result from 4 additional truck trips per day to and from the 67 stores in the unincorporated territory of the County that would be affected by the proposed ordinances, and approximately 26 additional truck trips per day to and from the 462 stores that may be affected by the proposed ordinances in the 88 incorporated cities of the County were calculated using URBEMIS 2007 (Table 3.3.5-13, *Estimated Daily Operational Emissions Due to Increased Vehicle Trips from 100-percent Conversion Scenario,* and Appendix C). The unmitigated emissions due to delivery truck trips would be approximately 11 metric tons per year of $CO_2$ for the 67 stores that would be affected by the proposed ordinances in the unincorporated territory of the County, and up to an additional 71 metric tons per year if similar ordinances were adopted in the 88 incorporated cities of the County (Table 3.3.5-13 and Appendix C). The total indirect GHG emissions due to mobile sources as a result of a 100-percent conversion from plastic carryout bags to paper carryout bags throughout the County represents an increase of approximately 0.00008 percent of the County's target emissions for 2020 (108 million metric tons), approximately 0.00002 percent of the State's target emissions for 2020 (427 million metric tons) or 0.000008 metric ton per capita per year, which would not conflict with the emission reduction goals established to reduce emissions of GHGs in California down to 1990 levels by 2020, as required by AB 32 (approximately 9.6 metric tons per capita by 2020).[99]

[97] 67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck x 13 ≈ 3.8 daily truck trips

[98] 462 stores x 10,000 plastic bags per day / 2,304,000 plastic bags per truck x 13 ≈ 26 daily truck trips

[99] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

Finally, if one considers that more than 28 billion tons of $CO_2$ were added to the Earth's atmosphere in 2006 alone, the proposed ordinances' global GHG emission impact due to delivery truck trips would be expected to be below the level of significance.[100] The proposed ordinances would be expected to be consistent with the County Energy and Environmental Policy, particularly with the Environmental Stewardship Program set forth in the policy. In addition, the proposed ordinances would be expected to comply with the strategies established by the County for GHG emissions reduction established pursuant to their participation in the CCAR. Therefore, indirect GHG emissions associated with the proposed ordinances would be expected to be below the level of significance.

**TABLE 3.3.5-13**
**ESTIMATED DAILY OPERATIONAL EMISSIONS DUE TO INCREASED VEHICLE TRIPS FROM 100-PERCENT CONVERSION SCENARIO**

| Emission Sources | $CO_2$ Emissions (Pounds/Day) | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (Metric Tons/Year) | Target GHG Emissions per Capita in the County (Metric Tons of $CO_{2e}$) |
|---|---|---|---|---|
| 4 delivery truck trips in the unincorporated territory of the County | 65.51 | 10.85 | 0.000001 | **9.6** |
| 26 delivery truck trips in the incorporated cities of the County | 425.84 | 70.50 | 0.000007 | |
| **Total Emissions** | **491.35** | **81.35** | **0.000008** | |

***Cumulative Impacts***

The cumulative GHG emission impacts to be assessed in a cumulative, global context can be categorized into three main areas; (1) potential indirect GHG emissions resulting from the life cycle of carryout bags, (2) potential indirect GHG emissions resulting from the disposal of carryout bags in landfills, and (3) potential indirect GHG emissions resulting from increased delivery truck trips.

LCA data analysis from the various studies indicates that GHG emissions due to bag manufacturing and disposal in landfills would increase upon conservative worst case scenarios of 85- to 100-percent conversion from plastic to paper carryout bags. The impacts may be lower than calculated in this EIR, given that calculations done with the various studies are based on an unlikely worst-case scenario that does not consider the potential for an increased number of customers using reusable bags. In addition, the assumption that every store above 10,000 square feet currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to approximately 5,000 plastic carryout bags per day.[101]

No significance thresholds have been adopted by any agency or jurisdiction that would assist the County in conclusively determining whether the incremental effect of the proposed ordinances may be cumulatively considerable. As of the date of release of this EIR, there are no adopted Federal regulations or laws addressing GHG emissions. Further, although the California Global Warming

[100] United Nations, Statistics Division. Millennium Development Goals indicators: Carbon dioxide emissions ($CO_2$), thousand metric tons of $CO_2$ (collected by Carbon Dioxide Information Analysis Center). Available at: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crid=

[101] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. Email to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

Solutions Act of 2006 provides new regulatory direction towards limiting GHG emissions, no air districts in the County, including SCAQMD and AVAQMD, have a recommended emission threshold for determining significance associated with GHG emissions from development projects. To date, there is little guidance regarding thresholds for GHG impacts from proposed projects, and there are no local, regional, state or federal regulations to establish a criterion for significance to determine the cumulative impacts of GHG emissions on global climate change. Further, while the quantitative GHG emission impacts of the proposed ordinances would be expected to be below the level of significance compared to the County's target 2020 GHG emissions, and there are no defined regulations establishing significance on a cumulative level, certain representatives of the plastic bag industry have claimed that paper carryout bags are significantly worst for the environment from a GHG emissions perspective. On this basis, and specific to this project only, and because the County is attempting to evaluate the impacts of the proposed ordinances from a conservative worst-case scenario, it can be conservatively determined that the life cycle impacts resulting from an 85- and 100-percent conversion from plastic to paper carryout bags may be cumulatively significant when considered in conjunction with all other related past, present, or reasonably foreseeable, probable future projects or activities.

As for GHG emissions resulting from increased vehicle trips, since the proposed ordinances would not generate a significant number of vehicle trips (Table 3.3.5-12) and would not promote employment or population growth, the proposed ordinances would be expected to cause a less-than-significant cumulative GHG emission impact, when considered on a local, regional, or global scale. Implementation of the proposed ordinances would be consistent with the policies, plans, and regulations for GHG emissions set forth by the County and incorporated cities. Any related projects in the unincorporated territory of the County must also comply with the County's GHG emission regulations. Therefore, cumulative GHG emissions resulting from increased vehicle trips due to implementation of the proposed ordinances would be considered to be below the level of significance.

### 3.3.6 Mitigation Measures

The indirect cumulative impacts to GHG emissions from the proposed ordinances that may result from a potential increase in paper carryout bag manufacturing is subject to the regulatory oversight authority in the location where manufacturing occurs. Similarly, indirect cumulative impacts to GHG emissions from the proposed ordinances may result from carryout bag degradation in Los Angeles area landfills, but would be subject to regulations. With respect to paper carryout bag manufacturing, it appears that there are no paper carryout bag manufacturing facilities located within the County unincorporated and incorporated areas, and the County does not have the ability to control or regulate GHG emissions from bag manufacturing facilities outside of its jurisdiction. The majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[102] or from countries outside of the United States, such as Canada.[103] GHG emissions from any paper carryout bag manufacturing facilities affected by the proposed ordinances will be controlled by the owners of the facilities in accordance with any applicable regional, State, and federal regulations pertaining to GHG emissions. It is also unknown as to which manufacturing facilities, if any, would increase production of paper carryout bags as a result of the proposed ordinances. In addition, the location of paper bag manufacturers that might increase

[102] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[103] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada.

production of paper carryout bag is not known to the County, and cannot be reasonably foreseen. Therefore, the cumulative contribution resulting from conversion from plastic to paper carryout bags cannot be feasibly quantified, and has been established as a reasonable worst-case scenario for the purposes of this analysis. The County has consulted with the responsible agencies for air quality, including SCAQMD, AVAQMD, and the CARB, and has not yet received any recommendations to mitigate the cumulative impacts to GHG emissions from manufacturing or disposal of paper carryout bags. Therefore, the County has determined that the impacts to GHG emissions resulting from paper carryout bag manufacturing could not be feasibly mitigated and may have the potential to remain cumulatively considerable.

GHG emissions from landfills located in the County are already controlled in accordance with applicable regional, State, and federal regulations pertaining to GHG emissions. The County does not have the ability to control or regulate GHG emissions from landfills that are outside of the County's jurisdiction. Any potential increases in GHG emissions due to decomposition of paper carryout bags in landfills in the County will be controlled by AVAQMD Rule 1150.1 or SCAQMD Rule 1150.1. Therefore, the impacts to GHG emissions resulting from decomposition of paper carryout bags in landfills could not be feasibly mitigated and may have the potential to remain cumulatively considerable.

### 3.3.7 Level of Significance after Mitigation

No feasible mitigation measures can be provided to reduce impacts to GHG emissions. Therefore, the impacts to GHG emissions may remain a cumulatively considerable impact.

## 3.4 HYDROLOGY AND WATER QUALITY

As a result of the Initial Study, it was determined that the proposed ordinances may have the potential to result in impacts to hydrology and water quality.[1] Certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts that could result in violations of water quality standards due to an increased reliance on paper carryout bags. Therefore, this issue has been carried forward for detailed analysis in this EIR. This analysis was undertaken to identify opportunities to avoid, reduce, or otherwise mitigate potential significant impacts from hydrology and water quality and to identify potential alternatives.

The analysis of hydrology and water quality consists of a summary of the regulatory framework to be considered in the decision-making process, a description of the existing conditions within the County, thresholds for determining if the proposed ordinances would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to hydrology and water quality has been analyzed in accordance with the methodologies and information provided by the County General Plan,[2] the State of California RWQCB Plan for the Los Angeles Region,[3] including Order No. 01-182 NPDES Permit No. CAS004001, the RWQCB Plan for the Lahontan Region,[4] the City of Los Department of Public Works Water Quality Compliance Master Plan for Urban Runoff (WQCMPUR),[5] direct coordination with the RWQCBs,[6,7] and a review of public comments received during the scoping period for the Initial Study for the proposed ordinances.

### 3.4.1 Regulatory Framework

This regulatory framework identifies the relevant federal, State, and local statutes and policies that relate to hydrology and water quality and that must be considered when rendering decisions on projects that would have the potential to result in impacts to hydrology and water quality.

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[2] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[3] California Regional Water Quality Control Board, Los Angeles Region. Adopted 13 June 1994. *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

[4] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

[5] City of Los Angeles Department of Public Works, Watershed Protection Division, Bureau of Sanitation. Stormwater Program. May 2009. Web site. *Water Quality Compliance Master Plan for Urban Runoff (Clean Stormwater / Urban Runoff Master Plan)*. Los Angeles, CA. Available at: http://www.lacitysan.org/wpd/Siteorg/program/masterplan.htm

[6] Unsicker, Judith, Regional Water Quality Control Board Lahontan Region. 11 March 2010. Telephone correspondence with Donna Grotzinger, Sapphos Environmental, Inc., Pasadena, CA.

[7] Wu, Eric, Regional Water Quality Control Board, Los Angeles Region. 9 March 2010. Telephone correspondence with Donna Grotzinger, Sapphos Environmental, Inc., Pasadena, CA.

### *Federal*

*Clean Water Act of 1972*

The federal CWA of 1972 sets national goals and policies to eliminate discharge of water pollutants into navigable waters and to achieve a water-quality level that will protect fish, shellfish, and wildlife while providing for recreation in and on the water whenever possible.[8] The CWA includes two basic approaches for protecting and restoring the nation's waters. The first is a technology-based approach that promulgates effluent guidelines that rely on the technologies that remove pollutants from wastewaters. Point-source discharges to receiving waters are regulated by the NPDES program that sets technology-based permit limits for particular pollutants in specific water bodies. The second approach is water quality based and seeks to meet the desired uses of the water body through the CWA's Section 303(d) program that links water quality goals with the NPDES permit limits.

Section 303(d) of the federal CWA of 1972 requires states, territories, and authorized tribes to develop lists of impaired water that do not meet water quality standards that have been set for them, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish a priority ranking for these waters on the Section 303(d) list of impaired waters and to develop and establish Total Maximum Daily Loads (TMDLs) for these waters. The requirements of a TMDL are described in 40 CFR 130.2 and 130.7. Federal regulations also require states, territories, and authorized tribes to develop water quality management plans to implement water quality control measures, including TMDLs.

The CWA provides for delegating certain responsibilities for water quality control and planning to the states. The State of California (State) has been authorized by the USEPA to administer and enforce portions of the CWA, including the NPDES program. The State issues NPDES permits through the State Water Resources Control Board (SWRCB) and the nine RWQCBs. The County is regulated by the Lahontan Region and Los Angeles Region RWQCBs.

In 1987, the CWA was amended to state that the discharge of pollutants to waters of the United States from storm water is effectively prohibited, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the CWA added Section 402(p) and established a framework for regulating industrial, municipal, and construction storm water discharges under the NPDES program. The 1987 amendment was developed from the awareness that storm water runoff, a nonpoint-source discharge, is a significant source of water pollution. In 1990, the USEPA published final regulations that established application requirements to determine when industrial, municipal, and construction activities require an NPDES permit.

On December 13, 2001, the Los Angeles RWQCB adopted Order No. 01-182, which is the NPDES permit (NPDES CAS004001) for municipal storm water and urban runoff discharges within the County. As adopted in December 2001, the requirements of Order No. 01-182 (permit) covers 84 incorporated cities and the unincorporated territories of the County, with the exception of the Antelope Valley portion of the County, including the Cities of Lancaster and Palmdale, and the Cities of Long Beach and Avalon. Under the permit, the County of Los Angeles Flood Control District is designated as the Principal Permittee; the County, along with the 84 incorporated cities, is designated as a Permittee. The Principal Permittee coordinates and facilitates activities necessary to comply with the requirements of the permit but is not responsible for ensuring compliance of any of the Permittees.

[8] *United States Code*, Title 33, Section 1251 et seq. 1972.

In compliance with the permit, the Permittees have implemented a Storm Water Quality Management Plan (SQMP), with the ultimate goal of accomplishing the requirements of the permit and reducing the amount of pollutants in storm water and urban runoff. The SQMP is divided into six separate programs, as outlined in the permit: Public Information and Participation, Industrial/Commercial Facilities, Development Planning, Development Construction, Public Agency Activities, and Illicit Connection/Illicit Discharge. Each Permittee is required by the permit to have implemented these programs by February 1, 2002.

*General Construction Activity Storm Water Discharges*

Storm water discharges that are composed entirely of runoff from qualifying construction activities may be eligible to be regulated under the General Construction Activity Storm Water Permit issued by the SWRCB rather than an individual NPDES permit issued by the appropriate RWQCB. Construction activities that qualify include clearing, grading, excavation, reconstruction, and dredge-and-fill activities that result in the disturbance of at least 5 acres of total land area.

Because the proposed ordinances do not require construction or construction-related activities, the conformance to the Standard Urban Stormwater Management Plan as part of compliance with the NPDES General Construction Activity Storm Water Permit would not be required.

*Executive Order 11988*

The objective of Executive Order 11988, dated May 24, 1977, is the avoidance of, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of the base floodplain (100-year floodplain) and the avoidance of direct and indirect support of development in the base floodplain wherever there is a practicable alternative. Under the Executive Order, the USACOE must provide leadership and take action to accomplish the following:

- Avoid development in the base floodplain, unless it is the only practicable alternative
- Reduce the hazard and risk associated with floods
- Minimize the impact of floods to human safety, health, and welfare
- Restore and preserve the natural and beneficial values of the base floodplain

Because the proposed ordinances do not require construction or construction-related activities within the base floodplain, the proposed ordinances would not be subject to Executive Order 11988.

***Regional***

*Water Quality Control Plan for the Lahontan Region*[9]

The Water Quality Control Plan for the Lahontan Region (Lahontan Basin Plan) was established under the requirements of California's 1969 Porter-Cologne Water Quality Control Act [Section 13000 (Water Quality) et seq. of the California Water Code] and was adopted in 1975 and revised in 1995.

The Lahontan Basin Plan was adopted by the Lahontan RWQCB to guide the RWQCB's regulatory program. It sets forth water quality standards and numerical and narrative objectives for the surface

[9] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

and ground waters of the Lahontan Region. As defined by the Porter-Cologne Water Quality Control Act, water quality objectives are the "allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Thus, water quality objectives are intended to protect the public health and welfare and to maintain or enhance water quality in relation to the existing and/or potential beneficial uses of the water. Narrative and numerical water quality objectives specifically define the upper concentration or other limits that the Regional Board considers protective of beneficial uses.

Water quality objectives in the Lahontan Basin Plan that apply to all surface waters include narratives for "floating materials" and "settleable solids."[10] The water quality objective for floating materials indicates "waters shall not contain floating material including solids, liquids, foam, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses." The water quality objective for settleable materials states, "Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses." These water quality objectives apply to trash that may contain plastic carryout bags that can enter water bodies through storm drains or other careless disposal. The Lahontan Basin Plan also identifies general types of water quality issues that can threaten beneficial uses in the Region, including water discharge prohibitions; hazardous spills; storm water runoff, erosion, and sedimentation; wastewater treatment; and waste disposal. In addition, it outlines required or recommended control actions for effective water quality protection and management.

The Lahontan RWQCB also implements the CWA in California under the delegation and oversight of the USEPA, Region IX. Direction for implementation of the CWA is provided by the Code of Federal Regulations (40 CFR) and by a variety of USEPA guidance documents on specific subjects.

Section 303(d) of the CWA requires that the Lahontan RWQCB identify impaired waters and to establish TMDLs to ensure the attainment of the water quality objectives of these water bodies. None of the water bodies located within the Los Angeles County portion of the Lahontan Basin Plan is listed as "impaired waters" in the Lahontan Basin Plan.[11,12]

*Water Quality Control Plan for the Los Angeles Region*

The Los Angeles RWQCB has prepared a Water Quality Control Plan for the Los Angeles Region (Los Angeles Basin Plan), which includes the coastal watersheds of Los Angeles and Ventura Counties.[13] The first essentially complete Los Angeles Basin Plan, which was established under the requirements of California's 1969 Porter-Cologne Water Quality Control Act (Section 13000, Water Quality, et seq. of the California Water Code), was adopted in 1975 and revised in 1984. The most recent version of the Los Angeles Basin Plan was adopted in 1994.

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[10] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

[11] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

[12] Unsicker, Judith, Regional Water Quality Control Board Lahontan Region. 11 March 2010. Telephone correspondence with Donna Grotzinger, Sapphos Environmental, Inc., Pasadena, CA.

[13] California Regional Water Quality Control Board, Los Angeles Region. Adopted 13 June 1994. *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

The Los Angeles Basin Plan assigns beneficial uses to surface and groundwater such as municipal water supply and water-contact recreation to all waters in the basin. It also sets water-quality objectives, subject to approval by the USEPA, intended to protect designated beneficial uses. These objectives apply to specific parameters (numeric objectives) and general characteristics of the water body (narrative objectives). An example of a narrative objective is the requirement that all waters must remain free of toxic substances in concentrations producing detrimental effects on aquatic organisms. Numeric objectives specify concentrations of pollutants that are not to be exceeded in ambient waters of the basin.

Section 303(d) of the CWA requires that the Los Angeles RWQCB identify impaired waters and to establish TMDLs to ensure the attainment of the water quality objectives of these water bodies that are listed.[14] A TMDL is defined as "the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources and natural background," such that the capacity of the water body to assimilate pollutant loadings is not exceeded. Essentially, TMDLs are a calculation of the maximum amount of a pollutant that a water body can receive and still safely meet water quality standards.

The Los Angeles RWQCB has adopted TMDLs for trash as an amendment to the Water Quality Control Plan for eight water bodies in the County, including Malibu Creek, Los Angeles River, Lake Elizabeth, Munz Lake, Lake Hughes, Legg Lake, Machado Lake, and Ballona Creek and wetlands.[15] These are established in Order No. 01-182 NPDES Permit No. CAS004001, as amended.[16] Trash TMDLs are specifically tied to water quality objectives for "floating materials" and "solid, suspended and settleable materials" in Chapter 3 of the amended Los Angeles Basin Plan.[17] Specifically for the Los Angeles River, Resolution No. 07-012 states,

> Trash detracts from the following designated beneficial uses of water bodies in Los Angeles County: water contact recreation; non-contact water recreation; warm freshwater habitat; wildlife habitat; estuarine habitat; marine habitat; rare and endangered species; migration of aquatic organisms; spawning, reproduction and early development of fish; commercial and sport fishing; shellfish harvesting; wetland habitat; and cold freshwater habitat.[18]

Plastic carryout bags are considered a possible component of trash because discarded plastic carryout bags can be found in storm water runoff and discharges.

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[10] California Regional Water Quality Control Board, Los Angeles Region. July 2009. *Los Angeles Region Integrated Report*. Clean Water Act Section 305(b): "Report"; and Section 303(d) "List of Impaired Waters–2008 Update."

[15] California Environmental Protection Agency, Los Angeles Regional Water Quality Control Board. 2007. "Basin Plan Amendment–TMDLs." *Water Issues*. Web site. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/tmdl/tmdl_list.shtml

[16] California Regional Water Quality Control Board, Los Angeles Region. 13 December 2001, and as amended. "Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles and the Incorporated cities therein, Except the City of Long Beach." Order No. 01-182 NPDES Permit No. CAS004001. Los Angeles, CA.

[17] California Regional Water Quality Control Board, Los Angeles Region. Adopted 13 June 1994. *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

[18] California Regional Water Quality Control Board. 9 August 2007. *Amendment to the Water Quality Control Plan for the Los Angeles Region*. Attachment A to Resolution No. 07-012. Monterey Park, CA. Available at: http://63.199.216.6/larwqcb_new/bpa/docs/2007-012/2007-012_RB_BPA.pdf

***Local***

*County of Los Angeles General Plan*

The County Board of Supervisors adopted the Conservation, Open Space and Recreation element as a component of the County General Plan.[19] The Conservation, Open Space and Recreation element includes goals to conserve water and protect water quality. There are two policies relevant to the proposed ordinances that support this goal:[20]

1. Protect groundwater recharge and watershed areas, conserve storm and reclaimed water, and promote water conservation programs
2. Encourage the maintenance, management, and improvement of the quality of imported domestic water, ground water supplies, natural runoff, and ocean water

*County of Los Angeles Stormwater and Runoff Pollution Control Ordinance*

The County Stormwater and Runoff Pollution Control Ordinance (Stormwater Ordinance) is intended to protect public health and safety by enhancing and protecting the water quality of receiving waters within the County. The County Stormwater Ordinance prohibits non–storm water discharges not associated with emergency fire fighting activities from entering the storm drain system without an authorized NPDES permit. In addition, the County Stormwater Ordinance prohibits people from causing any "refuse, rubbish, food waste, garbage, or any other discarded or abandoned objected to be littered, thrown, deposited, placed, left, accumulated, maintained, or kept in or upon any street, alley, sidewalk, storm drain, inlet, catch basin, conduit, drainage structure, place of business, or upon any public or private property except when such materials are placed in containers, bags, recycling bins, or other lawfully established waste disposal facilities protected from stormwater or runoff."[21] The proposed ordinances aim to reduce the amount of litter attributed to plastic carryout bags, thereby complying with the requirements of the County Stormwater Ordinance.

*County of Los Angeles Low Impact Development Standards*

The County low impact development (LID) standards are designed to enhance water quality, increase groundwater recharge, and prevent degradation of natural downstream drainage courses. All new development and redevelopment under the jurisdiction of the County is required to meet LID standards.[22] LID standards include BMPs that promote pollutant removal from storm water runoff. The proposed ordinances aim to reduce the amount of litter attributed to plastic carryout bags in storm water runoff, thereby supporting compliance with the LID standards.

[19] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[20] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[21] *Los Angeles County Code of Ordinances*, Chapter 12.80, "Stormwater and Runoff Pollution Control."

[22] County of Los Angeles, Department of Public Works. January 2009. *County of Los Angeles Low Impact Development Standards Manual*. Los Angeles, CA.

*City General Plans*

Any incorporated cities in the County that adopt individual ordinances will need to determine if they must comply with the adopted water quality policies set forth in the respective city general plans, if any.

*Water Quality Compliance Master Plan for Urban Runoff*

The City of Los Angeles Department of Public Works, Watershed Protection Division, developed the Water Quality Compliance Master Plan for Urban Runoff in response to City Council Motion CF 07-0663, dated March 2, 2007, to provide strategic planning to reduce urban runoff pollution.[23] One of the goals of the Water Quality Compliance Master Plan for Urban Runoff is to improve water quality in the four watershed areas of the City of Los Angeles and to meet existing water quality regulations that apply to surface waters in the County.

### 3.4.2 Existing Conditions

The proposed ordinances would affect an area of approximately 2,649 square miles encompassing the unincorporated territory of the County and 1,435 square miles encompassing the incorporated cities of the County. The areas that would be affected by the proposed ordinances are located within the jurisdiction of the Lahontan and Los Angeles RWQCBs. Therefore, the existing conditions within the proposed ordinance area were determined based on review of the State RWQCB Basin Plans for the Lahontan and Los Angeles Regions.

#### *General Area Description*

*Lahontan Region*

The RWQCB Basin Plan for the Lahontan Region includes the northeastern portion of the County, which covers the Antelope watershed. The northern part of the County is characterized by broad expanses of flat terrain—specifically, desert washes—and higher elevation terrain, including desert valleys and the northern slopes of the San Gabriel Mountains. The incorporated areas of the City of Lancaster and City of Palmdale lie within the Lahontan Basin Plan. This area is otherwise mostly characterized by streams and groundwater basins.[24]

*Los Angeles Region*

The RWQCB Basin Plan for the Los Angeles Region covers the areas of the County that are not within the Lahontan Region, which cover the majority of the County. There are six major watersheds within the Los Angeles Region: the Santa Clara River watershed, the Los Angeles River watershed, the San Gabriel River watershed, the Malibu Creek watershed, the Ballona Creek watershed, and the Dominguez Channel. The southern and western areas within the County are located within the Los Angeles Coastal Plain Basins and are characterized by flat, urbanized, developed areas used for

[23] City of Los Angeles Department of Public Works, Watershed Protection Division, Bureau of Sanitation. Stormwater Program. May 2009. Web site. *Water Quality Compliance Master Plan for Urban Runoff (Clean Stormwater / Urban Runoff Master Plan)*. Los Angeles, CA. Available at: http://www.lacitysan.org/wpd/Siteorg/program/masterplan.htm

[24] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

residential, commercial, and industrial activity throughout the inland and along the coastal area; open space; and mountainous terrain, including the San Fernando and San Gabriel Valleys in the northwest and east, respectively, and the Transverse Mountain Ranges that include the southern slopes of the San Gabriel Mountains in the east and Santa Monica Mountains along the coast.

The main surface water features located within this region include small streams and rivers, including Topanga Canyon Creek, Malibu Creek, Dume Creek (Zuma Canyon Creek), and Big Sycamore Canyon Creek. The Malibu Creek Watershed has been observed to have increased flows (from imported waters needed to support the growing population base) and channelization of several tributaries to Malibu Creek. The Los Angeles River, San Gabriel River, and Ballona Creek are the main rivers present in the southeast area of the County. The Los Angeles River is highly modified, and is lined with concrete along most of its length.[25]

### ***Drainage***

*The Lahontan Region*

The areas of the County within the Lahontan Region encompass waters primarily located within the South Lahontan Basin. Water drainages within the South Lahontan Basin drain into closed basin remnants of prehistoric lakes.

*Los Angeles Region*

The Los Angeles Region encompasses all coastal drainages flowing to the Pacific Ocean between Rincon Point and the eastern County line, as well as the drainages of five coastal islands. The particular hydrologic units contained within the areas associated with the proposed ordinances are the Malibu Hydrologic Unit and the Los Angeles–San Gabriel Hydrologic Unit.

The Malibu Hydrologic Unit drains the southern slopes of the Santa Monica Mountains in western Los Angeles County and a small area of southeastern Ventura County. The drainage area totals 242 square miles, and except for the coastal area where land use is residential and commercial, most of the area is open space. This drainage area is composed of several small streams, including Topanga Canyon Creek, Malibu Creek, Dume Creek, Zuma Canyon Creek, and Big Sycamore Canyon Creek, which flow southward into the Pacific Ocean.

The Los Angeles–San Gabriel Hydrologic Unit covers most of Los Angeles County and small areas of Ventura County, of which, much of the areas are covered with semipermeable or nonpermeable material. The Los Angeles River, San Gabriel River, and Ballona Creek, which are the major drainage systems in this area, drain the coastal watersheds of the Transverse Mountain Ranges. The current flow in the Los Angeles River is effluent, dominated with approximately 80 percent of its flow originating at dischargers, and the remaining flow coming from storm drain runoff and groundwater reaching the surface. There are eight major tributaries to the Los Angeles River as it flows from its headwaters to the Pacific Ocean. The major tributaries of the Los Angeles River include Burbank Western Channel, Pacoima Wash, Tujunga Wash, and Verdugo Wash in the San Fernando Valley, and the Arroyo Seco, Compton Creek, and Rio Hondo south of the Glendale Narrows.[26]

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[25] California Regional Water Quality Control Board, Los Angeles Region. Adopted 13 June 1994. *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

[26] County of Los Angeles, Department of Public Works. Accessed on: 18 March 2010. "Los Angeles River Watershed." Web site. Available at: http://dpw.lacounty.gov/wmd/watershed/LA

### *Storm Drain System*

The manmade drainage system existing within the County is characterized by the Los Angeles storm drainage system present throughout urbanized areas, stretching from along the coast to inland. The Los Angeles storm drainage system is a 1,500-mile network of underground pipes and channels that discharge directly into coastal waters and are designed to prevent flooding. Storm water runoff drains from the street, into the gutter, and enters the system through an opening in the curb called a catch basin. Catch basins serve as the neighborhood entry point to the journey into the ocean and can be found throughout the County. The average annual runoff associated with storm water in billions of gallons per year for the Los Angeles River Watershed and Ballona Creek Watershed combined is 250 billion. Although the background (dry weather) runoff is more or less constant all year, storm water runoff is significantly greater.[27]

There are more than 80,000 catch basins that collect runoff throughout the six major watersheds within the RWQCB Los Angeles Region of the County: Dominguez Channel watershed, Ballona Creek watershed, San Gabriel River watershed, Los Angeles River watershed, Santa Clara Watershed, and Malibu Creek watershed (Figure 3.4.2-1, *Northern Portion of the County Storm Drain System*, and Figure 3.4.2-2, *Southern Portion of the County Storm Drain System* ).[28] During the Great Los Angeles River Clean Up, which collected trash from 30 catch basins in the Los Angeles River, it was observed that 25 percent by weight and 19 percent by volume of the trash collected was plastic bags.[29] Results of a Caltrans study of catch basins alongside freeways in Los Angeles indicated that plastic film was 7 percent by mass and 12 percent by volume of the total trash collected.[30] The LACDPW contracts out the cleaning of all the catch basins in the County for a total cost of slightly over $1 million per year, billed to 42 municipalities. Each catch basin is cleaned once a year before the rainy season, except for 1,700 priority catch basins that fill faster and have to be cleaned out more frequently.[31] Installation of catch basin inserts to improve the catch basins' ability to prevent trash from entering the waterways, in compliance with adopted trash TMDLs, is about $800 per insert.[32]

### *Surface Water Quality*

The natural quality of most high-elevation waters, which are derived from snowmelt, as well as water supplies available near streams in desert areas in the Lahontan Region, are assumed to be high, although localized problems related to heavy metals and radioactive elements occur. However, many desert waters have naturally poor quality, due to high concentrations of salts and minerals, such as arsenic and selenium. Water quality problems in the Lahontan Region are largely related to nonpoint sources (including erosion from construction, timber harvesting, and livestock grazing), storm water,

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[27] City of Los Angeles Department of Public Works, Watershed Protection Division, Bureau of Sanitation. Stormwater Program. May 2009. Web site. *Water Quality Compliance Master Plan for Urban Runoff (Clean Stormwater / Urban Runoff Master Plan)*. Los Angeles, CA. Available at: http://www.lacitysan.org/wpd/Siteorg/program/masterplan.htm

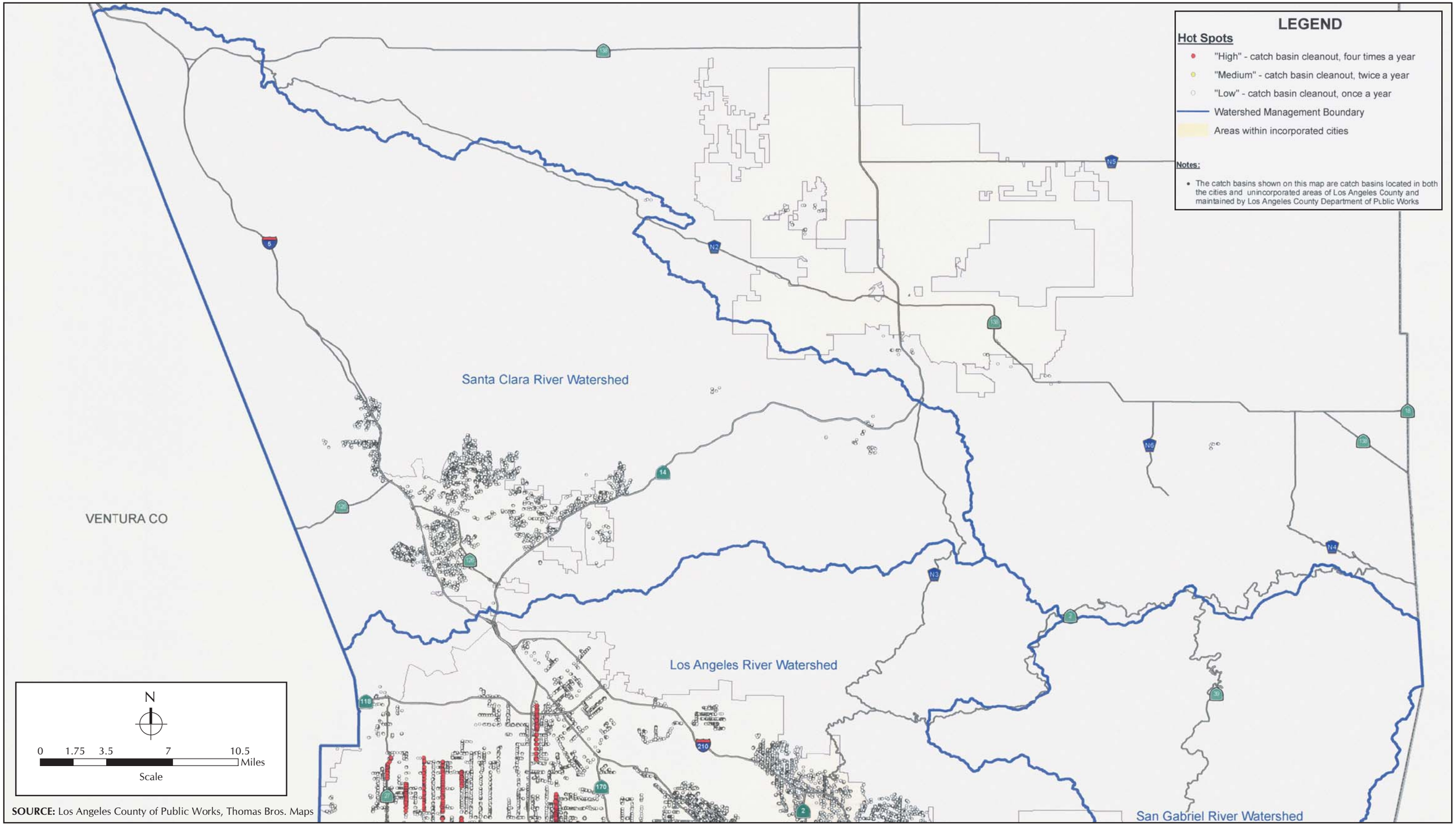
[28] County of Los Angeles, Department of Public Works. 2007–2009 Biennial Report.

[29] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[30] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

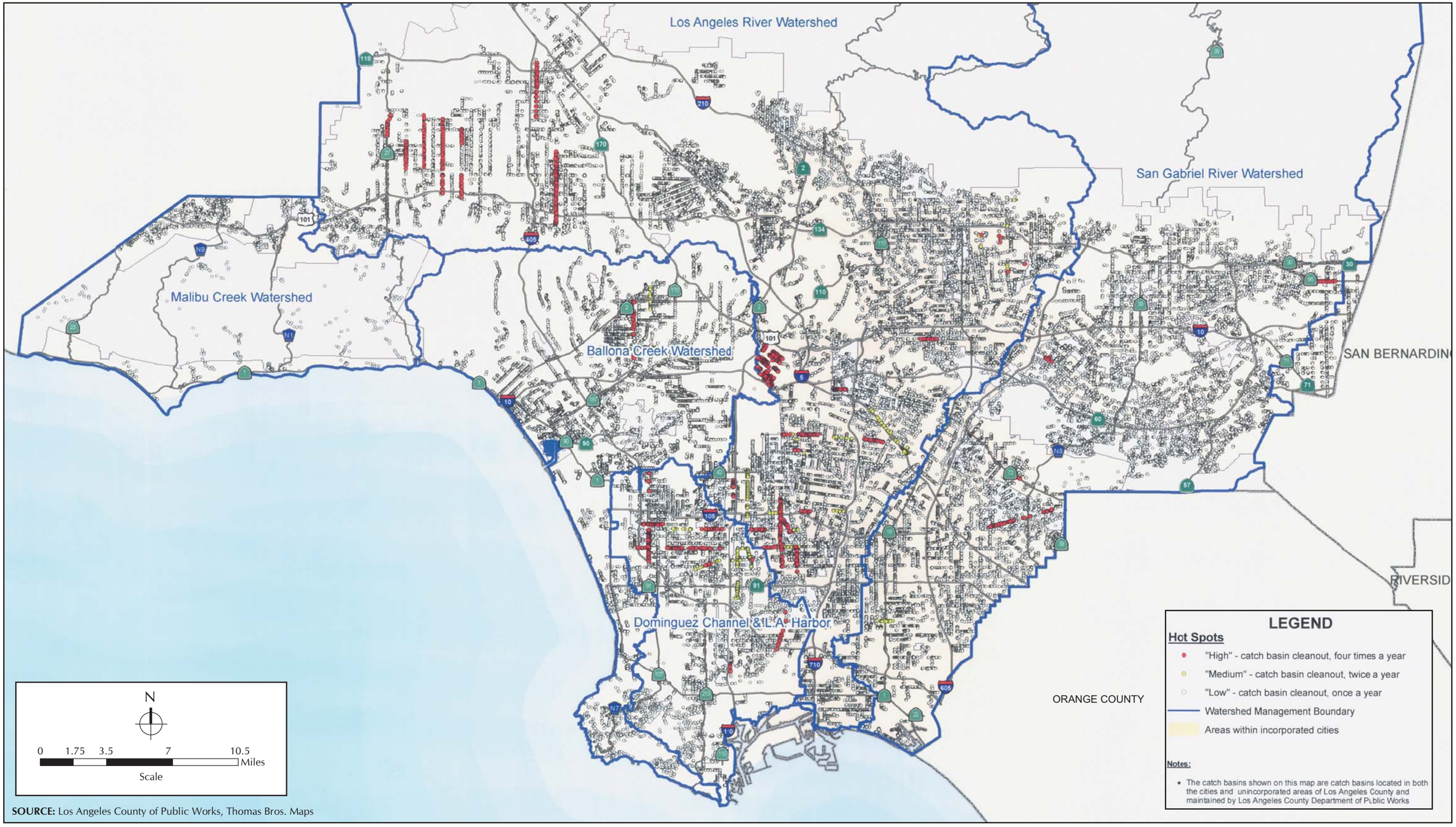
[31] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed*. Los Angeles, CA.

[32] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed*. Los Angeles, CA.




**SOURCE:** Los Angeles County of Public Works, Thomas Bros. Maps

**FIGURE 3.4.2-1**
Northern Portion of the County Storm Drain System




**SOURCE:** Los Angeles County of Public Works, Thomas Bros. Maps

**FIGURE 3.4.2-2**
Southern Portion of the County Storm Drain System

acid drainage from inactive mines, and individual wastewater disposal systems.[33] Some surface waters of the Lahontan Region are currently listed as impaired waters due to these water quality problems; however, none of these occurs in the Los Angeles portion of the Lahontan Region.[34]

The Los Angeles Region RWQCB has adopted TMDLs for trash for eight waterways and wetlands: Malibu Creek, Los Angeles River, Lake Elizabeth, Munz Lake, Lake Hughes, Legg Lake, Machado Lake, and Ballona Creek and wetlands.[35] Many of the surface water bodies in the densely populated areas of the Los Angeles Region RWQCB do not meet water quality goals for algae, bacteria, chloride, debris, metals, nutrients, oil and grease, salts, trash, and toxic organic compounds. The surface water quality of the Malibu Creek Watershed historically exhibits several pollutants of concerns, many of which are discharged from nonpoint sources, and include excess nutrients, sediment, and bacteria. Watersheds closer to highly urban areas—such as Ballona Creek, the Los Angeles River, and the San Gabriel River—contain pollutants typical of urban runoff, such as trash, metals, coliform bacteria, oil and greases, nutrients, and toxic organic compounds, such as pesticides and herbicides.[36] As such, the Los Angeles Region has impaired water quality in the middle and lower portions of the basin due to runoff from dense clusters of commercial, industrial, residential, and other urban activities. Appendices D and E of the Los Angeles Region Integrated Report provide the Section 303(d) list of impaired waters of the Los Angeles Region.[37] The Los Angeles RWQCB's Basin Plan specifically addresses the impact of urban runoff on water quality of the region's water bodies in Chapter 4, "Control of Nonpoint Source Pollutants," of the Basin Pan.[38] As part of a comprehensive control program to address urban runoff, the Basin Plan clearly places responsibility on all cities and counties in the Los Angeles Region to reduce pollution from urban runoff. Namely, the RWQCB requires all cities and counties to develop and implement comprehensive urban runoff control programs that both prevent future water quality problems and remediate existing problems.

### *Groundwater*

The Lahontan Region includes more than 1,581 square miles of ground water basins. Ground waters in the Lahontan Region supply high-quality drinking water and irrigation water, as well as industrial service supply, wildlife habitat supply, and aquaculture supply waters. Ground waters in the Lahontan Region also provide a source of freshwater for the replenishment of inland lakes and streams of varying salinity. Historical and ongoing agricultural, urban, and industrial activities can degrade the quality of ground water. Discharges to ground water, resulting from these activities, include underground and aboveground tank and sump leaks, agricultural and industrial chemical spills, landfill leachate, septic

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[33] California Regional Water Quality Control Board, Lahontan Region. Effective 31 March 1995, as amended through December 2005. *Water Quality Control Plan for the Lahontan Region*. South Lake Tahoe, CA. Available at: http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml

[34] Lahontan Regional Water Quality Control Board. Approved 28 June 2007 by USEPA. *2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs*. Available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/epa/r6_06_303d_reqtmdls.pdf

[35] Wu, Eric, Regional Water Quality Control Board Los Angeles Region. 9 March 2010. Telephone correspondence with Donna Grotzinger, Sapphos Environmental, Inc., Pasadena, CA.

[36] City of Los Angeles, Department of Public Works, Watershed Protection Division, Bureau of Sanitation. Stormwater Program. May 2009. Web site. *Water Quality Compliance Master Plan for Urban Runoff (Clean Stormwater / Urban Runoff Master Plan)*. Los Angeles, CA. Available at: http://www.lacitysan.org/wpd/Siteorg/program/masterplan.htm

[37] California Regional Water Quality Control Board, Los Angeles Region. July 2009. *Los Angeles Region Integrated Report*. Clean Water Act Section 305(b): "Report"; and Section 303(d): "List of Impaired Waters–2008 Update."

[38] California Regional Water Quality Control Board, Los Angeles Region. Adopted 13 June 1994. *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA. Available at: http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml

system failures, and chemical seepage via shallow drainage wells and abandoned wells. Severe ground water overdraft has occurred in portions of the Lahontan Region; ground water can reduce natural flows into these areas and lead to the concentration of trace chemicals, including naturally occurring salts and contaminants resulting from human activities.

Ground water is present in limited amounts in alluvium along the bottom of canyons and valleys and in fractured volcanic rocks, in the coastal areas, whereas the surface waters of the Los Angeles River, San Gabriel River, and Ballona Creek recharge large reserves of ground water that exist in alluvial aquifers underlying the San Fernando and San Gabriel Valleys and the Los Angeles Coastal Plain.

***Floodways and 100-year Flood Zone***

The proposed ordinances are intended to apply to approximately 2,649 square miles of unincorporated area in the County and 1,435 square miles encompassing the incorporated cities of the County, of which, approximately 6 percent is within the 100-year Flood Zone. The 100-year Flood Zone areas identified by Federal Emergency Management Agency Flood Insurance Rate maps are located primarily in the northeast region of the County, namely the Lahontan Region.

***Seiche, Tsunamis, and Mudflows***

Seiches and tsunamis are the result of tectonic activity such as an earthquake. A seiche is an oscillation of the surface of a landlocked body of water that can create a hazard to persons and structures on and in the vicinity of the water. Although there are many landlocked bodies of water located within the County, including flood control channels and the Los Angeles River, these manmade structures have been designed in accordance with applicable State and local statutes and regulations. A tsunami is a long-period, high-velocity tidal surge that can result in a series of very low (trough) and high (peak) sea levels, with the potential to inundate areas up to several miles from the coast, creating hazards to people or structures from loss, injury, or death. Most of the hazards created by a tsunami come when a trough follows the peak, resulting in a rush of sea water back into the ocean. A mudflow is a moving mass of soil made fluid by a loss of shear strength, generally as a result of saturation from rain or melting snow. As the County does include coastal areas, it has the potential to be affected by tsunamis.

### 3.4.3 Significance Thresholds

The potential for the proposed ordinances to result in impacts to public services was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The proposed ordinances would normally be considered to have a significant impact to hydrology and water quality if the proposed ordinances would

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere with groundwater recharge leading to a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of preexisting nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation either on site or off site

- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river or substantial increase in the rate or amount of surface runoff in a manner that would result in flooding either on-site or off-site
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place structures within a 100-year flood hazard area that would impede or redirect flood flows
- 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
- Result in inundation by seiche, tsunami, or mudflow

### 3.4.4 Impact Analysis

***Drainage***

The proposed ordinances would not result in significant adverse impacts to hydrology and water quality in relation to drainage. The drainages within the Lahontan Region and Los Angeles Region consist of numerous streams and storm drains that drain into the Pacific Ocean. Heavy rain events following the dry summer months in the Los Angeles watersheds have been shown to flush 150 tons of trash to the coastal Pacific Ocean.[39] The implementation of the proposed ordinances would reduce a measurable source of polluted runoff from these streams and other water resources to coastal waters, by decreasing litter attributed to plastic carryout bag disposal in these areas. Several studies have shown that plastic film, particularly that of plastic carryout bags, composes a significant portion of the trash collected in storm drains. For example, a study assessing the litter content of storm drain catch basins during the Great Los Angeles River Clean Up estimated the weight and volume of plastic bag litter to be 25 percent and 19 percent, respectively.[40] A Caltrans study of catch basins alongside freeways in Los Angeles indicated that plastic film composed 7 percent and 12 percent by mass and volume, respectively, of the total trash collected.[41] Plastic carryout bags that end up in storm drains can clog catch basins, storm drain inlet racks and other devices, effectively reducing the capacity of the system to channel storm water runoff and may result in flooding of adjacent areas.[42] The proposed ordinances would significantly reduce the amount of plastic carryout bag trash that may originate from sources in the County and be transported from rivers to oceans.

A study performed for Washington, District of Columbia, showed that plastic bag trash accounted for 45 percent of the amount of trash collected in tributary streams and 20 percent of the amount of trash

[39] County of Los Angeles, Department of Public Works. 11 December 2006. Press Release for Project Pollution Prevention. Available at: http://ladpw.org/prg/StormWater/TrashBoomMediaEventReleaseFINAL.pdf

[40] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[41] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

[42] Sapphos Environmental, Inc. 29 January 2010. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Waste Management Analysis Report*. Pasadena, CA.

collected in rivers.[43] However, the same study found that paper products were not found in the streams except in localized areas and were not present downstream.[44] Due to the fact that paper carryout bags degrade when in contact with water, paper carryout bags are less likely to accumulate in the storm drain system. Similarly, reusable bags pose less of an issue for the storm drain system because they are not disposed of as frequently as are plastic carryout bags because they are designed to be used multiple times, and are not littered the way plastic carryout bags are.

The proposed ordinances would be consistent with TMDLs established by the Los Angeles Region RWQCB to reduce trash contribution to surface waters in eight water bodies and wetlands: Malibu Creek, Los Angeles River, Lake Elizabeth, Munz Lake, Lake Hughes, Legg Lake, Machado Lake, and Ballona Creek and wetlands. The weight and volume of plastic bag litter in storm drain catch basins during the Los Angeles River Clean up Event were estimated to be 25 percent and 19 percent, respectively.[45] The proposed ordinances would be expected to reduce these values and have a positive impact on the surface water drainage and storm drain systems in the County.

Because the proposed ordinances would not require construction of new structures or additional storm water infrastructure, the capacity of existing storm water drainage would remain unchanged, and redirecting storm water flows would be unnecessary. As noted above, the proposed ban on plastic carryout bags would improve the existing drainage capacity by removing a significant source of trash that can clog features of the system and reduce its capacity.[46] Therefore, the proposed ordinances would not be expected to result in significant adverse impacts to hydrology and water quality related to drainage.

***Surface Water Quality***

The proposed ordinances would not result in significant adverse impacts to hydrology and water quality in relation to surface water quality. However, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts that could result in violations of water quality standards due to the increased reliance on paper carryout bags, which can potentially cause increased water eutrophication during the manufacturing process. Eutrophication occurs when high levels of nutrients, such as fertilizers, enter a water body and cause excessive growth of plants, such as algae, resulting in a reduction in water quality. Several LCAs have analyzed the impacts of bag manufacturing upon eutrophication and concluded that paper carryout bag manufacturing releases more pollutants, such as nitrates and phosphates, into water than does plastic carryout bag manufacturing.[47,48] For example, according to an LCA performed by Ecobilan, 0.2 gram of phosphate equivalent are generated in the production of enough plastic carryout bags to hold 9,000 liters of groceries, which is a typical volume of groceries purchased annually in

[43] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[44] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[45] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[46] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by: ICF International. San Francisco, CA.

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

[48] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

France per customer (the Ecobilan Study was conducted for stores in France).[49,50] In contrast, 2.3 grams of phosphate equivalent are generated in the production of enough paper carryout bags to hold 9,000 liters of groceries.[51] The results of the Ecobilan Study were used as one of the methods to analyze the potential effects of eutrophication due to a conservative worst-case scenario of an 85- to 100-percent conversion from plastic to paper carryout bag use. The Ecobilan LCA was chosen above the other studies reviewed during preparation of this EIR because it is relatively recent, contains relatively sophisticated modeling and data processing techniques, considers a wide range of environmental indicators, was critically reviewed by the French Environment and Energy Management Agency, and contains detailed data for individual potential environmental impacts.

In order to better apply the Ecobilan data to bag usage in the County, eutrophication per bag was calculated in grams of phosphate equivalent per liter of groceries packed, and then multiplied by the estimated number of plastic carryout bags currently used in the unincorporated territory of the County and in the 88 incorporated cities.[52,53,54] This method was used to estimate the current eutrophication due to plastic carryout bags and the projected water eutrophication that would be anticipated given an 85- and 100-percent conversion from plastic to paper carryout bags (Table 3.4.4-1, *Eutrophication Due to Use of Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C, *Calculation Data*).

Using the Ecobilan results, it was determined that the potential for an 85-percent conversion from the use of plastic to paper carryout bags would result in an increase in eutrophication of approximately 2 kilograms of phosphate equivalent per day for the 67 stores in the unincorporated territory of the County, and up to an additional 13 kilograms of phosphate per day if similar ordinances were adopted by the 88 incorporated cities of the County. Assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in eutrophication of approximately 2 kilograms of phosphate equivalent per day for the 67 stores in the unincorporated territory of the County, and up to an additional 15 kilograms of phosphate equivalent per day if similar ordinances were adopted by the 88 incorporated cities of the County (Table 3.4.4-1 and Appendix C*)*.

[49] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[50] Total wastewater generated was assumed to be the sum of unspecified water, chemically polluted water, and thermally polluted water.

[51] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[52] Coordination between the LACDPW and several large supermarket chains in the County of Los Angeles determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[53] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County of Los Angeles has determined that 67 stores in unincorporated areas would be affected by the proposed County ordinance.

[54] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or higher. Accessed on: 29 April 2010.

## TABLE 3.4.4-1
## EUTROPHICATION DUE TO USE OF PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA

| Eutrophication Sources | Eutrophication (kilograms phosphate equivalent) | | |
|---|---|---|---|
| | Eutrophication from Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use[1] | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use[1] |
| Eutrophication due to carryout bag use in the 67 stores in the unincorporated territory of the County | 0.21 | 1.87 | 2.24 |
| Eutrophication due to carryout bag use in the 462 stores in the incorporated cities of the County | 1.43 | 12.92 | 15.45 |
| **Total eutrophication due to carryout bag use** | **1.64** | **14.79** | **17.69** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Report prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

Increased demand for reusable bags may also have the potential to indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to plastic and paper carryout bag manufacturing, when considered on a per-use basis. For example, the Ecobilan Study evaluated the eutrophication impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[55] The analysis concluded that this particular reusable bag has a smaller impact on eutrophication than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.4.4-2, *Eutrophication Due to Reusable Bags Based on Ecobilan Data*).[56] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 3.4.4-2). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how the eutrophication impacts of reusable bag manufacturing are reduced with each time a bag is used. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon eutrophication. The County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce eutrophication impacts.

[55] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[56] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

## TABLE 3.4.4-2
## EUTROPHICATION DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA

| Eutrophication Sources | Eutrophication (kilograms phosphate equivalent) | | |
|---|---|---|---|
| | Eutrophication from Plastic Carryout Bags | Eutrophication Due to Reusable Bags When Used 3 Times | Eutrophication Due to Reusable Bags When Used 20 Times |
| Eutrophication due to reusable bag use in the 67 stores in the unincorporated territory of the County | 0.21 | 0.19 | 0.03 |
| Eutrophication due to reusable bag use in the 462 stores in the incorporated cities of the County | 1.43 | 1.31 | 0.20 |
| **Total eutrophication due to carryout bag use** | **1.64** | **1.51** | **0.23** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

The proposed ordinances would also ban the issuance of biodegradable and compostable plastic carryout bags, as well as standard plastic carryout bags. Biodegradable bags have been noted to have worse impacts upon eutrophication than standard plastic carryout bags have,[57,58,59] so the inclusion of biodegradable bags in the proposed ordinances would result in potentially positive impacts upon surface water quality with regard to eutrophication.

While a quantitative analysis for eutrophication has been undertaken as discussed above, determining the level of significance of eutrophication impacts from bag manufacturing would be speculative due to the lack of an established baseline or significance threshold and further inapplicable given the fact that the manufacturing facilities for paper carryout bags appear not be located within the County. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[60] or from countries outside of the United States, such as Canada,[61] there would no expected impacts related to eutrophication to surface water quality in the watersheds of the County as a result of the proposed ordinances. Since there appears to be no manufacturing and production of paper carryout bags in the County unincorporated and incorporated areas, there would be no impacts to water quality resulting from eutrophication during the manufacturing process. Therefore, indirect impacts to water quality from eutrophication due to a potential increase in the demand for paper carryout bag manufacturing would be expected to be below the level of significance.

[57] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group.

[58] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[59] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin, VIC, Australia.

[60] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[61] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada

Further, any indirect increase in pollutant discharge from manufacturing plants due to increased demand for paper carryout bags would be regulated and controlled by the local, regional, and federal laws applicable to each manufacturing plant. It is incorrect to assume that eutrophication resulting from the production and manufacture of paper carryout bags would be left unchecked and unregulated. Within the United States, pollutant discharges from bag manufacturing facilities have to comply with NPDES requirements and permits. Therefore, impacts of the proposed ordinances upon surface water quality within the watershed of the County due to eutrophication would also be expected to be below the level of significance.

In addition, any adverse indirect impact upon water quality due to eutrophication would likely be offset by the positive impacts that the proposed ordinances would be expected to have upon water quality due to a decrease of litter attributed to plastic carryout bags in water bodies.

A study performed for Washington, District of Columbia, showed that plastic bag trash accounted for 45 percent of the amount of trash collected in tributary streams and 20 percent of the amount of trash collected in rivers.[62] However, the same study found that paper products were not found in the streams except in localized areas and were not present downstream.[63] Due to the fact that paper carryout bags and reusable bags are heavier than plastic carryout bags, paper carryout bags degrade faster when in contact with water, and reusable bags are not disposed of as rapidly as plastic carryout bags, paper carryout bags and reusable bags are less likely to be transported throughout the water system. Therefore, any adverse impacts to water bodies from paper carryout bags or reusable bags would likely be limited to localized areas near to the source of the litter, and would not be considered to cause significant impacts on a regional scale within the County.

Within the open-space portions of the unincorporated territories of the County, such as the Lahontan Region, Malibu Creek Watershed, and Los Angeles River Watershed, water quality is degraded due to nonpoint-source pollution. However, the proposed ordinances are not anticipated to adversely impact the surface water quality of those water resources. In fact, the proposed ordinances would be expected to improve surface water quality by reducing the potential for plastic carryout bags to end up in surface waters.[64] The surface water quality of many water resources within the watersheds of the County is degraded due to the high volume of trash generated by the County's urbanized areas.[65] Consumer behavior creates land-based sources of litter in coastal and inland areas including beaches, streams, rivers, piers, municipal landfills, and storm water drains, where waste is then transported to local water resources. Such water resources carry pollutants such as plastic carryout bag trash and, as they drain to the Pacific Ocean, produce marine litter in coastal waters.[66]

The proposed ordinances would be expected to reduce the amount of plastic carryout bag trash within land-based, urbanized areas where plastic carryout bags are used most, such as supermarkets,

[62] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan* Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[63] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan* Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[64] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[65] City of Los Angeles Department of Public Works, Bureau of Sanitation, Watershed Protection Division. January 2002. *High Trash-generation Areas and Control Measures*. Los Angeles, CA.

[66] City of Los Angeles Department of Public Works, Watershed Protection Division, Bureau of Sanitation. May 2009. Web site. *Water Quality Compliance Master Plan for Urban Runoff (Clean Stormwater / Urban Runoff Master Plan)*. Stormwater Program. Los Angeles, CA. Available at: http://www.lacitysan.org/wpd/Siteorg/program/masterplan.htm

department stores, industrial sites, and other commercial sites. Because the Los Angeles Region RWQCB has set TMDLs for trash in Malibu Creek, Los Angeles River, Santa Clara River (upstream), Legg lake, Dominguez Channel, and Ballona Creek and wetlands (see Order No. 01-182 NPDES Permit No. CAS004001 as amended), a ban on plastic carryout bags would enhance efforts to meet these TMDLs by reducing or removing a significant source of trash from storm water drains.[67] As noted previously, plastic bags accounted for 25 percent of the trash removed from storm drain catch basins during the Los Angeles River Clean up Event.[68]

The current presence of litter, including plastic carryout bags, in the marine environment and in inland water bodies impairs the use of such waters for the beneficial uses specified in the relevant watershed management plans. Implementation of the proposed ordinances would be expected to incrementally improve the use of the County's watersheds for specified beneficial uses. The proposed ordinances would assist in improving water quality to meet existing water quality regulations set for the surface waters beneficial uses of the Los Angeles Basin Plan and the Lahontan Basin Plan. The proposed ordinances would not be expected to have any direct adverse impacts on water quality due to eutrophication, and any indirect impacts related to increased demand for paper carryout bag manufacturing—though it appears no paper carryout bag manufacturing facilities are located in the County unincorporated and incorporated areas—would be controlled by the USEPA and the RWQCBs under the federal CWA, and other applicable federal, state, and/or local regulations. Therefore, the impacts of the proposed ordinances to hydrology and water quality related to surface water quality or waste discharge would be expected to be below the level of significance.

***Groundwater***

The proposed ordinances would not result in significant adverse impacts to hydrology and water quality in relation to groundwater. Plastic carryout bags are nonbiodegradable materials in the marine environment and are a source of litter in water resources. Plastics may also contain plasticizers, including dibutyl phthalate, diethylhexyl phthalate, dimethyl phthalate, butyl benzyl phthalate and bisphenol A (BPA), which are identified and known to be pollutants and hazardous to human and animal life.[69] Because industrial activities related to the manufacture of plastic carryout bags have the potential to cause significant impacts on the environment if unmitigated or if regulations are not followed (for example, underground and aboveground storage tank leaks and industrial chemical spills can cause discharges to ground water and pollution of groundwater supplies), the proposed ordinances would be expected to indirectly reduce the potential of harmful compounds to be discharged into groundwater supplies in the Lahontan and Los Angeles Basin Regions, if plastic carryout bag manufacturing occurs in these areas. However, these potential beneficial impacts are likely to may be minimal, depending on the number of manufacturing facilities that supply plastic carryout bags to the County that are actually located inside the County, and that are not located in other states or countries.[70]

Similarly, any potential adverse impacts due to the discharge of pollutants from paper carryout bag manufacturing facilities are anticipated to be below the level of significance. Since the majority of

[67] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed*. Los Angeles, CA.

[68] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division, Los Angeles, CA.

[69] Oehlmann, Jörg, et al. 2009. "A critical analysis of the biological impacts of plasticizers on wildlife." In *Philosophical Transactions of the Royal Society B: Biological Sciences 364*, 2047–2062.

[70] Uline. 15 July 2009. Telephone correspondence with Stephanie Watt, Sapphos Environmental, Inc., Pasadena, CA.

paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[71] or from countries outside of the United States, such as Canada[72] there would be no anticipated manufacturing-related impacts to groundwater within the County. The discharge of pollutants locally and nationally is also regulated by the USEPA and the RWQCBs under the federal CWA. Because the proposed ordinances do not require the construction of new structures, they would not result in the creation of impervious surfaces that would potentially reduce ground water levels. Therefore, the proposed ordinances would not be expected to result in significant adverse impacts to hydrology and water quality related to groundwater.

### *100-year Flood Zone*

The proposed ordinances would not result in significant adverse impacts to hydrology and water quality in relation to the 100-year Flood Zone. Although some areas that would be affected by the proposed ordinances are located within a 100-year Flood Zone area, the proposed ordinances do not require the construction of new development, and drainage patterns would not be affected upon implementation of the proposed ordinances. Therefore, the proposed ordinances would not be expected to result in significant impacts to hydrology and water quality related to the 100-year Flood Zone.

### *Seiche, Tsunamis, and Mudflows*

The proposed ordinances are anticipated to affect areas that are located near the Pacific Ocean and, thus, would be subject to a seiche or tsunami. However, implementation of the proposed ordinances would not require the construction of new development and would not result in an increase in population; the existing areas that would be affected by the proposed ordinances are already at risk of seiche or tsunamis, specifically the Malibu, Santa Monica, San Pedro Harbor, and other coastal areas. As such, the impact of the proposed ordinances would not be expected to increase the risk and hazard to individuals residing within areas that lie in the vicinity of coastal waters of being subject to a seiche or tsunami. Therefore, implementation of the proposed ordinances would not have the potential to result in significant and unavoidable impacts to hydrology and water quality in relation to seiche, tsunamis, and mudflows.

### *Cumulative Impacts*

The incremental impact of the proposed ordinances, when considered with the related past, present, or reasonably foreseeable, probable future projects, would not be expected to cause a significant adverse impact to hydrology and water quality. As research indicates, the proposed ordinances would be expected to improve the quality of surface water, drainage, and groundwater by reducing the amount of trash, floating materials, and settleable materials in surface water and watersheds of the County, thus complying with existing plans that have set goals for improving the quality of surface water and watersheds. The proposed ordinances would not have any direct adverse impacts due to eutrophication or contamination of groundwater, but any indirect impacts related to increased demand for manufacturing of paper carryout bags or reusable bags would be controlled by the USEPA and the RWQCBs under the federal CWA and other applicable federal, state, and/or local regulations.

[71] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[72] National Council for Air and Stream Improvement, Inc. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association, Washington, DC, and Forest Product Association of Canada, Ontario, Canada.

Therefore, implementation of the proposed ordinances would not be expected to cause an incremental adverse impact when considered with related past, present, or reasonably foreseeable, probable future projects.

### 3.4.5 Mitigation Measures

There would be no anticipated adverse impacts related to hydrology and water quality as a result of implementation of the proposed ordinances. Therefore, no mitigation is required.

### 3.4.6 Level of Significance after Mitigation

Implementation of the proposed ordinances would not be expected to result in a significant adverse impact related to hydrology and water quality that would need to be reduced to below the level of significance.

## 3.5 UTILITIES AND SERVICE SYSTEMS

As a result of the Initial Study, it was identified that the proposed ordinances may have the potential to result in significant impacts to utilities and service systems.[1] Certain plastic bag industry representatives have claimed that banning the issuance of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, which may lead to increased water consumption, energy consumption, and solid waste disposal. Therefore, the County has decided to present the analysis of these issues in this EIR.

The analysis of utilities and service systems consists of a summary of the regulatory framework to be considered in the decision-making process and a description of the existing conditions for relevant utilities and service systems in the County, thresholds for determining if the proposed ordinances would result in significant impacts, anticipated impacts (direct, indirect, and cumulative), mitigation measures, and level of significance after mitigation. The potential for impacts to utilities and service systems has been analyzed in accordance with the methodologies and information provided by the County of Los Angeles General Plan,[2] the California RWQCB Basin Plan for the Los Angeles Region, and the Sanitation Districts of Los Angeles County,[3] as well as data studies including the *Results of the Caltrans Litter Management Pilot Study,*[4] *2004 Los Angeles Waste Characterization Study,*[5] the *Anacostia Watershed Trash Reduction Plan,*[6] and a review of public comments received during the scoping period for the Initial Study for the proposed ordinances.

### 3.5.1 Regulatory Framework

This regulatory framework identifies the relevant federal, State, and local statutes and policies that relate to utilities and service systems and that must be considered by the decision makers when rendering decisions on projects that would have the potential to result in impacts to utilities and service systems.

#### *State*

*Assembly Bill 2449*

In 2006, California enacted AB 2449 (Chapter 845, Statutes of 2006), which became effective on July 1, 2007. The statute states that affected stores must supply at least one plastic bag collection bin in a publicly accessible spot to collect used bags for recycling. The store operator must also 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 (grocery stores with gross annual sales of $2

[1] Sapphos Environmental, Inc. 1 December 2009. *Ordinances to Ban Plastic Carryout Bags in Los Angeles County Initial Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[2] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

[3] Sanitation Districts of Los Angeles County. Web site. Available at: http://www.lacsd.org/default.asp

[4] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

[5] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter.* Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[6] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

million or more that sell dry groceries, canned goods, nonfood items, or perishable goods). Stores are required to maintain records of their AB 2449 compliance and make them available to the CIWMB or local jurisdiction.

AB 2449 also restricts the ability of cities (including charter cities) and counties to regulate single-use plastic grocery bags through imposition of a fee on an entity that is otherwise in compliance with the provisions of AB 2449. Public Resources Code Section 42254(b) stipulates the following:

> (b) 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.

AB 2449 expires under its own terms on January 1, 2013, unless extended. There are no other California statutes that directly focus on grocery bags.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 required each local city and county governing body to divert 50 percent of all solid waste by January 1, 2000, through source reduction, recycling, and composting activities, and required the participation of the residential, commercial, industrial, and public sectors. The California Integrated Waste Management Act of 1989 also declares that the lack of adequate areas for collecting and loading recyclable materials that are compatible with surrounding land uses is a significant impediment to diverting solid waste and constitutes an urgent need for State and local agencies to address access to solid waste for source reduction, recycling, and composting activities.

### ***Regional***

*County of Los Angeles General Plan*

The Water and Waste Management element of the County General Plan describes existing systems in the County that provide water supply and distribution, flood protection, water conservation, sewage, water reclamation, and solid waste disposal.[7] This document sets forth County policy on these systems by identifying a series of four broad objectives and 25 supporting policies.

The Water and Waste Management element of the County General Plan includes four goals relevant to the evaluation of the proposed ordinances:

[7] County of Los Angeles, Department of Regional Planning. November 1980. *County of Los Angeles General Plan*. Los Angeles, CA.

| | |
|---|---|
| Goal 1: | To mitigate hazards and avoid adverse impacts in providing water and waste services and to protect the health and safety all residents. |
| Goal 2: | To develop improved systems of resource use, recovery, and reuse. |
| Goal 3: | To provide efficient water and waste management services. |
| Goal 4: | To maintain the high quality of our coastal, surface, and ground waters. |

Policies in support of these goals include improving coordination among operating agencies of all water and waste management systems, promoting source reduction to reduce dependence on sanitary landfills, and avoiding or mitigating threats to pollution of the ocean, drainage ways, lakes, and groundwater reserves.

*City General Plans*

Any incorporated cities in the County that adopt individual ordinances will need to determine if they comply with the adopted utility and waste management policies set forth in the respective city general plans, if any.

*Los Angeles County Integrated Waste Management Plan*

The California Integrated Waste Management Act of 1989 (AB 939) requires that State and local governments share the responsibility for managing solid waste. The State of California has directed the County to prepare and implement a local integrated waste management plan in accordance with AB 939. The Los Angeles County Integrated Waste Management Plan Executive Summary presents the Countywide goals and objectives for integrated solid waste management, and describes the County's system of governmental solid waste management infrastructure and the current system of solid waste management in the incorporated cities and unincorporated areas of the County. This document also summarizes the types of programs planned for individual jurisdictions and describes Countywide programs that could be consolidated.[8]

The Los Angeles County Integrated Waste Management Plan, 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element, describes the County's approach to dealing with a broad range of solid waste issues, including processing capacity, markets for recovered materials, waste reduction mandates, waste disposed at Class I and Class II disposal facilities, allocation of "orphan" waste (waste that comes from an unknown origin), the accuracy of the State Disposal Reporting System, and the CIWMB enforcement policy. This document also includes the Los Angeles County Integrated Waste Management Task Force recommendations that can be implemented at the State and local levels to improve the current waste management system. The recommendations of the Task Force focus on improving the quality of programs, rather than relying on quantity measurements in complying with the State's waste reduction mandates.[9] The proposed ordinances would be subject to the Los Angeles County Integrated Waste Management Plan.

[8] County of Los Angeles, Department of Public Works. 1997. *Los Angeles County Integrated Waste Management Summary Plan, Executive Summary*. Alhambra, CA.

[9] County of Los Angeles, Department of Public Works. 2001. *Los Angeles County Integrated Waste Management Plan, 2000 Annual Report on the Countywide Summary Plan and Countywide Siting Element*. Alhambra, CA.

*Municipal Code*

The County Storm Water Ordinance addresses provisions that apply to the discharge, deposit, or disposal of any storm water and/or runoff to the storm drain system and/or receiving waters within any unincorporated area covered by the NPDES municipal storm water permit.

The County Municipal Storm Water NPDES Permit requires permittees to develop and implement programs for storm water management within the County.

### 3.5.2 Existing Conditions

#### *Wastewater Treatment*

The Sanitation Districts of Los Angeles County operate 10 water reclamation plants and one ocean discharge facility (Joint Water Pollution Control Plant), which treat approximately 510 million gallons per day, 200 million gallons per day (MGD) of which are available for reuse.[10] The capacities at these facilities range from 0.2 MGD (La Cañada Water Reclamation Plant) to 400 MGD (Joint Water Pollution Control Plant); the San Jose Creek Water Reclamation Plant is the largest of the water reclamation plants, with a capacity of 100 MGD.[11] The Sanitation Districts function on a regional scale and consist of 23 independent special districts serving about 5.7 million people in Los Angeles County.[12] The service area covers approximately 820 square miles and encompasses 78 cities and unincorporated territories within the County.[13] The remainder of the County is served by other wastewater treatment plants that are operated by individual cities, as well as on-site and private wastewater treatment facilities.

The County has adopted SWMPs requiring new development to meet NPDES requirements through best management practices. As the proposed ordinances would not be expected to directly or indirectly cause the construction of new development, the SWMPs would not apply to the proposed ordinances.

#### *Storm Drain System*

The storm drain system supporting the unincorporated territory of the County and the incorporated cities consists of a vast network of 1,500 miles of underground pipes and open channels designed to prevent flooding. Runoff drains from the street, into the gutter, and enters the system through openings in curbs, called catch basins, which serve as the neighborhood entry point to the passage into the ocean. The storm drain system receives no treatment or filtering process, after the 5-millimeter screens on the catch basins, and is completely separate from the sewer system.

[10] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

[11] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

[12] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

[13] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

There are more than 80,000 catch basins that collect runoff throughout the six major watersheds within the RWQCB Los Angeles Region of the County: Dominguez Channel watershed, Ballona Creek watershed, San Gabriel River watershed, Los Angeles River watershed, Santa Clara watershed, and Malibu Creek watershed (Figure 3.4.2-1 and Figure 3.4.2-2).[14] Catch basins and storm drains offer a safe and efficient means of transporting runoff water to the ocean. If catch basins are clogged, it can cause infestations of bugs and rodents and can harbor parasites. In addition, organic matter can begin to rot and serve as a breeding ground for bacteria.

During the Great Los Angeles River Clean Up, which collected trash from 30 catch basins in the Los Angeles River, plastic bags constituted 25 percent by weight and 19 percent by volume of the trash collected.[15] Results of a Caltrans study of catch basins alongside freeways in Los Angeles indicated that plastic film constituted 7 percent by mass and 12 percent by volume of the total trash collected.[16] The LACDPW contracts out the cleaning of all the catch basins in the County for a total cost of slightly over $1 million per year, billed to 42 municipalities. Each catch basin is cleaned once a year before the rainy season, except for 1,700 priority catch basins that fill faster and have to be cleaned out more frequently.[17,18] The cost of installing catch basin inserts to improve the ability of the catch basins to prevent trash from entering the waterways in order to comply with adopted trash TMDLs is about $800 per insert.[19]

### *Water Supply*

The proposed ordinances are intended for implementation in the unincorporated territories of the County and adoption by the 88 incorporated cities within the County. As such, the subject areas are served by water supply districts such as the Metropolitan Water District of Southern California, a cooperative of 26 cities and water agencies serving 19 million people in six counties including the County of Los Angeles, and the Central Basin Municipal Water District, which supplies water to a region extending across 24 cities and unincorporated parts of the County. The Metropolitan Water District of Southern California imports water from the Colorado River and Northern California to supplement local supplies, and helps its members develop increased water conservation, recycling, storage, and other resource-management programs. The Metropolitan Water District of Southern California currently provides an average of 1.7 billion gallons of water per day to its service area, and the Central Basin Municipal Water District currently provides over 50 million gallons of water per day to its service area. According to the Annual Report for the Metropolitan Water District of Southern California, the member agencies of The Metropolitan Water District of Southern California located within the County used 1,751,118 acre-feet of water in the 2007/2008 fiscal year.[20] This is equivalent to approximately 1,563 MGD.

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[14] County of Los Angeles, Department of Public Works. 2007–2009 Biennial Report.

[15] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[16] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

[17] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed.* Los Angeles, CA.

[18] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed.* Los Angeles, CA.

[19] California Regional Water Quality Control Board, Los Angeles Region. 27 July 2007. *Trash Total Maximum Daily Loads for the Los Angeles River Watershed*. Los Angeles, CA.

[20] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007, to June 30, 2008. Los Angeles, CA. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

***Solid Waste***

The County disposed of a total of 8.76 million tons of waste in County landfills in 2008, which is equivalent to approximately 24,000 tons per day.[21] In 2008, the County also disposed an additional 1.91 million tons of waste to out-of-County landfills, which is equivalent to approximately 5,200 tons per day.[22] The Sanitation Districts of Los Angeles County operate solid waste collection facilities that serve the areas intended to adopt the proposed ordinances. As of December 31, 2008, the remaining permitted capacity of landfills in the County is 154.4 million tons (Table 3.5.2-1, *Class III Landfill Capacity*).[23] The projected remaining life of the Class III landfills within Los Angeles County is between 2 years and 37 years, with the Bradley Landfill already having exhausted its capacity and reached its closure date.

**TABLE 3.5.2-1**
**CLASS III LANDFILL CAPACITY**

| Landfill | Location (City or Unincorporated Area) | 12/31/2007 SWFP Maximum Daily Capacity (Tons) | 1st Quarter 2009 Daily Average In-County Disposal (Tons Per Day) | Estimated Remaining Permitted Capacity (as of December 31, 2008) (Million Tons) | Estimated Remaining Lifespan (Years) |
|---|---|---|---|---|---|
| Antelope Valley | Palmdale | 3,200 | 945 | 7.746 | 2 (Facility I)<br>29 (Facility II) |
| Burbank | Burbank | 240 | 112 | 3.000 | Not available |
| Calabasas | Unincorporated area | 3,500 | 827 | 7.796 | Not available |
| Chiquita Canyon | Unincorporated area | 6,000 | 3,153 | 8.011 | 5 |
| Lancaster | Unincorporated area | 1,700 | 768 | 13.324 | 37 |
| Pebbly Beach | Unincorporated area | 49 | 8 | 0.058 | 18 |
| Puente Hills | Unincorporated area | 13,200 | 7,996 | 21.620 | 6 |
| San Clemente | Unincorporated area | 10 | 1 | 0.040 | Not available |
| Scholl Canyon | Glendale | 3,400 | 847 | 5.660 | Not available |
| Sunshine Canyon City / County | Los Angeles / unincorporated area | 12,100 | 6,085 | 82.980 | 22 |
| Whittier (Savage Canyon) | Whittier | 350 | 309 | 4.151 | Not available |
| **Total** | | **43,749** | **21,051** | **154.386** | |

**NOTE:** SWFP = Solid Waste Facility Permit

[21] County of Los Angeles, Department of Public Works. Report 13. March 30, 2010. Monthly Solid Waste Disposal Quantity Summary by Aggregated Jurisdiction Data.

[22] County of Los Angeles, Department of Public Works. Report 34. March 30, 2010. Waste Disposal Summary Reports by Quarter by Aggregated Jurisdiction Data.

[23] County of Los Angeles, Department of Public Works. October 2009. *2008 Annual Report for the Countywide Summary Plan and Countywide Siting Element of the County of Los Angeles Countywide Integrated Waste Management Plan*.

### 3.5.3 Significance Thresholds

The potential for the proposed ordinances to result in impacts related to utilities and service systems was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines, namely, would the proposed ordinances have the potential for one or more of seven potential effects:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- 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
- 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
- Lack sufficient water supplies available to serve the project from existing entitlements and resources or will require new or expanded entitlements
- Result in a determination by the wastewater treatment provider that serves or may serve the proposed ordinances that it does not have adequate capacity to serve the proposed ordinances' projected demand in addition to the provider's existing commitments
- Is not served by a landfill with sufficient permitted capacity to accommodate the proposed ordinances' solid waste disposal needs
- Does not comply with federal, State, and local statutes and regulations related to solid waste

### 3.5.4 Impact Analysis

***Wastewater Treatment***

The proposed ordinances would not be expected to result in significant impacts to utilities and service systems in relation to wastewater treatment. The proposed ordinances would not be expected to exceed wastewater treatment requirements of the Los Angeles Region RWQCB, would not be expected to result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, and would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the projected demand in addition to the provider's existing commitments.

During the scoping period for the Initial Study for the EIR for the proposed ordinances, certain representatives of the plastic bag industry expressed concerns that the proposed ordinances might have an indirect impact upon wastewater due to a potential increase in the production and distribution of paper carryout bags. The manufacturing processes of both plastic carryout bags and carryout paper carryout bags generate wastewater, but to different extents. For example, according to a life cycle assessment (LCA) performed by Ecobilan, a department of PricewaterhouseCoopers that provides analysis of the environmental performance of products and services,[24] 50 liters of wastewater are generated to produce enough plastic carryout bags to hold 9,000 liters of groceries, which is a typical

[24] Ecobilan. Accessed on: 8 March 2010. Company Web site. Available at: https://www.ecobilan.com/uk_who.php

volume of groceries purchased annually in France per customer.[25,26] In contrast, 130.7 liters of wastewater are generated to produce enough paper carryout bags to hold 9,000 liters of groceries.[27]

Based on a survey of bag usage in the County, 18 percent of customers used reusable bags in stores that did not make plastic carryout bags readily available; however, only 2 percent of customers used reusable bags in stores that did make plastic carryout bags readily available (Appendix A). Therefore, it is reasonable to estimate that a ban on plastic carryout bags would increase the amount of reusable bags used by customers by at least 15 percent. The results of the Ecobilan Study were used as one of the methods to analyze the potential generation of wastewater due to a conservative worst-case scenario of an 85-percent to 100-percent conversion of plastic to paper carryout bag use. The Ecobilan LCA was considered above the other studies reviewed during preparation of this EIR because it is relatively recent; contains relatively sophisticated modeling and data processing techniques; considers a wide range of environmental indicators; analyzes the impacts of paper, plastic, and reusable bags; was critically reviewed by the French Environment and Energy Management Agency (ADEME); and contains detailed data for individual potential environmental impacts.

In order to better apply the Ecobilan data to bag usage in the County, water consumption per bag was calculated in gallons of water per liter of groceries and then multiplied by the estimated number of plastic carryout bags currently used in the unincorporated territory of the County, as well as in the 88 incorporated cities,[28,29,30] to estimate the current water consumption due to plastic carryout bags and the projected water consumption that would be anticipated given an 85-percent to 100-percent conversion from plastic to paper carryout bags (Appendix C). It is important to note that this number is likely very high, as it is more than twice the bag average reported by the California Department of Resources Recycling and Recovery in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[31] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average per store in the County unincorporated and incorporated areas, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario.

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[25] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[26] Total wastewater generated was assumed to be the sum of unspecified water, chemically polluted water, and thermally polluted water.

[27] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[28] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[29] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated areas would be affected by the proposed County ordinance.

[30] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System (NAICS) code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or higher. Accessed on: 29 April 2010.

[31] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

Using the Ecobilan results, it was determined that the potential for an 85-percent conversion from plastic to paper carryout bags would result in an increase in wastewater of approximately 0.02 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 0.12 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 3.5.4-1, *Wastewater Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The Sanitation Districts of Los Angeles County treat approximately 510 MGD.[32] Therefore, an additional 0.13 MGD due to paper carryout bag use throughout the entire County, or less than 0.03 percent of the current amount of wastewater treated per day, would not be considered a significant increase in wastewater.

Even assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic to paper carryout bags, this would result in an increase in wastewater of 0.02 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 0.15 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 3.5.4-1 and Appendix C). This is less than 0.04 percent of the total wastewater treated per day in the County.

**TABLE 3.5.4-1**
**WASTEWATER GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Wastewater Sources | Wastewater Generation (MGD) | | |
|---|---|---|---|
| | Wastewater Generation Due to Plastic Carryout Bag Use | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Wastewater generation due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 0.01 | 0.02 | 0.02 |
| Wastewater generation due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 0.09 | 0.12 | 0.15 |
| **Total Wastewater Generation** | **0.11** | **0.13** | **0.18** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

It is also important to note that the manufacturing facilities that produce paper carryout for stores in the County appear not to be located within the County. The majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of

[32] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

California,[33] or from countries outside of the United States, such as Canada.[34] Therefore, the wastewater generated by paper carryout bag manufacturing facilities may be treated in other jurisdictions outside of the County or outside of California, and would not place demands on the water reclamation plants in the County. However, even the worst-case assumptions as presented here would yield an increase in wastewater of only 0.13 MGD at 85-percent conversion and 0.18 MGD at 100-percent conversion as an indirect result of implementation of the proposed ordinances throughout the entire County caused by paper carryout bag manufacturing facilities, which would not be anticipated to necessitate construction of new wastewater treatment facilities or expansion of existing facilities.

Although the manufacture of reusable bags also will also produce wastewater, it is expected that the amount of wastewater generated will be lower than the amount of wastewater generated by the manufacture of plastic carryout bags when considered on a per-use basis, due to the fact that reusable bags are designed to be reused multiple times. For example, the Ecobilan Study evaluated the wastewater impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[35] The conclusion from the analysis was that this particular reusable bag has a smaller impact on wastewater than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-2, *Wastewater Generation Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[36] Therefore, there would be no expected significant impacts related to wastewater generation as a result of converting from plastic carryout bags to reusable bags in the County.

The impacts of reusable bags are reduced further when the bags are used additional times (Table 3.5.4-2, and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how wastewater impacts of reusable bag manufacturing are reduced the more times a bag is used. As banning the issuance of plastic bags is expected to increase the use of reusable bags, the wastewater impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon wastewater generation. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which would further reduce wastewater impacts. But even when assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags as presented in the analysis above, the amount of wastewater generated would not be significant when compared to the total wastewater treated daily in the County.

[33] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[34] National Council for Air and Stream Improvement. February 5, 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada.

[35] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[36] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**TABLE 3.5.4-2**
**WASTEWATER GENERATION DUE TO REUSABLE BAGS**
**BASED ON ECOBILAN DATA**

| Wastewater Sources | Wastewater Generation (MGD) | | |
|---|---|---|---|
| | Wastewater Generation from Plastic Carryout Bag Use | Increased Wastewater Generation Due to Reusable Bags When Reusable Bags Are Used 3 Times | Increased Wastewater Generation Due to Reusable Bags When Reusable Bags Are Used 20 Times |
| Wastewater generation due to carryout bag use in the 67 stores in the unincorporated territory of the County | 0.01 | 0.01 | 0.00 |
| Wastewater generation due to carryout bag use in the 462 stores in the incorporated cities of the County | 0.09 | 0.09 | 0.01 |
| **Total Wastewater Generation** | **0.11** | **0.10** | **0.01** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Therefore, the proposed ordinances would not be expected to result in significant impacts to utilities related to wastewater treatment requirements, expansion or construction of new water or wastewater treatment facilities, or exceedance of the projected capacity of wastewater treatment providers.

***Storm Drain System***

The proposed ordinances would not be expected to result in significant adverse impacts related to the need for new or expanded storm water drainage systems. The network of storm drains in the County carries urban runoff from rooftops, streets, parking lots, and other impervious surfaces. Urban runoff pollutants and litter, including plastic carryout bags, collect in catch basins and storm drains, or are carried to the ocean, where they adversely affect water quality.[37] The proposed ordinances intend to ban plastic carryout bags issued by certain stores in the unincorporated territory and incorporated cities of the County, thus reducing the number of plastic carryout bags used per household and, consequently, the number of plastic carryout bags introduced into the litter stream. During the Great Los Angeles River Clean Up, an assessment of the litter content of storm drain catch basins estimated the weight and volume of plastic bag litter to be 25 percent and 19 percent, respectively, of the trash collected.[38] Results of a Caltrans study of catch basins alongside freeways in Los Angeles indicated that plastic film was 7 percent by mass and 12 percent by volume of the total trash collected.[39] The anticipated reduction in plastic carryout bag use that would result from implementation of the proposed ordinances would reduce the amount of disposal and potential littering of plastic carryout

[37] City of Los Angeles. Adopted April 2009. *City of Los Angeles Water Quality Compliance Master Plan for Urban Runoff: Funding Requirements and Applications to Developing TMDL Implementation Plans.*

[38] City of Los Angeles. 18 June 2004. *Characterization of Urban Litter.* Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[39] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 2001. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

bags, which would in turn reduce the contribution of plastic carryout bags to runoff and accumulation in storm drains. As such, the proposed ordinances would be expected to indirectly reduce operational impacts associated with maintenance of the storm drain system (*e.g.*, cleaning plastic carryout bag litter out of catch basin racks), and would not increase the potential need for storm drain system improvements.

A study performed for Washington, District of Columbia, showed that plastic bag trash accounted for 45 percent of the amount of trash collected in tributary streams and 20 percent of the amount of trash collected in rivers.[40] However, the same study found that paper products were not found in the streams except in localized areas and were not present downstream.[41] Due to the fact that paper carryout bags degrade when in contact with water, paper carryout bags are less likely to accumulate in the storm drain system. Similarly, reusable bags pose less of an issue for the storm drain system because they are not disposed of as frequently as plastic carryout bags because they are designed to be used multiple times and are not littered the way plastic carryout bags are. Therefore, the proposed ordinances would not be expected to result in significant adverse impacts to storm drain systems as related to new storm drain facilities or the expansion of existing facilities.

***Water Supply***

The proposed ordinances would not be expected to result in significant adverse impacts related to sufficiency of water supply to the County. The proposed ordinances would not directly increase the demand for water within the County. However, during the scoping period for the Initial Study for the EIR for the proposed ordinances, concerns were raised by certain representatives of the plastic bag industry that the proposed ordinances could indirectly impact water supply due a potential increase in the production and distribution of paper carryout bags.

Several studies have shown that the production of paper carryout bags requires more water than does the production of plastic carryout bags, including the Ecobilan Study, the Boustead Study, and the ULS Report.[42,43,44] If the results of the Ecobilan LCA are used to analyze the potential consumption in a conservative worst-case scenario of 85-percent to 100-percent conversion of plastic to paper carryout bags, the impacts are less than significant. The Ecobilan results aided the conclusion that the potential increase in required water supply due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.03 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 0.18 MGD if similar ordinances were adopted within the 88 incorporated cities of the County (Table 3.5.4-3, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The water districts within Los Angeles County supplied approximately 1,563 MGD in fiscal year 2007/2008;[45] therefore, the estimated water

[40] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan* Prepared For: District of Columbia Department of the Environment.

[41] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan* Prepared For: District of Columbia Department of the Environment.

[42] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

[44] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

[45] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007, to June 30, 2008. Los Angeles, CA. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

demands from the proposed ordinances would represent approximately 0.01 percent of this total. Even assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in water consumption of 0.03 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 0.23 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 3.5.4-3 and Appendix C),[46] which represents approximately 0.02 percent of the water supply in the County.

**TABLE 3.5.4-3**
**WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 0.01 | 0.03 | 0.03 |
| Water consumption due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 0.10 | 0.18 | 0.23 |
| **Total Water Consumption** | **0.11** | **0.21** | **0.26** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

Other studies, including the Boustead Study, have also noted that paper carryout bag manufacturing requires more water consumption than plastic carryout bag manufacturing.[47] The Boustead results aided the conclusion that the potential increase in required water supply due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.36 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 2.52 MGD if similar ordinances were adopted within the 88 incorporated cities of the County. The water districts within the County supplied approximately 1,563 MGD in fiscal year 2007/2008;[48] therefore, the estimated water demands from the proposed ordinances would represent approximately 0.2 percent of this total. When assuming the unlikely worst-case scenario of 100-percent conversion

[46] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

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

[48] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007, to June 30, 2008. Los Angeles, California. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in water consumption of 0.43 MGD for the 67 stores in the unincorporated territory of the County, and up to an additional 2.99 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County ((Table 3.5.4-4, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C),[49] which represents approximately 0.2 percent of the water supply in the County.

The amount of water required for the life cycle of paper carryout bags according to the Boustead Study, which was prepared for the Progressive Bag Affiliates,[50] is considerably higher than the amount of water required for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study, the speculative nature of the LCA data analysis, and the importance of understanding study boundaries, inputs, and methodologies.[51] Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout bags for stores in the County appear not to be located within the County. Therefore, the water supply required for paper carryout bag manufacturing may be supplied by other water districts outside of the County or outside of California, so impacts would not directly affect the water districts within the County. However, even in the conservative worst-case scenario as presented here, an indirect increase in water demand of approximately 2.88 MGD from 85-percent conversion and 3.43 MGD from 100-percent conversion according to the Boustead Study, which is conflictingly higher than the Ecobilan Study, would not be anticipated to necessitate new or expanded entitlements for water, as water districts within the County currently provide enough water to cover any potential increase in water demand for paper carryout bag manufacturing. Therefore, the impacts of the proposed ordinances to utilities related to water supplies would be expected to be below the level of significance.

[49] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[50] The Progressive Bag Alliance was founded in 2005 and is a group of American plastic bag manufacturers who advocate recycling plastic shopping bags as an alternative to banning the bags. In 2007, they became the Progressive Bag Affiliates of the American Chemistry Counsel. Available at: http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=6983.

[51] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

## TABLE 3.5.4-4
## WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 0.03 | 0.36 | 0.43 |
| Water consumption due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 0.18 | 2.52 | 2.99 |
| **Total Water Consumption** | **0.20** | **2.88** | **3.43** |

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

**NOTES:**

1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-prcent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

It is also important to note that the proposed ordinances would be expected to increase consumers' use of reusable bags, the production of which would consume less water than the production of both paper and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less water than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-5, *Water Consumption Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[52] The water demands of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-5 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how water supply impacts of reusable bag manufacture are reduced the more times a bag is used. Therefore, there would be no significant impacts related to water consumption as a result of converting from plastic carryout bags to reusable bags in the County.

A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in water savings equivalent to approximately 7 liters per household per year (which is equivalent to just under 2 gallons per household per year).[53] As banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, the water supply impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon water supply. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which may further reduce water supply impacts. But even when assuming the unlikely

[52] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[53] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags as presented in the analysis above, the amount of water required would not be significant when compared to the total daily water supply in the County.

**TABLE 3.5.4-5**
**WATER CONSUMPTION DUE TO REUSABLE BAGS**
**BASED ON ECOBILAN DATA**

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption from Plastic Carryout Bags | Increase in Water Consumption Due to Reusable Bags When Used 3 Times | Increase in Water Consumption Due to Reusable Bags When Used 20 Times |
| Water consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County | 0.01 | 0.01 | 0.00 |
| Water consumption due to carryout bag use in the 462 stores in the incorporated cities of the County | 0.10 | 0.09 | 0.01 |
| **Total Water Consumption** | **0.11** | **0.10** | **0.01** |

**SOURCES:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

### *Solid Waste*

The proposed ordinances would not be expected to result in significant adverse impacts related to landfill capacity or related to solid waste regulations. However, certain representatives of the plastic bag industry raised several concerns during the scoping period for the Initial Study that the proposed ordinances might indirectly impact solid waste generation due to a potential increase in the production and distribution of paper carryout bags.

Several studies have shown that the production, use, and subsequent disposal of paper carryout bags would generate more solid waste than that of plastic carryout bags, including the Ecobilan Study, the Boustead Study, and the ULS Report.[54,55,56] Paper carryout bags are generally larger and heavier than plastic carryout bags, which leads to the conclusion that they would take up more space in a landfill. In addition, solid waste is generated during the manufacturing process of paper carryout bags. However, paper carryout bags hold a larger volume of groceries than do plastic carryout bags, they are compostable (given the right conditions), and they have higher rates of recycling [57,58,59,60]

[54] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[55] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for the Progressive Bag Affiliates.

[56] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

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

According to the USEPA, the recycling rate of high-density polyethylene plastic bags, sacks, and wraps was 11.9 percent in 2007, whereas the recycling rate of paper bags and sacks was 36.8 percent in 2007.[61] As such, the proposed ordinances would adhere to the Integrated Waste Management Act of 1989 in promoting the use of paper and reusable bags and reducing the availability of plastic carryout bags.

According to the Ecobilan LCA, the majority of solid waste generated during the life cycle of plastic and paper carryout bags is due to bag disposal rather than to manufacturing.[62] Using the Ecobilan Study data for a scenario in which all bags go to landfills at the end of life, and adjusting the data for current recycling rates and for the number of bags used by stores that would be affected by the proposed ordinances, it can be concluded that an 85-percent to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags in the unincorporated territories of the County would result in approximately 2.67 to 4.00 tons, respectively, of additional waste deposited at landfills each day (Table 3.5.4-6, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Data from Ecobilan and Adjusted for 2007 Recycling Rates*, and Appendix C).[63] Similarly, an 85-percent to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags in the 88 incorporated cities of the County would result in approximately 18.44 to approximately 27.56 tons, respectively, of additional waste deposited at landfills each day (Table 3.5.4-6 and Appendix C).

[58] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

[60] Sapphos Environmental, Inc. 2010. *Bag Usage Data Collection Study*. Prepared for: County of Los Angeles, Department of Public Works. Pasadena, CA.

[61] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

[62] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[63] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

## TABLE 3.5.4-6
## SOLID WASTE GENERATION DUE TO DISPOSAL OF PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA AND ADJUSTED FOR 2007 RECYCLING RATES

| Solid Waste Sources | Solid Waste Generation (Tons Per Day)[1] Assuming 2007 USEPA recycling Rates[2] | | |
|---|---|---|---|
| | Waste Generation Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Solid waste due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 4.82 | 2.67 | 4.00 |
| Solid waste due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 33.22 | 18.44 | 27.56 |
| **Total Solid Waste** | 38.04 | **21.12** | **31.56** |

**SOURCES:**

1. Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

**NOTES:**

1. The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

The permitted daily maximum capacity of County landfills in total is 43,749 tons per day Under a scenario of an 85-percent conversion from use of plastic to use of paper carryout bags, the amount of solid waste that would be generated throughout the County, based on Ecobilan data, would be approximately 0.05 percent of the total daily capacity of the landfills in the County. Under the unlikely worst-case scenario of a 100-percent conversion from use of plastic to use of paper carryout bags, the amount of solid waste that would be generated throughout the County, based on Ecobilan data, would be approximately 0.07 percent of the total daily capacity of the landfills in the County. Based on first quarter 2009 daily average in-County disposal averages, the County landfills are not accepting anywhere near the daily maximum capacity, averaging only 21,051 tons per day, and the estimated remaining permitted capacity of the County landfills is 154.386 million tons (Table 3.5.4-7, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Boustead Data*). Therefore, data indicates that the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of the proposed ordinances; impacts of the proposed ordinances upon utilities and service systems related to solid waste generation would be expected to be below the level of significance.

**TABLE 3.5.4-7**
**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA**

| Solid Waste Sources | Solid Waste Generation (Tons per day) | | |
|---|---|---|---|
| | Waste Generation Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Solid waste due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 3.46 | 11.08 | 13.65 |
| Solid waste due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 23.88 | 76.43 | 94.13 |
| **Total Solid Waste** | **27.35** | **87.51** | **107.78** |

**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTES:**
1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

Finally, although the impacts to utilities and service systems with regard to solid waste would be expected to be below the level of significance, the County is considering undertaking additional public outreach through a public education program that would aim to increase the percentage of paper carryout bags that are recycled within the County. There is nearly universal access to curbside recycling throughout the County, where paper bags can be recycled by homeowners conveniently. Additional public education and outreach would increase the number of bags recycled and consequently further reduce indirect impacts of the proposed ordinances to utilities and service systems with regard to solid waste.

Other studies, including the Boustead Study, have noted that paper carryout bag disposal results in more solid waste generation than the disposal of plastic carryout bags.[64] The Boustead Study assumes that 65.4 percent of paper carryout bags are disposed of in landfills and 81.2 percent of plastic carryout bags are disposed of in landfills. The Boustead results aided the conclusion that the potential increase in solid waste due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 11.80 tons per day for the 67 stores in the unincorporated territory of the County, and up to an additional 76.43 tons per day if similar ordinances were adopted within the 88 incorporated cities of the County (Table 3.5.4-7, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Data from Boustead*, and Appendix C). The permitted daily maximum capacity of the County landfills in total is 43,749 tons per day (Table 3.5.2-1*)*. Under the scenario of an 85-percent conversion from plastic to paper carryout bags, the amount of solid waste that would be generated throughout the County, based on Boustead data, would be approximately 0.20 percent of the total daily capacity of the landfills in the County. Therefore, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of the

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

proposed ordinances; impacts of the proposed ordinances to utilities and service systems related to solid waste generation would be expected to be below the level of significance. When assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in solid waste of 13.65 tons per day for the 67 stores in the unincorporated territory of the County and up to an additional 94.13 tons per day if similar ordinances were to be adopted by the 88 incorporated cities of the County, which together represent approximately 0.25 percent of the total daily landfill capacity in the County.[65] The amount of solid waste generated for the life cycle of paper carryout bags according to the Boustead Study, which was prepared for the Progressive Bag Affiliates, is considerably higher than the amount of solid waste generated for the life cycle of paper carryout bags based on Ecobilan data. Further, the apparently conflicting results emphasize the particularity of each study, the speculative nature of the LCA data analysis, and the importance of understanding study boundaries, inputs, and methodologies.[66] However, even under the unlikely worst-case scenario analyzed, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of the proposed ordinances; impacts of the proposed ordinances to utilities and service systems related to solid waste generation would be expected to be below the level of significance. This is especially true given that the County landfills are not accepting anywhere near the daily maximum capacity, averaging only 21,051 tons per day, and the estimated remaining permitted capacity of the County landfills is 154.386 million tons (Table 3.5.2-1). Finally, if the County undertakes additional public outreach through a public education program that would aim to increase the percentage of paper carryout bags that are recycled within the County, it could further reduce indirect impacts of the proposed ordinances to utilities and service systems with regard to solid waste.

The proposed ordinances would also be anticipated to increase consumer use and eventual disposal of reusable bags, which are heavier and take up more volume than plastic carryout bags. The manufacturing process of reusable bags would also be expected to generate solid waste. However, due to the fact that reusable bags are designed to be used multiple times, a conversion from plastic carryout bags to reusable bags would decrease the total number of bags that are disposed of in landfills, resulting in a decrease in solid waste disposal in the County. For example, the Ecobilan Study evaluated the solid waste impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[67] The conclusion from the analysis was that this particular reusable bag has a smaller impact on solid waste than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-8, *Solid Waste Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[68] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-8 and Appendix C). Therefore, there would be no expected significant impacts related to solid waste as a result of converting from plastic carryout bags to reusable bags in the County.

[65] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[66] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

[67] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[68] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how solid waste impacts of reusable bag disposal are reduced the more times a bag is used. As banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, the solid waste impacts are anticipated to be reduced. Therefore, the impacts of the proposed ordinances related to solid waste would be expected to be below the level of significance. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which would further reduce solid waste impacts. But even when assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags as presented in the analysis above, the amount of solid waste generated would not be significant when compared to the landfill capacity in the County.

**TABLE 3.5.4-8**
**SOLID WASTE DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA**

| Solid Waste Sources | Solid Waste (Tons per Day) | | |
|---|---|---|---|
| | Solid Waste from Plastic Carryout Bags | Solid Waste Due to Reusable Bags When Used 3 Times | Solid Waste Due to Reusable Bags When Used 20 Times |
| Solid waste due to reusable bag use in the 67 stores in the unincorporated territory of the County | 5.47 | -0.45 | -4.72 |
| Solid waste due to reusable bag use in the 462 stores in the incorporated cities of the County | 37.71 | -3.09 | -32.52 |
| **Total Solid Waste** | **43.18** | **-3.54** | **-37.23** |

**SOURCES:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

### *Energy Conservation*

The proposed ordinances would not be expected to result in significant adverse impacts related to energy conservation. The proposed ordinances would not directly increase the demand for energy consumption within the County. However, during the scoping period for the Initial Study for the EIR for the proposed ordinances, certain representatives of the plastic bag industry raised that the proposed ordinances could indirectly impact energy conservation due to a potential increase in the production and distribution of paper carryout bags.

Several studies have shown that the production of paper carryout bags requires more energy than does the production of plastic carryout bags, including the Ecobilan Study, the Boustead Study, and The ULS Report.[69,70,71] The results of the Ecobilan LCA were used to analyze the potential consumption in a conservative worst-case scenario of 85-percent to 100-percent conversion of plastic to paper carryout bags (Appendix C). The Ecobilan results aided the conclusion that the potential increase in non-

[69] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

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

[71] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags.* Rochester, MI.

renewable energy due to an 100-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.00 million kilowatts per hour (kWh) for the 67 stores in the unincorporated territory of the County, and up to 0.02 million kWh if similar ordinances were adopted within the 88 incorporated cities of the County (Table 3.5.4-9, *Non-renewable Energy Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The estimated total electricity consumption in the County in 2007 was 68,120 million kWh, with 47,484 million kWh in the non-residential sector;[72] therefore, the indirect estimated electricity demands from the proposed ordinances would be negligible in comparison to the total energy demand of the non-residential sector of the County. In fact, the reasonable worst-case scenario of 85-percent conversion from the use of plastic carryout bags to the use of paper carryout bags would result in a slight decrease in non-renewable energy consumption, according to Ecobilan data (Table 3.5.4-9, and Appendix C).

**TABLE 3.5.4-9**
**NON-RENEWABLE ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Energy Consumption Sources | Energy Consumption (million kWh) | | |
|---|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Energy consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 0.08 | -0.01 | 0.00 |
| Energy consumption due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 0.57 | -0.07 | 0.02 |
| **Total Energy Consumption** | **0.65** | **-0.08** | **0.02** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
The Ecobilan Study assumed that plastic carryout bags have a volume of 14 liters and paper carryout bags have a volume of 20.48 liters. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,836 paper carryout bags per day [10,000 x (14/20.48) = 6,836]. An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

Other studies, including the Boustead Study, have also noted that paper carryout bag manufacturing requires more energy consumption than plastic carryout bag manufacturing.[73] The Boustead results aided the conclusion that the potential increase in energy demand due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.19 million kWh for the 67 stores in the unincorporated territory of the County, and up to an additional 1.30 million kWh if similar ordinances were adopted within the 88 incorporated cities of the County (Table 3.5.4-10, *Energy Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C). The estimated total electricity consumption in the County in 2007 was 68,120 million

[72] California Energy Commission. Accessed on: 4 May 2010. "Electricity Consumption by County." *California Energy Consumption Data Management System*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

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

kWh, with 47,484 million kWh in the non-residential sector;[74] therefore, the estimated electricity demands from the proposed ordinances would represent approximately 0.003 percent of the total energy use in the non-residential sector of the County. When assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, implementation of the proposed ordinances would be expected to result in an increase in energy demand of 0.24 million kWh for the 67 stores in the unincorporated territory of the County, and up to an additional 1.65 million kWh if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 3.5.4-10),[75] which together represent approximately 0.004 percent of the non-residential electricity supply in the County.

The amount of energy required for the life cycle of paper carryout bags according to the Boustead Study, which was funded by the Progressive Bag Affiliates, is considerably higher than the amount of energy required for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study, the speculative nature of the LCA data analysis, and the importance of understanding study boundaries, inputs, and methodologies.[76] In addition, the Ecobilan data presented above was specifically for non-renewable energy, rather than total energy. The majority of the energy use analyzed here occurs early in the life cycle of plastic and paper carryout bags, during processes such as fuel extraction and bag manufacturing. Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout for stores in the County appear not to be located within the County. Therefore, the energy supply required for paper carryout bag manufacturing may be supplied by other districts outside of the County or outside of California, so impacts may not directly affect the County. However, even in the conservative worst-case scenario as presented here, an increase in energy demand of approximately 1.49 million kWh from 85-percent conversion and 1.89 million kWh from 100-percent conversion, which paper carryout bag manufacturing facilities would be expected to require as an indirect result of the proposed ordinances, would be expected to be below the level of significance.

[74] California Energy Commission. Accessed on: 4 May 2010. "Electricity Consumption by County." *California Energy Consumption Data Management System*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

[75] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[76] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

## TABLE 3.5.4-10
## TOTAL ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA

| Energy Consumption Sources | Energy Consumption (Million kWh) | | |
|---|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Energy consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County[1] | 0.09 | 0.19 | 0.24 |
| Energy consumption due to carryout bag use in the 462 stores in the incorporated cities of the County[1] | 0.65 | 1.30 | 1.65 |
| **Total Energy Consumption** | **0.75** | **1.49** | **1.89** |

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

**NOTES:**

1. It was assumed that each store currently uses 10,000 plastic carryout bags per day, so a 100-percent conversion from plastic to paper carryout bag use would result in each store using 6,683 paper carryout bags per day (10,000 x (14/20.48) = 6,683). An 85-percent conversion from plastic to paper carryout bag use would result in each store using 5,811 paper carryout bags per day.

It is also important to note that the proposed ordinances would be expected to increase consumers' use of reusable bags, the production of which would consume less energy than the production of both paper and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less energy than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-11, *Non-renewable Energy Consumption Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[77] The energy demands of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-11 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how energy impacts of reusable bag manufacture are reduced the more times a bag is used. Therefore, there would be no significant impacts related to energy conservation as a result of converting from plastic carryout bags to reusable bags in the County.

A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in energy savings of 190 mega joules per household, which is equivalent to powering a television for six months.[78] As banning the issuance of plastic carryout bags is expected to increase the use of reusable bags, the conservation impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon energy conservation. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which

[77] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[78] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

would further reduce energy conservation impacts. But even when assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags as presented in the analysis above, the amount of electricity consumption would not be significant when compared to the total energy consumption in the County.

**TABLE 3.5.4-11**
**NON-RENEWABLE ENERGY CONSUMPTION DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA**

| Energy Consumption Sources | Energy Consumption (Million kWh) | | |
|---|---|---|---|
| | Energy Consumption from Plastic Carryout Bags | Energy Consumption Due to Reusable Bags When Used 3 Times | Energy Consumption Due to Reusable Bags When Used 20 Times |
| Energy consumption due to carryout bag use in the 67 stores in the unincorporated territory of the County | 0.08 | 0.08 | 0.01 |
| Energy consumption due to carryout bag use in the 462 stores in the incorporated cities of the County | 0.57 | 0.54 | 0.08 |
| **Total Energy Consumption** | **0.65** | **0.61** | **0.09** |

**SOURCES:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

### *Cumulative Impacts*

The incremental impact of the proposed ordinances, when added to related past, present, or reasonably foreseeable, probable future projects would not be expected to result in cumulative impacts related to utilities and service systems. Based on existing capacities, adoption of the proposed ordinances would not be expected to result in adverse impacts to storm drain systems, water supply, solid waste, energy consumption, or wastewater treatment. Therefore, implementation of the proposed ordinances would not be expected to cause an incremental impact when considered with any related past, present, or reasonably foreseeable, probable future project.

## 3.5.5 Mitigation Measures

As indicated by the documentation and analysis, there would be no expected significant impacts to utilities or service systems as a result of implementation of the proposed ordinances. Therefore, no mitigation is required.

## 3.5.6 Level of Significance after Mitigation

Implementation of the proposed ordinances would not be expected to result in a significant adverse impact related to utilities and service systems that would need to be reduced to below the level of significance.

# *SECTION 4.0*
# *ALTERNATIVES TO THE PROPOSED ORDINANCES*

This section of the EIR describes alternatives to the proposed ordinances. Alternatives have been analyzed consistent with the recommendations of Section 15126.6 of the State CEQA Guidelines, which require evaluation of a range of reasonable alternatives to the proposed ordinances, or to the location of the proposed ordinances, that would feasibly attain most of the basic objectives of the proposed ordinances but could potentially avoid or substantially lessen any of the significant effects of the proposed ordinances, and evaluation of the comparative merits of the alternatives. The discussion of alternatives is intended to focus on four criteria:

- Alternatives to the proposed ordinances or their location that may be capable of avoiding or substantially reducing any significant effects that a project may have on the environment
- Alternatives capable of accomplishing most of the basic objectives of the proposed ordinances and potentially avoid or substantially lessen one or more of the significant effects
- The provision of sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed ordinances
- The no-project analysis of what would be reasonably expected to occur in the foreseeable future if the proposed ordinances were not approved

Pursuant to Section 15126.6(e)(2) of the State CEQA Guidelines, if the environmentally superior alternative is the No Project Alternative, the EIR shall also identify an environmentally superior alternative among the feasible action alternatives. The analysis of alternatives should be limited to those that the County determines could feasibly attain most of the basic objectives of the proposed ordinances. Section 15364 of the State CEQA Guidelines defines feasibility as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."

Alternatives addressed in this EIR were derived from work undertaken by the County, as well as from comments received in response to the NOP of the EIR and the comments provided by interested parties who attended the public scoping meetings. As a result of the Initial Study, comments received during the scoping period, and the environmental analysis undertaken in the Draft EIR, five alternatives including the No Project Alternative were determined to represent a reasonable range:

1. No Project Alternative
2. Alternative 1, Ban Plastic and Paper Carryout Bags in Los Angeles County
3. Alternative 2, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags in Los Angeles County
4. Alternative 3, Ban Plastic Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County
5. Alternative 4, Ban Plastic and Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

The effectiveness of each of the alternatives to achieve the basic objectives of the proposed ordinances has been evaluated in relation to the statement of objectives described in Section 2.0,

Project Description, of this EIR. The proposed ordinances would meet all of the basic objectives established by the County (Table 4-1, *Ability of the Proposed Ordinances and Alternatives to Attain County Objectives*). Although the No Project Alternative is not capable of meeting most of the basic objectives of the proposed ordinances, it has been analyzed as required by CEQA.

**TABLE 4-1**
**ABILITY OF THE PROPOSED ORDINANCES AND ALTERNATIVES TO ATTAIN COUNTY OBJECTIVES**

| Objective | Proposed Ordinances | No Project | Alternative 1 | Alternative 2 | Alternative 3 | Alternative 4 |
|---|---|---|---|---|---|---|
| Conduct outreach to all 88 incorporated cities of the County to encourage adoption of comparable ordinances | Yes | No | Yes | Yes | Yes | Yes |
| Reduce the Countywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007, to fewer than 800 plastic bags per household in 2013 | Yes | No | Yes | Yes | Yes | Yes |
| Reduce the Countywide contribution of plastic carryout bags to litter that blights public spaces by 50 percent | Yes | No | Yes | Yes | Yes | Yes |
| Reduce County's, Cities', and Flood Control District's costs for prevention, clean-up, and enforcement efforts to reduce litter in the County by $4 million | Yes | No | Yes | Yes | Yes | Yes |
| Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 50,000 residents (5 percent of the population) with an environmental awareness message | Yes | No | Yes | Yes | Yes | Yes |
| Reduce Countywide disposal of plastic carryout bags in landfills by 50 percent from 2007 annual amounts | Yes | No | Yes | Yes | Yes | Yes |

## 4.1 ALTERNATIVES ELIMINATED FROM FURTHER CONSIDERATION

During the scoping period for the Initial Study for the proposed ordinances, certain members of the public suggested that the County should consider requiring stores to provide compostable or biodegradable carryout bags as an alternative to offering plastic or paper carryout bags. However, the County has eliminated this alternative from further consideration due to the lack of commercial composting facilities in the County that would be needed to process compostable or biodegradable

plastic carryout bags.[1] Some, so called, "biodegradable" plastics are made of the same plastic polymers as conventional plastic carryout bags, while other biodegradable plastics are made from very different polymers that look and feel similar to conventional plastic carryout bags (Appendix B, *County of Los Angeles Biodegradable and Compostable Bags Fact Sheet*). However, unlike conventional plastic, compostable plastic requires environments only found in commercial composting facilities, including a core temperature above 130°F / 54°C, moisture, and oxygen (not found in modern landfills) (Appendix B). Therefore, without a collection system and commercial composting facilities, the environment into which the bags are released is unpredictable, which could result in more litter and pollution of marine and inland environments. Contamination of the composting stream with non-compostable plastics may cause compost material to be toxic or unusable, requiring it to be discarded (Appendix B). Separation and collection systems are required for the disposal of compostable plastic carryout bags to produce quality compost material and not contaminate the recycling stream. Using compostable plastic carryout bags in Los Angeles County is not practical at this time, due to the lack of local commercial composting facilities willing to process such bags (Appendix B).

In addition, the presence of compostable or biodegradable plastic carryout bags in the recycling stream could jeopardize plastic recycling programs, as compostable or biodegradable plastic carryout bags cannot be recycled and constitute a contaminant if incorporated into plastic resins (Appendix B).[2] Contamination of the recycling stream could ultimately result in batches of recyclable plastic products or materials being sent to landfills, increasing solid waste impacts. In addition, the use of compostable or biodegradable plastic carryout bags would not achieve the County's goal to reduce litter in the County and its potential harm to marine wildlife, since both types of plastic carryout bags have the same general characteristics of conventional plastic carryout bags (lightweight, able to clog storm drain racks, persistent in the marine environment, etc.) (Appendix B). Certain types of degradable plastic carryout bags are able to float and pose a risk of ingestion by fish and marine mammals.[3]

Current state law does not require grocery stores to supply different containers for recyclable, compostable, or biodegradable plastic carryout bags. Many biodegradable plastics are made from very different polymers that look and feel similar to conventional carryout plastic carryout bags but would have very detrimental effects if mixed into the current recycling stream Appendix B. In addition, the false sense of compostable plastic being environmentally friendly could cause consumers to become more careless with their plastic carryout bags and could lead to increased litter-related issues associated with plastic carryout bags.[4] Therefore, providing compostable and biodegradable plastic carryout bags as a replacement for conventional HDPE plastic carryout bags is an alternative that has been eliminated from further consideration. Allowing the use of biodegradable plastic carryout bags without a separate collection system could cause an increase in

[1] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[2] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[3] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

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

litter, a decrease in recycling and recycled material quality, and could introduce more harmful chemicals from plastic fragments into the environment and the food chain (Appendix B).

## 4.2 ALTERNATIVES TO THE PROPOSED PROJECT

### 4.2.1 No Project Alternative

#### 4.2.1.1 *Alternative Components*

There are no components to the No Project Alternative. Under the No Project Alternative, the County would not pass an ordinance to ban plastic carryout bags issued by certain stores in the unincorporated territories of the County, and would not encourage the adoption of comparable ordinances by the 88 incorporated cities within the County. Under this alternative and as discussed in detail below, potential impacts to air quality and GHG emissions would not increase in comparison with the proposed ordinances. However, in comparison with the proposed ordinances, impacts to biological resources, hydrology and water quality, and utilities and service systems would be exacerbated, rather than be avoided or reduced. In addition, the No Project Alternative would not meet any of the basic objectives of the proposed ordinances established by the County, including those relating to litter. The No Project Alternative has been analyzed in this EIR because detailed analysis on this alternative is required by CEQA.

#### 4.2.1.2 *Objectives and Feasibility*

The No Project Alternative would not accomplish any of the basic objectives of the proposed ordinances established by the County (Table 4-1). The No Project Alternative would not facilitate encouragement of the 88 incorporated cities of the County to adopt ordinances to ban plastic carryout bags. The No Project Alternative would not assist in reducing the Countywide consumption of plastic carryout bags, would not result in a reduction of plastic carryout bag litter that blights public spaces and marine environments, and would not reduce the County's, Cities' and Flood Control District's costs for prevention, clean-up, and enforcement efforts to reduce litter in the County. The No Project Alternative would not increase public awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags. In addition, the No Project Alternative would not assist in reducing Countywide disposal of plastic carryout bags in landfills.

#### 4.2.1.3 *Comparative Impacts*

*Air Quality*

The No Project Alternative would not cause increased impacts to air quality in comparison with the proposed ordinances, as it would not result in a potential increase in the consumer use of paper carryout bags. Therefore, the No Project Alternative would not result in a potential indirect increase in $NO_x$ emissions due to an increase in the manufacture, distribution, and disposal of paper carryout bags, which the proposed ordinances would be expected to do. However, because the No Project Alternative would not result in significant reductions in the use of plastic carryout bags in the County, the No Project Alternative would not create any beneficial impacts to air quality in terms of reducing emissions of VOCs, CO, PM, and, to a lesser extent, $SO_x$, caused by the manufacture of plastic carryout bags (Table 3.1.4-2).[5] As with the proposed ordinances, the No

[5] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Project Alternative would not conflict with or obstruct implementation of the applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable odors affecting a substantial number of people. Unlike the proposed ordinances, the No Project Alternative would not cause a potential increase in delivery truck trips required to transport paper carryout bags to stores. As with the proposed ordinances, the No Project Alternative would not result in significant adverse impacts to air quality. It would also reduce impacts related to criteria pollutant emissions from potential increases in delivery trucks associated with the proposed ordinances, even though those impacts are below the level of significance.

*Biological Resources*

Unlike the proposed ordinances, the No Project Alternative would not result in a significant reduction in the use and disposal of plastic carryout bags within the County. Therefore, the No Project Alternative would not assist in reducing marine litter attributed to plastic carryout bag waste, which has been shown to have potentially significant adverse impacts upon biological resources. Unlike the proposed ordinances, the No Project Alternative would not have the potential to improve habitats and aquatic life and would not result in potentially beneficial impacts upon sensitive habitats; federally protected wetlands; rare, threatened, or endangered species; or species of special concern. The No Project Alternative avoids potential beneficial impacts to biological resources that would be expected to result from implementation of the proposed ordinances. The No Project Alternative would perpetuate any existing adverse effect on up to 39 marine and avian species identified as candidate, sensitive, or special status; would continue to contribute to any existing degradation of riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would continue to contribute to any existing degradation of impacted roosting and foraging habitat on the Pacific Flyway, would continue to contribute to any existing degradation of major coastal migratory corridors for marine mammals, and would continue to contribute to any existing degradation of major fishery nursery habitats at Marina del Rey, Redondo Beach King Harbor, and the Ports of Los Angeles and Long Beach; and would conflict with County General Plan policies requiring the protection of biological resources. The No Project Alternative exacerbates, rather than avoids or reduces, impacts to biological resources.

*Greenhouse Gas Emissions*

The No Project Alternative would not increase impacts to GHG emissions in comparison with the proposed ordinances as it would not result in an increase in consumers' use of paper carryout bags. Therefore, unlike the proposed ordinances, the No Project Alternative would not result in a potential indirect increase in GHG emissions resulting from an increase in the manufacture, distribution, and disposal of paper carryout bags. However, due to the fact that the No Project Alternative would not result in significant reductions in the use of plastic carryout bags in the County, the No Project Alternative would not create any benefits to GHG emissions in terms of reducing the GHG emissions caused by manufacturing plastic carryout bags. As with the proposed ordinances, the No Project Alternative would not directly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to

delivery truck trips to transport paper carryout bags to stores, the No Project Alternative would not cause a potential increase in delivery truck trips or related emissions of $CO_2$. As with the proposed ordinances, the No Project Alternative would not result in any direct significant impacts to GHG emissions and would reduce indirect impacts related to $CO_2$ emissions from potential increases in delivery trucks associated with the proposed ordinances. However, like the proposed ordinances, the No Project Alternative may have the potential to result in a cumulatively considerable significant impact due to indirect GHG emissions resulting from the production, distribution, transport, and disposal of plastic carryout bags.

*Hydrology and Water Quality*

In comparison with the proposed ordinances, the No Project Alternative would exacerbate impacts to hydrology and water quality as it would not result in significant reductions in the disposal of plastic carryout bags in the County. The No Project Alternative would not assist in achieving TMDL requirements and water quality standards or waste discharge requirements through the continued contribution of plastic carryout bags as litter to major surface water systems in the County drainage areas, the Pacific Ocean, and inland drainages in the Antelope Valley. As with the proposed ordinances, the No Project Alternative would not 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; would not substantially alter the existing drainage pattern of the area in a manner which would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner which would result in flooding; would not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures which would impede or redirect flood flows; would not 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; and would not cause inundation by seiche, tsunami, or mudflow.

Unlike the proposed ordinances, the No Project Alternative would not result in potentially beneficial impacts on surface water drainage, storm drain systems, or surface water quality in the County and would not assist the County in attaining TMDLs because the No Project Alternative would not result in a decrease of litter attributed to plastic carryout bags. Unlike the proposed ordinances, the No Project Alternative would not result in potential indirect increases in eutrophication caused by a potential increase in consumer use of paper carryout bags. However, the No Project Alternative may also result in potential indirect impacts to surface water quality and drainage caused by the manufacture and disposal of plastic carryout bags. The No Project Alternative would not reduce impacts to hydrology and water quality and would perpetuate existing violations of surface water quality associated with the contribution of plastic carryout bags to the litter stream.

*Utilities and Service Systems*

The No Project Alternative would not increase impacts to utilities and service systems that would result from the implementation of the proposed ordinances as it would not result in an increase in the consumer use of paper carryout bags. However, due to the fact that the No Project Alternative would not result in significant reductions in the disposal of plastic carryout bags in the County, the No Project Alternative would not create any potential benefits to utilities and service systems. As with the proposed ordinances, the No Project Alternative would not exceed wastewater treatment

requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. Unlike the proposed ordinances, the No Project Alternative would not result in potential indirect increases in water use, wastewater generation, energy consumption, and solid waste generation caused by a potential increase in consumer use of paper carryout bags. Unlike the proposed ordinances, the No Project Alternative would not lead to reduced operational impacts and costs associated with storm drain system maintenance. As with the proposed ordinances, the No Project Alternative would not result in any significant adverse impacts to utilities and service systems, but it would also not achieve the same benefits to utilities and service systems that would be expected with the proposed ordinances.

### 4.2.2 Alternative 1: Ban Plastic and Paper Carryout Bags in Los Angeles County

#### 4.2.2.1 *Alternative Components*

Alternative 1 consists of extending the scope of the proposed ordinances to include a ban on both paper and plastic carryout bags in Los Angeles County, and encouraging the 88 incorporated cities to adopt similar ordinances. Alternative 1 would ban the issuance of paper and plastic carryout bags from the same stores addressed by the proposed ordinances, that is, those within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5, and (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. As with the proposed ordinances, the number of stores that could be affected by Alternative 1 in the unincorporated areas of the County is approximately 67.[6] The number of stores that could be affected by Alternative 1 in the incorporated cities of the County is approximately 462.[7]

As with the proposed ordinances, Alternative 1 would not be expected to result in significant adverse impacts to air quality, biological resources, hydrology and water quality, and utilities and service systems, and would achieve additional benefits. In that there would be no transition from plastic to paper carryout bags if both types of bags are banned, impacts to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems would be eliminated, reduced, or avoided.

#### 4.2.2.2 *Objectives and Feasibility*

As shown in Table 4-1, Alternative 1 would accomplish all of the basic objectives of the proposed ordinances required by the County. In addition, Alternative 1 would also serve to reduce

[6] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated areas would be affected by the proposed County ordinance.

[7] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

Countywide consumption of paper carryout bags and the Countywide disposal of paper carryout bags in landfills.

#### 4.2.2.3 *Comparative Impacts*

An assessment of the comparative impacts of plastic and paper carryout bags prepared for the Scottish Executive in order to analyze the impacts of a bag tax in Scotland, showed that imposing a fee on both plastic and paper carryout bags would be environmentally superior to placing a tax upon only plastic carryout bags due to reductions in air pollutant emissions, GHG emissions, and litter.[8] It is anticipated that Alternative 1 would result in a significant decrease in the consumption of both paper and plastic carryout bags throughout the County, as it would be even more effective than a fee on paper carryout bags as it would oblige consumers to use reusable bags in the affected stores.

*Air Quality*

As with the proposed ordinances, the impacts to air quality caused by Alternative 1 would be expected to be below the level of significance. Unlike the proposed ordinances, Alternative 1 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 1 would not result in a potential indirect increase in $NO_x$ emissions due to an indirect increase in the manufacture, distribution, and disposal of paper carryout bags (Table 3.1.4-3). Due to the fact that Alternative 1 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 1 would also create benefits to air quality in terms of reducing emissions of CO, PM, and VOCs, and, to a lesser extent, $SO_x$ caused by the life cycle of plastic carryout bags (Table 3.1.4-2).

Alternative 1 would be expected to significantly increase the use of reusable bags. Although the production, manufacture, distribution, and eventual disposal of reusable bags does cause air pollutant emissions, as is the case with any manufactured product, these emissions are expected to be less than the emissions due to plastic carryout bags when calculated on a per-use basis (Table 3.1.4-6).[9,10,11,12] As banning the issuance of both plastic and paper carryout bags is expected to increase the use of reusable bags, the air quality impacts are anticipated to be reduced in comparison with the proposed ordinances which would not ban paper carryout bags. If the County were to expand the scope of the proposed County ordinance to include a performance standard for reusable bags, air quality impacts could be reduced even further. As with the proposed ordinances, Alternative 1 would not conflict with or obstruct implementation of the applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial

[8] Cadman, J., S. Evans, M. Holland, and R. Boyd. 2005. *Proposed Plastic Bag Levy – Extended Impact Assessment Final Report*. Prepared for Scottish Executive 2005.

[9] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[10] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, Australia.

[11] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[12] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

pollutant concentrations; and would not create objectionable odors affecting a substantial number of people.

Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 1 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 1 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags are used multiple times. Therefore, the net number of bags used by each store would be expected to decrease under Alternative 1, resulting in a decrease in the number of truck trips and associated criteria pollutant emissions required to transport bags to stores. Alternative 1 would result in lesser impacts to air quality than those associated with the proposed ordinances and would be expected to result in a net decrease in emissions of all criteria pollutants.

*Biological Resources*

As with the proposed ordinances, Alternative 1 would result in a significant reduction in the use and disposal of plastic carryout bags within the County. Therefore, Alternative 1 would achieve the same reduction in litter composed of plastic carryout bag waste to freshwater and coastal environments, which has been shown to have significant adverse impacts upon biological resources. Alternative 1 would also be expected to increase consumer use of reusable bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream as a result of Alternative 1 would be much lower than the number of paper and plastic carryout bags that would end up in the waste stream as a result of the proposed ordinances. The smaller number of reusable bags in the waste stream means that reusable bags are less likely to end up as litter and less likely to end up in the ocean or other wildlife habitats. Further, reusable bags are heavier than plastic carryout bags, meaning they are less likely to be blown by the wind and end up as litter. As with the proposed ordinances, Alternative 1 would have the potential to improve habitats and aquatic life and would result in potentially beneficial impacts upon sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. As with the proposed ordinances, Alternative 1 would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not 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; and would not conflict with County General Plan policies requiring the protection of biological resources. As with the proposed ordinances, Alternative 1 would not result in any significant adverse impacts to biological resources and would achieve the same benefits.

*Greenhouse Gas Emissions*

Alternative 1 would reduce impacts to GHG emissions in comparison with the proposed ordinances as it would not result in an increase in consumers' use of paper carryout bags. The impacts to GHG emissions caused by Alternative 1 would be expected to be below the level of significance, because the impacts would be less than the proposed ordinances. Unlike the proposed ordinances, Alternative 1 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 1 would not result in a potential indirect increase in GHG emissions due to an increase in the manufacture, distribution, and disposal of paper carryout bags. Due to the fact that Alternative 1 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 1 would also create indirect benefits to GHG emissions in terms of reducing emissions of $CO_{2e}$ caused by manufacturing plastic carryout bags (Table 3.3.5-2).

Alternative 1 would be expected to significantly increase the use of reusable bags. Although the production, manufacture, distribution, and eventual disposal of reusable bags does cause GHG emissions, as is the case with any manufactured product, these emissions are significantly reduced when calculated on a per-use basis (Table 3.3.5-4).[13,14,15,16,17,18,19] As banning the issuance of both plastic and paper carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced in comparison with the proposed ordinances, which would not ban paper carryout bags. If the County were to expand the scope of the proposed County ordinance to include a performance standard for reusable bags, GHG emission impacts could be reduced even further.

As with the proposed ordinances, Alternative 1 would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 1 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 1 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags can be used multiple times. Therefore, the net number of bags used by each store would be expected to decrease under Alternative 1, resulting in a decrease in the number of truck trips and associated GHG emissions required to transport bags to stores. Unlike the proposed ordinances, Alternative 1 would not result in a cumulatively considerable significant impact due to indirect GHG emissions from the

[13] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, AU.

[14] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[15] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[16] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

[17] Hyder Consulting. 2007. Comparison of existing life cycle analyses of plastic bag alternatives.

[18] Herrera et al. January 2008. *Alternatives to Disposable Shopping Bags and Food Service Items Volume I and II*. Prepared for: Seattle Public Utilities.

[19] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

production, distribution, transport, and disposal of paper carryout bags due to the presence of a ban on paper carryout bags. Alternative 1 would result in lesser impacts to GHG emissions than those associated with the proposed ordinances and would be expected to result in a net decrease in emissions of GHGs due to the reduction in use of paper carryout bags.

*Hydrology and Water Quality*

As with the proposed ordinances, the impacts to hydrology and water quality caused by Alternative 1 would be expected to be below the level of significance. As with the proposed ordinances, Alternative 1 would also create potential benefits to hydrology and water quality due to a potential reduction of plastic carryout bag waste in the litter stream. Alternative 1 would be expected to increase the demand for reusable bags, which may have the potential to indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to paper carryout bag manufacturing, when considered on a per-use basis (Table 3.4.4-1 and Table 3.4.4-2). Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon eutrophication in comparison with the proposed ordinance, which would not ban paper carryout bags. The impacts of the life cycle of reusable bags upon eutrophication are reduced further when the bags are used additional times.[20,21] If the County were to expand the scope of the proposed County ordinance to include a performance standard for reusable bags, eutrophication impacts could be reduced even further.

As with the proposed ordinances, Alternative 1 would not violate any water quality standards or waste discharge requirements; would not 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; would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not otherwise substantially degrade water quality; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures which would impede or redirect flood flows; would not 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; and would not cause inundation by seiche, tsunami, or mudflow. As with the proposed ordinances, Alternative 1 would result in potentially beneficial impacts on surface water drainage, storm drain systems, and surface water quality in the County and would assist the County in attaining TMDLs because Alternative 1 would result in a decrease of litter attributed to plastic carryout bags. As with the proposed ordinances, Alternative 1 would not result in any significant adverse impacts to hydrology and water quality and would achieve the same benefits.

[20] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[21] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

*Utilities and Service Systems*

As with the proposed ordinances, the impacts to utilities and service systems caused by Alternative 1 would be expected to be below the level of significance. Unlike the proposed ordinances, Alternative 1 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 1 would not result in a potential indirect increase in solid waste generation, water consumption, or wastewater generation due to an increase in the manufacture and disposal of paper carryout bags. Furthermore, Alternative 4 would be anticipated to result in indirect reductions in solid waste generation, water consumption, and wastewater generation due to a reduction in the manufacture and disposal of paper carryout bags compared to current conditions.

Alternative 1 would be expected to increase the demand for reusable bags, which may have the potential to indirectly increase water demand, electricity consumption, wastewater generation, and solid waste generation due to the life cycle of reusable bags. However, impacts of reusable bag manufacturing upon these aspects of utilities and service systems are likely to be less significant than the impacts due to paper carryout bag manufacturing, when considered on a per-use basis (Table 3.5.4-2, Table 3.5.4-5, Table 3.5.4-8, and Table 3.5.4-11). The impacts of the life cycle of reusable bags upon utilities and service systems are reduced further when the bags are used additional times.[22] Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon utilities and service systems in comparison with the proposed ordinances, which would not ban paper carryout bags. If the County were to expand the scope of the proposed County ordinance to include a performance standard for reusable bags, impacts related to utilities and service systems would be reduced even further.

As with the proposed ordinances, due to the fact that Alternative 1 would result in significant reductions in the disposal of plastic carryout bags in the County, Alternative 1 would also create potential benefits to utilities and service systems. As with the proposed ordinances, Alternative 1 would not exceed wastewater treatment requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. As with the proposed ordinances, Alternative 1 would lead to reduced operational impacts and costs associated with storm drain system maintenance due to a reduction in the amount of plastic carryout bag waste in the litter stream. As with the proposed ordinances, Alternative 1 would not result in significant adverse impacts to utilities and service systems and would achieve additional benefits to solid waste generation, storm drain systems, energy consumption, water supply, and wastewater due to a reduction in the use of both paper and plastic carryout bags.

[22] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

### 4.2.3 Alternative 2: Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags in Los Angeles County

#### 4.2.3.1 *Alternative Components*

Alternative 2 consists of extending the scope of the proposed ordinances to include a fee on paper carryout bags in Los Angeles County, and encouraging the 88 incorporated cities to adopt similar ordinances. Alternative 2 would require a fee for paper carryout bags issued from the same stores addressed by the proposed ordinances, that is, those within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5, and (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. As with the proposed ordinances, the number of stores that could be affected by Alternative 2 in the unincorporated areas of the County is approximately 67.[23] The number of stores that could be affected by Alternative 2 in the incorporated cities of the County is approximately 462.[24]

As with the proposed ordinances, Alternative 2 would not result in significant adverse impacts to air quality, biological resources, hydrology and water quality, and utilities and service systems, and would achieve additional benefits. In that there would be a minimal transition from plastic to paper carryout bags if a fee is placed on paper carryout bags, impacts to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems would be eliminated, reduced, or avoided in comparison with the proposed ordinances.

#### 4.2.3.2 *Objectives and Feasibility*

As shown in Table 4-1, Alternative 2 would accomplish all of the basic objectives of the proposed project required by the County. In addition, Alternative 2 would also serve to reduce Countywide consumption of paper carryout bags and the Countywide disposal of paper carryout bags in landfills.

#### 4.2.3.3 *Comparative Impacts*

Fees on carryout bags in other countries and states have been shown to be highly effective in reducing the number of carryout bags used. For example, Ireland's fee on plastic carryout bags resulted in more than a 90 percent reduction in retailer purchases of plastic carryout bags.[25] The recent 5-cent plastic and paper carryout bag fee in Washington, DC, resulted in an 86-percent decrease in the number of carryout bags used in the first month after the fee was implemented.[26] Therefore, it is anticipated that a fee on paper carryout bags would reduce the number of paper carryout bags used and disposed of in the County. However, unlike a ban, a fee on paper carryout

[23] As a result of the voluntary Single Use Bag Reduction and Recycling Program, the County has determined that 67 stores in unincorporated areas would be affected by the proposed County ordinance.

[24] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[25] McDonnell, S., and C. Convery. Paper presented 26 June 2008. "The Irish Plastic Bag Levy – A Review of its Performance 5 Years On."

[26] ABC News. 30 March 2010. "Nickel Power: Plastic Bag Use Plummets in Nation's Capital." Available at: http://abcnews.go.com/Politics/plastic-bag-plummets-nations-capital/story?id=10239503

bags would not result in a 100 percent reduction in retailer purchases of paper carryout bags by affected stores, as consumers would retain the option to purchase paper carryout bags. Therefore, it is anticipated that the reduction in paper carryout bags caused by Alternative 2 would not be as large as the anticipated reduction in paper carryout bags caused by Alternative 1. However, as the Ireland and Washington D.C. bag fees indicate, the reduction in use is still quite significant.

While it is not possible to determine the actual percentage increase in conversion to paper carryout bags as a result of Alternative 2, the Ireland and Washington D.C. bag fees indicate that the percentage increase from conversion to paper carryout bags would likely be minimal and would certainly not be above 85-percent. Even so, this EIR has studied the environmental impacts resulting from a conservative worst-case scenario of 85- and 100-percent conversion to paper carryout bags as seen in Sections 3.1 through 3.5. Any increase in paper bag usage as a result of Alternative 2 that is less than a 100-percent conversion to paper-carryout bags, would be less of an impact than the unlikely worst case scenario studied for at 100-percent conversion.

A fee on paper carryout bags has the potential to raise funds that could be used for County programs such as litter clean up, recycling, or public awareness programs. However, during the scoping period for the Initial Study for the proposed ordinances, several members of the public indicated that a fee on paper carryout bags would also have the potential to cause increased administrative costs to grocery stores, which would not be expected to result if a ban were issued. Therefore, Alternative 2 would be anticipated to have both adverse and beneficial socioeconomic impacts.

*Air Quality*

As with the proposed ordinances, the impacts to air quality caused by Alternative 2 would be expected to be below the level of significance. Compared with the proposed ordinances, Alternative 2 would result in a smaller increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 2 would result in a lesser indirect increase in $NO_x$ emissions due to an indirect increase in the manufacture, distribution, and disposal of paper carryout bags (Table 3.1.4-3). Due to the fact that Alternative 2 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 2 would also create benefits to air quality in terms of reducing emissions of CO, PM, and VOCs, and to a lesser extent $SO_x$ caused by the life cycle of plastic carryout bags (Table 3.1.4-2).

Alternative 2 would be expected to significantly increase the use of reusable bags. Although the production, manufacture, distribution, and eventual disposal of reusable bags does cause air pollutant emissions, as is the case with any manufactured product, these emissions are significantly reduced when calculated on a per-use basis (Table 3.1.4-6).[27,28,29,30] As banning the issuance of plastic carryout bags and placing a fee on paper carryout bags is expected to increase the use of reusable bags, the air quality impacts are anticipated to be reduced in comparison with the proposed ordinances, which would not place a fee on paper. If the County were to expand the

[27] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[28] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, Australia.

[29] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[30] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

scope of the proposed County ordinance to include a performance standard for reusable bags, air quality impacts could be reduced even further. As with the proposed ordinances, Alternative 2 would not conflict with or obstruct implementation of the applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable odors affecting a substantial number of people.

Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 2 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 2 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags are used multiple times. Therefore, the net number of bags used by each store would be expected to decrease under Alternative 2, resulting in a decrease in the number of truck trips and associated criteria pollutant emissions required to transport bags to stores. Alternative 2 would result in lesser impacts to air quality than those associated with the proposed ordinances and would be expected to result in a net decrease in emissions of all criteria pollutants.

*Biological Resources*

As with the proposed ordinances, Alternative 2 would result in a significant reduction in the use and disposal of plastic carryout bags within the County. Therefore, Alternative 2 would achieve the same reduction in litter composed of plastic carryout bag waste to freshwater and coastal environments, which has been shown to have significant adverse impacts upon biological resources. The proposed ordinances would also be expected to increase consumer use of reusable bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream as a result of Alternative 2 would be much lower than the number of paper and plastic carryout bags that would end up in the waste stream as a result of the proposed ordinances. The smaller number of reusable bags in the waste stream means that reusable bags are less likely to be littered and less likely to end up in the ocean or other wildlife habitats. Further, reusable bags are heavier than plastic carryout bags, meaning that they are less likely to be blown by the wind and end up as litter. As with the proposed ordinances, Alternative 2 would have the potential to improve habitats and aquatic life and would result in potentially beneficial impacts upon sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. As with the proposed ordinances, Alternative 2 would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not 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; and would not conflict with County General Plan policies requiring the protection of biological resources. As with the proposed ordinances, Alternative 2 would not result in any significant adverse impacts to biological resources and would achieve the same benefits.

*Greenhouse Gas Emissions*

Alternative 2 would reduce impacts to GHG emissions in comparison with the proposed ordinances as it would not result in a similar increase in consumers' use of paper carryout bags due to the presence of a fee on paper carryout bags. Compared with the proposed ordinances, Alternative 2 would result in a lesser increase in GHG emissions resulting from the manufacture, distribution, and disposal of paper carryout bags. The impacts to GHG emissions caused by Alternative 2 would be expected to be below the level of significance. Due to the fact that Alternative 2 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 2 would also create indirect benefits to GHG emissions in terms of reducing emissions of $CO_{2e}$ caused by manufacturing plastic carryout bags (Table 3.3.5-2). Alternative 2 would be expected to significantly increase the use of reusable bags. Although the production, manufacture, distribution, and eventual disposal of reusable bags does cause GHG emissions, as is the case with any manufactured product, these emissions are significantly reduced when calculated on a per-use basis (Table 3.3.5-4).[31,,32,33,34,35,36,37] As banning the issuance of plastic carryout bags and placing of a fee on paper carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced in comparison with the proposed ordinances, which would not place a fee on paper carryout bags. If the County were to expand the scope of the proposed County ordinance to include a performance standard for reusable bags, GHG emission impacts could be reduced even further. As with the proposed ordinances, Alternative 2 would not generate a similar increase in GHG emissions directly that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Unlike the proposed ordinances, which would be expected to cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 2 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 2 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags are used multiple times. Therefore, the net number of carryout bags used by each store would be expected to decrease under Alternative 2, resulting in a decrease in the number of truck trips and associated GHG emissions required to transport bags to stores. Compared with the proposed ordinances, Alternative 2 would result in lesser impacts due to indirect GHG emissions from the production, distribution, transport, and disposal of paper carryout bags; however, the indirect impacts to GHG emissions from the life cycle of paper carryout bags may have the potential to be to be cumulatively considerable,

[31] Nolan-Itu Pty. Ltd. 2002. *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts*. Prepared for: Department of the Environment, Water, and Heritage: Canberra, AU.

[32] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[33] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

[34] The ULS Report. 1 June 2007. *Review of Life Cycle Data Relating to Disposable Compostable Biodegradable, and Reusable Grocery Bags*. Rochester, MI.

[35] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[36] Herrera et al. January 2008. *Alternatives to Disposable Shopping Bags and Food Service Items Volume I and II*. Prepared for: Seattle Public Utilities.

[37] Marlet, C., EuroCommerce. September 2004. *The Use of LCAs on Plastic Bags in an IPP Context*. Brussels, Belgium.

depending on the actual percentage increase in conversion to paper carryout bags despite the presence of a fee. This conclusion is primarily based on the County's assumption of the most conservative and unlikely worst-case scenario of 85- to 100-percent conversion to paper carryout bags despite the presence of a fee (see Section 3.3, Greenhouse Gas Emissions), and does not account for any decrease in paper bag usage resulting from the likely scenario that more members of the public will transition to reusable bags. Further, if the paper bag fee in Alternative 2 has a similar effect of decreasing conversion to paper carryout bags like the Ireland and Washington, D.C., bag fees, indirect impacts to GHG emissions likely would be minimal and could be less than significant on both a project and cumulative impact level. Finally, depending on the size, territory, number of stores affected, actual bag usage per day, and other relevant factors that are specific to each of the 88 incorporated cities within the County, an individual city may find that after considering these factors, the impacts would be below the level of significance. Alternative 2 would result in lesser impacts to GHG emissions than those associated with the proposed ordinances and would be expected to result in a net decrease in emissions of GHGs due to reduction in the use of paper carryout bags.

*Hydrology and Water Quality*

As with the proposed ordinances, the impacts to hydrology and water quality caused by Alternative 2 would be expected to be below the level of significance. As with the proposed ordinances, Alternative 2 would also create potential benefits to hydrology and water quality due to a potential reduction of plastic carryout bag waste in the litter stream. Alternative 2 would be expected to increase the demand for reusable bags, which may have the potential to indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to plastic and paper carryout bag manufacturing, when considered on a per-use basis. The impacts of the life cycle of reusable bags upon eutrophication are reduced further when the bags are used additional times (Table 3.4.4-1 and Table 3.4.4-2).[38,39] Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon eutrophication. If the County were to expand the scope of its ordinance to include a performance standard for reusable bags, eutrophication impacts could be reduced even further.

As with the proposed ordinances, Alternative 2 would not violate any water quality standards or waste discharge requirements; would not 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; would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not otherwise substantially degrade water quality; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures that would impede or redirect flood flows; would not 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; and would not cause

[38] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[39] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

inundation by seiche, tsunami, or mudflow. As with the proposed ordinances, Alternative 2 would result in potentially beneficial impacts on surface water drainage, storm drain systems, and surface water quality in the County and would assist the County in attaining TMDLs because Alternative 2 would result in a decrease of litter attributed to plastic carryout bags and any associated litter resulting from paper carryout bags, to the extent it exists. As with the proposed ordinances, Alternative 2 would not result in any significant adverse impacts to hydrology and water quality and would achieve the same benefits.

*Utilities and Service Systems*

As with the proposed ordinances, the impacts to utilities and service systems caused by Alternative 2 would be expected to be below the level of significance. Compared with the proposed ordinances, Alternative 2 would be expected to result in a smaller increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 2 would not result in lesser indirect increases in solid waste generation, water consumption, or wastewater generation due to an increase in the manufacture and disposal of paper carryout bags. As with the proposed ordinances, due to the fact that Alternative 2 would result in significant reductions in the disposal of plastic carryout bags in the County, Alternative 2 would also create potential benefits to utilities and service systems.

It is also important to note Alternative 2 would be expected to increase consumers' use of reusable bags, the production of which would consume less energy, generate less wastewater, require less water supply, and produce less solid waste than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times (Table 3.5.4-2, Table 3.5.4-5, Table 3.5.4-8, and Table 3.5.4-11). The indirect impacts of reusable bags upon utilities and service systems are reduced further when the bag is used additional times.[40,41] As the banning of plastic carryout bags and imposing a fee on paper carryout bags is expected to increase the use of reusable bags, the impacts to utilities and service systems are anticipated to be reduced in comparison with the proposed ordinances. If the County were to expand the scope of its ordinance to include a performance standard for reusable bags, impacts to utilities and service systems would be reduced even further.

As with the proposed ordinances, Alternative 2 would not exceed wastewater treatment requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. As with the proposed ordinances, Alternative 2 would lead to reduced operational impacts and costs associated with storm drain system maintenance due to a reduction in the amount of plastic carryout bag waste in the litter stream. As with the proposed ordinances, Alternative 2 would not result in any significant adverse impacts to utilities and service systems and would achieve

[40] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[41] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

additional benefits with regard to solid waste generation, storm drain systems, energy consumption, water supply, and wastewater due to a reduction in the use of both paper and plastic carryout bags.

### 4.2.4 Alternative 3: Ban Plastic Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

#### 4.2.4.1 *Alternative Components*

Alternative 3 consists of extending the scope of the proposed ordinances to apply to all supermarkets and other grocery stores, convenience stores, pharmacies and drug stores, but not including restaurant establishments. Alternative 3 would ban the issuance of plastic carryout bags from stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5, and (2) are buildings that have retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, Alternative 3 would apply to stores within the County that are part of a chain of convenience food stores, supermarkets and other grocery stores, convenience stores, pharmacies and drug stores in the County. The number of stores that could be affected by Alternative 3 in the unincorporated areas of the County is approximately 1,091.[42] The number of stores that could be affected by Alternative 3 in the incorporated cities of the County is approximately 5,084.[43] It was assumed that each store larger than 10,000 square feet currently uses approximately 10,000 plastic carryout bags per day,[44] and each store smaller than 10,000 square feet currently uses approximately 5,000 plastic carryout bags per day.[45] It is important to note that these numbers is likely very high, as it is more than twice the bag average reported by the California Department of Resources Recycling and Recovery (CalRecycle) in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[46] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average for stores greater than 10,000 square feet in the County unincorporated and incorporated areas, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario. The same may also be true

[42] Number of stores in the unincorporated territories of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[43] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[44] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[45] Data from the infoUSA indicates that approximately 40 percent of the stores greater than 10,000 square feet in the unincorporated territories of the County are larger than 40,000 square feet. Therefore, the average size of the stores to be affected by the proposed County ordinance would be greater than 20,000 square feet. Accordingly, it would be reasonable to estimate that the stores smaller than 10,000 square feet that would be affected by Alternative 3 would be at less than half the size of the stores to be affected by the proposed ordinances and would use less than half the number of bags.

[46] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

of the 5,000 plastic carryout bags per store per day estimate for stores less than 10,000 square feet. While the 5,000 plastic carryout bags per store per day may likely be very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario as well.

As with the proposed ordinances, Alternative 3 would not result in significant adverse impacts to air quality, biological resources, or hydrology and water quality, and would achieve additional benefits. In that there would be an increased reduction in the consumption of plastic carryout bags, corresponding adverse impacts to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems due to plastic carryout bags would be eliminated, reduced, or avoided. However, due to a likely increase in the demand for paper carryout bags, indirect impacts to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems due to paper carryout bags may be increased. As with the proposed ordinances, indirect GHG emission impacts due to the life cycle of paper carryout bags may have the potential to be cumulatively considerable.

#### 4.2.4.2 *Objectives and Feasibility*

As shown in Table 4-1, Alternative 3 would accomplish all of the basic objectives of the proposed ordinances established by the County. Alternative 3 would encourage the 88 incorporated cities of the County to adopt similar ordinances to ban plastic carryout bags. Alternative 3 would be more effective than the proposed ordinances in reducing the Countywide consumption of plastic carryout bags; plastic carryout bag litter that blights public spaces; and the County's, Cities', and Flood Control District's costs for prevention, clean-up, and enforcement efforts to reduce litter in the County. Alternative 3 would increase public awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags. In addition, Alternative 3 would be more effective than the proposed ordinances in reducing Countywide disposal of plastic carryout bags in landfills.

#### 4.2.4.3 *Comparative Impacts*

Due to the fact that Alternative 3 would ban plastic carryout bags at a greater number of stores throughout the County than the proposed ordinances, the corresponding reductions in plastic carryout bag use throughout the County would be increased.

*Air Quality*

As with the proposed ordinances, the impacts to air quality caused by Alternative 3 would be expected to be below the level of significance. As with the proposed ordinances, Alternative 3 would result in a potential increase in the consumer use of paper carryout bags. Therefore, as with the proposed ordinances, Alternative 3 would result in a potential indirect increase in $NO_x$ emissions due to an indirect increase in the manufacture, distribution, and disposal of paper carryout bags (Table 3.1.4-3). Due to the fact that Alternative 3 would result in significant reductions in the use of plastic carryout bags in the County, Alternative 3 would create indirect benefits to air quality in terms of reducing emissions of CO, PM, and VOCs caused by manufacturing plastic carryout bags (Table 3.1.4-2). Based on an 85-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, and using life cycle data from the Ecobilan study, Alternative 3 would result in an overall decrease in emissions of CO, PM, $SO_x$, and VOCs, but an increase in $NO_x$ (Table 4.2.4.3-1, *Estimated Daily Emission Changes Due to 85-percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data,* and Appendix C). Accordingly, this result is largely a tradeoff and is inconclusive because the conversion from

plastic carryout bags to paper carryout bags would be expected to result in both beneficial and adverse impacts to air quality, depending on which criteria pollutants are analyzed. These results cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD because the operational thresholds are intended for specific projects located in the SCAB for the SCAB, whereas LCA data cover all stages of production, distribution, and end-of-life procedures related to a particular product. The production of plastic carryout bags and paper carryout bags is not limited to the SCAB or the MDAB, with manufacturing facilities located in other air basins in the United States and in other countries that may have different emission thresholds and regulations.

**TABLE 4.2.4.3-1**
**ESTIMATED DAILY EMISSION CHANGES DUE TO 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Emission Sources | Air Pollutants (Pounds/Day)[2] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes caused by a 85-percent conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | -274 | 687 | -799 | -24 | -302 |
| Emission changes caused by an 85-percent conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | -1,313 | 3,291 | -3,829 | -116 | -1,444 |
| **Total Emissions** | **-1,587** | **3,978** | **-4,628** | **-140** | **-1,746** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.

Similar conclusions would be true if one were to apply the Ecobilan data in the unlikely worst-case scenario of 100-percent conversion from plastic to paper carryout bags (Table 4.2.4.3-2, *Estimated Daily Emission Changes Due to 100-percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data*). As before, when considering VOCs, CO, and PM, a conversion from plastic to paper carryout bags would reduce the total weight of daily air emissions, resulting in an overall improvement in air quality. However, the conversion from plastic to paper carryout bags would result in increased $NO_x$ and, to a lesser extent, $SO_x$ emissions. As before, this result is largely a tradeoff and is inconclusive because the conversion from plastic to paper carryout bags would be expected to result in both beneficial and adverse impacts to air quality, depending on which criteria pollutants are analyzed. The emissions of $NO_x$ mainly occur during the processes of paper production and bag manufacturing, which appear not to occur within the SCAB or the MDAB.

**TABLE 4.2.4.3-2**
**ESTIMATED DAILY EMISSION CHANGES DUE TO 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Emission Sources | Air Pollutants (Pounds/Day)[2] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes caused by a 100-percent conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | -190 | 903 | -772 | 54 | -288 |
| Emission changes caused by an 100-percent conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | -909 | 4,327 | -3,695 | 257 | -1,377 |
| **Total Emissions** | **-1,099** | **5,230** | **-4,467** | **311** | **-1,665** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.

Other LCAs reviewed during preparation of this EIR also state that air pollutant emissions due to the life cycle of paper carryout bags would be higher than those emitted during the life cycle of plastic carryout bags.[47,48] However, as with the Ecobilan data, the majority of these criteria pollutant emissions are likely to originate from processes that occur early on in the life cycle of paper and plastic carryout bags, such as raw material extraction and product manufacturing. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[49] or from countries outside of the United States, such as Canada,[50] it is not necessary to extrapolate LCA data to determine emission levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB.

Although the facilities that manufacture paper carryout bags that are supplied to the stores in the County are not located within the SCAB or the MDAB, the majority of the landfills that accept plastic and paper carryout bag waste are located within these air basins. The Ecobilan data indicates that approximately 21 percent of the $NO_x$ emissions generated during the life cycle of paper carryout bags can be attributed to end of life. The end-of-life data include emissions due to transport of waste from households to landfills. However, the end-of-life data assume that a large percentage of solid waste is incinerated, an assumption that is not accurate for the County. Using

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

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

[49] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[50] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada.

the Ecobilan data for the end of life for plastic and paper carryout bags and adjusting for a scenario where all bags go to landfills at the end of life and are not incinerated, and further adjusting for USEPA 2007 recycle rates, the increase in $NO_x$ emissions from transport of paper carryout bags to landfills due to an 85-percent conversion from the use of plastic to paper carryout bags throughout the unincorporated areas of the County would be approximately 44 pounds per day (Table 4.2.4.3-3, *Estimated $NO_x$ Emission Increases Due to End of Life Based on Ecobilan Data*). In the unlikely scenario of a 100-percent conversion from plastic to paper carryout bags throughout the unincorporated areas of the County, the increase in $NO_x$ emissions from transport of paper carryout bags to landfills would be expected to be approximately 55 pounds per day. If Alternative 3 were to be applied to every incorporated city in the County, the increase in $NO_x$ emissions would be 212 and 264 pounds per day due to an 85-percent and 100-percent conversion from plastic to paper carryout bags, respectively.

The aforementioned calculations are based on an unlikely worst-case scenario that does not consider the potential for Alternative 3 to result in an increased number of customers using reusable bags. In addition, the assumption that every store greater than 10,000 square feet in size currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to 5,000 plastic carryout bags per day.[51] The same may also be true of the 5,000 plastic carryout bags per store per day estimate for stores less than 10,000 square feet. While the 5,000 plastic carryout bags per store per day may likely be very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst-case scenario as well. These results also cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD for the SCAB or by AVAQMD for the MDAB because the operational thresholds are intended for specific projects located in the SCAB and MDAB, whereas LCA data cover all stages of end-of-life procedures related to a particular product. In addition, due to the fact that there are 11 landfills within the County,[52] and approximately 20 percent of County waste is distributed to other out-of-County landfills,[53] emissions resulting from the end of life of paper carryout bags would be distributed among the facilities within and outside of the County. Any emissions resulting from the end of life of paper carryout bags, including from truck trips transporting paper carryout bag waste to landfills in the County, are currently controlled by regional and State regulations. For example, CARB's Solid Waste Collection Vehicle Rule also requires owners of refuse collection vehicles to use best available control technology that has been verified by CARB to reduce vehicle emissions. In addition, SCAQMD Rule 1193, Clean On-road Residential and Commercial Refuse Collection Vehicles, requires all public and private solid-waste collection fleets within the jurisdiction of the SCAQMD to acquire alternative-fuel refuse collection vehicles when procuring or leasing these vehicles. SCAQMD Rule 1193 applies to governmental agencies and private entities that operate solid-waste collection fleets with 15 or more solid-waste collection vehicles. Finally, the County is also controlling for emissions by requiring in its new refuse agreements that alternative-fuel refuse vehicles be used.[54,55,56,57] Any increases in air pollutant emissions as an indirect impact of

[51] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

[52] County of Los Angeles, Department of Public Works. Report 13. 30 March 2010. Monthly Solid Waste Disposal Quantity Summary by Aggregated Jurisdiction Data.

[53] County of Los Angeles, Department of Public Works. Report 34. 30 March 2010. Waste Disposal Summary Reports by Quarter by Aggregated Jurisdiction Data.

[54] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Walnut Park Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54560.pdf

[55] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Athens/Woodcrest/Olivita Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54567.pdf

Alternative 3 would be controlled by SCAQMD Rule 1193 and the CARB Solid Waste Collection Vehicle Rule; therefore, the impacts of Alternative 3 to air quality due to vehicle trips transporting paper carryout bag waste to landfills would be expected to be below the level of significance.

**TABLE 4.2.4.3-3**
**ESTIMATED $NO_x$ EMISSION INCREASES DUE TO END OF LIFE BASED ON ECOBILAN DATA**

| Emission Sources | Air Pollutants (Pounds/Day) | |
|---|---|---|
| | 85-percent conversion from plastic to paper carryout bags[1] | 100-percent conversion from plastic to paper carryout bags[1] |
| | $NO_x$ | $NO_x$ |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 44 | 55 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 212 | 264 |
| **Total Emissions** | **256** | **319** |

**SOURCES:**
1. Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf
**NOTES:**
1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rate for paper bags and sacks.

Alternative 3 would also be expected to result in increased use of reusable bags. The Ecobilan Study also presented an LCA analysis of a reusable bag and concluded that this particular reusable bag has a smaller impact on air pollutant emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of four times (Table 3.1.4-6).[58] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how air quality impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the air quality impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon air quality. If the County were to expand the scope of its ordinance to include a performance standard for reusable bags, air quality impacts could be reduced even further.

As with the proposed ordinances, Alternative 3 would not conflict with or obstruct implementation of the applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively

[56] County of Los Angeles, Department of Public Works. 11 May 2010. *Award the Contract for Firestone Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54559.pdf

[57] County of Los Angeles, Department of Public Works. 19 January 2010. *Award of Contract for an Exclusive Franchise Agreement to Valley Vista Services, Inc. for the Unincorporated Area of Hacienda Heights*. Available at: http://file.lacounty.gov/bos/supdocs/52931.pdf

[58] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable odors affecting a substantial number of people. As with the proposed ordinances, Alternative 3 would cause a potential increase in delivery truck trips required to transport paper carryout bags to stores. Assuming that there are 67 stores each using 10,000 plastic carryout bags per day and 1,024 stores each using 5,000 plastic carryout bags per day that would be affected by Alternative 3 in the unincorporated territory of the County, a 100-percent conversion to paper carryout bags would be expected to result in fewer than 33 additional truck trips required per day.[59] Assuming that there are 462 stores each using 10,000 plastic carryout bags per day and 4,622 stores each using 5,000 plastic carryout bags per day that would be affected by Alternative 3 in the 88 incorporated cities of the County, an 85-percent conversion to paper carryout bags would be expected to result in fewer than 157 additional truck trips required per day.[60]

The criteria pollutant emissions that would be anticipated to result from 33 additional truck trips per day to and from the 1,091 stores in the unincorporated territory of the County, and up to 157 additional truck trips per day to and from the 5,084 stores in the 88 incorporated cities of the County were calculated using URBEMIS 2007 (Table 4.2.4.3-4, *Estimated Daily Operational Emissions)* (Appendix D). The unmitigated emissions from delivery truck trips would be expected to be well below the SCAQMD and AVAQMD thresholds of significance (Table 4.2.4.3-4).

**TABLE 4.2.4.3-4**
**ESTIMATED DAILY OPERATIONAL EMISSIONS**

| Emission Sources | Air Pollutants (Pounds/Day) | | | | | |
|---|---|---|---|---|---|---|
| | VOCs | $NO_x$ | CO | $SO_x$ | $PM_{2.5}$ | $PM_{10}$ |
| 33 delivery truck trips in the unincorporated territory of the County | 0.28 | 0.65 | 4.13 | 0 | 0.16 | 0.77 |
| 157 delivery truck trips in the incorporated cities of the County | 1.3 | 3.1 | 19.65 | 0.02 | 0.74 | 3.66 |
| **Total Emissions** | **<1** | **1** | **4** | **0** | **<1** | **1** |
| **SCAQMD Threshold** | **55** | **55** | **550** | **150** | **55** | **150** |
| **AVAQMD Threshold** | **137** | **137** | **548** | **137** | **-** | **82** |
| **Exceedance of Significance?** | **No** | **No** | **No** | **No** | **No** | **No** |

Therefore, in comparison with the proposed ordinances, Alternative 3 would not reduce impacts to air quality related to criteria pollutant emissions from potential increases in delivery trucks or from indirect emissions due to the life cycle of paper carryout bags. However, as with the proposed ordinances, impacts to air quality would still be expected to be below the level of significance.

*Biological Resources*

As with the proposed ordinances, Alternative 3 would result in a significant reduction in the use and disposal of plastic carryout bags within the County. Therefore, Alternative 3 would achieve additional reductions in litter composed of plastic carryout bag waste in freshwater and coastal

[59] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 33 daily truck trips

[60] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 156.5 daily truck trips

environments, which has been shown to have significant adverse impacts upon biological resources. Alternative 3 would also be expected to increase consumer use of reusable bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream as a result of Alternative 3 would be much lower than the number of paper and plastic carryout bags that would end up in the waste stream as a result of the proposed ordinances. The smaller number of reusable bags in the waste stream means that reusable bags are less likely to be littered and less likely to end up in the ocean or other wildlife habitats than plastic carryout bags. Further, reusable bags are heavier than are plastic carryout bags, which means that they are less likely to be blown by the wind and end up as litter. As with the proposed ordinances, Alternative 3 may result in an indirect increase in the number of paper carryout bags consumed in the County. A study performed in Washington, DC, showed that paper bags were not found in streams except in localized areas, and were not present downstream.[61] Unlike plastic, paper is compostable;[62] the paper used to make standard paper carryout bags is originally derived from wood pulp, which is naturally a biodegradable material. Due to paper's biodegradable properties, paper bags do not persist in the marine environment for as long as plastic bags.[63] As with the proposed ordinances, Alternative 3 would have the potential to improve habitats and aquatic life and would result in potentially beneficial impacts upon sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. As with the proposed ordinances, Alternative 3 would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not 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; and would not conflict with County General Plan policies requiring the protection of biological resources. As with the proposed ordinances, Alternative 3 would not result in any significant adverse impacts to biological resources and would achieve additional benefits due to a reduction in use of plastic carryout bags.

*Greenhouse Gas Emissions*

As with the proposed ordinances, the direct impacts to GHG emissions caused by Alternative 3 would be expected to be below the level of significance. However, as with the proposed ordinances, indirect GHG emissions caused by Alternative 3 may have the potential to be cumulatively considerable due to the fact that Alternative 3 would result in a potential increase in the consumer use of paper carryout bags. Therefore, as with the proposed ordinances, Alternative 3 would result in a potential indirect increase in GHG emissions due to an indirect increase in the manufacture, distribution, and disposal of paper carryout bags. Due to the fact that Alternative 3 would result in significant reductions in the use of plastic carryout bags in the County, Alternative 3 would create indirect benefits in terms of reducing emissions of GHGs caused by manufacturing plastic carryout bags (Table 3.3.5-2). Based on an 85-percent conversion from the use of plastic

[61] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[62] County of Los Angeles, Department of Public Works. Accessed on: 28 April 2010. *Backyard Composting*. Web site. Available at: http://dpw.lacounty.gov/epd/sg/bc.cfm

[63] Andrady, Anthony L. and Mike A. Neal. 2009. "Applications and Societal Benefits of Plastics." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1977–1984.

carryout bags to the use of paper carryout bags, and using life cycle data from Ecobilan, Alternative 3 would be expected to result in an indirect increase of GHG emissions of approximately 342 metric tons per day, which is approximately 124,720 metric tons per year, or approximately 0.012 metric tons per capita per year (Table 4.2.4.3-5, *GHG Emissions Based on Ecobilan Data Using 85-percent Conversion from Plastic to Paper Carryout Bags*). When considered on a Countywide scale, these emissions would be approximately 0.12 percent of the 2020 target emissions for the County (108 million metric tons per year) and 0.03 percent of California's business-as-usual greenhouse gas emissions target for 2020 of 427 million metric tons per year. However, the emissions would not be limited to the County, as manufacturing facilities for paper carryout bags appear to be located within other areas of the United States, or other countries such as Canada. In the interest of being conservative and assuming the unlikely worst-case scenario, indirect GHG emissions due to the life cycle of paper carryout bags may have the potential to be cumulatively considerable.

**TABLE 4.2.4.3-5**
**GHG EMISSIONS BASED ON ECOBILAN DATA USING 85-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS**

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 85-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| Emissions Areas | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[1] | Metric Tons Per Year Per Capita[1] |
| Emissions in the 1,091 stores in the unincorporated territory of the County | 98.13 | 59.02 | 21,543 | 0.002 | 9.6 |
| Emissions in the 5,084 stores in the incorporated cities of the County | 469.96 | 282.68 | 103,176 | 0.010 | |
| **Total Emissions in the County** | **568.08** | **341.70** | **124,720** | **0.012** | |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**NOTES:**
1. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

Further, if one were to apply the Ecobilan data in the unlikely worst-case scenario of 100 percent conversion from plastic to paper carryout bag use, a comparison of the emissions of plastic and paper carryout bags indicates that 100-percent conversion to paper carryout bags within the entire County would increase emissions of GHGs by approximately 502 metric tons per day, which is approximately 183,320 metric tons per year, or approximately 0.017 metric tons per capita per year (Table 4.2.4.3-6, *GHG Emissions Based on Ecobilan Data Using 100-percent Conversion from Plastic to Paper Carryout Bags*). When considered on a Countywide scale, these emissions would be approximately 0.17 percent of the 2020 target emissions for the County (108 million metric tons per year) and 0.04 percent of California's business-as-usual greenhouse gas emissions target for

2020 of 427 million metric tons per year. However, the emissions would not be limited to the County, as manufacturing facilities for paper carryout bags appear to be located within other areas of the United States, or other countries such as Canada. In the interest of being conservative and assuming the unlikely worst-case scenario, indirect GHG emissions due to the life cycle of paper carryout bags may have the potential to be cumulatively considerable.

**TABLE 4.2.4.3-6**
**GHG EMISSIONS BASED ON ECOBILAN DATA USING 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS**

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 100-percent Conversion from Plastic Carryout bags to Paper Carryout Bags | | | |
| | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[1] | Metric Tons Per Year Per Capita[1] |
| Emissions in the 1,091 stores in the unincorporated territory of the County | 98.13 | 86.75 | 31,665 | 0.003 | 9.6 |
| Emissions in the 5,084 stores in the incorporated cities of the County | 469.96 | 415.49 | 151,655 | 0.014 | |
| **Total Emissions in the County** | **568.08** | **502.25** | **183,320** | **0.017** | |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

Other LCAs reviewed during preparation of this EIR also state that GHG emissions due to the life cycle of paper carryout bags would be higher than those emitted during the life cycle of plastic carryout bags.[64,65,66] However, as with the Ecobilan data, a significant portion of these GHG emissions are likely to originate from processes that occur early on in the life cycle of paper and plastic carryout bags, such as raw material extraction and product manufacturing.

No significance thresholds have been adopted by any agency or jurisdiction that would assist the County in conclusively determining whether the incremental effect of Alternative 3 is cumulatively considerable when using the LCA data to evaluate impacts resulting from manufacturing and production of paper carryout bags. As of the date of release of this EIR, there are no adopted Federal plans, policies, regulations or laws addressing global warming. Further, although the California Global Warming Solutions Act of 2006 provides new regulatory direction towards

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

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

[66] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

limiting GHG emissions, no air districts in California, including SCAQMD, have a recommended emission threshold for determining significance associated with GHGs from development projects. To date, there is little guidance regarding thresholds for impacts from proposed projects, and there are no local, regional, state or federal regulations to establish a criterion for significance to determine the cumulative impacts of GHG emissions on global warming. Further, while the quantitative analysis appears to show a less than significant impact and there are no defined regulations establishing significance on a cumulative level, certain representatives of the plastic bag industry have claimed that paper bags are significantly worst for the environment from a GHG emissions perspective. On this basis, and specific to this project only, and because the County is attempting to evaluate the impacts of Alternative 3 from a conservative worst-case scenario, it can be conservatively determined that the impacts resulting from an 85- and 100-percent conversion could be cumulatively significant when considered on a global scale, even though the impacts on a regional scale appears to indicate otherwise.

Although the facilities that manufacture paper carryout bags that are supplied to the stores in the County appear not to be located within the SCAB or the MDAB, the majority of the landfills that accept plastic and paper carryout bag waste are located within these air basins. The Ecobilan data indicates that approximately 18 percent of the GHG emissions generated during the life cycle of paper carryout bags can be attributed to end of life. The end of life data includes emissions due to transport of waste from households to landfills. However, the LCA data assumes that a large percentage of solid waste is incinerated, an assumption that is not accurate for the County. Using the Ecobilan data for the end of life for plastic and paper carryout bags and adjusting for the alternative scenario where all bags go to landfills at the end of life and are not incinerated, and further adjusting for USEPA 2007 recycling rates, the GHG emissions from landfills due to an 85-percent conversion from the use of plastic carryout bags to paper carryout bags throughout the entire County would be approximately 120,550 metric tons per year, which is equivalent to approximately 0.011 metric tons per capita (Table 4.2.4.3-7, *Estimated GHG Emissions Increases Due to End of Life Based on Ecobilan Data*). A 100-percent conversion from plastic to paper carryout bags throughout the County would be expected to generate approximately 142,108 metric tons GHG emissions per year, which is equivalent to approximately 0.014 metric ton per capita. These results are likely to be overestimates for the County, as emissions from active landfills in the County are strictly controlled by SCAQMD Rule 1150.1 and AVAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills. However, even under the worst-case scenario as presented here, the increases resulting from 85 and 100-percent conversion would be expected to be below the level of significance when considered in context with California's 2020 GHG emissions target of 427 million metric tons per year (Table 3.3.2-1) and the County's 2020 GHG emissions target of 108 million metric tons per year (Table 3.3.3-1). For an 85-percent conversion to paper carryout bags on a metric tons per year basis, the LCA results presented above would be equivalent to 0.028 percent of the target 2020 emissions for California and 0.11 percent of the County's target 2020 emissions. For a 100-percent conversion to paper carryout bags, the LCA results presented above would be equivalent to 0.033 percent of the target 2020 emissions for California and 0.13 percent of the target 2020 emissions for the County. These calculations are based on an unlikely worst-case scenario that does not take into account the potential for Alternative 3 to result in an increased number of customers using reusable bags. In addition, the assumption that every store above 10,000 square feet currently uses 10,000 plastic carryout bags per day is an overestimate, as Statewide data indicates that this number is likely to be closer to 5,000 plastic carryout bags per day.[67] The same may also be true of the 5,000 plastic carryout bags

[67] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

per store per day estimate for stores less than 10,000 square feet. While the 5,000 plastic carryout bags per store per day may likely be very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario as well. However, even assuming a worst-case scenario where Alternative 3 causes an indirect increase in disposal of paper carryout bags, any potential increases in GHG emissions in landfills in the SCAQMD portion of the SCAB would be controlled by SCAQMD Rule 1150.1, and any potential increases in GHG emissions in landfills in the AVAQMD portion of the MDAB would be controlled by AVAQMD Rule 1150.1.

**TABLE 4.2.4.3-7**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE BASED ON ECOBILAN DATA**

| Emission Sources | GHG Emissions (Metric Tons $CO_{2e}$ Per Year) | |
|---|---|---|
| | Increase Resulting from 85-percent conversion from plastic to paper carryout bags[1] | Increase Resulting from 100-percent conversion from plastic to paper carryout bags[1] |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 20,823 | 24,547 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 99,727 | 117,561 |
| **Total Emissions** | **120,550** | **142,108** |

**SOURCES:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf
**NOTES:**
1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

The Boustead Study indicates that the majority of GHG emissions (approximately 60 percent) associated with the life cycle of paper carryout bags occur during decomposition in landfills. In fact, the Boustead study states that from all operations just prior to disposal, the resulting $CO_{2e}$ emissions are more than 20 percent greater for the plastic carryout bag compared to the paper carryout bag, if it is assumed that paper carryout bag hold 1.5 times the amount of groceries that plastic carryout bags hold.[68] Using the Boustead data, it can be extrapolated that under a scenario where 85 percent of customers would switch to using paper carryout bags under Alternative 3, the disposal of paper carryout bags in landfills would have the potential to result in the emissions of 330,985 metric tons of $CO_{2e}$ per year for the entire County (Table 4.2.4.3-8, *Estimated GHG Emissions Increases Due to End of Life Based on Data from Boustead*). Alternatively, based on a scenario where 100 percent of customers would switch to using paper carryout bags under Alternative 3, the disposal of paper carryout bags in landfills would have the potential to result in the emissions of 393,712 metric tons of $CO_{2e}$ per year for the entire County (Table 4.2.4.3-8). These results are between approximately 0.30 percent to 0.36 percent of the 2020 target emissions

[68] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*, Table 26B. Prepared for: Progressive Bag Affiliates.

for the County (108 million metric tons), and between approximately 0.08 to 0.09 percent of the 2020 target emissions for California (427 million metric tons). These results are significantly higher than those calculated using Ecobilan data, emphasizing the uncertainty in using LCA data to estimate GHG emissions. In addition, the Boustead Study calculates GHG emissions for end-of-life using 20 year $CO_2$ equivalents,[69] which means that $CH_4$ is considered to have 62 times the global warming potential of $CO_2$. It is standard practice to use 100 year $CO_2$ equivalents when calculating $CO_{2e}$, which means that $CH_4$ emissions are considered to have 23 times the global warming potential compared to $CO_2$.[70] The non-standard method of calculating $CO_{2e}$ for end of life in the Boustead Study causes the results to be elevated and not directly comparable to $CO_{2e}$ for end of life calculated in other LCAs. In addition, the Boustead Study assumes that 40 percent of methane in landfills is captured. However, even assuming a worst-case scenario where Alternative 3 causes an indirect increase in disposal of paper carryout bags, any potential increases in GHG emissions in landfills in the SCAQMD portion of the SCAB will be controlled by SCAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills, and any potential increases in GHG emissions in landfills in the AVAQMD portion of the MDAB will be controlled by AVAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills.

As with its analysis of GHG emissions resulting from the manufacturing and production of paper carryout bags using LCA data, the County is attempting to evaluate the GHG emissions impacts of Alternative 3 resulting from paper bags being land-filled from a conservative worst-case scenario for the aforementioned reasons. Therefore, it can be conservatively determined that the impacts resulting from an 85- and 100-percent conversion to paper carryout bags due to end of life based on LCA data may have the potential to be cumulatively significant when considered in conjunction with all other related past, present, or reasonably foreseeable, probable future projects or activities.

**TABLE 4.2.4.3-8**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE BASED ON ECOBILAN DATA**

| Emission Sources | GHG Emissions (Metric Tons $CO_{2e}$ Per Year) | |
|---|---|---|
| | **Increase Resulting from 85-percent conversion from plastic to paper carryout bags[1]** | **Increase Resulting from 100-percent conversion from plastic to paper carryout bags[1]** |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 57,172 | 68,007 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 273,813 | 325,705 |
| **Total Emissions** | **330,985** | **393,712** |

**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.
**NOTE:** 1. Assuming 21 percent of paper carryout bags are diverted from landfills and 5.2 percent of plastic carryout bags are diverted from landfills.

[69] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates. Table 26B.

[70] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1*. Los Angeles, CA.

The Ecobilan Study also presented an LCA analysis of a reusable bag and concluded that this particular reusable bag has a smaller impact on GHG emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.3.5-4).[71] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how GHG emission impacts of the life cycle of reusable bags are reduced the more times a bag is used. The ExcelPlas report supports these findings by concluding that, of the different types of bags studied, reusable bags had the lowest GHG emission impacts over the total life cycle.[72] A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in annual GHG emission savings of approximately 6 kilograms per household.[73] As the banning of plastic carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bag use to reusable bag use would be anticipated to have reduced impacts upon GHG emissions. If the County were to expand the scope of its ordinance to include a performance standard for reusable bags, GHG emission impacts could be reduced even further.

As with the proposed ordinances, Alternative 3 would not directly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. As with the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 3 would cause a potential increase in delivery truck trips required to transport paper carryout bags to stores. Assuming that there are 67 stores each using 10,000 plastic carryout bags per day and 1,024 stores each using 5,000 plastic carryout bags per day that would be affected by Alternative 3 in the unincorporated territory of the County, a 100-percent conversion to paper carryout bags would be expected to result in fewer than 33 additional truck trips required per day.[74] Assuming that there are 462 stores each using 10,000 plastic carryout bags per day and 4,622 stores each using 5,000 plastic carryout bags per day that would be affected by Alternative 3 in the 88 incorporated cities of the County, an 85-percent conversion to paper carryout bags would be expected to result in fewer than 157 additional truck trips required per day.[75]

The GHG emissions that would be anticipated to result from 33 additional truck trips per day to and from the 1,091 stores in the unincorporated territory of the County, and up to 157 additional truck trips per day to and from the 5,084 stores in the 88 incorporated cities of the County were calculated using URBEMIS 2007 (Table 4.2.4.3-9, *Estimated Daily Operational Emissions Due to Increased Vehicle Trips from 100-percent Conversion from Plastic to Paper Carryout Bags)* (Appendix D). The unmitigated emissions due to delivery truck trips would be approximately 89 metric tons per year of $CO_2$ for the 1,091 stores that would be affected by Alternative 3 in the unincorporated territory of the County, and up to an additional 426 metric tons per year if similar

[71] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[72] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[73] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[74] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 33 daily truck trips

[75] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 156.5 daily truck trips

ordinances were adopted in the 88 incorporated cities of the County (Table 4.2.4.3-9). The total indirect GHG emissions due to mobile sources as a result of a 100-percent conversion from plastic carryout bags to paper carryout bags throughout the entire County represents an increase of approximately 0.00012 percent of California's greenhouse gas emissions target for 2020 of 427 million metric tons per year, and approximately 0.0005 percent of the County's target emissions for 2020 (108 million metric tons), or 0.00005 metric ton per capita per year, which would not conflict with the emission reduction goals established to reduce emissions of GHGs in California down to 1990 levels by 2020, as required by AB 32 (approximately 427 million metric tons in total or 9.6 metric tons per capita by 2020).[76] Therefore, the GHGs emissions due to mobile sources that could potentially be an indirect impact of Alternative 3 would be expected to be below the level of significance.

**TABLE 4.2.4.3-9**
**ESTIMATED DAILY OPERATIONAL EMISSIONS DUE TO INCREASED VEHICLE TRIPS FROM 100-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS**

| Emission Sources | $CO_2$ Emissions (Pounds/Day) | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) | Target GHG Emissions per Capita in the County (metric tons of $CO_{2e}$) |
|---|---|---|---|---|
| 33 delivery truck trips in the unincorporated territory of the County | 540.49 | 89.48 | 0.000008 | **9.6** |
| 157 delivery truck trips in the incorporated cities of the County | 2571.44 | 425.73 | 0.000040 | |
| **Total Emissions** | **3,111.93** | **515.21** | **0.000049** | |

In comparison with the proposed ordinances, Alternative 3 would not reduce potential impacts to GHG emissions related to $CO_2$ emissions from potential increases in delivery trucks for paper carryout bags. As with the proposed ordinances, impacts to GHG emissions may have the potential to be cumulatively considerable due to potential indirect emissions from the life cycle of paper carryout bags.

*Hydrology and Water Quality*

As with the proposed ordinances, the impacts to hydrology and water quality caused by Alternative 3 would be expected to be below the level of significance. Due to the fact that Alternative 3 would result in additional reductions in the disposal of plastic carryout bags in the County, Alternative 3 would also create additional potential benefits to hydrology and water quality. However, due to the potential for increased use of paper carryout bags, Alternative 3 would have the potential for impacts on surface water quality due to eutrophication. Several LCAs have analyzed the impacts of bag manufacturing upon eutrophication and concluded that paper carryout bag manufacturing releases more pollutants, such as nitrates and phosphates, into water than does plastic carryout bag manufacturing.[77,78] Using the Ecobilan results, it was determined that the

[76] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

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

potential for an 85-percent conversion from the use of plastic to paper carryout bags would result in an increase in eutrophication of approximately 16 kilograms of phosphate equivalent per day for the 1,901 stores in the unincorporated territory of the County, and up to an additional 78 kilograms of phosphate per day if similar ordinances were adopted by the 88 incorporated cities of the County. Assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in eutrophication of approximately 19 kilograms of phosphate equivalent per day for the 1,091 stores in the unincorporated territory of the County, and up to an additional 93 kilograms of phosphate equivalent per day if similar ordinances were adopted by the 88 incorporated cities of the County (Table 4.2.4.3-10, *Eutrophication Due to Plastic and Paper Carryout Bags Based on Ecobilan Data,* and Appendix C*).*

**TABLE 4.2.4.3-10**
**EUTROPHICATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| | Eutrophication (kilograms phosphate equivalent) | | |
|---|---|---|---|
| **Eutrophication Sources** | **Eutrophication from Plastic Carryout Bags** | **Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use** | **Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use** |
| Eutrophication due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 1.79 | 16.19 | 19.37 |
| Eutrophication due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 8.59 | 77.55 | 92.75 |
| **Total eutrophication due to carryout bag use** | **10.39** | **93.74** | **112.12** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Increased demand for reusable bags may also have the potential to indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to plastic and paper carryout bag manufacturing, when considered on a per-use basis. For example, the Ecobilan Study evaluated the eutrophication impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries and concluded that this particular reusable bag has a smaller impact on eutrophication than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.4.4-2).[79] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 3.4.4-2). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how the eutrophication impacts of reusable bag manufacturing are reduced with each time a bag is used. Therefore, a conversion from plastic carryout bags to reusable bags

[78] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[79] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

would be anticipated to have reduced impacts upon eutrophication. The County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce eutrophication impacts.

While a quantitative analysis for eutrophication has been undertaken as discussed above, determining the level of significance of eutrophication impacts from bag manufacturing would be speculative due to the lack of an established baseline or significance threshold and is further inapplicable given the fact that the manufacturing facilities for paper carryout bags appear not be located within the County. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[80] or from countries outside of the United States, such as Canada,[81] there are no impacts from eutrophication to surface water quality in the watersheds in the County as a result of Alternative 3. Since there appears to be no manufacturing and production of paper carryout bags in the County unincorporated and incorporated areas, there would be no impacts to water quality resulting from eutrophication during the manufacturing process. Therefore, indirect impacts to water quality from eutrophication due to a potential increase in the demand for paper carryout bag manufacturing would be expected to be less than significant.

Further, any indirect increase in pollutant discharge from manufacturing plants due to increased demand for paper carryout bags would be regulated and controlled by the local, regional, and federal laws applicable to each manufacturing plant. It is incorrect to assume that eutrophication resulting from the production and manufacture of paper carryout bags would be left unchecked and unregulated. Within the United States, pollutant discharges from bag manufacturing facilities have to comply with NPDES requirements and permits. Therefore, impacts of Alternative 3 upon surface water quality outside of the Southern California region due to eutrophication would also be expected to be less than significant. In addition, any adverse indirect impact upon water quality due to eutrophication would likely be offset by the positive impacts Alternative 3 would be expected to have upon water quality due to a decrease of litter attributed to plastic carryout bags in water bodies.

As with the proposed ordinances, Alternative 3 would not violate any water quality standards or waste discharge requirements; would not 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; would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not otherwise substantially degrade water quality; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures that would impede or redirect flood flows; would not 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; and would not cause inundation by seiche, tsunami, or mudflow. As with the proposed ordinances, Alternative 3 would result in potentially beneficial impacts on surface water drainage, storm drain systems, and surface

[80] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[81] National Council for Air and Stream Improvement. February 5, 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada

water quality in the County and would assist the County in attaining TMDLs because Alternative 3 would result in a greater decrease of litter attributed to plastic carryout bags. As with the proposed ordinances, Alternative 3 would not result in any significant adverse impacts to hydrology and water quality and would achieve additional benefits due to a greater reduction in the use of plastic carryout bags.

*Utilities and Service Systems*

As with the proposed ordinances, the impacts to utilities and service systems as a result of Alternative 3 would be expected to be below the level of significance. Due to the fact that Alternative 3 would result in additional reductions in the disposal of plastic carryout bags in the County, Alternative 3 would also create additional potential benefits to utilities and service systems in terms of reducing indirect impacts associated with the production and disposal of plastic carryout bags. However, as with the proposed ordinances, Alternative 3 would result in potential increases in water use, wastewater generation, energy consumption, and solid waste generation caused by a potential increase in consumer use of paper carryout bags.

Wastewater Generation

Using the Ecobilan results, it was determined that the potential for an 85-percent conversion from the use of plastic carryout bags to the use of paper carryout bags would result in an increase in wastewater of approximately 0.15 MGD for the 1,091 stores in the unincorporated territory of the County, and up to an additional 0.70 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 4.2.4.3-11, *Wastewater Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The Sanitation Districts of Los Angeles County treat approximately 510 MGD.[82] Therefore, an additional 0.84 MGD due to paper carryout bag use throughout the entire County, or less than 0.16 percent of the current amount of wastewater treated per day, would not be considered a significant increase in wastewater.

It is important to note that manufacturing facilities for paper carryout bags appear not to be located within the County. Therefore, any increase in wastewater generation due to paper carryout bag manufacturing would not impact wastewater treatment providers in the County. However, even assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in wastewater of 0.19 MGD for the 1,901 stores in the unincorporated territory of the County, and up to an additional 0.92 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table 4.2.4.3-11, and Appendix C). This is less than 0.2 percent of the total wastewater treated per day in the County and would not be anticipated to necessitate construction of new wastewater treatment facilities or expansion of existing facilities.

[82] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

**TABLE 4.2.4.3-11**
**WASTEWATER GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS**
**BASED ON ECOBILAN DATA**

| Wastewater Sources | Wastewater Generation (MGD) | | |
|---|---|---|---|
| | Wastewater Generation Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Wastewater generation due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.12 | 0.15 | 0.19 |
| Wastewater generation due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.57 | 0.70 | 0.92 |
| **Total Wastewater Generation** | **0.69** | **0.84** | **1.11** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Water Supply

The Ecobilan results also show that the potential increase in required water supply due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.22 MGD for the 1,091 stores in the unincorporated territory of the County and up to an additional 1.08 MGD if similar ordinances were adopted within the 88 incorporated cities of the County (Table 4.2.4.3-12, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*). The water districts within Los Angeles County supplied approximately 1,563 MGD in fiscal year 2007/2008;[83] therefore, the estimated water demands from Alternative 3 would represent approximately 0.083 percent of this total. It is important to note that manufacturing facilities for paper carryout bags appear not to be located within the County. Therefore, any increase in water supply necessary for paper carryout bag manufacturing would not impact water suppliers in the County. However, even assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in water consumption of 0.29 MGD for the 1,091 stores in the unincorporated territory of the County, and up to an additional 1.37 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County,[84] which represents approximately 0.11 percent of the water supply in the County and would not be considered to be significant.

[83] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007 to June 30, 2008. Los Angeles, California. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

[84] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

**TABLE 4.2.4.3-12**
**WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS**
**BASED ON ECOBILAN DATA**

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.13 | 0.22 | 0.29 |
| Water consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.60 | 1.08 | 1.37 |
| **Total Water Consumption** | **0.72** | **1.30** | **1.66** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Other studies, including the Boustead Study, have also noted that paper carryout bag manufacturing requires more water consumption than plastic manufacturing.[85] The Boustead results aided the conclusion that the potential increase in required water supply due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 3.15 MGD for the 1,091 stores in the unincorporated territory of the County, and up to an additional 15.10 MGD if similar ordinances were adopted within the 88 incorporated cities of the County (Table 4.2.4.3-13, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C*)*. The water districts within Los Angeles County supplied approximately 1,563 MGD in fiscal year 2007/2008;[86] therefore, the estimated water demands from Alternative 3 would represent approximately 1.2 percent of this total. When assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in water consumption of 3.75 MGD for the 1,091 stores in the unincorporated territory of the County, and up to an additional 17.96 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County,[87] which represents approximately 1.4 percent of the water supply in the County. Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout bags for stores in the County appear not to be located within the County. Therefore, the water supply required for paper carryout bag manufacturing may be supplied by other water districts outside of the County or outside of California, so impacts may not directly affect the water districts within the County. Therefore, the potential indirect increases in water supply which paper carryout bag manufacturing facilities would be expected to require as an indirect result of Alternative 3, would not be anticipated to necessitate new or expanded entitlements for water.

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

[86] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007, to June 30, 2008. Los Angeles, California. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

[87] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

**TABLE 4.2.4.3-13**
**WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS**
**BASED ON BOUSTEAD DATA**

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.22 | 3.15 | 3.75 |
| Water consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 1.07 | 15.10 | 17.96 |
| **Total Water Consumption** | **1.30** | **18.26** | **21.71** |

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

Solid Waste

Using the Ecobilan data and adjusting for a scenario in which all bags go to landfills at the end of life, and further adjusting the data for current recycling rates and the number of bags used by stores that would be affected by the Alternative 3 throughout the unincorporated areas of the County, it can be concluded that an 85-percent to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags would result in approximately 23.11 to 34.54 tons of additional waste deposited at landfills each day, respectively (Table 4.3.4.2-14, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C).[88] Similarly, an 85-percent to 100-percent conversion from use of plastic carryout bags to use of paper carryout bags in the 88 incorporated cities of the County would result in approximately 110.70 to 165.42 tons of additional waste deposited at landfills each day, respectively (Table 4.3.4.2-14 and Appendix C). The permitted daily maximum capacity of the County landfills in total is 43,749 tons per day (Table 3.5.2-1). Under a scenario of an 85-percent conversion from plastic to paper carryout bags, the amount of solid waste generated throughout the entire County based on Ecobilan data would be approximately 0.31 percent of the total daily capacity of the landfills in the County. Under the unlikely worst-case scenario of a 100-percent conversion from plastic to paper carryout bags, the amount of solid waste generated throughout the County based on Ecobilan data would be approximately 0.46 percent of the total daily capacity of the landfills in the County. Based on first quarter 2009 daily average in-County disposal averages, the County landfills are not accepting anywhere near the daily maximum capacity, averaging only 21,051 tons per day; the estimated remaining permitted capacity of County landfills is 154.386 million tons (Table 3.5.2-1). In addition, approximately 20 percent of County waste is distributed to other out-of-County landfills.[89] Therefore, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of Alternative 3, and expected impacts of

[88] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

[89] County of Los Angeles, Department of Public Works. Report 34. 30 March 2010. Waste Disposal Summary Reports by Quarter by Aggregated Jurisdiction Data.

Alternative 3 to utilities and service systems related to solid waste generation would be expected to be below the level of significance. Finally, although the impacts to utilities and service systems with regard to solid waste would be expected to be below the level of significance, the County is considering undertaking additional public outreach through a education program that would aim to increase the percentage of paper carryout bags that are recycled within the County. There is nearly universal access to curbside recycling throughout the County, where paper bags can be recycled by homeowners conveniently. Additional public education and outreach would increase the number of bags recycled and further reduce indirect impacts of Alternative 3 to utilities and service systems with regard to solid waste.

**TABLE 4.2.4.3-14**
**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Solid Waste Sources | Solid Waste Generation (Tons per day) | | |
|---|---|---|---|
| | Plastic Carryout Bag LCA | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use, Assuming 0-percent Recycling[1] | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use, Assuming 0-percent Recycling |
| Waste due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 41.63 | 23.11 | 34.54 |
| Waste due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 199.40 | 110.70 | 165.42 |
| **Total waste** | **241.03** | **133.81** | **199.96** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion

Other studies, including the Boustead Study, have noted that paper carryout bag disposal results in more solid waste generation than the disposal of plastic carryout bags.[90] The Boustead results aided the conclusion that the potential increase in solid waste due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 95.79 tons per day for the 1,091 stores in the unincorporated territory of the County, and up to an additional 458.74 tons per day if similar ordinances were adopted within the 88 incorporated cities of the County (Table 4.2.4.3-15, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C). The permitted daily maximum capacity of the County landfills in total is 43,749 tons per day (Table 3.5.2-1). Under the scenario of an 85-percent conversion from plastic to paper carryout bags, the amount of solid waste generated throughout the entire County based on Boustead data is approximately 1.3 percent of the total daily capacity of the landfills in the County. Therefore, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of Alternative 3; impacts from Alternative 3 to utilities and service systems related to solid waste generation would be expected to be below the

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

level of significance. When assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in solid waste of 117.97 tons per day for the 1,091 stores in the unincorporated territory of the County, and up to an additional 565.00 tons per day if similar ordinances were to be adopted by the 88 incorporated cities of the County,[91] which represents approximately 1.6 percent of the total solid waste disposed of the total daily landfill capacity in the County. The amount of solid waste generated for the life cycle of paper carryout bags according to the Boustead Study is considerably higher than the amount of solid waste generated for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study and the importance of understanding study boundaries, inputs, and methodologies.[92] However, even under the unlikely worst-case scenario analyzed, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts of Alternative 3; impacts of Alternative 3 to utilities and service systems related to solid waste generation would be expected to be below the level of significance. This is especially true given that the County landfills are not accepting anywhere near the daily maximum capacity, averaging only 21,051 tons per day, and the estimated remaining permitted capacity of the County landfills is 154.386 million tons (Table 3.5.2-1). Finally, if the County undertakes additional public outreach through a paper bag recycling public education program that would aim to increase the percentage of paper carryout bags that are recycled within the County, it could further reduce indirect impacts of Alternative 3 to utilities and service systems with regard to solid waste.

**TABLE 4.2.4.3-15**
**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA**

| Solid Waste Sources | Solid Waste Generation (Tons per day) | | |
|---|---|---|---|
| | Waste Generation due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Waste due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 29.93 | 95.79 | 117.97 |
| Waste due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 143.36 | 458.74 | 565.00 |
| **Total Solid Waste** | **173.29** | **554.53** | **682.97** |

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

Alternative 3 would also be anticipated to increase consumer use and eventual disposal of reusable bags, which are heavier and take up more volume than plastic carryout bags. The manufacturing process of reusable bags would also be expected to generate solid waste. However, due to the fact

[91] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[92] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

that reusable bags are designed to be used multiple times, a conversion from plastic carryout bags to reusable bags would decrease the total number of bags that are disposed of in landfills, resulting in a decrease in solid waste disposal in the County. For example, the Ecobilan Study evaluated the solid waste impacts of a reusable bag and concluded that this particular reusable bag has a smaller impact on solid waste than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-8).[93] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-8 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how solid waste impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the solid waste impacts are anticipated to be reduced. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce solid waste impacts.

Energy Conservation

The results of the Ecobilan LCA were used to analyze the potential energy consumption in a conservative worst-case scenario of 85-percent to 100-percent conversion of plastic carryout bags to paper carryout bags (Table 4.2.4.3-16, *Non-renewable Energy Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The Ecobilan results aided the conclusion that the potential increase in non-renewable energy due to a 100-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.02 million kilowatts per hour (kWh) for the 1,091 stores in the unincorporated territory of the County, and up to 0.11 million kWh if similar ordinances were adopted within the 88 incorporated cities of the County. The estimated total electricity consumption in the County in 2007 was 68,120 million kWh, with 47,484 million kWh in the non-residential sector;[94] therefore, the indirect estimated electricity demands from Alternative 3 would be negligible in comparison to the total energy demand of the non-residential sector of the County. In fact, the reasonable worst-case scenario of 85-percent conversion from the use of plastic carryout bags to the use of paper carryout bags would result in a slight decrease in non-renewable energy consumption according to Ecobilan data (Table 4.2.4.3-16 and Appendix C).

[93] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[94] California Energy Commission. Accessed on: 4 May 2010. "Electricity Consumption by County." *California Energy Consumption Data Management System*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

**TABLE 4.2.4.3-16**
**NON-RENEWABLE ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Energy Consumption Sources | Energy Consumption (million kWh) | | |
|---|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Energy Consumption Sources | Energy Consumption (million kWh) |
| Energy consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.72 | -0.09 | 0.02 |
| Energy consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 3.43 | -0.42 | 0.11 |
| **Total Energy Consumption** | **4.14** | **-0.51** | **0.13** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Other studies, including the Boustead Study, have also noted that paper carryout bag manufacturing requires more energy consumption than plastic carryout bag manufacturing.[95] The Boustead results aided the conclusion that the potential increase in energy demand due to an 85-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 1.63 million kWh for the 1,091 stores in the unincorporated territory of the County, and up to an additional 7.82 million kWh if similar ordinances were adopted within the 88 incorporated cities of the County (Table 4.2.4.3-17, *Total Energy Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C*)*. The estimated total electricity consumption in the County in 2007 was 68,120 million kWh, with 47,484 million kWh in the non-residential sector;[96] therefore, the estimated electricity demands from Alternative 3 would represent approximately 0.02 percent of the total energy use in the non-residential sector of the County. When assuming the unlikely worst-case scenario of 100-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, this would result in an increase in energy demand of 2.06 million kWh for the 1,091 stores in the unincorporated territory of the County, and up to an additional 9.89 million kWh if similar ordinances were to be adopted by the 88 incorporated cities of the County,[97] which represents approximately 0.03 percent of the non-residential electricity supply in the County. The amount of energy required for the life cycle of paper carryout bags according to the Boustead Study is considerably higher than the amount of energy required for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study and the importance of understanding study boundaries, inputs, and methodologies.[98] In addition, the Ecobilan data presented above was specifically for non-renewable energy, rather than total energy. The majority of the energy use

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

[96] California Energy Commission. Accessed on: 4 May 2010. "Electricity Consumption by County." *California Energy Consumption Data Management System*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

[97] Number of stores determined from the infoUSA database for businesses with North American Industry Classification System code 445110 and 446110 with a gross annual sales volume of $2 million or higher and a square footage of 10,000 square feet or greater. Accessed on: 29 April 2010.

[98] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

analyzed here occurs early in the life cycle of plastic and paper carryout bags, during processes such as fuel extraction and bag manufacturing. Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout bags for stores in the County appear not to be located within the County. Therefore, the energy supply required for paper carryout bag manufacturing may be supplied by other districts outside of the County or outside of California, so impacts may not directly affect the County. However, even in the conservative worst-case scenario as presented here, an increase in energy demand of approximately 9.45 million kWh from 85-percent conversion and 11.95 million kWh from 100-percent conversion, which paper carryout bag manufacturing facilities would be expected to require as an indirect result of Alternative 3, would be expected to be below the level of significance.

**TABLE 4.2.4.3-17**
**TOTAL ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA**

| Energy Consumption Sources | Energy Consumption (Million kWh) | | |
|---|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use | Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use |
| Energy consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.82 | 1.63 | 2.06 |
| Energy consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 3.92 | 7.82 | 9.89 |
| **Total energy consumption** | **4.74** | **9.45** | **11.95** |

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

It is also important to note that Alternative 3 would be expected to increase consumers' use of reusable bags, the production of which would consume less energy than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less energy than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-11 and Appendix C).[99] The energy demands of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-11 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how energy impacts of reusable bag manufacture are reduced the more times a bag is used. A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in energy savings of 190 mega joules per household, which is equivalent to powering a television for six months.[100] As the banning of plastic carryout bags is expected to increase the use of reusable bags, the conservation impacts are anticipated to be reduced. Therefore, a conversion

[99] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[100] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon energy conservation. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce energy conservation impacts.

As with the proposed ordinances, Alternative 3 would not exceed wastewater treatment requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. As with the proposed ordinances, Alternative 3 would lead to reduced operational impacts and costs associated with storm drain system maintenance. Unlike the proposed ordinances, Alternative 3 would result in significant impacts to utilities and service systems with regard to solid waste generation, but would achieve additional benefits to the storm drain system due to a greater reduction in the use of plastic carryout bags.

### 4.2.5 Alternative 4: Ban Plastic and Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

#### 4.2.5.1 *Alternative Components*

Alternative 4 consists of extending the scope of the proposed ordinances to apply to all supermarkets and other grocery stores, convenience stores, pharmacies, and drug stores (as opposed to applying only to stores greater than 10,000 square feet under the proposed ordinances), but not including restaurant establishments. Alternative 4 would ban the issuance of plastic and paper carryout bags from stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5, and (2) are buildings that generate sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, Alternative 4 would apply to stores within the County that are part of a chain of convenience food stores, all supermarkets and other grocery stores, convenience stores, pharmacies, and drug stores in Los Angeles County.

As with the proposed ordinances, Alternative 4 would not result in significant adverse impacts to air quality, biological resources, hydrology and water quality, and utilities and service systems, and would achieve additional benefits. In that there would be an increased reduction in the consumption of plastic carryout bags, corresponding adverse impacts to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems due to plastic carryout bags would be eliminated, reduced, or avoided. Unlike the proposed ordinances, Alternative 4 would not have the potential to result in cumulatively considerable impacts to GHG emissions.

The number of stores that could be affected by Alternative 4 in the unincorporated areas of the County is approximately 1,091.[101] The number of stores that could be affected by Alternative 4 in the incorporated cities of the County is approximately 5,084. [102] It was assumed that each store larger than 10,000 square feet currently uses approximately 10,000 plastic carryout bags per day,[103] and each store smaller than 10,000 square feet currently uses approximately 5,000 plastic carryout bags per day.[104] It is important to note that these numbers is likely very high, as it is more than twice the bag average reported by the California Department of Resources Recycling and Recovery in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[105] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average for stores greater than 10,000 square feet in the County unincorporated and incorporated areas, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario. The same may also be true of the 5,000 plastic carryout bags per store per day estimate for stores less than 10,000 square feet. While the 5,000 plastic carryout bags per store per day may likely be very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst case scenario as well.

#### 4.2.5.2 *Objectives and Feasibility*

As shown in Table 4-1, Alternative 4 would accomplish all of the basic objectives of the proposed ordinances established by the County. Alternative 4 would result in encouraging the 88 incorporated cities of the County to adopt similar ordinances to ban the issuance of plastic carryout bags. Alternative 4 would be more effective than the proposed ordinances in reducing the Countywide consumption of plastic carryout bags; plastic carryout bag litter that blights public spaces; and the County's, cities', and Flood Control Districts' costs for prevention, clean-up, and enforcement efforts to reduce litter in the County. Alternative 4 would increase public awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags. Alternative 4 would be more effective than the proposed ordinances in reducing Countywide disposal of plastic carryout bags in landfills. In addition, Alternative 4 would also serve to reduce Countywide consumption of paper carryout bags and the Countywide disposal of paper carryout bags in landfills.

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[101] Number of stores in the unincorporated territories of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[102] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[103] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[104]Data from the infoUSA indicates that approximately 40 percent of the stores greater than 10,000 square feet in the unincorporated territories of the County are larger than 40,000 square feet. Therefore, the average size of the stores to be affected by the proposed County ordinance would be greater than 20,000 square feet. Accordingly, it would be reasonable to estimate that the stores smaller than 10,000 square feet that would be affected by Alternative 3 would be at less than half the size of the stores to be affected by the proposed ordinances and would use less than half the number of bags.

[105] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

#### 4.2.5.3 *Comparative Impacts*

An assessment of the comparative impacts of plastic and paper carryout bags prepared for the Scottish Executive in order to analyze the impacts of a bag tax in Scotland, showed that imposing a fee on both plastic and paper carryout bags would be environmentally superior to placing a tax upon only plastic carryout bags due to reductions in air pollutant emissions, GHG emissions, and litter.[106] It is anticipated that Alternative 4 would result in a significant decrease in the consumption of both paper and plastic carryout bags throughout the County, as it would oblige consumers to use reusable bags in the affected stores.

*Air Quality*

As with the proposed ordinances, the impacts to air quality caused by Alternative 4 would be expected to be below the level of significance. Unlike the proposed ordinances, Alternative 4 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 4 would not result in a potential indirect increase in $NO_x$ emissions due to an indirect increase in the manufacture, distribution, and disposal of paper carryout bags (Table 3.1.4-3). Due to the fact that Alternative 4 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 4 would also create benefits to air quality in terms of reducing emissions of CO, PM, and VOCs, and, to a lesser extent, $SO_x$ caused by manufacturing plastic carryout bags (Table 3.1.4-2).

The Ecobilan Study presented an LCA analysis of a reusable bag that is approximately 2.8 mils thick, weighs 44 grams, and holds 37 liters of groceries. The conclusion from the analysis was that this particular reusable bag has a smaller impact on air pollutant emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of four times (Table 4.2.5.3-1, *Estimated Daily Emission Changes Due to Reusable Bags Used Four Times Based on Ecobilan Data).*[107] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how air quality impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the air quality impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon air quality. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce air quality impacts.

[106] Cadman, J., S. Evans, M. Holland, and R. Boyd. 2005. *Proposed Plastic Bag Levy – Extended Impact Assessment Final Report*. Prepared for: Scottish Executive 2005.

[107] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**TABLE 4.2.5.3-1**
**ESTIMATED DAILY EMISSION CHANGES DUE TO REUSABLE BAGS**
**USED FOUR TIMES BASED ON ECOBILAN DATA**

| Emission Sources | Air Pollutants (Pounds/Day)[3] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emissions due to the 1,091 stores in the unincorporated territory of the County[2] | -517 | -158 | -818 | -118 | -116 |
| Emissions due to the 5,084 stores in the incorporated cities of the County[2] | -2,475 | -758 | -3,918 | -563 | -556 |
| **Total Emissions** | **-2,992** | **-917** | **-4,736** | **-681** | **-672** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. Based on each reusable bag being used 4 times. Emissions are reduced further when the bags are used additional times.
3. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

As with the proposed ordinances, Alternative 4 would not conflict with or obstruct implementation of the applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable odors affecting a substantial number of people. Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 4 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 4 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags are used multiple times. Therefore, the net number of bags used by each store would be expected to decrease under Alternative 4, resulting in a decrease in the number of truck trips and associated criteria pollutant emissions required to transport bags to stores. Alternative 4 would result in lesser impacts to air quality than those associated with the proposed ordinances and would be expected to result in a net decrease in emissions of all criteria pollutants due to further reductions in the use and disposal of plastic carryout bags as well as a reduction in the use of paper carryout bags.

*Biological Resources*

As with the proposed ordinances, Alternative 4 would result in a significant reduction in the use and disposal of plastic carryout bags within the County. Therefore, Alternative 4 would achieve the same reduction in litter composed of plastic carryout bag waste in freshwater and coastal environments, which has been shown to have significant adverse impacts upon biological resources. Alternative 3 would also be expected to increase consumer use of reusable bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream

as a result of Alternative 3 would be much lower than the number of paper and plastic carryout bags that would end up in the waste stream as a result of the proposed ordinances. The smaller number of reusable bags in the waste stream means that reusable bags are less likely to be littered and less likely to end up in the ocean or other wildlife habitats than plastic carryout bags. Further, reusable bags are heavier than are plastic carryout bags, meaning that they are less likely to be blown by the wind and end up as litter. As with the proposed ordinances, Alternative 4 would have the potential to improve habitats and aquatic life and would result in potentially beneficial impacts upon sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. As with the proposed ordinances, Alternative 4 would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not 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; and would not conflict with County General Plan policies requiring the protection of biological resources. As with the proposed ordinances, Alternative 4 would not result in any significant adverse impacts to biological resources and would achieve additional benefits due to further reductions in the use and disposal of plastic carryout bags.

*Greenhouse Gas Emissions*

Unlike the proposed ordinances, the impacts to GHG emissions caused by Alternative 4 would be expected to be below the level of significance. Unlike the proposed ordinances, Alternative 4 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 4 would not result in a potential indirect increase in GHG emissions due to an increase in the manufacture, distribution, and disposal of paper carryout bags. Due to the fact that Alternative 4 would also result in significant reductions in the use of plastic carryout bags in the County, Alternative 4 would also create indirect benefits to GHG emissions in terms of reducing emissions of $CO_{2e}$ caused by manufacturing plastic carryout bags (Table 3.3.5-2). The Ecobilan Study presented an LCA analysis of a reusable bag that is approximately 2.8 mils thick, weighs 44 grams, and holds 37 liters of groceries. The conclusion from the analysis was that this particular reusable bag has a smaller impact on GHG emissions than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 4.2.5.3-2, *Estimated Daily Emission Changes Due to Reusable Bags Used Three Times Based on Ecobilan Data*).[108] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how GHG emission impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the GHG emission impacts are anticipated to be reduced. Therefore, a conversion from plastic carryout bag use to reusable bag use would be anticipated to have reduced impacts upon GHG emissions. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce GHG emission impacts.

[108] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**TABLE 4.2.5.3-2**
**ESTIMATED DAILY EMISSION CHANGES DUE TO REUSABLE BAGS USED THREE TIMES BASED ON DATA FROM ECOBILAN**

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | 100-percent Conversion from Plastic Carryout Bags to Reusable Bags Used Three Times[1,2] | | | |
| Emissions Areas | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year | Metric Tons Per Year Per Capita[3] | Metric Tons Per Year Per Capita[3] |
| Emissions in the 1,091 stores in the unincorporated territory of the County | 98.13 | -12.46 | -4,546 | 0.000 | 9.6 |
| Emissions in the 5,084 stores in the incorporated cities of the County | 469.96 | -59.65 | -21,773 | -0.002 | |
| **Total Emissions in the County** | **568.08** | **-72.11** | **-26,319** | **-0.002** | |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Based on each reusable bag being used three times; emissions are reduced further when the bags are used additional times.
2. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.
3. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).

As with the proposed ordinances, Alternative 4 would not directly generate GHG emissions that may have a significant impact on the environment; and would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Unlike the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to stores, Alternative 4 would be expected to result in a net decrease in delivery truck trips required to transport both plastic and paper carryout bags to stores. Although Alternative 4 would increase demand for reusable bags and would result in additional reusable bags being transported to stores, the number of reusable bags required by each store would be significantly less than the current number of bags used by each store due to the fact that reusable bags are used multiple times. Therefore, the net number of bags used by each store would be expected to decrease under Alternative 4, resulting in a decrease in the number of truck trips and associated GHG emissions required to transport bags to stores. Unlike the proposed ordinances, Alternative 4 would not have the potential to result in cumulatively considerable impacts to GHG emissions and would be expected to result in a net decrease in emissions of GHGs due to further reductions in the use and disposal of plastic carryout bags as well as a reduction in the use of paper carryout bags.

*Hydrology and Water Quality*

As with the proposed ordinances, the impacts to hydrology and water quality caused by Alternative 4 would be expected to be below the level of significance. As with the proposed ordinances,

Alternative 4 would also create potential benefits to hydrology and water quality due to a potential reduction of plastic carryout bag waste in the litter stream. Increased demand for reusable bags may also have the potential to indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to plastic and paper carryout bag manufacturing, when considered on a per-use basis (Table 3.4.4-1 and Table 3.4.4-2). For example, the Ecobilan Study evaluated the eutrophication impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[109] The analysis concluded that this particular reusable bag has a smaller impact on eutrophication than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 4.2.5.3-3, *Eutrophication Due to Reusable Bags Based on Ecobilan Data*).[110] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 4.2.5.3-3). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how the eutrophication impacts of reusable bag manufacturing are reduced with each time a bag is used. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon eutrophication. The County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce eutrophication impacts.

**TABLE 4.2.5.3-3**
**EUTROPHICATION DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA**

| Eutrophication Sources | Eutrophication (kilograms phosphate equivalent) | | |
|---|---|---|---|
| | Eutrophication from Plastic Carryout Bags | Eutrophication Due to Reusable Bags When Used 3 Times[1] | Eutrophication Due to Reusable Bags When Used 20 Times[1] |
| Eutrophication due to reusable bag use in the 1,091 stores in the unincorporated territory of the County | 1.79 | -0.15 | -1.55 |
| Eutrophication due to reusable bag use in the 5,084 stores in the incorporated cities of the County | 8.59 | -0.70 | -7.41 |
| **Total eutrophication due to carryout bag use** | **10.39** | **-0.85** | **-8.96** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

As with the proposed ordinances, Alternative 4 would not violate any water quality standards or waste discharge requirements; would not 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; would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or

[109] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[110] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

amount of surface runoff in a manner that would result in flooding; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not otherwise substantially degrade water quality; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures that would impede or redirect flood flows; would not 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; and would not cause inundation by seiche, tsunami, or mudflow. As with the proposed ordinances, Alternative 4 would result in potentially beneficial impacts on surface water drainage, storm drain systems, and surface water quality in the County and would assist the County in attaining TMDLs because Alternative 4 would result in a decrease of litter attributed to plastic carryout bags. As with the proposed ordinances, Alternative 4 would not result in any significant adverse impacts to hydrology and water quality and would achieve additional benefits due to further reductions in the use and disposal of plastic carryout bags and paper carryout bags.

*Utilities and Service Systems*

As with the proposed ordinances, the impacts to utilities and service systems caused by Alternative 4 would be expected to be below the level of significance. Unlike the proposed ordinances, Alternative 4 would not result in a potential increase in the consumer use of paper carryout bags. Therefore, unlike the proposed ordinances, Alternative 4 would not result in a potential indirect increase in solid waste generation, water consumption, energy consumption, or wastewater generation due to an increase in the manufacture and disposal of paper carryout bags. In fact, Alternative 4 would be anticipated to result in indirect reductions in solid waste generation, water consumption, and wastewater generation due to a reduction in the manufacture and disposal of paper carryout bags compared to current conditions.

Wastewater Generation

Although the manufacture of reusable bags also will also produce wastewater, it is expected that the amount of wastewater generated will be lower than the amount of wastewater generated by the manufacture of plastic carryout bags when considered on a per-use basis, due to the fact that reusable bags will be designed to be reused multiple times. For example, the Ecobilan Study evaluated the wastewater impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[111] The conclusion from the analysis was that this particular reusable bag has a smaller impact on wastewater than a plastic carryout bag, as long as the reusable bag is used a minimum of three times.[112] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 4.2.5.3-4, *Wastewater Generation Due to Reusable Bags Based on Ecobilan Data*, and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how wastewater impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the wastewater impacts are anticipated to be reduced. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce wastewater impacts.

[111] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[112] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**TABLE 4.2.5.3-4**
**WASTEWATER GENERATION DUE TO REUSABLE BAGS**
**BASED ON ECOBILAN DATA**

| Wastewater Sources | Wastewater Generation (MGD) | | |
|---|---|---|---|
| | Wastewater Generation from Plastic Carryout Bags | Wastewater Generation Due to Reusable Bags When Reusable Bags Are Used 3 Times[1] | Wastewater Generation Due to Reusable Bags When Reusable Bags Are Used 20 Times[1] |
| Wastewater generation due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.12 | -0.01 | -0.10 |
| Wastewater generation due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.57 | -0.05 | -0.49 |
| **Total Wastewater Generation** | **0.69** | **-0.06** | **-0.59** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

Water Supply

Alternative 4 would be expected to significantly increase consumers' use of reusable bags, the production of which would consume less water than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less water than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 4.2.5.3-5, *Water Consumption Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[113] The water demands of the reusable bag are reduced further when the bag is used additional times (Table 4.2.5.3-5 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how water supply impacts of reusable bag manufacture are reduced the more times a bag is used. A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in water savings equivalent to approximately 7 liters per household per year (which is equivalent to just under 2 gallons per household per year).[114] As the banning of plastic carryout bags is expected to increase the use of reusable bags, the water supply impacts are anticipated to be reduced. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce water supply impacts.

[113] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[114] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

**TABLE 4.2.5.3-5**
**WATER CONSUMPTION DUE TO REUSABLE BAGS**
**BASED ON ECOBILAN DATA**

| Water Consumption Sources | Water Consumption (MGD) | | |
|---|---|---|---|
| | Water Consumption from Plastic Carryout Bags | Water Consumption Due to Reusable Bags When Used 3 Times[1] | Water Consumption Due to Reusable Bags When Used 20 Times[1] |
| Water consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.13 | -0.02 | -0.11 |
| Water consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.60 | -0.08 | -0.52 |
| **Total water consumption** | **0.72** | **-0.10** | **-0.63** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

Solid Waste

Alternative 4 would also be anticipated to increase consumer use and eventual disposal of reusable bags, which are heavier and take up more volume than plastic carryout bags. The manufacturing process of reusable bags would also be expected to generate solid waste. However, due to the fact that reusable bags are designed to be used multiple times, a conversion from plastic carryout bags to reusable bags would decrease the total number of bags that are disposed of in landfills, resulting in a decrease in solid waste disposal in the County. For example, the Ecobilan Study evaluated the solid waste impacts of a reusable bag that is 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries.[115] The conclusion from the analysis was that this particular reusable bag has a smaller impact on solid waste than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 4.2.5.3-6, *Solid Waste Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[116] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 4.2.5.3-6 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how solid waste impacts of reusable bag manufacture are reduced the more times a bag is used. As the banning of plastic carryout bags is expected to increase the use of reusable bags, the solid waste impacts are anticipated to be reduced. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce solid waste impacts.

[115] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[116] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**TABLE 4.2.5.3-6**
**SOLID WASTE DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA**

| Solid Waste Sources | Solid Waste (Tons per Day) | | |
|---|---|---|---|
| | Solid Waste from Plastic Carryout Bags | Solid Waste Due to Reusable Bags When Used 3 Times[1] | Solid Waste Due to Reusable Bags When Used 20 Times[1] |
| Solid waste due to reusable bag use in the 1,091 stores in the unincorporated territory of the County | 25.71 | -2.58 | -22.24 |
| Solid waste due to reusable bag use in the 5,084 stores in the incorporated cities of the County | 123.15 | -12.36 | -106.53 |
| **Total Solid Waste** | **148.87** | **-14.94** | **-128.78** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

Energy Conservation

Alternative 4 would be expected to significantly increase consumers' use of reusable bags, the production of which would consume less energy than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less energy than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 4.2.5.3-7, *Non-renewable Energy Consumption Due to Reusable Bags Based on Ecobilan Data*, and Appendix C).[117] The energy demands of the reusable bag are reduced further when the bag is used additional times (Table 4.2.5.3-7 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how energy impacts of reusable bag manufacture are reduced the more times a bag is used. A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in energy savings of 190 mega joules per household, which is equivalent to powering a television for six months.[118] As the banning of plastic carryout bags is expected to increase the use of reusable bags, the energy conservation impacts are anticipated to be reduced. Also, the County is considering expanding the scope of its ordinance to include a performance standard for reusable bags, which could further reduce energy conservation impacts.

[117] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[118] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**TABLE 4.2.5.3-7**
**NON-RENEWABLE ENERGY CONSUMPTION DUE TO REUSABLE BAGS BASED ON ECOBILAN DATA**

| Energy Consumption Sources | Energy Consumption (Million kWh) | | |
|---|---|---|---|
| | Energy Consumption from Plastic Carryout Bags | Energy Consumption Due to Reusable Bags When Used 3 Times[1] | Energy Consumption Due to Reusable Bags When Used 20 Times[1] |
| Energy consumption due to 1,091 stores in the unincorporated territory of the County | 0.72 | -0.04 | -0.61 |
| Energy consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 3.43 | -0.21 | -2.94 |
| **Total Energy Consumption** | **4.14** | **-0.26** | **-3.56** |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in GHG emissions generated by reusable bags compared to the GHG emissions generated by plastic carryout bags.

As with the proposed ordinances, due to the fact that Alternative 4 would be expected to result in significant reductions in the disposal of plastic carryout bags in the County, Alternative 4 would also create potential benefits to utilities and service systems due to a reduction of plastic carryout bag litter in storm drains. As with the proposed ordinances, Alternative 4 would not be expected to exceed wastewater treatment requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. As with the proposed ordinances, Alternative 4 would be expected to lead to reduced operational impacts and costs associated with storm drain system maintenance due to a reduction in the amount of plastic carryout bag waste in the litter stream. As with the proposed ordinances, Alternative 4 would not be expected to result in any significant adverse impacts to utilities and service systems and would achieve additional benefits due to a reduction in the use of paper carryout bags.

## 4.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Although the No Project Alternative would reduce potential impacts to air quality and GHG emissions compared with the proposed ordinances, impacts to biological resources, hydrology and water quality, and utilities and service systems would be exacerbated, rather than avoided or reduced. In addition, the No Project Alternative is incapable of meeting any of the basic objectives of the proposed ordinances established by the County. As with the proposed ordinances, and when taking into account that the County is attempting to evaluate the impacts resulting from paper carryout bags from a conservative worst-case scenario, Alternatives 2 and 3 may have the

potential to result in cumulatively considerable impacts to GHG emissions. However, Alternative 2 would be expected to reduce consumption of paper carryout bags through implementation of a fee. Alternative 3 would result in additional benefits to biological resources as a result of reduced consumption of plastic carryout bags and would still meet all of the objectives identified by the County. Unlike the proposed ordinances, Alternatives 1 and 4 would not result in the potential for cumulatively considerable impacts to GHG emissions and would result in additional beneficial impacts, while still meeting all of the objectives identified by the County. Alternative 4 is anticipated to result in the greatest reduction in use of both plastic and paper carryout bags, and is considered to be the environmentally superior alternative.

# *SECTION 5.0*
# *SIGNIGIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED ORDINANCES ARE IMPLEMENTED*

This section of the EIR summarizes an analysis of the potential for implementation of the proposed ordinances to result in significant environmental effects that cannot be avoided. Consistent with the requirements of Section 15126.2(b) of the State CEQA Guidelines, significant impacts, including those that can be mitigated but not reduced to the level below significance, are described in this section of the EIR. Where there are impacts that cannot be alleviated without imposing an alternative design, the impacts' implications and reasons why the proposed ordinances are being proposed, notwithstanding their effects, are also described. The potential for the implementation of the proposed ordinances to result in significant environmental impacts has been analyzed in Section 3.0, Existing Conditions, Impacts, Mitigation, and Level of Significance after Mitigation, of this EIR.

Based on the analysis contained in Section 3.0 of this EIR, the proposed ordinances would not be expected to result in significant impacts related to air quality, biological resources, hydrology and water quality, and utilities and service systems. The indirect impacts of the proposed ordinances on GHG emissions were determined to be below the level of significance due to the low level of per-capita emissions. However, considering the related past, present, or reasonably foreseeable, probable future projects, the indirect impacts of the proposed ordinances may have the potential to contribute significantly to cumulative global climate change impacts.

There are no feasible mitigation measures that could be implemented to reduce cumulative impacts; therefore, cumulative impacts due to indirect GHG emissions may remain as adverse significant impacts. However, any indirect GHG emissions at bag manufacturing facilities or landfills would be controlled by the owners of the facilities in accordance with applicable regional, State, and federal regulations pertaining to GHG emissions.

Pursuant to CEQA, this EIR identifies four alternatives capable of reducing consumer use of paper bags and the related potentially beneficial impacts to air quality, biological resources, hydrology and water quality, GHG emissions, and utilities and service systems:

- Alternative1, Ban Plastic and Paper Carryout Bags in Los Angeles County
- Alternative 2, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags in Los Angeles County
- Alternative 3, Ban Plastic Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County
- Alternative 4, Ban Plastic and Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

Each of these four alternatives is capable of meeting all of the basic objectives of the proposed ordinances, and they are described in Section 4.0 of this EIR.

# *SECTION 6.0*
# *SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES RELATED TO IMPLEMENTATION OF THE PROPOSED ORDINANCES*

This section of the EIR summarizes the potential for implementation of the proposed ordinances to result in significant irreversible environmental changes. Such a change refers to an irretrievable commitment of non-renewable resources, or other environmental changes that commit future generations to similar uses. Irreversible environmental changes can also result from potential accidents associated with the proposed ordinances.

The analysis performed in Section 3.0 of this EIR determined that the proposed ordinances would not result in significant adverse irreversible environmental changes that would commit future generations to similar uses. In addition, there would be no environmental changes related to the consumption of non-renewable resources or from accidents identified for any issue area analyzed in Section 3.0.

# *SECTION 7.0*
# *GROWTH-INDUCING IMPACTS*

This section of the EIR analyzes the potential for the proposed ordinances to result in growth-inducing impacts. Such impacts normally occur when a project fosters economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. The types of projects that are normally considered to result in growth-inducing impacts are those that provide infrastructure suitable to support additional growth or remove an existing barrier to growth.

The proposed ordinances would not create or contribute to growth-inducing impacts. Further, any jobs related to the implementation of the proposed ordinances, if any, would be filled by the existing labor force in the area. The proposed ordinances aim to significantly reduce the amount of litter in the County that can be attributed to the use of plastic carryout bags, and do not contain elements that would be expected to foster economic or population growth.

The proposed ordinances do not contain any development and would not be expected to result in the construction of additional housing either directly or indirectly. The proposed ordinances would not include the development of infrastructure such as water systems, energy generation, sewer systems, schools, public services, or transportation improvements that could potentially result in increased population growth in the County. As such, the proposed ordinances would not result in or contribute to a growth-inducing impact.

# *SECTION 8.0*
# *ORGANIZATIONS AND PERSONS CONSULTED*

## 8.1 PUBLIC AGENCIES

### 8.1.1 Federal

### 8.1.2 State

California Air Resources Board
Office of Climate Change ..... Jeannie Blakeslee

California Department of Resources Recycling and Recovery ..... Dona Sturgess

### 8.1.3 Regional

County of San Francisco
Legislative Aid for District 5 Supervisor Ross Mirkarimi ..... Rick Galbreath

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# *SECTION 11.0*
# *DISTRIBUTION LIST*

## 11.1 CLIENT

County of Los Angeles
Department of Public Works
Client contact: Coby Skye, Civil Engineer
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803

## 11.2 PUBLIC AGENCIES

### 11.2.1 State Agencies

California Department of Parks and Recreation
Office of Historic Preservation
Milford Wayne Donaldson, State Historic Preservation Officer
1416 9th Street, Room 1442
Sacramento, California 95814

California Department of Transportation
District 7
Elmer Alvarez, IGR / CEQA Branch Chief
100 South Main Street
Los Angeles, California 90012

California Environmental Protection Agency
Jami Ferguson, Public Records Officer
1001 I Street
Sacramento, California 95814

California Coastal Commissions
South Central Coast District Office
John (Jack) Ainsworth, Deputy Director
Steve Hudson, District Manager
89 South California Street, Suite 200
Ventura, California 93001-2801

California Natural Resources Agency
Chris Calfee, Special Counsel
Ian Peterson, Assistant Planner
1416 Ninth Street, Suite 1311
Sacramento, California 95814
(916) 653-5656

California Coastal Commissions
South Coast District Office
John (Jack) Ainsworth, Deputy Director
Gary Timm, District Manager
200 Oceangate, 10th Floor
Long Beach, California 90802-4416

California Native American Heritage Commission
Dave Singleton, Program Analyst
915 Capitol Mall, Room 364
Sacramento, California 95814

California Department of Conservation
Division of Recycling
Bridgett Luther, Director of Conservation
801 K Street, MS 19-01
Sacramento, California 95814

California Air Resources Board
Robert Fletcher, Chief
1001 I Street
Sacramento, California 95812

California Integrated Waste Management Board
Mindy Fox, Manager of the Office of Education and the Environment
Chris Peck, Manager of the Office of Public Affairs
1001 I Street
Sacramento, California 95812-4025

State Water Resources Control Board
Gita Kapahi, Director
1001 I Street
Sacramento, California 95814

California Water Quality Control Board, Region 4
Ejigu Solomon, Stormwater – Compliance and Enforcement Manager
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Office of Planning and Research
State Clearinghouse
Scott Morgan, Assistant Deputy Director and Senior Planner
1400 Tenth Street
(Corner of 10th and N Streets)
Sacramento, California 95814

### 11.2.2 Regional Agencies

Antelope Valley Air Quality Management District
Bret Banks, Operations Manager
43301Division Street, Suite 206
Lancaster, CA 93535

South Coast Air Quality Management District
Steve Smith, Program Supervisor – CEQA Section Planning
Rule Development & Area Sources
21865 Copley Drive
Diamond Bar, California 91765

Southern California Association of Governments
Jacob Lieb, Manager of Assessment
818 West 7th Street, 12th Floor
Los Angeles, California 90017

County Sanitation Districts of Los Angeles County
Ruth I. Frazen, Customer Service Specialist
Facilities Planning Department
1955 Workman Mill Road
Whittier, California 90601

County of Los Angeles Flood Control District
Gary Hildebrand, Watershed Management Assistant Deputy Director
900 South Fremont Avenue
Alhambra, CA 91803

### 11.2.3 County Agencies

#### *11.2.3.1 Supervisorial Districts*

First Supervisorial District
Gloria Molina, Supervisor, First District
856 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Second Supervisorial District
Mark Ridley-Thomas, Supervisor, Second District
866 Kenneth Hahn
Hall of Administration
500 West Temple Street
Los Angeles, California 90012
(213) 974-2222

Third Supervisorial District
Zev Yaroslavsky, Supervisor, Third District
821 Kenneth Hahn
Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Fourth Supervisorial District
Don Knabe, Supervisor, Fourth District
822 Kenneth Hahn
Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Fifth Supervisorial District
Michael D. Antonovich, Supervisor, Fifth District
869 Kenneth Hahn
Hall of Administration
500 West Temple Street
Los Angeles, California 90012

#### *11.2.3.2 Public Service Agencies*

County of Los Angeles Fire Department
Administrative Services – Planning Division
Debbie Aguirre, Chief of Planning Division
1320 North Eastern Avenue
Los Angeles, California 90063

County of Los Angeles Sheriff's Department
Leroy D. Baca, Sheriff
Los Angeles County Sheriff's Department
4700 Ramona Boulevard
Monterey Park, California 91754

Los Angeles Unified School District
Office of Environmental Health and Safety
Yi Hwa Kim, Deputy Director of Environmental Health and Safety
333 South Beaudry Avenue, 20th Floor
Los Angeles, California 90017

County of Los Angeles Metropolitan Transportation Authority
Susan Chapman, Program Manager, Long Range Planning
One Gateway Plaza
Los Angeles, California 90012

Office of the Los Angeles County Clerk
Environmental Filings
12400 Imperial Highway, Room 2001
Norwalk, California 90650

## 11.3 PRIVATE ORGANIZATIONS

Economics Research Associates
(an AECOM company)
Amitabh Barthakur, Principal
10990 Wilshire Boulevard, Suite 1500
Los Angeles, California 90024

## 11.4 STAKEHOLDERS

The County has compiled a list of approximately 459 stakeholders to whom NOAs of a Draft EIR will be distributed electronically by e-mail and/or by mail in hard copy form.

# *APPENDIX A*
# *BAG USAGE DATA COLLECTION STUDY*

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


Prepared For:
County of Los Angeles Department of Public Works
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803

Prepared By:

Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, California 91107


June 2, 2010

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# *SECTION ES*
# *EXECUTIVE SUMMARY*

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

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

The relative carrying capacities of plastic to paper carryout bags have been reported to be as much as 1:8[1] or as little as 1:1 or 1:1.5.[2] As an independent check, Sapphos Environmental, Inc. completed a store trial, where the carrying capacity of plastic to paper bags was tested, to compare the load capacity of paper carryout bags and that of plastic carryout bags; in other words, which type of bag would most efficiently carry a fixed number of items. The trial confirmed that a 1:1.5 ratio is a reasonable representation of the relationship between paper carryout bags and plastic carryout bags in terms of use and carrying capacity. Section 4.0, *Bag Capacity Analysis*, of this study describes the elements of the store trial in detail.

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

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# *SECTION 1.0*
# *INTRODUCTION*

## 1.1 PURPOSE AND SCOPE

### 1.1.1 Purpose

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

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

### 1.1.2 Definitions

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

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

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

### 1.1.3 Scope

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

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

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

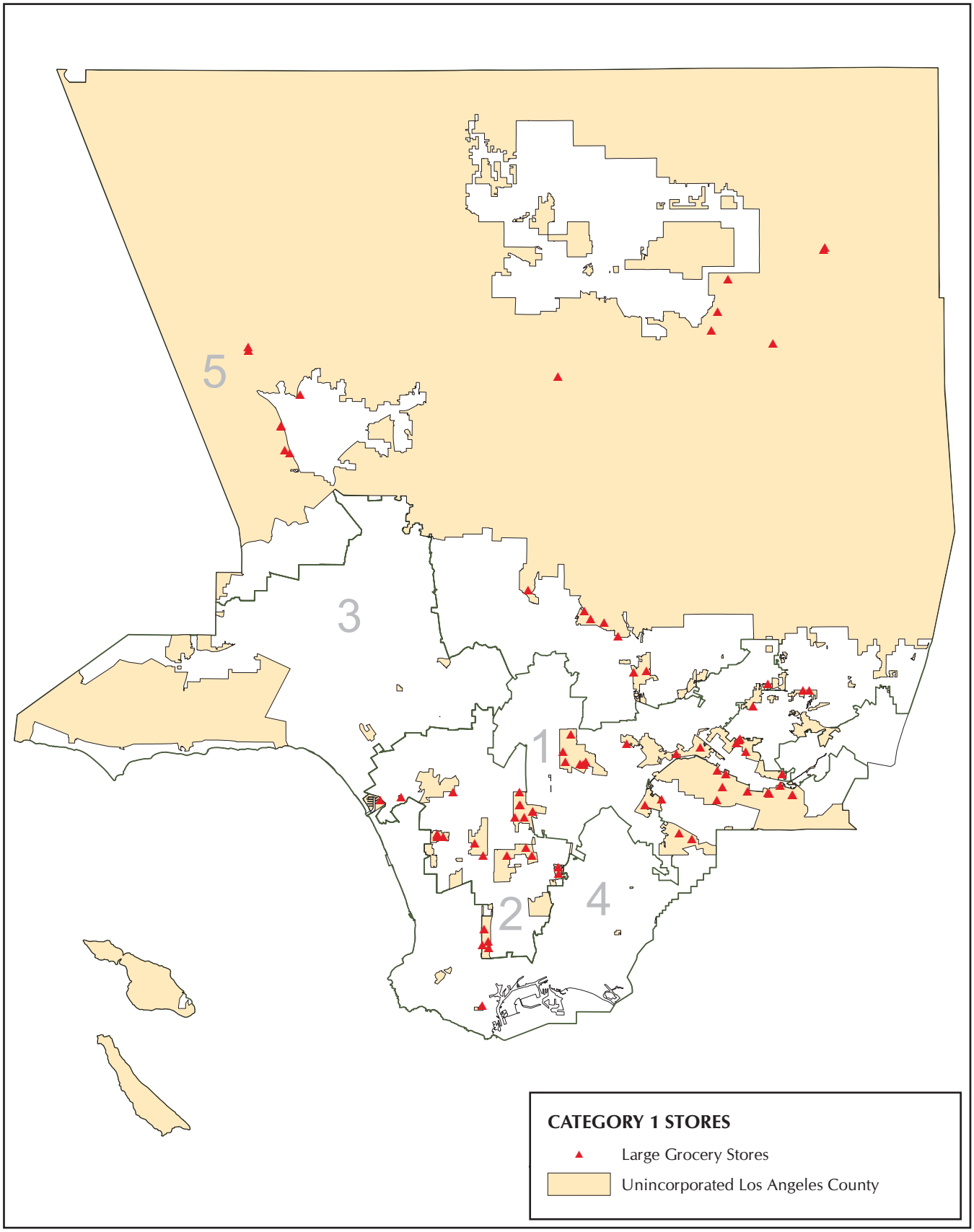



**FIGURE 1.1.3-1**
Stores Subject to Proposed Ordinances

# *SECTION 2.0*
# *METHODOLOGY*

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

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

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

## 2.1 SURVEY AREA

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

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

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

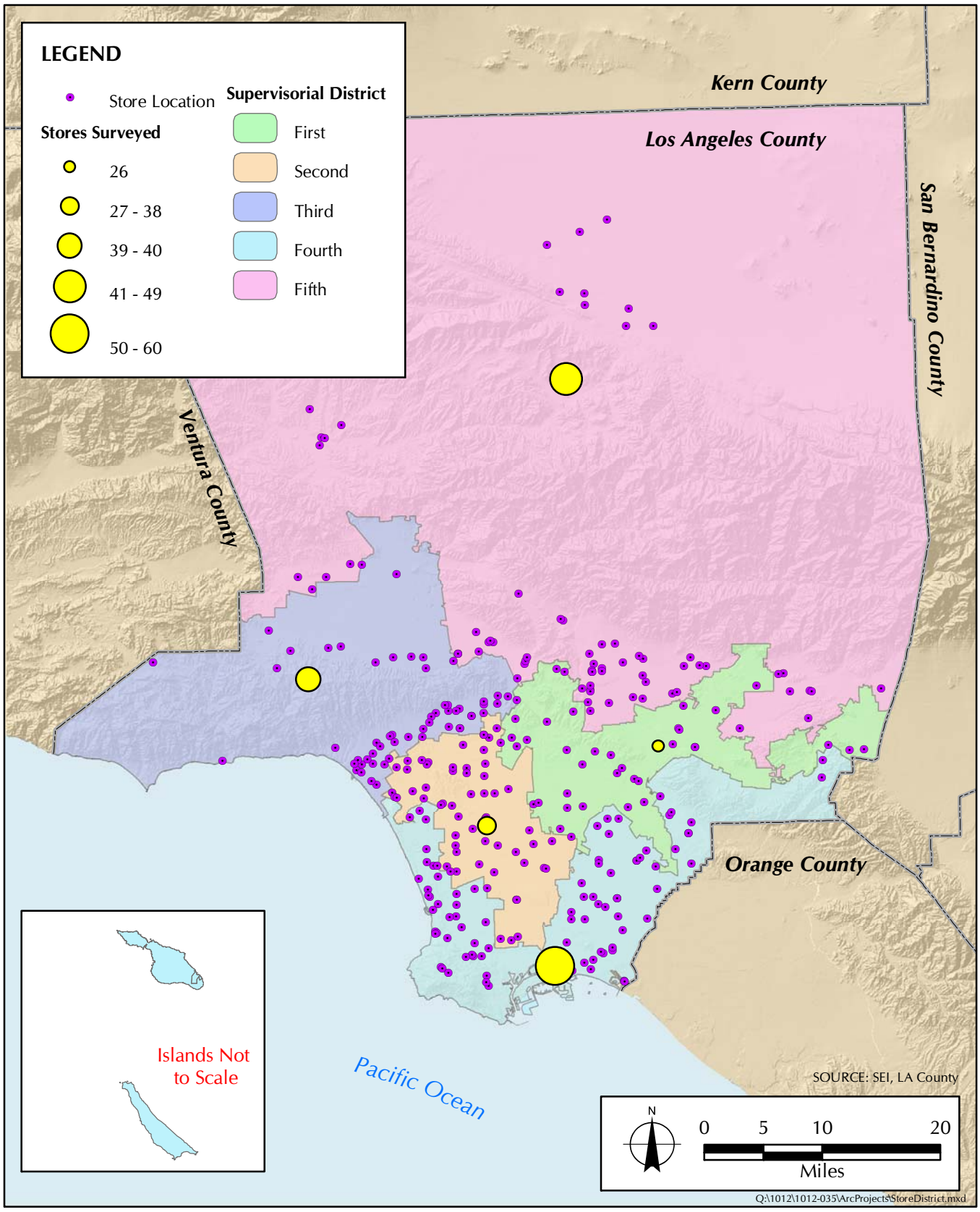



**FIGURE 2.1-1**

Number of Stores Surveyed within Supervisorial Districts

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

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

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

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

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

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

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

## 2.2 METHODOLOGY

### 2.2.1 Survey Description

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

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

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

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

### 2.2.2 Store Selection

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

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

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

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

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

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

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

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

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

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

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

[10] Top Valu. 2009.

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

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

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

**TABLE 2.2.2-1**
**STORE SAMPLE LIST**

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

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

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

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

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

### 2.2.3 Store Selection Methodology

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

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

### 2.2.4 Data Collection Methodology

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

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

## 2.3 CAVEATS/CONSIDERATIONS

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

### 2.3.1 Consumer Traffic

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

### 2.3.2 Cost Factor

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

### 2.3.3 Bagging Technique

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

### 2.3.4 Rejection

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

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

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

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

### 2.3.5 Statistical Application

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

# *SECTION 3.0*
# *BAG USAGE ANALYSIS*

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

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

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

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

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

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

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

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

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

## 3.1 TRADITIONAL STORES

A total of 4,281 customers were surveyed at traditional stores, who spent an average of approximately $35.00 at these stores.[2] In total, customers used 272 paper carryout bags; 17,109 plastic carryout bags; and 410 reusable bags. The amount consumers spent towards each bag (cost per bag) for traditional stores were summarized as: approximately $6.05 for paper bags, plastic bags were $2.07, and reusable bags were $9.81.[3] Table 3.1-1, *Traditional Stores Summary*, provides a general summary of the findings of surveys at traditional stores.

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

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

## TABLE 3.1-1
## TRADITIONAL STORES SUMMARY

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

**NOTES:**

1. The term *average* (for the dollar amount) is the sum of the dollar amount spent for each observation divided by the total number of observations.
   The *median* is the middle number when all of the values are arranged from the lowest to the highest number.
   The *range* is the lowest and highest numbers of a particular set of data. For this study, the range is the lowest and highest number of a particular bag type that was observed.
2. Rounded to nearest thousandth (0.0152)
3. Rounded to nearest thousandth (0.0230)
4. The amount spent has been rounded to the nearest dollar for all observations.

N/A = not applicable

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

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

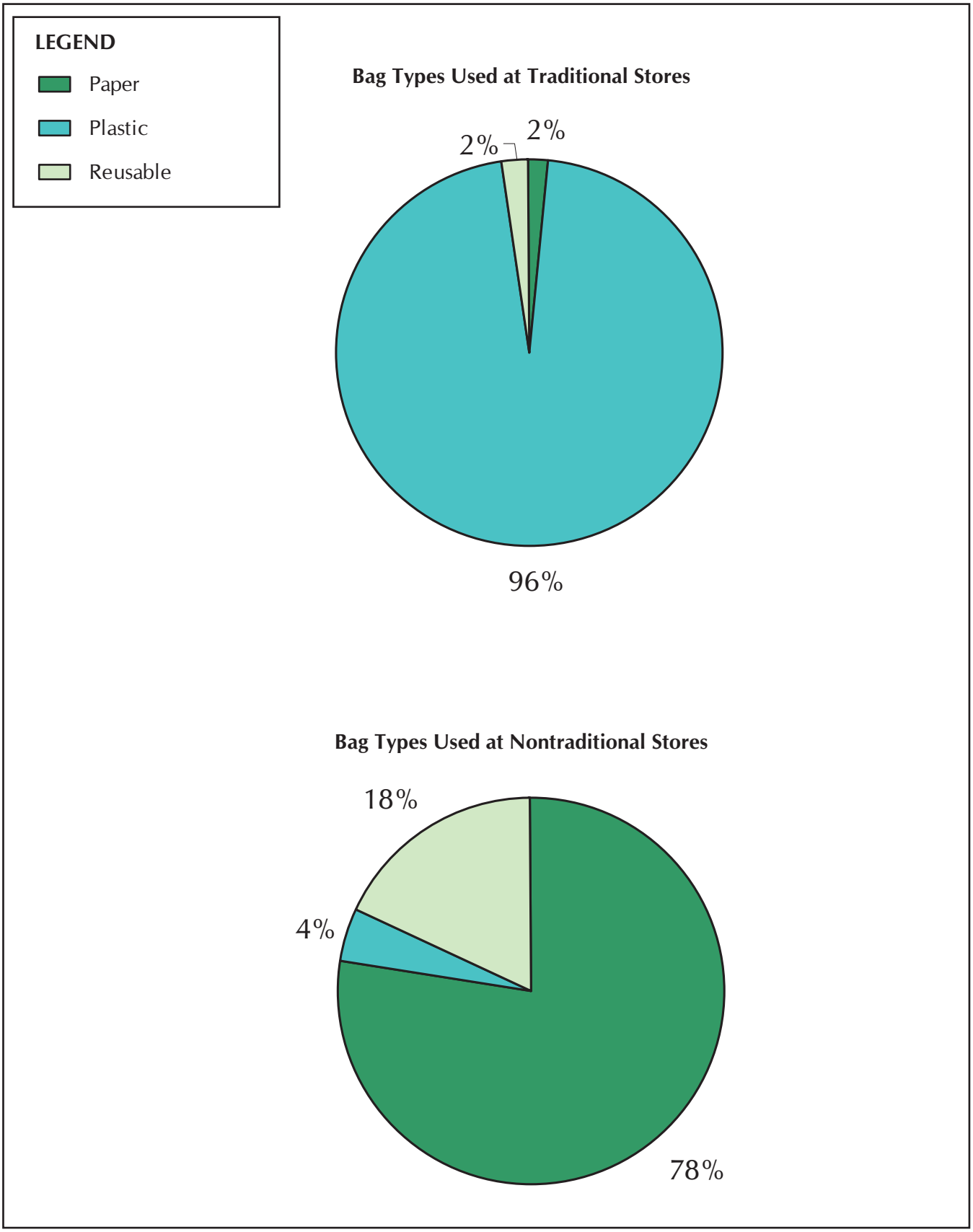
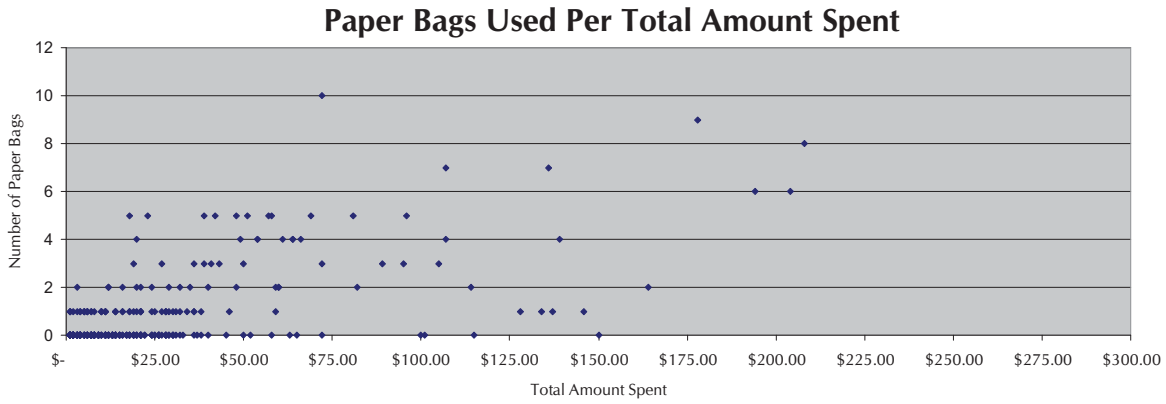
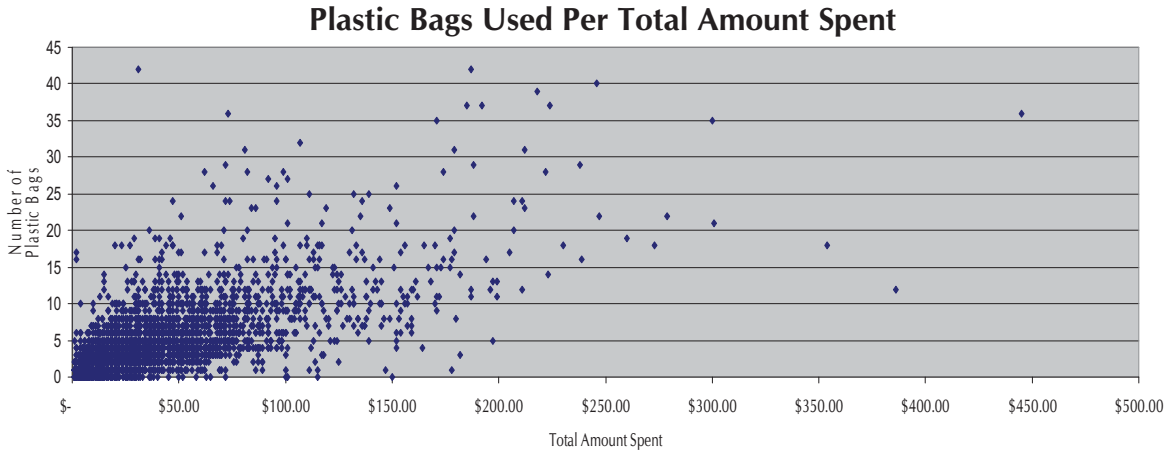



**FIGURE 3.1-1**
Percentage of Bag Types Used at Traditional Stores and Nontraditional Stores



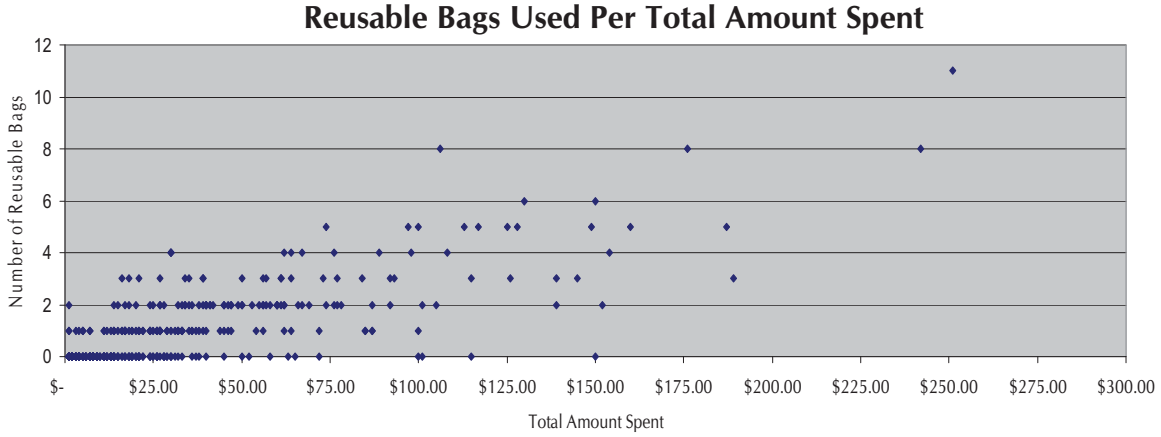




**FIGURE 3.1-2**
Number of Bags Used Per Total Amount Spent at Traditional Stores by Bag Type

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

## 3.2 NONTRADITIONAL STORES

A total of 839 consumers were surveyed at nontraditional stores surveyed. The average amount spent in these stores was approximately $38.00, with a spending range of approximately $1.00 to approximately $283.00. In total, customers of nontraditional stores used 1,479 paper carryout bags, 85 plastic carryout bags, and 342 reusable bags. The cost per bag for nontraditional stores was summarized as: approximately $7.13 for paper bags, plastic bags were $3.61, and reusable bags were $13.86.[5] Table 3.2-1, *Nontraditional Stores Summary,* provides a summary of findings at nontraditional stores.

**TABLE 3.2-1**
**NONTRADITIONAL STORES SUMMARY**

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

**NOTES:**
1. The average the sum of the dollar amount spent for each observation divided by the total number of observations collected.
2. The amount spent has been rounded to the nearest dollar for all observations.

N/A = not applicable

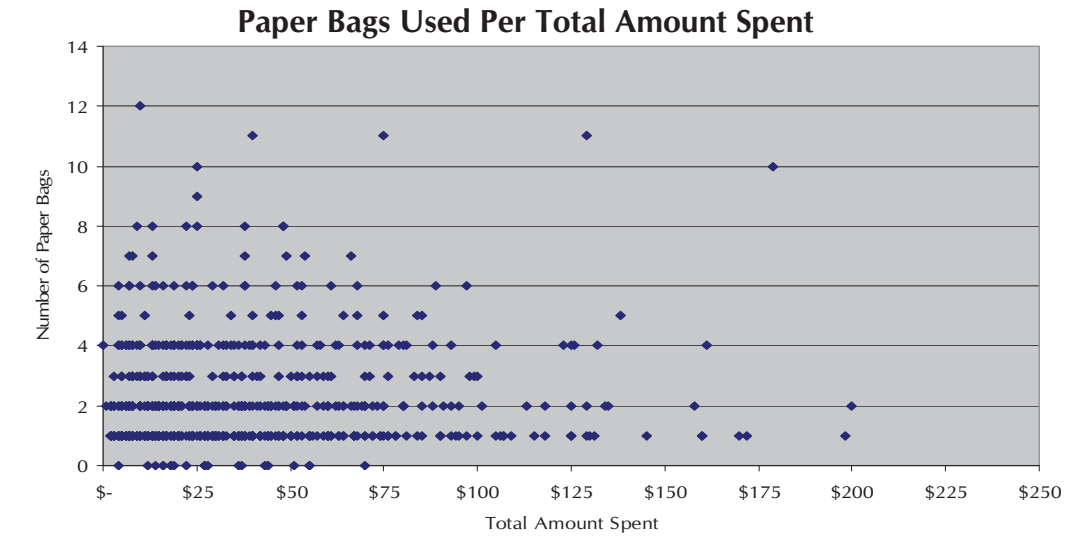
[4] As a result, there are zero bags shown for particular values, which disproportionately show zero values within the histograms. For example, if a customer spent $40.00 and only used plastic bags, the bag count may be zero in the histogram depicting paper bags usage and would be accounted for in the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

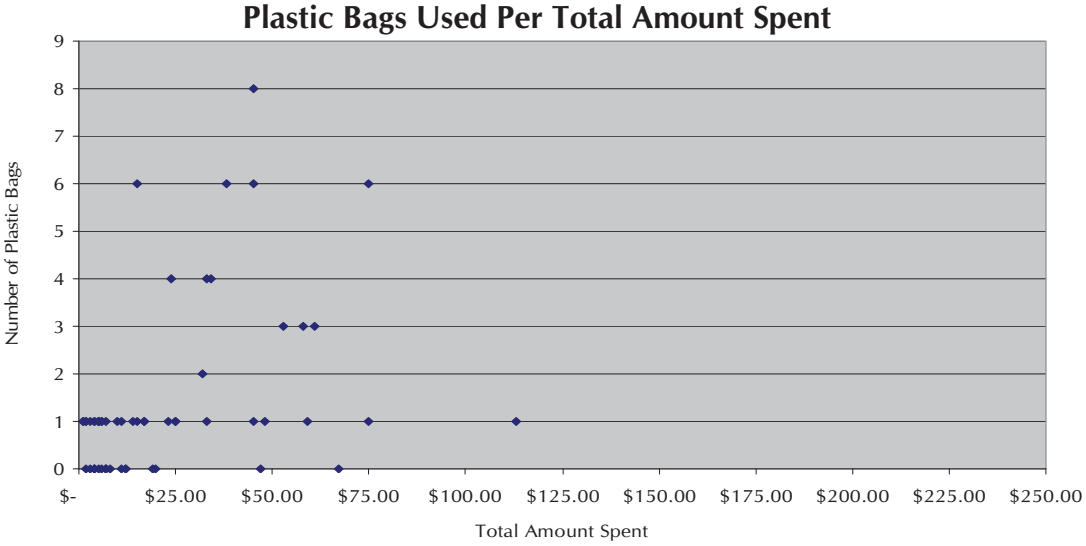
[5] The cost per bag was found by removing observations that included more than one bag type and assessing the remaining costs associated with each bag type divided by the total number of that particular bag type used.

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

The dispersion of the results of the number of bags used in relation to the amount spent during each observation is represented in Appendix B. The average amount that customers spent at nontraditional stores was approximately $38.00, with a spending range of approximately $1.00 to approximately $283.00, where all amounts were rounded to the nearest whole dollar amount. The histograms in Figure 3.2-1, *Number of Bags Used per Total Amount Spent at Nontraditional Stores by Bag Type*, depict the number of bags observed compared with the total amount of money spent during each observation. As with traditional stores, collectively, the three histograms present a general overview of the types of bags used by customers observed at nontraditional stores during the study. In some instances, the customers observed did not use a particular bag type, and these observations were recorded and are represented in Figure 3.2-1.[6] The histograms present the observations of consumers that used no bags of a certain type or multiple bags types.

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



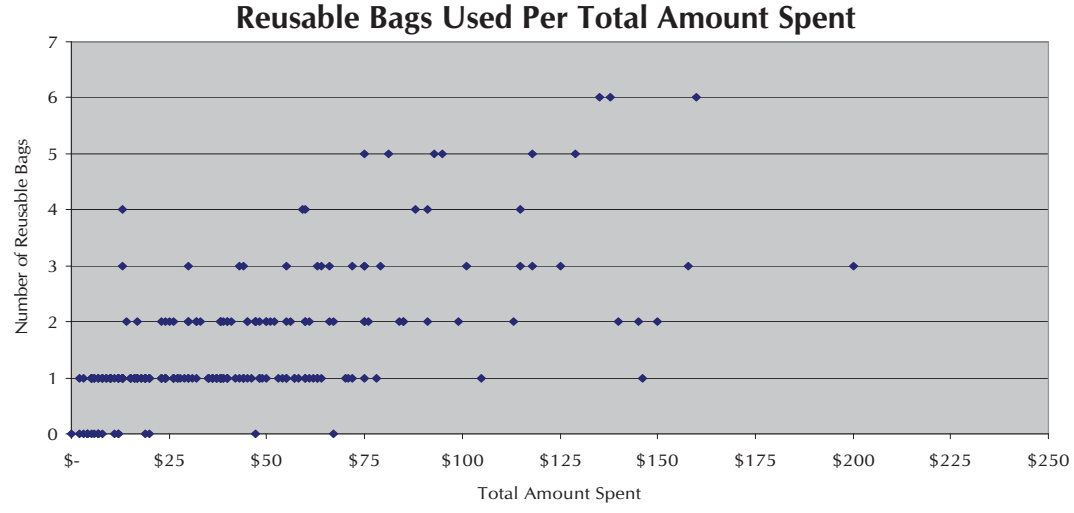




**FIGURE 3.2-1**
Number of Bags Used Per Total Amount Spent at Nontraditional Stores by Bag Type

# *SECTION 4.0*
# *BAG CAPACITY ANALYSIS*

## 4.1 STORE TRIAL

The relative carrying capacities of plastic to paper bags have been reported to be as much as 1:8[1] or as little as 1:1 or 1:1.5.[2,3] As an independent check, a store trial was conducted to evaluate the carrying capacities of paper carryout bags and plastic carryout bags. Sapphos Environmental, Inc. staff conducted a store trial and purchased identical items from a standard shopping list to assess the relationship between the two types of bags.

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

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

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

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

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

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

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

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

| Subcategory | Item(s) Purchased | Quantity |
|---|---|---|
| Fresh vegetables | 1. Lettuce<br>2. Mushrooms | 1. One head<br>2. One 8-ounce (oz) container |
| Fresh fruit | 1. Bananas<br>2. Oranges | 1. One cluster [approximately four bananas, 2 pounds (lbs)]<br>2. One bag |
| Refrigerated items | 1. Bagels<br>2. Eggs | 1. One bag (5 count)<br>2. One dozen (12 count, large) |
| Frozen | 1. Tater tots<br>2. Ice cream<br>3. Pizza | 1. One 32-oz frozen bag<br>2. One-half gallon<br>3. One 12.70-ounce, frozen |
| Condiments/sauces | 1. Barbecue sauce<br>2. Ketchup<br>3. Mayonnaise | 1. One 18-oz bottle<br>2. One 20-oz bottle<br>3. One 32-oz jar |
| Various groceries | 1. Cereal<br>2. Macaroni and cheese<br>3. Peanut butter | 1. One 25.5-oz box<br>2. Two 7.25-oz boxes<br>3. One 16.3-oz jar |
| Canned foods | 1. Tuna<br>2. Vegetables | 1. Two 5-oz cans<br>2. Two cans (14.5 to15.25 ozs) |
| Spices and herbs | 1. Black pepper<br>2. Salt<br>3. Vanilla extract | 1. One 1.7-oz container<br>2. One 26-oz container<br>3. One 1 fluid oz bottle |
| Dairy | 1. Butter<br>2. Milk | 1. One 16-oz package<br>2. One 1 gallon jug |
| Cheese | 1. Cottage cheese<br>2. Sandwich slices | 1. One 16-oz container<br>2. One 10.23-oz package, individual slices |
| Meat | 1. Bacon<br>2. Hot dogs | 1. One 10-oz package<br>2. One 12-oz package |
| Beverages | 1. Juice<br>2. Soda pop | 1. One 64–fluid oz bottle<br>2. Two 2-liter bottles |
| Baked goods | 1. Sliced bread | 1. One loaf |
| Baking | 1. Cake mix<br>2. Cake icing<br>3. Flour<br>4. Sugar | 1. One 18.25-oz box<br>2. One 16.2-oz container<br>3. One 5-lb bag<br>4. One 4-lb bag |
| Snacks | 1. Cookies<br>2. Nuts<br>3. Oatmeal<br>4. Corn chips | 1. One 24 oz package<br>2. One 16-oz jar<br>3. One 18-oz container<br>4. One 1-lb bag |
| Baby stuff | 1. Wipes | 1. One 70-count container |
| Pets | 1. Cat treats<br>2. Dog treats | 1. One bag<br>2. One box |

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

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

### 4.1.1 Result

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

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

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

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

# *SECTION 5.0*
# *CONCLUSION*

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

## 5.1 BAGS BY TYPE

### 5.1.1 Plastic Bags

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

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

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

### 5.1.2 Paper Bags

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

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

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

### 5.1.3 Reusable Bags

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

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

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

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

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

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

## 5.2 BAG SIZE COMPARISON

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

## 5.3 CONCLUSIONS

The major conclusions of this study are as follows:

1. Currently, plastic is the most commonly used bag type at traditional stores. The data collected through direct observations demonstrate generally 4 percent of the bags used at nontraditional stores were plastic, whereas 96 percent of the bags used at the traditional stores were plastic.

2. Currently, paper is the most commonly used bag type at nontraditional stores. The data collected through direct observation demonstrate that of the bags used at nontraditional stores, generally 78 percent were paper, whereas at traditional stores surveyed 2 percent of the bags used were paper.

3. The 18 percent of reusable bags used by nontraditional store customers could be indicative of the approximate number of consumers that might be expected to shift to the use of reusable bags should the proposed ordinances be implemented in the County, as the proposed ordinances would ban the issuance of plastic carryout bags and would include an environmental awareness campaign to encourage the use of reusable bags.

4. The ratio of 1:1.5 is a reasonable representation of the relationship between paper carryout bags to plastic carryout bags in terms of use and carrying capacity.

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

## BIODEGRADEABLE AND COMPOSTABLE BAGS

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

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

Biodegradable Plastic – a degradable plastic in which the degradation results from the action of naturally occurring microorganisms such as bacteria, fungi and algae[1]

Compostable Plastic Carryout Bag – a plastic carryout bag that (a) conforms to California labeling law (Public Resources Code Section 42355 et seq.), which requires meeting the current American Society for Testing and Materials (ASTM) standard specifications for compostability; (b) is certified and labeled as meeting the ASTM standard by a recognized verification entity such as the Biodegradable Product Institute; and (c) displays the word "compostable" in a highly visible manner on the outside of the bag[2]

**Background**

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

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

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

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

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

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

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

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

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

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

**Biodegradable and Compostable Plastic Bags**

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

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

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

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

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

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

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

[12] [17] Feuilloley, P., Guy C'sar, Ludovic Benguigui, Yves Grohens, Isabelle Pillin, Hilaire Bewa, Sandra Lefaux, Mounia Jamal. Degradation of Polyethylene Designed for Agricultural Purposes. Journal of Polymer and the Environment. Springer Netherlands. V13, Number 4. Page 349-355. October, 2005.

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

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

The ASTM has developed standard D6400-04[16] as the standard for determining whether a plastic is compostable plastic. ASTM standard D6954, which has been referenced by additive manufacturers, is only applicable for comparison between plastics and refers to ASTM D6400 for determining compostability or biodegradation during composting.[17] A study by the California Integrated Waste Management Board found that no degradation occurred for the oxo-biodegradable plastics under ASTM D6400.[18] The European Plastic Recyclers Association (EuPR) warned that "oxo-biodegradable" plastics might do more harm than good to the environment. The EuPR indicates that the use of oxo-additives will not help the litter problem and will decrease recycling percentages and energy reclamation due to contamination of the recycling stream.[19] A study released in January 2010 by DEFRA concluded that the time for oxo-degradable plastic to degrade is unclear; inclusion of oxo-degradable plastics in the recycling stream is detrimental to the recycling stream; oxo-degradable plastics do not degrade in anaerobic environments; and that the best end-of-life solution for oxo-degradable plastics is incineration followed by landfill.[20]

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

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

[14] http://www.defra.gov.uk/

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

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

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

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

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

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

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

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

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

## Conclusions

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

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

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

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

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

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

[26] Merkx, B. (2010). How to Increase the Mechanical Recycling of Post-Consumer Plastics. Brussels, Belgium: European Plastics Recyclers Association. Available at: http://www.plasticsrecyclers.eu/uploads/media/eupr/HowIncreaseRecycling/EUPR_How_To_Increase_Plastics_Recycling_FINAL_low.pdf

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

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

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

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

***APPENDIX C***
***CALCULATION DATA***

## STORES THAT MAY BE AFFECTED BY THE PROJECT

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

**Definitions:**

North American Industry Classification System Codes

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

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

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

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

County Voluntary Single Use Bag Reduction & Recycling Program

Category 1 – (AB 2449) stores – supermarkets & large drugstores
Category 2 – convenience food stores greater than 10,000 square feet
Category 3 – stores that are not Category 1 or 2 that provide plastic carryout bags (small food stores & drugstores, non-food stores)

**Background**

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

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

[1] http://www.naics.com/

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

**Project Alternatives**

The Draft EIR also evaluated the following alternatives:

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

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

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

*Based on County verification

**Conclusions**

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

[2] NAICS 445110 □ 446110; Category 1

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

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

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

# Congratulations! You're almost done.

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

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

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

100% Phone Verified

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

## Type Of Business

Add Omit

| | | |
|---|---|---|
| **Primary NAICS Codes and Ranges** | 446110 | Remove |
| **Primary NAICS Codes and Ranges** | 445110 | Remove |

## Size Of Business

Add

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

## Other Selections

Add

## Geography

Add Omit

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

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

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

## Congratulations! You're almost done.

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

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

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

100% Phone Verified

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

### Type Of Business

Add Omit

| | | |
|---|---|---|
| **Primary NAICS Codes and Ranges** | 445110 | Remove |
| **Primary NAICS Codes and Ranges** | 446110 | Remove |
| **Primary NAICS Codes and Ranges** | 445120 | Remove |

### Size Of Business

Add

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

### Other Selections

Add

### Geography

Add Omit

| | | |
|---|---|---|
| **County** | Los Angeles, CA | Remove |

# Congratulations! You're almost done.

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

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

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

100% Phone Verified

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

## Type Of Business Add Omit

| | | |
|---|---|---|
| **Primary NAICS Codes and Ranges** | 445110 | Remove |
| **Primary NAICS Codes and Ranges** | 446110 | Remove |
| **Primary NAICS Codes and Ranges** | 445120 | Remove |

## Size Of Business Add

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

## Other Selections Add

## Geography Add Omit

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

**You currently have:**

**5,084 Leads**

See Price

Did you know we also have:
**314 Emails**

**Additional Options:**

Save Search
New Search
Exclude Lists

**How To Change Criteria:**

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

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

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

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

| | | |
|---|---|---|
| **City** | South El Monte, CA | Remove |
| **City** | South Gate, CA | Remove |
| **City** | South Pasadena, CA | Remove |
| **City** | Temple City, CA | Remove |
| **City** | Torrance, CA | Remove |
| **City** | Vernon, CA | Remove |
| **City** | Walnut, CA | Remove |
| **City** | West Covina, CA | Remove |
| **City** | West Hollywood, CA | Remove |
| **City** | Westlake Village, CA | Remove |
| **City** | Whittier, CA | Remove |

**5/21/2010 5:10:06 PM**

Urbemis 2007 Version 9.2.4

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

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

Project Name: Deliveries to 67 Stores

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

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

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

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

Vehicle Fleet Mix

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

**5/21/2010 5:10:06 PM**

Vehicle Fleet Mix

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

Travel Conditions

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

Operational Changes to Defaults

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

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

**5/21/2010 5:11:17 PM**

Urbemis 2007 Version 9.2.4

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

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

Project Name: Deliveries to 462 Stores

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

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

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

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

Vehicle Fleet Mix

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

**5/21/2010 5:11:17 PM**

Vehicle Fleet Mix

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

Travel Conditions

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

Operational Changes to Defaults

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

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

**5/28/2010 6:31:28 PM**

Urbemis 2007 Version 9.2.4

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

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

Project Name: Deliveries to 1,024 Stores

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

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

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

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

Vehicle Fleet Mix

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

**5/28/2010 6:31:28 PM**

Vehicle Fleet Mix

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

Travel Conditions

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

Operational Changes to Defaults

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

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

**5/28/2010 6:23:22 PM**

Urbemis 2007 Version 9.2.4

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

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

Project Name: Deliveries to 4,622 Stores

Project Location: Los Angeles County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

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

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

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

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

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

Vehicle Fleet Mix

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

**5/28/2010 6:23:22 PM**

Vehicle Fleet Mix

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

Travel Conditions

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

Operational Changes to Defaults

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

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

| | |
|---|---|
| **Stores in unincorp territory** | 67 |
| **Stores in cities** | 462 |
| **Plastic bag size (liters)** | 14 |
| **Paper bag size (liters)** | 20.48 |
| **Number of plastic bags per store per day** | 10000 |
| **Number of paper bags per store per day** | 6836 |

| | |
|---|---|
| **Resuable Bag Size** | 37 |
| **Ratio of Reusable to Plastic Bags** | 2.6 |

based on 100 conversion from plastic to paper

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

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

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

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

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□Assuming all bags are sent to landfill

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 52.60 | 173.00 | 120.40 | 147.05 | 94.45 |
| Liters H2O per 1 liter groceries | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 |
| Liters H2O per bag | 0.08 | 0.39 | 0.31 | 0.33 | 0.25 |
| Liters H2O per day per store | 818.22 | 2691.11 | 1872.89 | 2287.44 | 1469.22 |
| Gallons H2O per day per store | 216.15 | 710.92 | 494.76 | 604.28 | 388.13 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.05 | 0.03 | 0.04 | 0.03 |
| MGD per day in cities | 0.10 | 0.33 | 0.23 | 0.28 | 0.18 |
| **Total MGD for whole county** | **0.11** | **0.38** | **0.26** | **0.32** | **0.21** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA□ | Difference□ | Reusable LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 52.60 | 45.67 | -6.93 | 6.85 | -45.75 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| Liters H2O per bag | 0.08 | 0.10 | 0.02 | 0.02 | -0.07 |
| Liters H2O per day per store | 818.22 | 710.37 | -107.85 | 106.56 | -711.67 |
| Gallons H2O per day per store | 216.15 | 187.66 | -28.49 | 28.15 | -188.00 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| MGD per day in cities | 0.10 | 0.09 | -0.01 | 0.01 | -0.09 |
| **Total MGD for whole county** | **0.11** | **0.10** | **-0.02** | **0.01** | **-0.10** |

□based on 3 uses

□□based on 20 uses

| Water Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Gallons H20 1000 paper bags (1500 plastic) | 58.00 | 1004.00 | 946.00 | 853.40 | 795.40 |
| Gallons H2O per bag | 0.04 | 1.00 | 0.97 | 0.85 | 0.81 |
| Gallons H2O per day per store | 386.67 | 6863.28 | 6476.61 | 5833.79 | 5447.12 |
| MGD per day per store | 0.00 | 0.01 | 0.01 | 0.01 | 0.01 |
| MGD per day in unincorp territory | 0.03 | 0.46 | 0.43 | 0.39 | 0.36 |
| MGD per day in cities | 0.18 | 3.17 | 2.99 | 2.70 | 2.52 |
| **Total MGD for whole county** | **0.20** | **3.63** | **3.43** | **3.09** | **2.88** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA□ | Difference□ | Reusable LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 50.00 | 45.54 | -4.46 | 6.83 | -43.17 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Liters H2O per bag | 0.08 | 0.10 | 0.03 | 0.02 | -0.06 |
| Liters H2O per day per store | 777.78 | 708.37 | -69.41 | 106.26 | -671.52 |
| Gallons H2O per day per store | 205.47 | 187.13 | -18.34 | 28.07 | -177.40 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| MGD per day in cities | 0.09 | 0.09 | -0.01 | 0.01 | -0.08 |
| **Total MGD for whole county** | **0.11** | **0.10** | **-0.01** | **0.01** | **-0.09** |

□based on 3 uses

□□based on 20 uses

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 50.00 | 130.70 | 80.70 | 111.10 | 61.10 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Liters H2O per bag | 0.08 | 0.30 | 0.22 | 0.25 | 0.18 |
| Liters H2O per day per store | 777.78 | 2033.11 | 1255.33 | 1728.14 | 950.37 |
| Gallons H2O per day per store | 205.47 | 537.09 | 331.62 | 456.53 | 251.06 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.04 | 0.02 | 0.03 | 0.02 |
| MGD per day in cities | 0.09 | 0.25 | 0.15 | 0.21 | 0.12 |
| **Total MGD for whole county** | **0.11** | **0.28** | **0.18** | **0.24** | **0.13** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

| | |
|---|---|
| **Stores in unincorp territory** | 1024 |
| **Stores in cities** | 4622 |
| **Plastic bag size (liters)** | 14 |
| **Paper bag size (liters)** | 20.48 |
| **Number of plastic bags per store per day** | 5000 |
| **Number of paper bags per store per day** | 3418 |

based on 100 conversion from plastic to paper

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

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

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

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

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□Assuming all bags are sent to landfill

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 52.60 | 173.00 | 120.40 | 147.05 | 94.45 |
| Liters H2O per 1 liter groceries | 0.01 | 0.02 | 0.01 | 0.02 | 0.01 |
| Liters H2O per bag | 0.08 | 0.39 | 0.31 | 0.33 | 0.25 |
| Liters H2O per day per store | 409.11 | 1345.56 | 936.44 | 1143.72 | 734.61 |
| Gallons H2O per day per store | 108.08 | 355.46 | 247.38 | 302.14 | 194.06 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.36 | 0.25 | 0.31 | 0.20 |
| MGD per day in cities | 0.50 | 1.64 | 1.14 | 1.40 | 0.90 |
| **Total MGD for whole county** | **0.61** | **2.01** | **1.40** | **1.71** | **1.10** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA□ | Difference□ | Reusable LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 52.60 | 45.67 | -6.93 | 6.85 | -45.75 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| Liters H2O per bag | 0.08 | 0.10 | 0.02 | 0.02 | -0.07 |
| Liters H2O per day per store | 409.11 | 355.19 | -53.93 | 53.28 | -355.83 |
| Gallons H2O per day per store | 108.08 | 93.83 | -14.25 | 14.07 | -94.00 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.10 | -0.01 | 0.01 | -0.10 |
| MGD per day in cities | 0.50 | 0.43 | -0.07 | 0.07 | -0.43 |
| **Total MGD for whole county** | **0.61** | **0.53** | **-0.08** | **0.08** | **-0.53** |

□based on 3 uses

□□based on 20 uses

| Water Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Gallons H20 1000 paper bags (1500 plastic) | 58.00 | 1004.00 | 946.00 | 853.40 | 795.40 |
| Gallons H2O per bag | 0.04 | 1.00 | 0.97 | 0.85 | 0.81 |
| Gallons H2O per day per store | 193.33 | 3431.64 | 3238.31 | 2916.89 | 2723.56 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.20 | 3.51 | 3.32 | 2.99 | 2.79 |
| MGD per day in cities | 0.89 | 15.86 | 14.97 | 13.48 | 12.59 |
| **Total MGD for whole county** | **1.09** | **19.38** | **18.28** | **16.47** | **15.38** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA□ | Difference□ | Reusable LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 50.00 | 45.54 | -4.46 | 6.83 | -43.17 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Liters H2O per bag | 0.08 | 0.10 | 0.03 | 0.02 | -0.06 |
| Liters H2O per day per store | 388.89 | 354.18 | -34.70 | 53.13 | -335.76 |
| Gallons H2O per day per store | 102.73 | 93.57 | -9.17 | 14.03 | -88.70 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.10 | -0.01 | 0.01 | -0.09 |
| MGD per day in cities | 0.47 | 0.43 | -0.04 | 0.06 | -0.41 |
| **Total MGD for whole county** | **0.58** | **0.53** | **-0.05** | **0.08** | **-0.50** |

□based on 3 uses

□□based on 20 uses

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA□ | Difference□ | Paper LCA□□ | Difference□□ |
| Liters H20 per 9000 liters groceries | 50.00 | 130.70 | 80.70 | 111.10 | 61.10 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Liters H2O per bag | 0.08 | 0.30 | 0.22 | 0.25 | 0.18 |
| Liters H2O per day per store | 388.89 | 1016.56 | 627.67 | 864.07 | 475.18 |
| Gallons H2O per day per store | 102.73 | 268.55 | 165.81 | 228.26 | 125.53 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.27 | 0.17 | 0.23 | 0.13 |
| MGD per day in cities | 0.47 | 1.24 | 0.77 | 1.06 | 0.58 |
| **Total MGD for whole county** | **0.58** | **1.52** | **0.94** | **1.29** | **0.71** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

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

| **Eutrophication - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA□** | **Difference□** | **Paper LCA□□** | **Difference□□** |
| kg phosphate per day in unincorp territory | 1.79 | 21.16 | 19.37 | 17.99 | 16.19 |
| kg phosphate per day in cities | 8.59 | 101.35 | 92.75 | 86.14 | 77.55 |
| **Total kg phosphate for whole county** | 10.39 | 122.51 | 112.12 | 104.13 | 93.74 |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

| **Water Consumption - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA□** | **Difference□** | **Paper LCA□□** | **Difference□□** |
| MGD per day in unincorp territory | 0.13 | 0.41 | 0.29 | 0.35 | 0.22 |
| MGD per day in cities | 0.60 | 1.97 | 1.37 | 1.68 | 1.08 |
| **Total MGD for whole county** | **0.72** | **2.38** | **1.66** | **2.03** | **1.30** |

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 3 uses

□□based on 20 uses

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

□based on 100□ conversion from plastic to paper

□□based on 85□ conversion from plastic to paper

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

based on 3 uses

based on 20 uses

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

based on 3 uses

based on 20 uses

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

based on 100 conversion from plastic to paper

based on 85 conversion from plastic to paper

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

□GWP □ Global Warming Potential

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

□GWP □ Global Warming Potential

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

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

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

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

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

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

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

| **Greenhouse Gas Emissions due to Mobile Sources** | | | |
|---|---|---|---|
| | $CO_2$ Emissions (Pounds/Day)* | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) |
| 4 Delivery Truck Trips in the Unincorporated Territory of Los Angeles | 65.51 | 10.85 | 0.000001 |
| 26 Delivery Truck Trips in the Incorporated Cities of Los Angeles | 425.84 | 70.50 | 0.000007 |
| **Total Emissions** | **491.35** | **81.35** | **0.000008** |

*Numbers from URBEMIS 2007

| **Conversion Factors** | |
|---|---|
| **grams to pounds** | 0.002204623 |
| **pounds to metric tons** | 0.000453592 |

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

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

□GWP □ Global Warming Potential

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

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

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

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

| | | | | |
|---|---|---|---|---|
| Cities | | | **19,586** | **0.00185** |

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

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

| **Emission Sources** | **Air Pollutants (Pounds/Day)** | | | | | |
|---|---|---|---|---|---|---|
| | **VOCs** | **$NO_x$** | **CO** | **$SO_x$** | **$PM_{2.5}$** | **$PM_{10}$** |
| 4 delivery truck trips in the unincorporated territory of the County | 0.04 | 0.08 | 0.5 | 0 | 0.02 | 0.09 |
| 26 delivery truck trips in the incorporated cities of the County | 0.22 | 0.51 | 3.25 | 0 | 0.12 | 0.61 |
| **Total Emissions** | **< 1** | **1** | **4** | **0** | **< 1** | **1** |
| **SCAQMD Threshold** | **55** | **55** | **550** | **150** | **55** | **150** |
| **AVAQMD Threshold** | **137** | **137** | **548** | **137** | **-** | **82** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Exceedance of Significance?** | No | No | No | No | No | No |

| | | | |
|---|---|---|---|
| **Stores in unincorp territory** | 1024 | | |
| **Stores in cities** | 4622 | | |
| **Plastic bag size (liters)** | 14 | | |
| **Paper bag size (liters)** | 20.48 | **Resuable Bag Siz** | 37 |
| **Number of plastic bags per store per day** | 5000 | **Ratio of Reusable** | |
| **Ratio of Paper Bags to Plastic Bags** | 1.5 | **to Plastic Bags** | 2.6 |
| **Population in the County in 2010** | 10,615,700 | | |

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

□GWP □ Global Warming Potential

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

□GWP □ Global Warming Potential

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

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

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

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

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

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

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

| Greenhouse Gas Emissions due to Mobile Sources | | | |
|---|---|---|---|
| | $CO_2$ Emissions (Pounds/Day)* | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) |
| 29 Delivery Truck Trips in the Unincorporated Territory of Los Angeles | 474.98 | 78.64 | 0.000007 |
| 131 Delivery Truck Trips in the Incorporated Cities of Los Angeles | 2,145.60 | 355.23 | 0.000033 |
| **Total Emissions** | **2,620.58** | **433.87** | **0.000041** |

*Numbers from URBEMIS 2007

| Conversion Factors | |
|---|---|
| **grams to pounds** | 0.002204623 |
| **pounds to metric tons** | 0.000453592 |

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

| Ecobilan Data - Greenhouse Gas Emissions | | Plastic Bags | | Paper Bags | |
|---|---|---|---|---|---|
| Just End of Life | GWP (IPCC) | g output | g CO2e | g output | g CO2e |
| (a) Carbon Dioxide (CO2, fossil) | 1 | 8.70E□01 | 8.70E□01 | 5.15E□02 | 5.15E□02 |
| (a) Methane | 23 | 2.60E-01 | 5.98E□00 | 4.96E□02 | 1.14E□04 |

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

□GWP □ Global Warming Potential

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

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

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

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

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

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

| Emission Sources | Air Pollutants (Pounds/Day) | | | | | |
|---|---|---|---|---|---|---|
| | VOCs | $NO_x$ | CO | $SO_x$ | $PM_{2.5}$ | $PM_{10}$ |
| 29 delivery truck trips in the unincorporated territory of the County | 0.24 | 0.57 | 3.63 | 0 | 0.14 | 0.68 |
| 131 delivery truck trips in the incorporated cities of the County | 1.08 | 2.59 | 16.4 | 0.02 | 0.62 | 3.05 |
| **Total Emissions** | **1** | **3** | **20** | **<1** | **1** | **4** |

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

| | | | | | |
|---|---|---|---|---|---|
| **Total Emissions in the County** | **893.87** | **1833.13** | **664.29** | **242,466** | **0.02284** |

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

| Greenhouse Gas Emissions due to Mobile Sources | | | |
|---|---|---|---|
| | $CO_2$ Emissions (Pounds/Day)* | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) |
| 33 Delivery Truck Trips in the Unincorporated Territory of Los Angeles | 540.49 | 89.48 | 0.000008 |
| 157 Delivery Truck Trips in the Incorporated Cities of Los Angeles | 2571.44 | 425.73 | 0.000040 |
| **Total Emissions** | **3,111.93** | **515.21** | **0.000049** |

*Numbers from URBEMIS 2007

| Ecobilan Plastic Bag LCA - Just end-of-life | | Adjusted for 2007 Recycle Rates | | |
|---|---|---|---|---|
| **Emissions Sources** | **CO2e** | **CO2e** | **Annual CO2e** | **Per Capita** |
| Emissions in the unincorp territory (metric tons) | **1** | **1** | 278 | 0.0000 |
| Emissions in the cities (metric tons) | **4** | **4** | 1331 | 0.0001 |

| Ecobilan Paper Bag LCA - Just end-of-life | | Adjusted for 2007 Recycle Rates | | |
|---|---|---|---|---|
| **Emissions Sources** | **CO2e** | **CO2e** | **Annual CO2e** | **Per Capita** |
| Emissions in the unincorp territory (metric tons) | **108** | **68** | 24825 | 0.0023 |
| Emissions in the cities (metric tons) | **515** | **326** | 118892 | 0.0112 |

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

| | | | | |
|---|---|---|---|---|
| Cities | | | **99,727** | **0.00939** |

| **Ecobilan Emission differences caused by a 100% conversion from plastic to paper** | | | **Adjusted for 2007 Recycle Rates** | |
|---|---|---|---|---|
| Unincorporated territory | | | **24,547** | **0.00231** |
| Cities | | | **117,561** | **0.01107** |

| **Boustead GHG emissions - Just end of life** | **$CO_{2e}$ Emissions from Plastic Bags** | **$CO_{2e}$ Emissions from Paper Bags** | **$CO_{2e}$ Emission Increase Caused by 100 Percent Conversion from Plastic to Paper** | **per year** | **per year per capita** |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 11.58 | 197.90 | 186.32 | 68,007 | 0.00641 |
| Emissions in the cities (metric tons) | 55.46 | 947.80 | 892.34 | 325,705 | 0.03068 |
| **Total Emissions in the County** | **67.04** | **1145.70** | **1078.66** | **393,712** | **0.03709** |

| **Boustead GHG emissions - Just end of life** | **$CO_{2e}$ Emissions from Plastic Bags** | **$CO_{2e}$ Emissions from Paper Bags** | **$CO_{2e}$ Emission Increase with 85 Percent Conversion from Plastic to Paper** | **per year** | **per year per capita** |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 11.58 | 197.90 | 156.64 | 57,172 | 0.00539 |
| Emissions in the cities (metric tons) | 55.46 | 947.80 | 750.17 | 273,813 | 0.02579 |
| **Total Emissions in the County** | **67.04** | **1145.70** | **906.81** | **330,985** | **0.03118** |

| **Emission Sources** | **Air Pollutants (Pounds/Day)** | | | | | |
|---|---|---|---|---|---|---|
| | **VOCs** | **$NO_x$** | **CO** | **$SO_x$** | **$PM_{2.5}$** | **$PM_{10}$** |
| 33 delivery truck trips in the unincorporated territory of the County | 0.28 | 0.65 | 4.13 | 0 | 0.16 | 0.77 |
| 157 delivery truck trips in the incorporated cities of the County | 1.3 | 3.1 | 19.65 | 0.02 | 0.74 | 3.66 |
| **Total Emissions** | **< 1** | **1** | **4** | **0** | **< 1** | **1** |
| **SCAQMD Threshold** | **55** | **55** | **550** | **150** | **55** | **150** |
| **AVAQMD Threshold** | **137** | **137** | **548** | **137** | **-** | **82** |
| **Exceedance of Significance?** | **No** | **No** | **No** | **No** | **No** | **No** |

***APPENDIX D***
***INITIAL STUDY AND COMMENT LETTERS***

# Ordinances to Ban Plastic Carryout Bags in Los Angeles County

## Initial Study

Prepared for:

County of Los Angeles Department of Public Works
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803

Prepared by:

Sapphos Environmental, Inc.
430 North Halstead Street
Pasadena, California 91107

December 1, 2009

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# *SECTION 1.0*
# *PROJECT DESCRIPTION*

The project, as defined by the California Environmental Quality Act (CEQA), being considered by the County of Los Angeles (County) consists of proposed Ordinances to Ban Plastic Carryout Bags in Los Angeles County (proposed ordinances). This project would entail adoption of an ordinance to ban plastic carryout bags issued by certain stores in the unincorporated territories of the County and the adoption of comparable ordinances by the 88 incorporated cities within the County. This Initial Study evaluates the potential for the adoption of such ordinances to result in significant impacts to the environment that would require the consideration of mitigation measures or alternatives.

## 1.1 PROJECT TITLE

Ordinances to Ban Plastic Carryout Bags in Los Angeles County

## 1.2 LEAD AGENCY

County of Los Angeles

## 1.3 PRIMARY CONTACT PERSON

Mr. Coby Skye
County of Los Angeles Department of Public Works
Environmental Programs Division
900 South Fremont Avenue, 3rd Floor
Alhambra, California 91803
(626) 458-5163

## 1.4 PROJECT LOCATION

The proposed ordinances would affect an area of approximately 2,649 square miles encompassing the unincorporated territories of the County of Los Angeles and 1,435 square miles encompassing the incorporated cities of the County of Los Angeles, California. The affected areas are bounded by Kern County to the north, San Bernardino County to the east, and Ventura County to the west. To the south, the affected areas are bounded by Orange County to the southeast and the Pacific Ocean to the southwest. San Clemente and Santa Catalina Islands are both encompassed within the territory of the County, and thus are areas that would be affected by the proposed ordinances (Figure 1.4-1, *Unincorporated Territories and Incorporated Cities within the County of Los Angeles)*. There are approximately 140 unincorporated communities located within the five County Supervisorial Districts.[1]

[1] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

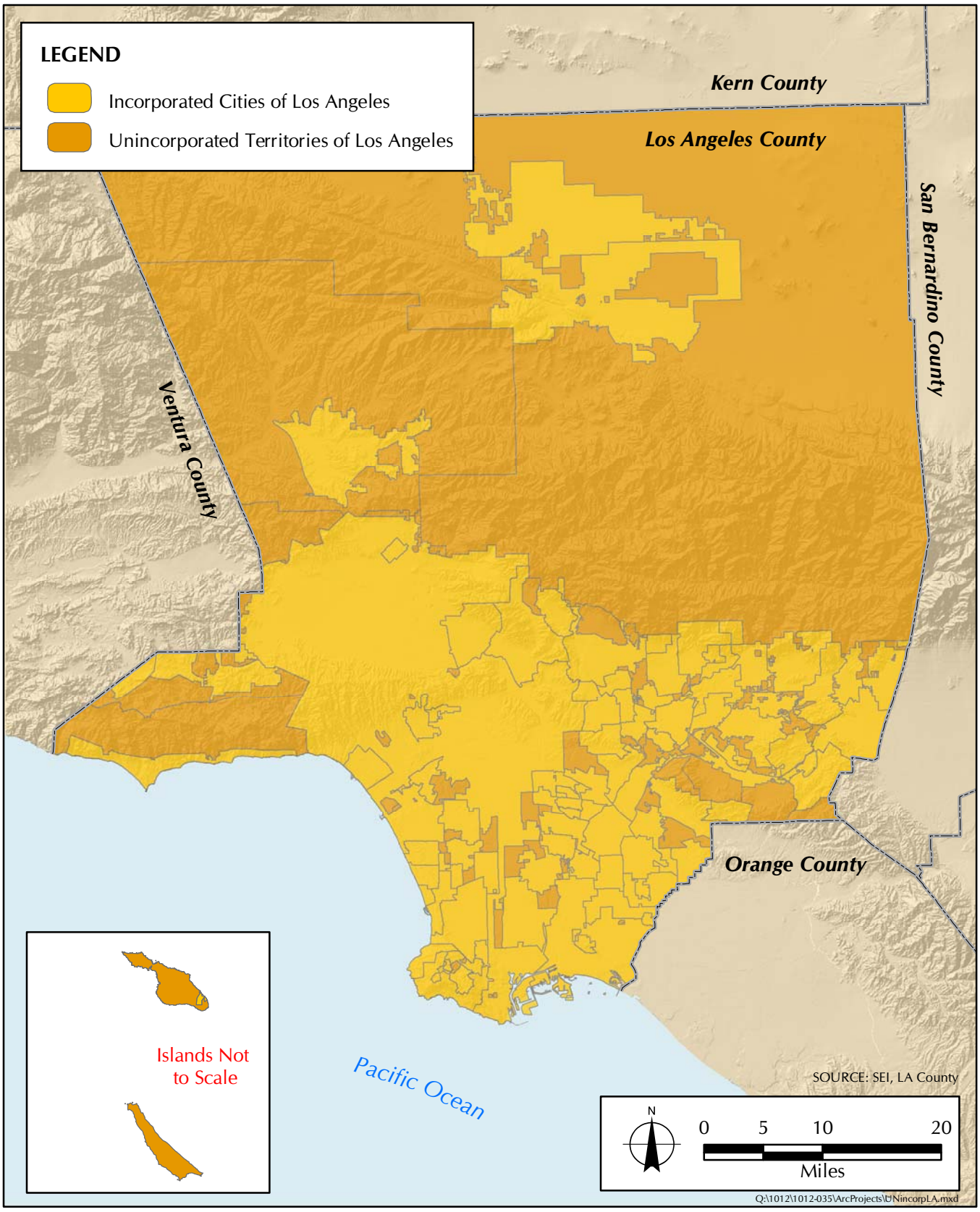


**FIGURE 1.4-1**

Unincorporated Territories and Incorporated Cities within the County of Los Angeles

## 1.5 PROJECT SPONSOR

County of Los Angeles Department of Public Works
Programs Development Division
900 South Fremont Avenue, 11th Floor
Alhambra, California 91803

## 1.6 GENERAL PLAN LAND USE DESIGNATION

The proposed ordinances would apply to stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, the County is considering extending the jurisdiction of the proposed County ordinance to stores within the unincorporated territories of the County that are part of a chain of convenience food stores, including franchises primarily engaged in retailing a limited line of goods that includes milk, bread, soda, and snacks, that have a total combined area of 10,000 square feet or greater within the County. The 88 incorporated cities within the County would be encouraged to adopt comparable ordinances.

### Unincorporated Territories of the County of Los Angeles

The affected stores may be located within any of the eight general land use designations defined by the County of Los Angeles General Plan: (1) Residential (including low density, low-medium density, medium density, and high density), (2) Commercial, (3) Industrial, (4) Public and Semi-Public Facilities, (5) Non-urban, (6) Open Space, (7) Rural Communities, and (8) Significant Ecological Areas / Habitat Management.[2] The proposed ordinance would not require any changes to the established land use designations.

### Incorporated Cities of the County of Los Angeles

The affected stores may be located within any of the land use designations defined by the 88 incorporated cities within the County. The proposed ordinances would not require any changes to established land use designations in any of the incorporated cities.

## 1.7 ZONING

### Unincorporated Territories of the County of Los Angeles

The Los Angeles County Code (County Code) contains ordinances that regulate zoning within the unincorporated territories of the County: Title 22, Planning and Zoning, the County Code provides for planning and zoning within these unincorporated territories and includes zones and districts for each of the 140 unincorporated communities.[3] As with the land use designation, the stores may occur within any of the seven general zoning designations: (1) Residential, (2) Agricultural, (3)

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles. 2 June 2009. Los Angeles County Code. Tallahassee, FL. Available at: http://ordlink.com/codes/lacounty/index.htm

Commercial, (4) Industrial, (5) Publicly Owned Property, (6) Special Purpose and Combining, and (7) Supplemental Districts (such as equestrian, setback, flood protection, or community standards districts). Chapter 22.46 of Title 22 establishes procedures for consideration of specific plans within the unincorporated territories, which further describe the zoning within each of the communities.[4] The proposed ordinance would not require any changes to the established land use zoning designations.

### Incorporated Cities of the County of Los Angeles

The affected stores may occur within any of the zoning designations that allow for commercial or retail uses defined by the 88 incorporated cities within the County. The proposed ordinances would not require any changes to the established zoning ordinances in any of the incorporated cities.

## 1.8 BACKGROUND

### Contribution of Plastic Carryout Bags to Litter Stream

It is estimated that litter from plastic carryout bags that are designed for single use accounts for as much as 25 percent of the litter stream.[5,6] According to research conducted by the Los Angeles County Department of Public Works (LACDPW), each year approximately 6 billion plastic carryout bags are consumed in the County, which is equivalent to approximately 1,600 bags per household per year.[7,8] Public agencies in California spend over $375 million each year for litter prevention, clean up, and disposal.[9] The County of Los Angeles Flood Control District alone spent more than $18 million annually for prevention, clean up, and enforcement efforts to reduce litter, of which plastic carryout bags are a component.[10]

### County Motion

On April 10, 2007, the County Board of Supervisors instructed the Chief Executive Office to work with the director of Internal Services and the director of public works to solicit input from both environmental protection and grocer organizations related to three data areas and report their findings:

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[4] County of Los Angeles. 2 June 2009. Los Angeles County Code. Tallahassee, FL. Available at: http://ordlink.com/codes/lacounty/index.htm

[5] City of Los Angeles. 10 June 2004. *Waste Characterization Study*. Los Angeles, CA.

[6] County of Los Angeles Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

[7] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[8] U.S. Census Bureau. 2000. "State & County Quick Facts: Los Angeles County, California." Available at: http://quickfacts.census.gov/qfd/states/06/06037.html (at an average of slightly fewer than three people per household)

[9] California Department of Transportation. Accessed September 2009. "Facts at a Glance." *Don't Trash California*. Available at: http://www.donttrashcalifornia.info/pdf/Statistics.pdf

[10] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

1) Investigate the issue of polyethylene plastic and paper sack consumption in the County, including the pros and cons of adopting a policy similar to that of San Francisco;
2) Inventory and assess the impact of the current campaigns that urge recycling of paper and plastic sacks;
3) Investigate the impact an ordinance similar to the one proposed in San Francisco would have on recycling efforts in Los Angeles County, and any unintended consequences of the ordinance; and
4) Report back to the Board with finding and recommendations to reduce grocery and retail sack waste within 90 days.[11,12]

**An Overview of Carryout Bags**

In response, the LACDPW submitted a staff report, *An Overview of Carryout Bags in Los Angeles County*, in August 2007.[13] As noted in the report, a memorandum was sent to the Board of Supervisors on July 12, 2007, requesting a 45-day extension of the original report due date in order to incorporate feedback from interested stakeholders, consumers, industry, and environmental representatives.

As further noted in the LACDPW report, pursuant to the California Integrated Waste Management Act of 1989 [Assembly Bill (AB) 939], the County undertakes the numerous solid waste management functions:[14,15]

*Unincorporated County Area*

- Implements source reduction and recycling programs in the unincorporated County areas to comply with the State's 50 percent waste reduction mandate. In 2004, the County was successful in documenting a 53 percent waste diversion rate for the unincorporated County areas.
- Operates seven Garbage Disposal Districts providing solid waste collection, recycling, and disposal services for over 300,000 residents.
- Implements and administers a franchise solid waste collection system which, once fully implemented, will provide waste collection, recycling, and disposal services to over 700,000 residents, and will fund franchise area outreach programs to enhance recycling and waste reduction operations in unincorporated County areas that formerly operated under an open market system.

[11] County of Los Angeles Board of Supervisors. 10 April 2007. *Board of Supervisors Motion.* Los Angeles, CA.

[12] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[13] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[14] California State Assembly. Assembly Bill 939: "Integrated Waste Management Act," Chapter 1095.

[15] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA, first page of Preface. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

*Countywide*

- Implements a variety of innovative Countywide recycling programs, including: SmartGardening to teach residents about backyard composting and water wise gardening; Waste Tire Amnesty for convenient waste tire recycling; the convenient Environmental Hotline and Environmental Resources Internet Outreach Program; interactive Youth Education/Awareness Programs; and the renowned Household Hazardous/Electronic Waste Management and Used Oil Collection Programs.
- Prepares and administers the Countywide Siting Element, which is a planning document which provides for the County's long-term solid waste management disposal needs.
- Administers the Countywide Integrated Waste Management Summary Plan which describes how all 89 of the jurisdictions Countywide, acting independently and collaboratively, are complying with the State's waste reduction mandate.
- Provides staff for the Los Angeles County Solid Waste Management Task Force (Task Force). The Task Force is comprised of appointees from the League of California Cities, the County Board of Supervisors, the City of Los Angeles, solid waste industries, environmental groups, governmental agencies, and the private sector. The County performs the following Task Force functions:
  - Reviews all major solid waste planning documents prepared by all 89 jurisdictions prior to their submittal to the California Integrated Waste Management Board;
  - Assists the Task Force in determining the levels of needs for solid waste disposal, transfer and processing facilities; and
  - Facilitates the development of multi-jurisdictional marketing strategies for diverted materials.

***Key Findings of the Report***

There were four key findings identified in this report:

1. Plastic carryout bags have been found to significantly contribute to litter and have other negative impacts on marine wildlife and the environment.
2. Biodegradable carryout bags are not a practical solution to this issue in Los Angeles County because there are no local commercial composting facilities able to process the biodegradable carryout bags at this time.
3. Reusable bags contribute towards environmental sustainability over plastic and paper carryout bags.
4. Accelerating the widespread use of reusable bags will diminish plastic bag litter and redirect environmental preservation efforts and resources towards "greener" practices.[16]

[16] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA, p. 1. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

### Definitions

For the purposes of this Initial Study and Environmental Impact Report, the following terms are defined as follows:

- Reusable Bag(s): a bag with handles that is specifically designed and manufactured for multiple reuse and is either (a) made of cloth or other machine-washable fabric, or (b) made of durable plastic that is at least 2.25 mils thick
- Paper Carryout Bag(s): a carryout bag made of paper that is provided by a store to a customer at the point of sale
- Plastic Carryout Bag(s): a plastic carryout bag, excluding a reusable bag but including a compostable plastic carryout bag, that is provided by a store to a customer at the point of sale
- Compostable Plastic Carryout Bag(s): a plastic carryout bag, excluding reusable bags, that (a) conforms to California labeling law (Public Resources Code Section 42355 et seq.), which requires meeting the current American Society for Testing and Materials (ASTM) standard specifications for compostability; (b) is certified and labeled as meeting the ASTM standard by a recognized verification entity such as the Biodegradable Product Institute; (c) contains no petroleum-derived content; and (d) displays the word "compostable" in a highly visible manner on the outside of the bag
- Recyclable Paper Bag(s): a paper bag that (a) contains no old growth fiber, (b) is 100-percent recyclable overall and contains a minimum of 40 percent post-consumer recycled content; and (c) displays the words "reusable" and "recyclable" in a highly visible manner on the outside of the bag

## 1.9 EXISTING CONDITIONS

### Plastic Carryout Bags

In 1977, supermarkets began offering plastic carryout bags designed for single use to customers.[17,18] By 1996, four out of every five grocery stores were using plastic carryout bags.[19,20] Plastic carryout bags have been found to contribute substantially to the litter stream and to have other adverse effects on marine wildlife.[21,22,23] The prevalence of litter from plastic bags in the urban

[17] SPI: The Plastics Industry Trade Association. 2007. Web site. Available at: http://www.plasticsindustry.org/

[18] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[19] SPI: The Plastics Industry Trade Association. 2007. Web site. Available at: http://www.plasticsindustry.org/

[20] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[21] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at : http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[22] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[23] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

environment also compromises the efficiency of systems designed to channel storm water runoff. Furthermore, plastic bag litter leads to increased clean-up costs for the County, the California Department of Transportation (Caltrans), and other public agencies.[24,25,26] Plastic bag litter also contributes to environmental degradation and degradation of quality of life for County residents and visitors. In particular, the prevalence of plastic bag litter in the storm water system and coastal waterways hampers the ability of and exacerbates the cost to local agencies to comply with the National Pollution Discharge Elimination System, and total maximum daily loads (TMDL) limits for trash as specified pursuant to the federal Clean Water Act.[27,28]

Plastic bag litter is also a major economic operational issue for landfills and other solid waste processing facilities.[29,30] The California Integrated Waste Management Board estimates that approximately 3.9 percent of plastic waste can be attributed to plastic carryout bags related to grocery and other merchandise. That represents approximately 0.4 percent of the total waste stream in California.[31,32] Studies have been conducted by several organizations to assess the effects of plastic litter:[33,34,35,36] a study on freeway storm water litter was conducted by Caltrans; a waste characterization study on the Los Angeles River was conducted by the Friends of Los Angeles River; a waste characterization study on 30 storm drain basins was conducted by the City of Los Angeles; and a trash reduction and a waste characterization study of street sweeping and trash

[24]California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[25] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[26] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

[27] *United States Code*, Title 33, Section 1313: "Water Quality Standards and Implementation Plans." Clean Water Act, Section 303(d).

[28] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[29] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[30] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

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

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

[33] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

[34] Friends of the Los Angeles River and American Rivers. 2004. *Great Los Angeles River.* Los Angeles and Nevada City, CA.

[35] City of Los Angeles, Sanitation Department of Public Works. June 2006. *Technical Report: Assessment of Catch Basin Opening Screen Covers*. Los Angeles, CA.

[36] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

capture systems, near and within the Hamilton Bowl, located in Long Beach, California was conducted by the LACDPW. These studies concluded that plastic film (including plastic bag litter) composed between 7 to 30 percent by mass and between 12 to 34 percent by volume of the total litter collected. Despite the implementation of best management practices (BMPs), installation of litter control devices such as cover fences for trucks, catch basins, and facilities to prevent airborne bags from escaping, and use of roving patrols to pick up littered bags, plastic bag litter remains prevalent throughout the County.[37]

Assembly Bill 2449 requires all supermarkets (grocery stores with over $2 million in annual sales) and retail businesses of at least 10,000 square feet with a licensed pharmacy to establish a plastic carryout bag recycling program at each store. Starting on July 1, 2007, each store must provide a clearly marked bin that is easily available for customers to deposit plastic carryout bags for recycling. The stores' plastic bags must display the words "please return to a participating store for recycling."[38]

In addition, the regulated stores must make reusable bags available to their patrons. These bags can be made of cloth, fabric, or plastic with a thickness of 2.25 mils or greater.[39] The stores are allowed to charge their patrons for reusable bags.[40]

Manufacturers of plastic carryout bags must make available to stores educational materials to encourage the reduction, reuse, and recycling of plastic bags.

Store operators must maintain program records for a minimum of three years and make the records available to the local jurisdiction.[41]

**Paper Bags**

The production, distribution, and disposal of paper carryout bags also have known adverse effects on the environment.[42] There is a considerable amount of energy that is used, trees that are felled, and pollution that is generated in the production of paper carryout bags.[43,44] The California Integrated Waste Management Board determined in the 2004 Statewide Waste Characterization Study that approximately 117,000 tons of paper carryout bags are disposed of each year throughout the County by consumers. This amount accounts for approximately 1 percent of the

[37] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[38] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

[39] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

[40] *Public Resources Code*, Section 42250–42257. 2006. Assembly Bill 2449.

[41] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[42] County of Los Angeles Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

[43] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

[44] County of Los Angeles Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

total 12 million tons of solid waste generated each year.[45] However, paper bags have the potential to biodegrade when exposed to oxygen, sunlight, moisture, soil, and microorganisms (such as bacteria); are denser and less susceptible to becoming airborne; and generally have a higher recycling rate than do plastic bags. The U.S. Environmental Protection Agency reported that "the recycle rate for plastic bags, sacks and wraps measured just 9.1 percent in 2007 (compared to 36.8 percent of paper bags)."[46] The County anticipates that the national, state, and Countywide recovery amount of plastic bags from this category of recovered plastics is less than 5 percent.[47,48] Therefore, based upon the available evidence, paper carryout bags are less likely to become litter than are plastic carryout bags.

**Reusable Bags**

Reusable bags offer an alternative to plastic carryout bags, compostable plastic carryout bags, and paper carryout bags. The utility of a reusable bag has been noted in various reports such as the 2008 report by Green Seal, which estimates the life of a reusable bag as being between two to five years.[49] The Green Seal report encouraged an industry standard of a minimum of 300 reusable bag uses in 1994 and currently encourages a minimum of 500 uses during wet conditions (such as rainy seasons).[50] Furthermore, life-cycle studies for plastic products have documented the adverse impacts related to various types of plastic and paper bags; however, life-cycle studies have also indicated that reusable bags[51] are the preferable option to both paper and plastic bags.[52,53]

[45] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/publications/localasst/34004005.pdf

[46] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States, 2007 Facts and Figures* (Table 21, Recovery of Products in Municipal Solid Waste, 1960 to 2007). Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf. The referenced table included the recovery of post-consumer wastes for the purposes of recycling or composting; it did not include conversion/fabrication scrap. The report includes the recovery of plastic bags, sacks, and wraps (excluding packaging) for a total of 9.1 percent of plastic recovered in this category. The County of Los Angeles conservatively estimates that the percentage of plastic bags in this category for the County of Los Angeles is less than 5 percent.

[47] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[48] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[49] Green Seal is an independent non-profit organization that uses science-based standards and the power of the marketplace to provide recommendations regarding sustainable products, standards, and practices.

[50] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[51] Reusable bag manufacturers are also expected to enforce industry standards and recommendations to avoid adverse environmental impacts, including the use of recycled materials.

[52] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[53] Boustead Consulting & Associates, Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Available at: http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212

Reusable bags are intended to provide a viable alternative to the use of paper or plastic carryout bags.[54] Currently, some stores within the County, such as certain Whole Foods divisions, do not offer plastic bags at checkout and instead offer reusable bags for sale and provide rebates if its patrons bring their own reusable bags. Other stores, such as certain Ralph's divisions, offer reusable bags for purchase at registers and offer various incentives such as store rewards or store credit to customers who use reusable bags.[55]

**Voluntary Single Use Bag Reduction and Recycling Program**

On January 22, 2008, the County Board of Supervisors approved a motion to implement the voluntary Single Use Bag Reduction and Recycling Program (Alternative 5) in partnership with large supermarkets and retail stores, the plastic bag industry, environmental organizations, recyclers and other key stakeholders to promote the use of reusable bags, increase at-store recycling of plastic bags, reduce consumption of single-use bags, increase the post-consumer recycled material content of paper bags, and promote public awareness of the effects of litter and consumer responsibility in the County. The voluntary program establishes benchmarks for measuring the effectiveness of the program, seeking a 30-percent decrease in the disposal rate of carryout plastic bags from the 2007–2008 fiscal year usage levels by July 1, 2010, and a 65-percent decrease by July 1, 2013.[56]

The County identified three tasks to be undertaken by the County, stores, and manufacturers as part of the voluntary program's key components:

1. Large supermarket and retail stores: development and implementation of store-specific programs such as employee training, reusable-bag incentives, and efforts related to consumer education
2. Manufacturer and trade associations: encourage members to participate in the program, provide technical assistance and marketing recommendations, and coordinate with large supermarkets and stores
3. County of Los Angeles Working Group: facilitate program meetings, determine specific definitions for target stores, establish a framework describing participant levels and participation expectations, and develop and coordinate program specifics such as educational material, reduction strategies, establishment of disposal rates and measurement methodology, progress reports, and milestones

In March 2008, the County provided each of its 88 incorporated cities a "Resolution to Join" letter that extended to the cities an opportunity to join the County in the abovementioned activities related to the Single Use Plastic Bag Reduction and Recycling Program. The letter invited the cities to join the County in a collaborative effort and to take advantage of the framework already developed by the County. Information related to the efforts by the LACDPW was presented to all 88 cities regarding the proposed ordinances and their actions.

[54] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[55] Ralphs Grocery Company. 2009. "Doing Your Part: Try Reusable Shopping Bags." Web site. Available at: http://www.ralphs.com/healthy_living/green_living/Pages/reusable_bags.aspx

[56] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

There are currently 10 cities within the County that have signed resolutions to join the County in its efforts and in adopting similar ordinances for their cities: Azusa, Bell, Glendale, Hermosa Beach, Lomita, Pico Rivera, Pomona, Redondo Beach, Santa Fe Springs, and Signal Hill. These cities have implemented a variety of public education and outreach efforts to encourage participation within their cities, including developing public education brochures, running public service announcements on the city's cable television channel, establishing committees focused on community outreach, and distributing recycled-content reusable bags at community events.

The County is currently evaluating the efficacy of volunteer programs, including its own Single Use Bag Reduction and Recycling Program, in relation to the disposal rate of plastic carryout bags using three criteria:[57] (1) the reduction in consumption of plastic carryout bags, (2) the total number of plastic carryout bags recycled at stores, and (3) the total number of plastic carryout bags recycled via curbside recycling programs.

Since August 2007, the County has facilitated meetings that have been attended by representatives of grocery stores, plastic bag industry groups, environmental organizations, waste management industry groups, various governmental entities, and others. The County has further led efforts to disseminate outreach materials, attend community events, work with cities within the County, visit stores, and provide and solicit support for reusable bags. The American Chemistry Council's consultant and the Plastic Recycling Corporation of California have visited grocery stores within the County to provide stores and consumers with additional information and assistance to enhance their plastic bag recycling programs.

These endeavors were undertaken in an effort to increase the participation of grocery stores, to shift consumer behavior to the use of recycled plastic bags, and to encourage a considerable transition to the use of reusable bags.

## 1.10 STATEMENT OF PROGRAM OBJECTIVES

### Program Goals

The County is seeking to substantially reduce the operational cost and environmental degradation associated with the use of plastic carryout bags in the County, particularly the component of the litter stream composed of plastic bags and the associated government funds used for prevention, clean-up, and enforcement efforts.

The County has identified five goals of the proposed ordinances, listed in order of importance: (1) litter reduction, (2) blight prevention, (3) coastal waterways and animal and wildlife protection, (4) sustainability (as it relates to the County's energy and environmental goals), and (5) landfill reduction.

[57] Methodology consumption rates based upon plastic bags generated in fiscal year 2007-2008, as provided in data reported to the California Integrated Waste Management Board as required by AB 2449. The methodology is described in its entirety in *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet* published by County of Los Angeles Department of Public Works, Environmental Programs Division, Alhambra, CA.

**Countywide Objectives**

The proposed ordinance program would have six objectives:

- Conduct outreach to all 88 incorporated cities of the County to encourage adoption of comparable ordinances.
- Reduce the Countywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007, to fewer than 800 plastic bags per household in 2013.
- Reduce the Countywide contribution of plastic carryout bags to litter that blights public spaces Countywide by 50 percent.
- Reduce the Flood Control District's cost for prevention, clean-up, and enforcement efforts to reduce litter in the County by $4 million.
- Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 50,000 residents (5 percent of the population) with an environmental awareness message.
- Reduce Countywide disposal of plastic carryout bags from landfills by 50 percent from 2007 annual amounts.

**City Objectives**

If using a comparable standard to that of the County, cities would implement objectives that are comparable with the Countywide objectives. Should the cities prepare different objectives, those objectives may need to be evaluated to determine what further CEQA analysis would be required, if any.

## 1.11 DESCRIPTION OF PROPOSED ORDINANCES

With input from the County of Los Angeles Working Group, the Board of Supervisors instructed County Counsel to prepare a draft ordinance for consideration by the Board of Supervisors by April 1, 2009, (revised to July 1, 2010) that would ban the issuance of plastic carryout bags by large supermarkets and retail stores in the unincorporated territories of the County. Any necessary environmental review in compliance with CEQA would be completed prior to considering the draft ordinance.[58,59]

The proposed ban on the issuance of plastic carryout bags consists of an ordinance to be adopted prohibiting certain retail establishments from issuing plastic carryout bags in the unincorporated territories of the County, as well as the County's encouragement of the incorporation of comparable ordinances by each of the 88 incorporated cities in the County.

As previously mentioned, there are currently 10 cities within the County that have signed resolutions to join the County in adopting similar ordinances in their cities. The proposed ordinances as described herein anticipate the adoption of similar proposed ordinances for each of the 88 incorporated cities within the County.

[58] County of Los Angeles Board of Supervisors. 22 January 2008. *Single Use Bag Reduction and Recycling Program (Resolution and Alternative 5).* Los Angeles, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/Resources.cfm

[59] County of Los Angeles Board of Supervisors. 22 January 2008. *Minutes of the Board of Supervisors.* Los Angeles, CA.

The proposed ordinances aim to significantly reduce the number of plastic carryout bags that are disposed of or that enter the litter stream by ensuring that certain retail establishments located in the County will not distribute or make available to customers any plastic carryout bags or compostable plastic bags.

The proposed ordinances being considered would ban the issuance of plastic carryout bags by any retail establishment, defined herein, that is located in the unincorporated territories or incorporated cities of the County. The retail establishments that would be subject to the proposed ordinances include any that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, the County is considering extending the jurisdiction of the proposed ordinances to stores that are part of a chain of convenience food stores, including franchises primarily engaged in retailing a limited line of goods that includes milk, bread, soda, and snacks, that have a total combined area of 10,000 square feet or greater within the County.

**Transition Period Assumption**

Should the proposed ordinances be adopted, it is anticipated that there would be a transition period during which consumers would switch to reusable bags. The County anticipates that a measurable percentage of affected consumers would subsequently use reusable bags (this percentage includes consumers currently using reusable bags) once the proposed ordinances take effect. The County further anticipates that some of the remaining consumers, those who choose to forgo reusable bags, may substitute plastic carryout bags with paper carryout bags.

# *SECTION 2.0*
# *ENVIRONMENTAL CHECKLIST*

This section contains the Environmental Checklist prepared for the proposed ordinances. This checklist is consistent with the Environmental Checklist Form found in Appendix G to the State CEQA Guidelines. This checklist also includes two recommended questions proposed by the Governor's Office of Planning and Research (OPR) in April 2009 as additions to Appendix G to the State CEQA Guidelines.[1] A summary of the substantial evidence that was used to support the responses in the Environmental Checklist is contained in Section 3.0, Environmental Analysis. The responses contained in this Environmental Checklist are based on reviews of relevant literature, technical reports, and regulations, and on analysis of existing geographical information from County maps and databases.

[1] California Governor's Office of Planning and Research. 2007. *CEQA Guidelines and Greenhouse Gases*. Available at: http://www.opr.ca.gov/index.php?a=ceqa/index.html

**DETERMINATION**

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

X I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Pat Proano
Signature

November 23, 2009
Date

PAT PROANO
Printed Name

L.A. Co. Dept. of Public Works
For

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| **2.1. AESTHETICS** -- Would the proposed ordinances: | | | | |
| a) Have a substantial adverse effect on a scenic vista? | _____ | _____ | _____ | X |
| b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? | _____ | _____ | _____ | X |
| c) Substantially degrade the existing visual character or quality of the site and its surroundings? | _____ | _____ | _____ | X |
| d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? | _____ | _____ | _____ | X |
| **2.2. AGRICULTURE RESOURCES**: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the proposed ordinances: | | | | |
| a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? | _____ | _____ | _____ | X |
| b) Conflict with existing zoning for agricultural use, or a Williamson Act contract? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use? | _____ | _____ | _____ | X |
| **2.3. AIR QUALITY** -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the proposed ordinances: | | | | |
| a) Conflict with or obstruct implementation of the applicable air quality plan? | _____ | _____ | _____ | X |
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | _____ | X | _____ | _____ |
| c) 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)? | _____ | X | _____ | _____ |
| d) Expose sensitive receptors to substantial pollutant concentrations? | _____ | _____ | X | _____ |
| e) Create objectionable odors affecting a substantial number of people? | _____ | _____ | X | _____ |
| **2.4. BIOLOGICAL RESOURCES**[2] -- Would the proposed ordinances: | | | | |
| a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified | _____ | _____ | _____ | X |

[2] Although it is anticipated that the proposed ordinance would not result in adverse impacts related to biological resources; it is recommended that the biological resources section be carried forward for further analysis into the Environmental Impact Report in order to assess the potential for positive effects to biological resources as they relate to listed and sensitive species, riparian habitat, and wetlands.

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service? | | | | |
| b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service? | _____ | _____ | _____ | X |
| c) 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? | _____ | _____ | _____ | X |
| d) 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? | _____ | _____ | _____ | X |
| e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? | _____ | _____ | _____ | X |
| f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? | _____ | _____ | _____ | X |
| **2.5. CULTURAL RESOURCES** -- Would the proposed ordinances: | | | | |
| a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5? | _____ | _____ | _____ | X |
| c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature? | _____ | _____ | _____ | X |
| d) Disturb any human remains, including those interred outside of formal cemeteries? | _____ | _____ | _____ | X |
| **2.6. GEOLOGY AND SOILS** -- Would the proposed ordinances: | | | | |
| a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: | | | | |
| i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. | _____ | _____ | _____ | X |
| ii) Strong seismic ground shaking? | _____ | _____ | _____ | X |
| iii) Seismic-related ground failure, including liquefaction? | _____ | _____ | _____ | X |
| iv) Landslides? | _____ | _____ | _____ | X |
| b) Result in substantial soil erosion or the loss of topsoil? | _____ | _____ | _____ | X |
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | _____ | _____ | _____ | X |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | _____ | _____ | _____ | X |
| **2.7. GREENHOUSE GAS EMISSIONS** -- Would the proposed ordinances: | | | | |
| a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? | _____ | X | _____ | _____ |
| b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases? | _____ | X | _____ | _____ |
| **2.8. HAZARDS AND HAZARDOUS MATERIALS** -- Would the proposed ordinances: | | | | |
| a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? | _____ | _____ | _____ | X |
| b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? | _____ | _____ | _____ | X |
| c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? | _____ | _____ | _____ | X |
| d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | | | | |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? | _____ | _____ | _____ | X |
| f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? | _____ | _____ | _____ | X |
| g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? | _____ | _____ | _____ | X |
| h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? | _____ | _____ | _____ | X |
| **2.9. HYDROLOGY AND WATER QUALITY** -- Would the proposed ordinances: | | | | |
| a) Violate any water quality standards or waste discharge requirements? | _____ | X | _____ | _____ |
| b) 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)? | _____ | X | _____ | _____ |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| c) 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? | _____ | _____ | _____ | X |
| d) 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? | _____ | _____ | _____ | X |
| e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? | _____ | _____ | _____ | X |
| f) Otherwise substantially degrade water quality? | _____ | _____ | _____ | X |
| g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? | _____ | _____ | _____ | X |
| h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? | _____ | _____ | _____ | X |
| I) 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? | _____ | _____ | _____ | X |
| j) Inundation by seiche, tsunami, or mudflow? | _____ | _____ | _____ | X |
| **2.10. LAND USE AND PLANNING** - Would the proposed ordinances: | | | | |
| a) Physically divide an established community? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? | _____ | _____ | _____ | X |
| c) Conflict with any applicable habitat conservation plan or natural community conservation plan? | _____ | _____ | _____ | X |
| **2.11. MINERAL RESOURCES** -- Would the proposed ordinances: | | | | |
| a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? | _____ | _____ | _____ | X |
| b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? | _____ | _____ | _____ | X |
| **2.12. NOISE** -- Would the proposed ordinances result in: | | | | |
| a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? | _____ | _____ | X | _____ |
| b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? | _____ | _____ | X | _____ |
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | _____ | _____ | X | _____ |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the proposed ordinance expose people residing or working in the proposed project area to excessive noise levels? | _____ | _____ | _____ | X |
| f) For a project within the vicinity of a private airstrip, would the proposed project expose people residing or working in the proposed project area to excessive noise levels? | _____ | _____ | _____ | X |
| **2.13. POPULATION AND HOUSING** -- Would the proposed ordinances: | | | | |
| a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | _____ | _____ | _____ | X |
| b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? | _____ | _____ | _____ | X |
| c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? | _____ | _____ | _____ | X |
| **2.14. PUBLIC SERVICES** -- | | | | |
| a) Would the proposed ordinances result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: | | | | |
| Fire protection? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| Police protection? | _____ | _____ | _____ | X |
| Schools? | _____ | _____ | _____ | X |
| Parks? | _____ | _____ | _____ | X |
| Other public facilities? | _____ | _____ | _____ | X |
| **2.15. RECREATION** -- | | | | |
| a) Would the proposed ordinances increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? | _____ | _____ | _____ | X |
| b) Do the proposed ordinances include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? | _____ | _____ | _____ | X |
| **2.16. TRANSPORTATION AND TRAFFIC** -- Would the proposed ordinances: | | | | |
| a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)? | _____ | _____ | X | _____ |
| b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? | _____ | _____ | _____ | X |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | _____ | _____ | _____ | X |
| e) Result in inadequate emergency access? | _____ | _____ | _____ | X |
| f) Result in inadequate parking capacity? | _____ | _____ | _____ | X |
| g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)? | _____ | _____ | _____ | X |
| **2.17. UTILITIES AND SERVICE SYSTEMS** - - Would the proposed ordinances: | | | | |
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | _____ | _____ | X | _____ |
| b) 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? | _____ | _____ | _____ | X |
| c) 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? | _____ | _____ | _____ | X |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | _____ | _____ | _____ | X |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | _____ | _____ | _____ | X |

| | Potentially Significant Impact | Potentially Significant Unless Mitigation Incorporated | Less Than Significant Impact | No Impact |
|---|---|---|---|---|
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | _____ | X | _____ | _____ |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | _____ | _____ | _____ | X |
| **2.18. MANDATORY FINDINGS OF SIGNIFICANCE** | | | | |
| a) Do the proposed ordinances have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | _____ | _____ | _____ | X |
| b) Do the proposed ordinances have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)? | _____ | _____ | X | _____ |
| c) Do the proposed ordinances have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | _____ | _____ | _____ | X |

# *SECTION 3.0*
# *ENVIRONMENTAL ANALYSIS*

The environmental analysis provided in this section describes the information that was considered in evaluating the questions in Section 2.0, Environmental Checklist. The information contained in this environmental analysis is based on reviews of relevant literature and maps (see Section 4.0, References, for a list of reference materials consulted).

The environmental analysis in this Initial Study evaluates the potential impacts related to both an ordinance to ban plastic carryout bags issued by certain stores in the unincorporated territories of the County and the adoption of comparable ordinances by the 88 cities that govern the County's incorporated territory. As such, each of the issue areas is structured to include analyses of the unincorporated territories and incorporated cities of the County.

## 3.1 AESTHETICS

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to aesthetics, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Aesthetics within the incorporated and unincorporated territories of the County, which would be subject to the proposed ordinances, were evaluated with regard to the County of Los Angeles General Plan;[2] Caltrans Scenic Highway Program[3] designations; and previously published information regarding the visual character of the County, including scenic resources, vistas, and altitude as depicted in County maps.

The State CEQA Guidelines recommend the consideration of four questions when addressing the potential for significant impacts to aesthetics.

Would the proposed ordinances:

(a) Have a substantial adverse effect on a scenic vista?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to aesthetics in relation to scenic vistas. A review of the County of Los Angeles General Plan substantiated that scenic vistas exist within the unincorporated territories of the County: forests ranges, including the Los Padres National Forest, and Angeles National Forest; mountain ranges, including the Santa Monica Mountains and San Gabriel Mountains; and the California coastline.[4] The proposed ordinance would affect a total of approximately 2,649 square miles of unincorporated territories within the County,[5] which provides residences and employment for approximately 1 million people. Development within these unincorporated areas exhibits patterns similar to that of urban areas, including public services, utilities, and recreation.[6,7] As such, residences, schools, churches, and recreation areas located within viewing range of the scenic vistas would serve as sensitive receptors. The proposed ordinance, which aims to significantly reduce the amount of litter that can be attributed to plastic carryout bags, would likely lead to the improvement of any scenic vista available from these sensitive receptors. As found in the County staff report on plastic bags, due to their expansive and lightweight characteristics, plastic bags are easily carried by wind to become entangled in brush, tossed along freeways, and caught on fences throughout the County, thereby becoming visual eyesores.[8,9] Furthermore, the distinct white or bright

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] California Department of Transportation. Updated 19 May 2008. "Eligible (E) and Officially Designated (OD) Routes." *California Scenic Highway Program*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

[4] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[5] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

[6] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

[7] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[8] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

colors of plastic bags and the difficulty of collecting them cause a greater visual eyesore than other materials. The negative impacts on scenic vistas resulting from the prevalence of plastic bags in residential, business, and recreational areas frequented by people would require measures to diminish the prevalence of plastic carryout bags. The proposed ordinance would be expected to reduce the visual prominence of these materials, and thus could minimize the negative impacts of plastic bags on scenic vistas as viewed by sensitive receptors within the unincorporated territories of the County. Therefore, the proposed ordinance would not be expected to result in adverse impacts to aesthetics related to scenic vistas. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to aesthetics in relation to scenic vistas. Development within these incorporated areas exhibits patterns similar to that of the urban areas described within the County, including the public services, utilities, and recreation.[10,11] As such, residences, schools, churches, and recreation areas located within viewing range of the scenic vistas would serve as sensitive receptors. The proposed ordinances, which aim to significantly reduce the amount of litter that can be attributed to the use plastic carryout bags, would likely lead to the improvement of any scenic vista available from these sensitive receptors. The proposed ordinances would be expected to reduce the visual prominence of these materials and thus could minimize the negative impacts of plastic bags on scenic vistas as viewed by sensitive receptors within the incorporated cities of the County. Therefore, the proposed ordinances would not be expected to result in adverse impacts to aesthetics related to scenic vistas. No further analysis is warranted.

(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to aesthetics in relation to substantial damage to scenic resources within a state-designated scenic highway. According to the California Scenic Highway Program, California State Route 2 is the only highway located within the jurisdictional boundary of the proposed ordinance that is officially designated as a state scenic highway;[12] State Routes 1, 27, 39, 57, 101, 118, and 210 are also located within the jurisdictional boundary of the proposed ordinance but are designated only as eligible state scenic highways.[13] Local specific and community plans also designate scenic resources within the unincorporated areas of the County. Furthermore, the County of Los Angeles General Plan documents the presence of scenic resources, including mountains, forest lands, beaches, and varied native vegetation, within the unincorporated territories of the County and within the vicinity of the officially designated or eligible

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[9] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

[10] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

[11] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[12] California Department of Transportation. Updated 19 May 2008. "Eligible (E) and Officially Designated (OD) Routes." *California Scenic Highway Program*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

[13] California Department of Transportation. Updated 19 May 2008. "Eligible (E) and Officially Designated (OD) Routes." *California Scenic Highway Program*. Available at: http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm

state scenic highways, and were confirmed through the review of County maps.[14] The proposed ordinance, which aims to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags, would likely lead to an improvement in the quality of scenic resources within the unincorporated territories of the County. As noted in the County staff report on plastic bags, the distinct white or bright colors of plastic bags and the difficulty of collecting them cause a greater negative visual effect than do other materials.[15] As such, the widespread occurrence of plastic bags throughout scenic resource and scenic highway areas would require measures to diminish the prevalence of plastic carryout bags, thereby minimizing the negative impacts of plastic bags on scenic resources in the unincorporated territories of the County. Therefore, there would be no expected adverse impacts to aesthetics related to substantial damage to scenic resources within a state scenic highway. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to aesthetics in relation to substantial damage to scenic resources within a state-designated scenic highway. The proposed ordinances, which aim to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags, would likely lead to an improvement in the quality of scenic resources within the incorporated cities of the County. As such, the widespread occurrence of plastic bags throughout scenic resources and scenic highway areas would require measures to diminish the prevalence of plastic carryout bags, thereby minimizing the negative impacts of plastic bags on scenic resources in the incorporated cities of the County. Therefore, there would be no expected adverse impacts to aesthetics related to substantial damage to scenic resources within a state scenic highway. No further analysis is warranted.

(c) Substantially degrade the existing visual character or quality of the site and its surroundings?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to aesthetics in relation to the substantial degradation of the existing visual character of the unincorporated territories and its surroundings. The unincorporated areas of the County, which would be affected by the proposed ordinance, are designated as part of one of the eight general land use categories in the Land Use element of the County of Los Angeles General Plan,[16] as listed in Section 1.0, Project Description, of this Initial Study. As such, the existing visual character of the unincorporated areas of the County, which would be affected by the proposed ordinance, maintain an appearance ranging from developed urban areas, which are attributed to residential, commercial, and industrial activities, to undeveloped recreational and agricultural areas. The proposed ordinance would likely lead to the improvement of the area's existing visual character because it is intended to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags. As determined in the County staff report on

[14] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[15] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*, pp. 2–3 and Figure 1, *Typical Landfill Activity*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[16] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

plastic bags, due to their expansive and lightweight characteristics, plastic bags are easily carried by wind to become entangled in brush, tossed along freeways, and caught on fences throughout the County.[17,18] Moreover, plastic bags have a distinct white or bright color and are difficult to collect, thus causing a greater visual eyesore than other materials.[19] The prevalence of plastic carryout bags in residential, business, recreational, and other areas that receive greater traffic flows would require means that serve to diminish the existence of plastic carryout bags, and at the same time reduce the visual pervasiveness of these materials and thus improve the visual quality of unincorporated areas of the County for sensitive receptors present within these areas. Therefore, there would be no expected adverse significant impacts to aesthetics related to degradation of the existing visual character of the subject areas and their surroundings. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to aesthetics in relation to the substantial degradation of the existing visual character of the incorporated cities of the County and their surroundings. The existing visual character of the incorporated cities of the County, which would be affected by the proposed ordinances, range in appearance from developed urban areas, which are attributed to residential, commercial, and industrial activities, to undeveloped recreational and agricultural areas. The proposed ordinances would likely lead to the improvement of the existing visual character of the County's incorporated cities by reducing the visual pervasiveness of plastic bag materials for sensitive receptors present within these areas. Therefore, there would be no expected adverse significant impacts to aesthetics related to degradation of the existing visual character of the incorporated cities of the County and their surroundings. No further analysis is warranted.

(d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to aesthetics related to the creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views within the unincorporated territories of the County. Existing sources of light within the unincorporated areas of the County, which would be subject to the proposed ordinance, include street lights, light structures in surface parking areas, and security lighting on buildings; no other significant sources of light or glare are present. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not be expected to create additional sources of light and glare. Therefore, there would be no expected adverse significant impacts to aesthetics related to creation of a new source of light or glare. No further analysis is warranted.

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[17] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*, pp. 2–3. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[18] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. 1998–2000. *Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation.

[19] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*, pp. 2–3 and Figure 1, Typical Landfill Activity. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to aesthetics related to the creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views within the incorporated cities of the County. The proposed ordinances would ban plastic carryout bags issued by certain stores and would not be expected to create additional sources of light or glare. Therefore, there would be no expected adverse significant impacts to aesthetics related to creation of a new source of light or glare. No further analysis is warranted.

## 3.2 AGRICULTURE RESOURCES

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to agricultural resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Agricultural resources within the County, which would be subject to the proposed ordinances, were evaluated with regard to the California Department of Conservation (CDC) Farmland Mapping and Monitoring Program (FMMP)[2] and the County of Los Angeles General Plan.[3]

The State CEQA Statutes define agricultural land as "prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California," and is herein collectively referred to as "Farmland."[4] The State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to agricultural resources.

Would the proposed ordinances:

(a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to agricultural resources in relation to the conversion of Farmland. Based upon a review of the Land Use element of the County of Los Angeles General Plan, it was determined that the unincorporated territories of the County include agricultural lands.[5] As such, portions of the unincorporated territories are utilized for agriculture, grazing, and vegetation. However, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not include components that would alter the existing uses within the areas that would be affected by the proposed ordinance. Moreover, the proposed ordinance would not require the conversion of any existing area designated for agricultural land use or Farmland, as it would not require any construction, demolition, or road-paving activities. Therefore, there would be no expected impacts to agricultural resources related to the conversion of Farmland. No further analysis is warranted.

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2006. *Important Farmland in California 2006*. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/statewide/2006/

[3] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[4] *California Public Resources Code*, Division 13, Chapter 2.5, Section 21060.1(a): "Agricultural Land."

[5] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to agricultural resources in relation to the conversion of Farmland. As with the unincorporated territories of the County, the proposed ordinances would ban plastic carryout bags issued by certain stores and would not include components that would alter the existing uses within the incorporated cities that adopt the proposed ordinances. In addition, the proposed ordinances would not require the conversion of any existing area designated for agricultural land use or Farmland, as they would not require any construction, demolition, or road-paving activities. Therefore, there would be no expected impacts to agricultural resources related to the conversion of Farmland. No further analysis is warranted.

(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to agricultural resources in relation to a conflict with existing zoning for agricultural use or with a Williamson Act contract. Although portions of the unincorporated territories of the County may be subject to Williamson Act contracts, the proposed ordinance does not entail components involving changes in the existing land uses or zoning within the unincorporated territories. The proposed ordinance would ban plastic carryout bags issued by certain stores and does not include components that would alter or conflict with the specified zoning. Therefore, the proposed ordinance would not be expected to result in impacts to agricultural resources in relation to a conflict with existing zoning for agricultural use or with a Williamson Act contract. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to agricultural resources in relation to a conflict with existing zoning for agricultural use or with a Williamson Act contract. The proposed ordinances would not entail components involving changes in the existing land uses or zoning within the incorporated cities of the County. The proposed ordinances would not include components that would alter or conflict with the specified zoning. Therefore, the proposed ordinances would not be expected to result in impacts to agricultural resources in relation to a conflict with existing zoning for agricultural use or with a Williamson Act contract. No further analysis is warranted.

(c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to agricultural resources in relation to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use. Although a review of the most recent CDC FMMP mapping of the County for Farmland and a map of the unincorporated territories of the County shows that there is designated Farmland within the areas that would be affected by the proposed ordinance, the proposed ordinance would not entail components that would involve changes in

the existing environment.[6] The proposed ordinance would ban plastic carryout bags issued by certain stores and would not alter the suitability of any designated farmland for development that could result in conversion of Farmland to non-agricultural use, as the proposed ordinance would not require any construction, demolition, or road-paving activities. Therefore, there would be no expected impacts to agricultural resources related to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to agricultural resources in relation to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use. As with the unincorporated territories of the County, the proposed ordinances within the incorporated cities of the County would not entail components that would change the existing environment related to agricultural resources.[7] The proposed ordinances would ban plastic carryout bags issued by certain stores and would not alter the suitability of any designated farmland for development that could result in conversion of Farmland to non-agricultural use, as the proposed ordinances would not require any construction, demolition, or road-paving activities. Therefore, there would be no expected impacts to agricultural resources related to changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use. No further analysis is warranted.

[6] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2006. *Important Farmland in California 2006*. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/statewide/2006/

[7] California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring Program. 2006. *Important Farmland in California 2006*. Sacramento, CA. Available at: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/statewide/2006/

## 3.3 AIR QUALITY

This analysis is undertaken to determine if the proposed ordinances may have significant impacts to air quality, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Air quality within the County, which would be subject to the proposed ordinances, was evaluated with regard to the County of Los Angeles General Plan,[2] the National Ambient Air Quality Standards (NAAQS), the California Ambient Air Quality Standards (CAAQS), and the federal Clean Air Act (CAA).[3]

Data on existing air quality in the County are monitored by a network of air monitoring stations operated by the California Environmental Protection Agency, California Air Resources Board (CARB), the South Coast Air Quality Management District (SCAQMD), and the Antelope Valley Air Quality Management District (AVAQMD).

State CEQA Guidelines recommend the consideration of five questions when addressing the potential for significant impacts to air quality.

Would the proposed ordinances:

(a) Conflict with or obstruct implementation of the applicable air quality plan?

**Unincorporated Territories of the County of Los Angeles**

There would be no expected impacts to air quality related to conflicts with or obstruction of implementation of the applicable air quality plan. The proposed ordinance does not sanction violations of the SCAQMD Air Quality Management Plan or provide any such relief from such regulations. The majority of the unincorporated territories of the County are located within the SCAQMD portion of the South Coast Air Basin, while a northern portion of the unincorporated territories of the County is located within the AVAQMD portion of the Mojave Desert Air Basin (Figure 3.3-1, *Air Quality Management Districts within the County of Los Angeles*). Therefore, the area affected by the proposed ordinances is located within the boundaries regulated pursuant to the SCAQMD Air Quality Management Plan and the AVAQMD Federal 8-Hour Ozone Attainment Plan.[4,5] The SCAQMD Air Quality Management Plan sets forth strategies for attaining the federal particulate matter (PM) air quality standards and the federal 8-hour ozone ($O_3$) air quality standard, as well as for meeting state standards at the earliest date practicable. The AVAQMD Federal 8-Hour Ozone Attainment Plan provides planning strategies for attainment of the 8-hour NAAQS for $O_3$ by 2021.

The proposed ordinance would ban plastic carryout bags issued at certain stores within the unincorporated territories of the County, which would be expected to result in beneficial impacts

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] U.S. Environmental Protection Agency. 2005. "Title I Air Pollution Prevention and Control." *Federal Clean Air Act*. Available at: http://www.epa.gov/air/caa//

[4] Antelope Valley Air Quality Management District. 20 May 2008. *AVAQMD Federal 8-Hour Ozone Attainment Plan*. Lancaster, CA.

[5] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

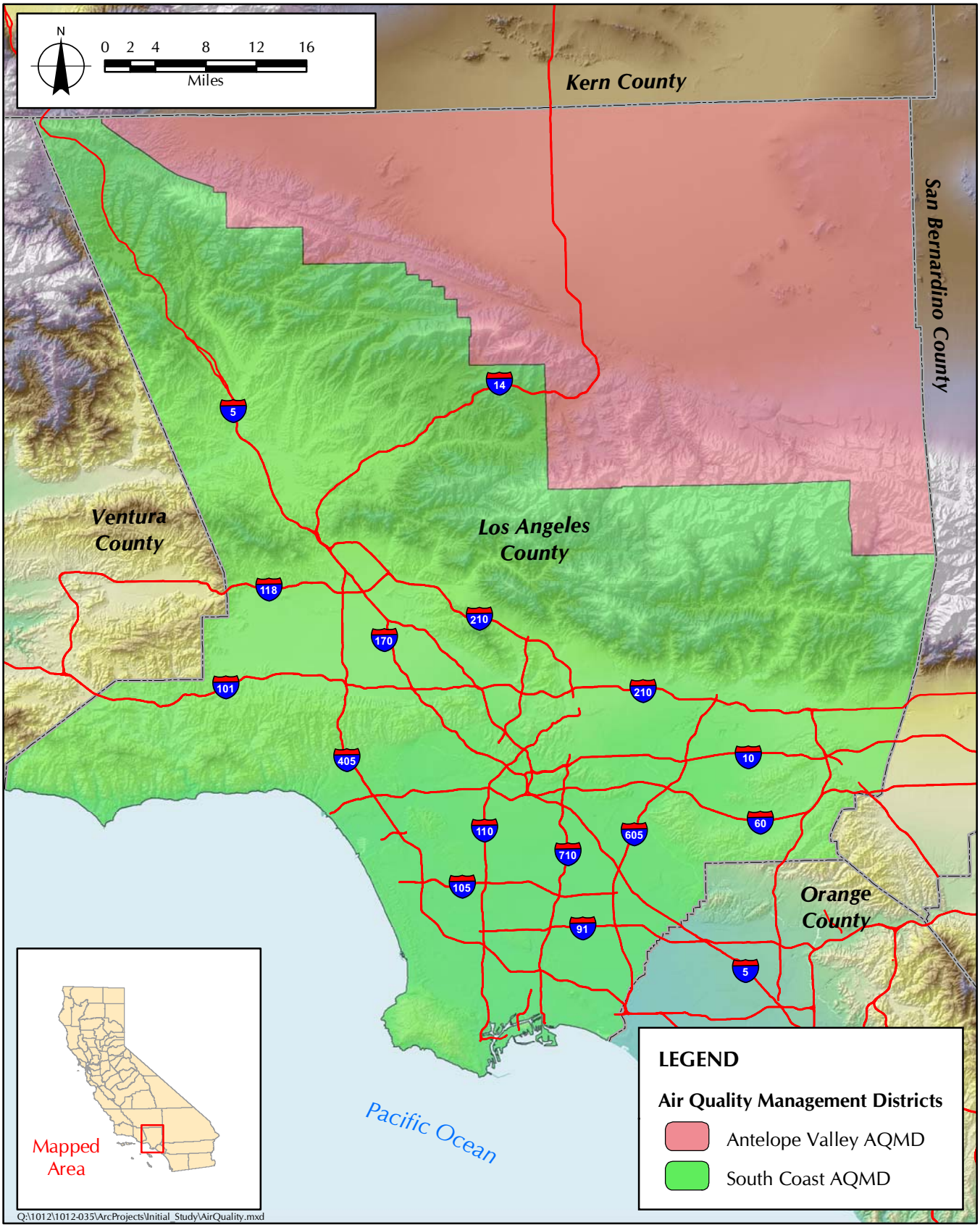


**Figure 3.3-1**

Air Quality Management Districts within the County of Los Angeles

to air quality. Direct beneficial impacts to air quality would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and litter collection along roadways and water channels. In addition, beneficial impacts to air quality would be expected to result from the reduced demand for the production of plastic carryout bags. The production of plastic carryout bags is a chemical process that begins with the conversion of crude oil or natural gas into hydrocarbon monomers such as ethylene;[6] further processing leads to the polymerization of ethylene to form polyethylene. During processing, volatile organic compounds (VOCs), which are precursors to the formation of $O_3$, are emitted into the atmosphere.[7] In addition, the fuel combustion that is required to operate the facilities that manufacture plastic bags results in the emission of $O_3$ precursors and PM into the atmosphere. Therefore, the reduced production of plastic carryout bags would be expected to reduce the emission of $O_3$ precursors into the atmosphere, thereby complying with the $O_3$ reduction requirements set forth in the SCAQMD Air Quality Management Plan and the AVAQMD Federal 8-Hour Ozone Attainment Plan, and would also be expected to reduce PM emissions in compliance with the PM reduction goals set out in the SCAQMD Air Quality Management Plan.

However, certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture, use, and disposal of paper carryout bags. As paper bags are significantly heavier than plastic carryout bags, certain plastic bag industry representatives claim that the transport of paper bags has the potential to require the combustion of more fossil fuel, which could result in an increase in the emission of both PM and $O_3$ precursors. The manufacturing process of paper bags also requires fuel consumption; therefore, these same industry representatives further argue an increase in the production of paper bags could increase the emission of $O_3$ precursors and PM into the atmosphere.

However, any increases would be offset to some extent due to the fact that paper bags can contain a larger volume of groceries than plastic bags. In addition, a net increase in the use of reusable bags would be expected and would further reduce the potential for increased use of paper carryout bags utilized. Therefore, a potential increase in paper bag manufacturing would not be expected to conflict with the $O_3$ reduction requirements set forth in the SCAQMD Air Quality Management Plan and the AVAQMD Federal 8-Hour Ozone Attainment Plan and with the PM reduction goals set out in the SCAQMD Air Quality Management Plan. The causes of air pollution in the County are primarily from vehicle exhausts, unlike areas in the East Coast of the United States, where the primary causes are from manufacturing.[8] Air emissions are regulated by the SCAQMD, which uses the Regional Clean Air Incentives Market (RECLAIM) program to regulate air emissions from manufacturing.[9] Under SCAQMD's command-and-control, almost every piece of equipment that emits air pollution is regulated individually by the SCAQMD. Industrial and miscellaneous manufacturing processes account for less than 10 percent of the sources of $O_3$-forming pollutants.[10] On-road vehicles account for approximately 44 percent of $O_3$-forming pollution. The majority of

[6] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Ethylene." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B451vs2.3.pdf

[7] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[8] Grill, Mindy. "What is Air Pollution?" Web site. Available at: http://www.encyclomedia.com

[9] South Coast Air Quality Management District. "What AQMD Does." Web site. Available at: http://www.aqmd.gov

[10] South Coast Air Quality Management District. "Regional Clean Air Incentives Market (RECLAIM)." Web site. Available at: http://www.aqmd.gov

vehicle miles travelled is associated with commuters, and transport of goods and services for the Ports of Los Angeles and Long Beach and Los Angeles International Airport. The manufacture and transport of plastic and paper carryout bags is a regulated industry that does not represent a measureable contribution to emissions in the County. Therefore, the proposed ordinance would not be expected to have the potential to result in indirect significant impacts to air quality related to conformance with the applicable air quality plans. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

There would be no expected impacts to air quality related to conflicts with or obstruction of implementation of the applicable air quality plan. As with the unincorporated territories of the County, the proposed ordinances would ban plastic carryout bags issued at certain stores within the incorporated cities of the County. The proposed ordinances would be expected to result in beneficial impacts to air quality. The proposed ordinances would not be expected to conflict with the $O_3$ reduction requirements set forth in the SCAQMD Air Quality Management Plan and the AVAQMD Federal 8-Hour Ozone Attainment Plan and with the PM reduction goals set out in the SCAQMD Air Quality Management Plan. Therefore, the proposed ordinances would not be expected to result in indirect significant impacts to air quality related to conformance with the applicable air quality plans. No further analysis is warranted.

(b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

**Unincorporated Territories of the County of Los Angeles**

Any potential impact to air quality in relation to violation of any air quality standard or a substantial contribution to existing or projected air quality violations resulting from the implementation of the proposed ordinance would be expected to be avoided through conformance with the SCAQMD Air Quality Management Plan, which includes conformance with the RECLAIM program, which regulates air emissions from manufacturing, as well as the SCAQMD command-and-control that regulates almost every piece of equipment that emits air pollution.[11] The jurisdiction of the proposed ordinance covers the unincorporated territories of the County, which are required to comply with the NAAQS and CAAQS. The proposed ordinance would be expected to assist the County in achieving air quality standards over time. However, certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, thus requiring the consideration of the potential violations of air quality standards and requirements; therefore, the County has decided to present the analysis of this issue in an EIR.

**Incorporated Cities of the County of Los Angeles**

As with the unincorporated territories of the County, violations of air quality standards from manufacturing within the incorporated cities would be avoided through conformance with the SCAQMD Air Quality Management Plan.[12] However, the County has decided to present the analysis of this issue in an EIR as a means of addressing arguments that have been postulated by

[11] South Coast Air Quality Management District. "Regional Clean Air Incentives Market (RECLAIM)." Web site. Available at: http://www.aqmd.gov

[12] South Coast Air Quality Management District. "Regional Clean Air Incentives Market (RECLAIM)." Web site. Available at: http://www.aqmd.gov

certain representatives of the plastic bag industry. Certain plastic bag industry representatives have postulated that the banning of plastic carryout bags would potentially result in the increased manufacture of paper carryout bags, thus requiring the consideration of the potential violations of air quality standards and requirements; therefore the County has decided to present the analysis of this issue in an EIR. The jurisdiction of the proposed ordinances covers the incorporated cities of the County, which are required to comply with the NAAQS and CAAQS.

As with the proposed ordinance in the unincorporated territories of the County, the proposed ordinances would ban plastic carryout bags issued at certain stores within the incorporated areas of the County. The proposed ordinances would be expected to result in beneficial impacts in relation to the violation of air quality standards and existing or projected air quality violations in the County.

A reduction in the manufacture, transport, and disposal of plastic carryout bags would be expected to reduce the emission of $O_3$ precursors into the atmosphere, thereby complying with NAAQS and CAAQS for $O_3$ and PM.

(c) 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)?

**Unincorporated Territories of the County of Los Angeles**

Potential impacts to air quality due to a net increase of any criteria pollutant for which the County is in non-attainment would be expected to be avoided through conformance with the SCAQMD Air Quality Management Plan, particularly the RECLAIM program, which regulates air emissions from manufacturing. The majority of the unincorporated territories of the County are located within the SCAQMD portion of the South Coast Air Basin, while a northern portion of the unincorporated territories of the County is located within the AVAQMD portion of the Mojave Desert Air Basin (Figure 3.3-1). The SCAQMD portion of the South Coast Air Basin is currently designated as a Severe-17 non-attainment area for $O_3$, a non-attainment area for $PM_{2.5}$, and a Serious non-attainment area for $PM_{10}$;[13] but the South Coast Air Basin has achieved the federal 1-hour and 8-hour carbon monoxide (CO) air quality standards since 1990 and 2002, respectively, and the County has met the federal air quality standards for nitrogen dioxide ($NO_2$) since 1992.[14] Although the South Coast Air Basin as a whole is designated as a non-attainment area for $PM_{10}$, federal $PM_{10}$ standards in the County are currently being met at all monitoring stations.[15] The AVAQMD portion of the Mojave Desert Air Basin is currently classified as a moderate non-attainment area for the federal 8-hour $O_3$ standard, but is in attainment for all other criteria pollutants.[16]

Therefore, implementation of the proposed ordinance would not be expected to adversely impact air quality due to a net increase of any criteria pollutant. However, certain representatives of the

[13] U.S. Environmental Protection Agency. 15 August 2008. "The Green Book Nonattainment Areas for Criteria Pollutants." *Green Book*. Available at: http://www.epa.gov/oar/oaqps/greenbk/

[14] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[15] South Coast Air Quality Management District. June 2007. *2007 Air Quality Management Plan*. Diamond Bar, CA.

[16] U.S. Environmental Protection Agency. 15 August 2008. "The Green Book Nonattainment Areas for Criteria Pollutants." *Green Book*. Available at: http://www.epa.gov/oar/oaqps/greenbk/

plastic bag industry have postulated that the banning of plastic bags would potentially result in a net increase in criteria pollutants; therefore, the County has decided to present the analysis of this issue in an EIR.

**Incorporated Cities of the County of Los Angeles**

As with the unincorporated territories of the County, emissions of criteria pollutants from manufacturing within the incorporated cities would be avoided through conformance with the SCAQMD Air Quality Management Plan.[17] However, the County has decided to present the analysis of this issue in an EIR, as a means of addressing arguments that have been postulated by certain representatives of the plastic bag industry.

(d) Expose sensitive receptors to substantial pollutant concentrations?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to air quality in relation to the exposure of sensitive receptors to substantial pollutant concentrations. Land uses identified as sensitive receptors by SCAQMD in the CEQA Air Quality Handbook can include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.[18] There are many sensitive receptors throughout the unincorporated territories of the County; however, the proposed ordinance would not be expected to result in significant localized air pollutant emissions that would have the potential to affect sensitive receptors. Therefore, the proposed ordinance would be expected to result in less than significant impacts to air quality related to sensitive receptors. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to air quality in relation to the exposure of sensitive receptors to substantial pollutant concentrations. There are many sensitive receptors throughout the incorporated cities of the County; however, the proposed ordinances would not be expected to result in significant localized air pollutant emissions that would have the potential to affect sensitive receptors. Therefore, the proposed ordinances would be expected to result in less than significant impacts to air quality related to sensitive receptors. No further analysis is warranted.

(e) Create objectionable odors affecting a substantial number of people?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to air quality in relation to objectionable odors. The proposed ordinance would ban plastic carryout bags issued at certain stores within the unincorporated territories of the County, which has the potential to result in decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag collection along roadways and water channels. A reduction in vehicle emissions may serve to reduce objectionable odors

[17] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

[18] South Coast Air Quality Management District. 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA.

because diesel exhaust odors from vehicles may be considered unpleasant by some people. However, this potential decrease in objectionable odors is expected to be minimal. Some representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts due to increased reliance on paper carryout bags.[19] Consequently, the proposed ordinance may result in a slight increase in objectionable odors from the increased diesel consumption by vehicles transporting carryout paper bags. However, this potential increase in objectionable odors is also expected to be minimal. Therefore, the proposed ordinances would be expected to result in less than significant impacts to air quality related to objectionable odors. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to air quality in relation to objectionable odors. The proposed ordinances would ban plastic carryout bags issued at certain stores within the incorporated areas of the County, which has the potential to result in decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag waste along roadways and water channels. A reduction in vehicle emissions may help reduce objectionable odors because diesel exhaust odors from vehicles may be considered unpleasant by some people. However, this potential decrease in objectionable odors is expected to be minimal. Therefore, the proposed ordinances would be expected to result in less than significant impacts to air quality related to objectionable odors. No further analysis is warranted.

[19] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

## 3.4 BIOLOGICAL RESOURCES

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to biological resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Biological resources within the County, which would be subject to the proposed ordinances, were evaluated with regard to the Land Use element of the County of Los Angeles General Plan;[2] information provided by the U.S. Fish and Wildlife Service (USFWS),[3] California Department of Fish and Game (CDFG),[4] and Bureau of Land Management;[5] and a review of published and unpublished literature germane to the proposed ordinances.

Although it is anticipated that the proposed ordinances would not result in adverse impacts related to biological resources, it is recommended that the biological resources section be carried forward for further analysis into the EIR to assess the potential for positive effects to biological resources as they relate to listed, sensitive, and locally important species and riparian habitat, wetlands, and habitat conservation plans.

The following list identifies the candidate or listed species that have the potential to occur near or within County limits. These species are either candidates for listing or are currently listed as threatened or endangered in the federal list of threatened and endangered species and are candidates for listing or are currently listed as rare, threatened or endangered in the State of California (Table 3.4-1, *Special-status Species with the Potential to Occur within the County of Los Angeles*):[6]

- Plants: 5 federally listed species, 1 candidate for federal listing, 6 State-listed species and 17 species that are both federal and state listed
- Lepidoptera (butterflies and moths): 2 federally listed species
- Pisces (fish): 3 federally listed species and 2 species that are both federally and State-listed
- Amphibia (amphibians): 3 federal listed species
- Reptilia (reptiles): 1 federal listed species and 2 species that are both federally and State listed
- Aves (birds): 4 federally listed species, 7 state listed species (2 of which are candidates for federal listing) and four species that are both federally and State listed
- Mammalia (mammals): 1 federally listed species, 3 State listed species, and 1 species that is both federally and State listed

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] U.S. Fish and Wildlife Service. Agency information available at: http://www.fws.gov/

[4] California Department of Fish and Game. Agency information available at: http://www.dfg.ca.gov/

[5] Bureau of Land Management. Agency information available at: http://www.blm.gov/ca/st/en.html

[6] California Natural Diversity Database. Accessed on: 13 October 2009. Santa Monica, CA.

## TABLE 3.4-1
## SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE COUNTY OF LOS ANGELES

| Common Name | Scientific Name | Federal Status | State Status |
|---|---|---|---|
| **Amphibians** | | | |
| arroyo toad | *Anaxyrus californicus* | Endangered | None |
| California red-legged frog | *Rana draytonii* | Threatened | None |
| Sierra Madre yellow-legged frog | *Rana muscosa* | Endangered | None |
| **Birds** | | | |
| American peregrine falcon | *Falco peregrinus anatum* | Delisted | Endangered |
| bald eagle | *Haliaeetus leucocephalus* | Delisted | Endangered |
| Belding's savannah sparrow | *Passerculus sandwichensis beldingi* | None | Endangered |
| California black rail | *Laterallus jamaicensis coturniculus* | None | Threatened |
| California condor | *Gymnogyps californianus* | Endangered | Endangered |
| California least tern | *Sternula antillarum browni* | Endangered | Endangered |
| coastal California gnatcatcher | *Polioptila californica californica* | Threatened | None |
| least Bell's vireo | *Vireo bellii pusillus* | Endangered | Endangered |
| San Clemente loggerhead shrike | *Lanius ludovicianus mearnsi* | Endangered | None |
| San Clemente sage sparrow | *Amphispiza belli clementeae* | Threatened | None |
| southwestern willow flycatcher | *Empidonax traillii extimus* | Endangered | Endangered |
| Swainson's hawk | *Buteo swainsoni* | None | Threatened |
| western snowy plover | *Charadrius alexandrinus nivosus* | Threatened | None |
| western yellow-billed cuckoo | *Coccyzus americanus occidentalis* | Candidate | Endangered |
| Xantus' murrelet | *Synthliboramphus hypoleucus* | Candidate | Threatened |
| **Fish** | | | |
| Mohave tui chub | *Gila bicolor mohavensis* | Endangered | Endangered |
| Santa Ana sucker | *Catostomus santaanae* | Threatened | None |
| southern steelhead - southern California ESU | *Oncorhynchus mykiss irideus* | Endangered | None |
| tidewater goby | *Eucyclogobius newberryi* | Endangered | None |
| unarmored threespine stickleback | *Gasterosteus aculeatus williamsoni* | Endangered | Endangered |
| **Invertebrates** | | | |
| El Segundo blue butterfly | *Euphilotes battoides allyni* | Endangered | None |
| Palos Verdes blue butterfly | *Glaucopsyche lygdamus palosverdesensis* | Endangered | None |
| **Mammals** | | | |
| Mohave ground squirrel | *Xerospermophilus mohavensis* | None | Threatened |
| Nelson's antelope squirrel | *Ammospermophilus nelsoni* | None | Threatened |
| Pacific pocket mouse | *Perognathus longimembris pacificus* | Endangered | None |
| San Clemente Island fox | *Urocyon littoralis clementae* | None | Threatened |

## TABLE 3.4-1
## SPECIAL-STATUS SPECIES WITH THE POTENTIAL TO OCCUR WITHIN THE COUNTY OF LOS ANGELES

| | | | |
|---|---|---|---|
| Santa Catalina Island fox | *Urocyon littoralis catalinae* | Endangered | Threatened |
| **Plants** | | | |
| Agoura Hills dudleya | *Dudleya cymosa* ssp. *agourensis* | Threatened | None |
| beach spectaclepod | *Dithyrea maritima* | None | Threatened |
| Brand's star phacelia | *Phacelia stellaris* | Candidate | None |
| Braunton's milk-vetch | *Astragalus brauntonii* | Endangered | None |
| California orcutt grass | *Orcuttia californica* | Endangered | Endangered |
| Catalina Island mountain-mahogany | *Cercocarpus traskiae* | Endangered | Endangered |
| coastal dunes milk-vetch | *Astragalus tener* var. *titi* | Endangered | Endangered |
| Gambel's water cress | *Nasturtium gambelii* | Endangered | Threatened |
| island rush-rose | *Helianthemum greenei* | Threatened | None |
| Lyon's pentachaeta | *Pentachaeta lyonii* | Endangered | Endangered |
| marcescent dudleya | *Dudleya cymosa* ssp. *marcescens* | Threatened | Rare |
| marsh sandwort | *Arenaria paludicola* | Endangered | Endangered |
| Mt. Gleason paintbrush | *Castilleja gleasonii* | None | Rare |
| Nevin's barberry | *Berberis nevinii* | Endangered | Endangered |
| salt marsh bird's-beak | *Cordylanthus maritimus* ssp. *maritimus* | Endangered | Endangered |
| San Clemente Island bedstraw | *Galium catalinense* ssp. *acrispum* | None | Endangered |
| San Clemente Island bird's-foot trefoil | *Lotus argophyllus* var. *adsurgens* | None | Endangered |
| San Clemente Island bush-mallow | *Malacothamnus clementinus* | Endangered | Endangered |
| San Clemente Island larkspur | *Delphinium variegatum* ssp. *kinkiense* | Endangered | Endangered |
| San Clemente Island lotus | *Lotus dendroideus* var. *traskiae* | Endangered | Endangered |
| San Clemente Island paintbrush | *Castilleja grisea* | Endangered | Endangered |
| San Clemente Island woodland star | *Lithophragma maximum* | Endangered | Endangered |
| San Fernando Valley spineflower | *Chorizanthe parryi* var. *fernandina* | Candidate | Endangered |
| Santa Cruz Island rock cress | *Sibara filifolia* | Endangered | None |
| Santa Monica dudleya | *Dudleya cymosa* ssp. *ovatifolia* | Threatened | None |
| Santa Susana tarplant | *Deinandra minthornii* | None | Rare |
| slender-horned spineflower | *Dodecahema leptoceras* | Endangered | Endangered |
| spreading navarretia | *Navarretia fossalis* | Threatened | None |
| thread-leaved brodiaea | *Brodiaea filifolia* | Threatened | Endangered |
| Ventura Marsh milk-vetch | *Astragalus pycnostachyus* var. *lanosissimus* | Endangered | Endangered |
| **Reptiles** | | | |
| desert tortoise | *Gopherus agassizii* | Threatened | Threatened |
| island night lizard | *Xantusia riversiana* | Threatened | None |

Greenhouse gases are not identified as a factor contributing to the threatened or endangered status of these species.[7] Declines in the populations of plants and animals are caused by many factors, the most serious of which is habitat degradation and destruction by humans through development activities, environmental pollution, introduction of invasive and nonnative species, overharvesting of wild species, and conversion of habitat to other uses.[8]

The State CEQA Guidelines recommend consideration of the following six questions when addressing the potential for significant impacts to biological resources.

Would the proposed ordinances:

(a) Have a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or the USFWS?

**Listed Species**

***Unincorporated Territories of the County of Los Angeles***

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to species listed as rare, threatened, or endangered pursuant to the federal and state Endangered Species Acts (ESAs). The proposed ordinance would ban plastic carryout bags issued at certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter attributed to plastic carryout bags. The proposed ordinance would not contain any components that would modify habitat or otherwise adversely affect the survival of any listed species. Therefore, there would be no expected adverse impacts to biological resources related to species listed as rare, threatened, or endangered pursuant to the federal and state ESAs. However, the proposed ordinance would have the potential to result in a beneficial effect to listed species through the reduction of litter associated with plastic bags. Currently, 45,000 tons of plastic carryout bags are disposed of by residents throughout the County each year.[9,10] The structural characteristics of plastic carryout bags allow the bags to easily blow away from landfills and trash collection trucks to become entangled in fences, brush, and waterways.[11,12] By reducing the amount of litter attributed to plastic carryout bags that pollutes potentially suitable upland and aquatic habitats for species

[7] California Natural Diversity Database. Accessed on: 13 October 2009. Santa Monica, CA.

[8] U.S. Department of Agriculture, Northeastern Area. 1997. *Threatened and Endangered Species and the Private Landowner*. Available at: http://www.na.fs.fed.us/spfo/pubs/wildlife/endangered/endangered.htm

[9] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097. Countywide figures are prorated from State figures.

[10] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[11] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[12] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

listed as rare, threatened, or endangered pursuant to the federal and state ESAs, the proposed ordinance would have the potential to improve the quality of the habitats in which these listed species dwell. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to species listed as rare, threatened, or endangered pursuant to the federal and state ESAs. The proposed ordinances would not contain any components that would modify habitat or otherwise adversely affect the survival of any listed species. Therefore, there would be no expected adverse impacts to biological resources related to species listed as rare, threatened, or endangered pursuant to the federal and state ESAs. However, the proposed ordinances would have the potential to benefit listed species through the reduction of litter that is associated with plastic bags. By reducing the amount of litter attributed to plastic bags that pollutes potentially suitable upland and aquatic habitats for species listed as rare, threatened, or endangered pursuant to the federal and state ESAs, the proposed ordinances would have the potential to improve the quality of the habitats of the listed species. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

**Sensitive Species**

***Unincorporated Territories of the County of Los Angeles***

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California Species of Special Concern. The proposed ordinance would ban plastic carryout bags issued at certain stores and would aim to significantly reduce the use of plastic carryout bags in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinances do not contain any components that would serve to modify habitat or otherwise adversely affect the survival of any sensitive species. Therefore, there would be no expected adverse impacts to biological resources related to sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California Species of Special Concern. Currently, 45,000 tons of plastic carryout bags are disposed of by residents Countywide each year.[13,14] The structural characteristics of plastic carryout bags allow the bags to easily blow away from landfills and trash collection trucks and they end up entangled in fences, brush, and waterways.[15,16] The proposed ordinances would have the potential to result in a beneficial effect to listed species by reducing the amount of plastic bag litter that pollutes potentially suitable upland

[13] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097. Countywide figures are prorated from State figures.

[14] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[15] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf and

[16] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

and aquatic habitats for sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California Species of Special Concern, thereby improving the conditions of the habitats in which these sensitive species dwell. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California Species of Special Concern. The proposed ordinances would not entail any components that would modify habitat or otherwise adversely affect the survival of any sensitive species. Therefore, there would be no expected adverse impacts to biological resources related to sensitive species recognized by the USFWS as federal species of concern or by the CDFG as California Species of Special Concern. The proposed ordinances would have the potential to benefit listed species by reducing the amount of plastic bag litter that pollutes potentially suitable upland and aquatic habitats for sensitive species recognized by the USFWS or the CDFG, thereby improving the conditions of the habitats in which these sensitive species dwell. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

**Locally Important Species**

***Unincorporated Territories of the County of Los Angeles***

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to locally important species afforded protection pursuant to California Native Plant Society (CNPS) and CDFG. The proposed ordinances would ban plastic bags issued at certain stores and would aim to significantly reduce the use of plastic carryout bags in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not contain any components that would serve to modify habitats or otherwise adversely affect the survival of any locally important species. Therefore, there would be no expected adverse impacts to biological resources related to locally important species afforded protection pursuant to the CNPS and CDFG. However, the proposed ordinance would have the potential to result in a beneficial effect to locally important species through the reduction of litter that is attributed to plastic bags. Currently, 45,000 tons of plastic carryout bags are disposed of by residents Countywide each year.[17] The structural characteristics of plastic carryout bags allow the bags to easily blow away from landfills and trash collection trucks and they end up entangled in fences, brush, and waterways.[18,19] By reducing the amount of litter associated with plastic bags that pollutes potentially suitable upland and aquatic habitats for locally important species designated pursuant to the CNPS and CDFG, the proposed ordinance would have the potential to improve the

[17] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097. Countywide figures are prorated from State figures.

[18] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[19] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

quality of the habitats of these species. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to locally important species afforded protection pursuant to CNPS and CDFG. The proposed ordinances would not contain any components that would serve to modify habitats or otherwise adversely affect the survival of any locally important species. Therefore, there would be no expected adverse impacts to biological resources related to locally important species afforded protection pursuant to the CNPS and CDFG. However, the proposed ordinances would have the potential to benefit locally important species through the reduction of litter attributed to plastic bags. As previously noted, 45,000 tons of plastic carryout bags are currently disposed of by residents each year throughout the County.[20,21] The structural characteristics of plastic carryout bags allow the bags to easily blow away from landfills and trash collection trucks and they end up entangled in fences, brush, and waterways.[22,23] By reducing the amount of litter associated with plastic bags that pollutes potentially suitable upland and aquatic habitats for locally important species designated pursuant to the CNPS and CDFG, the proposed ordinances would have the potential to improve the quality of the habitats of these species. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFG or the USFWS?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to riparian habitat or other sensitive natural communities. The proposed ordinance would ban plastic carryout bags issued at certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not contain any components that would serve to modify riparian habitats or other sensitive natural communities. Therefore, there would be no expected adverse impacts to biological resources related to riparian habitat or other sensitive natural communities. However, implementation of the proposed ordinance would have the potential to result in a beneficial effect related to riparian

[20] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097. Countywide figures are prorated from State figures.

[21] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[22] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[23] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

habitat due to decreased levels of plastic bag litter flowing into waterways and riparian habitats.[24,25] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to riparian habitat or other sensitive natural communities. The proposed ordinances would not contain any components that would modify riparian habitats or other sensitive natural communities. Therefore, there would be no expected adverse impacts to biological resources related to riparian habitat or other sensitive natural communities. However, implementation of the proposed ordinances would have the potential to result in a beneficial effect related to riparian habitat due to decreased levels of plastic bag litter flowing into waterways and riparian habitats.[26,27] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

(c) 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?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. The proposed ordinance would ban plastic carryout bags issued at certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not contain any components that would directly or indirectly remove, fill, or interrupt any federally protected wetlands. Therefore, there would be no expected adverse impacts to biological resources related to federally protected wetlands as defined by Section 404 of the Clean Water Act. However, the proposed ordinance would have the potential to result in a beneficial effect on wetlands by reducing the amount of plastic bag waste contained in storm water runoff, thus improving water quality and the quality of biological resources in the unincorporated territories of the County related to federally protected wetlands as defined by Section 404 of the Clean Water Act.[28,29] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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[24] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[25] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[26] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[27] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[28] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at: http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. The proposed ordinances would not contain any components that would directly or indirectly remove, fill, or interrupt any federally protected wetlands. Therefore, there would be no expected adverse impacts to biological resources related to federally protected wetlands as defined by Section 404 of the Clean Water Act. However, the proposed ordinances would have the potential to result in a beneficial effect on wetlands by reducing the amount of plastic bag waste contained in storm water runoff, thus improving water quality and the quality of biological resources in the County related to federally protected wetlands as defined by Section 404 of the Clean Water Act.[30,31] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

(d) 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?

**Wildlife Movement Corridors**

***Unincorporated Territories of the County of Los Angeles***

The proposed ordinance would not be expected to result in negative impacts to biological resources in relation to movement of any migratory fish or wildlife species or with an established wildlife corridor. The proposed ordinance would ban plastic carryout bags issued by certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinances do not include any components that would interfere with wildlife movement corridors. Therefore, there would be no expected adverse impacts to biological resources related to the movement of any migratory fish or wildlife species or with an established wildlife corridor. However, the proposed ordinance would have the potential to result in a beneficial effect to migratory fish or wildlife species by reducing plastic bag litter, thereby improving the quality of potentially suitable habitat for wildlife corridors needed for migration. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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[29] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[30] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097. Countywide figures are prorated from State figures.

[31] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

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The proposed ordinances would not be expected to result in negative impacts to biological resources in relation to movement of any migratory fish or wildlife species or with an established wildlife corridor. The proposed ordinances would not include any components that would interfere with wildlife movement corridors. Therefore, there would be no expected adverse impacts to biological resources related to the movement of any migratory fish or wildlife species or with an established wildlife corridor. However, the proposed ordinances would have the potential to result in a beneficial effect to migratory fish or wildlife species by reducing plastic bag litter and thereby improving the quality of potentially suitable habitat for wildlife corridors needed for migration. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

**Nursery Sites**

***Unincorporated Territories of the County of Los Angeles***

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to impeding the use of native wildlife nursery sites. The proposed ordinance would ban plastic carryout bags issued by certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not contain any components that would serve to modify habitat or otherwise adversely affect nursery sites. Therefore, there would be no expected impacts to biological resources related to impeding the use of native wildlife nursery sites. However, the proposed ordinance would have the potential to result in a beneficial effect to native wildlife nursery sites by reducing plastic bag litter that pollutes these sites, thereby improving the quality of potentially suitable habitat for wildlife nursery sites. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

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The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to impeding the use of native wildlife nursery sites. The proposed ordinances would not contain any components that would serve to modify habitat or otherwise adversely affect nursery sites. Therefore, there would be no expected impacts to biological resources related to impeding the use of native wildlife nursery sites. However, the proposed ordinances would have the potential to benefit native wildlife nursery sites by reducing plastic bag litter that pollutes these sites, thereby improving the quality of potentially suitable habitat for wildlife nursery sites. Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

(e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinances?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to biological resources in relation to conflicts with any local policies or ordinances protecting biological resources. The proposed ordinance would ban plastic carryout bags issued by certain stores and would aim to

significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not contain any components that would serve to remove or otherwise adversely impact local biological recourses such as oak trees. Therefore, there would be no expected impacts to biological resources related to conflicts with any local policies or ordinances protecting biological resources. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to biological resources in relation to conflicts with any local policies or ordinances protecting biological resources. The proposed ordinances would ban plastic carryout bags issued by certain stores and aim to significantly reduce the use of plastic carryout bags in the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinances would not contain any components that would remove or otherwise adversely impact local biological resources such as oak trees. Therefore, there would be no expected impacts to biological resources related to conflicts with any local policies or ordinances protecting biological resources. No further analysis is warranted.

(f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in adverse impacts to biological resources in relation to conflicts with the provisions of any adopted Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs). Only one NCCP exists within the County, the Palos Verdes Peninsula Subregional Plan.[32,33] The proposed ordinance would ban plastic carryout bags issued by certain stores and would aim to significantly reduce the use of plastic carryout bags in the unincorporated territories of the County in an effort to reduce the amount of litter that is attributed to plastic carryout bags. The proposed ordinance does not include components that would serve to conflict with any habitat conservation plan. Therefore, there would be no expected adverse impacts to biological resources related to conflicts with the provisions of any adopted HCPs or NCCPs. However, the proposed ordinance would have the potential benefit biological resources in relation to the Palos Verdes Peninsula Subregional Plan by reducing litter associated with plastic carryout bags in the sensitive coastal sage scrub habitat, thereby potentially contributing to better area-wide protection of natural wildlife diversity.[34] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

[32] California Department of Fish and Game. Accessed on: 24 June 2009. "NCCP Plan Status." *Resource Management*. Available at: http://www.dfg.ca.gov/habcon/nccp/status/PalosVerdes.html

[33] City of Rancho Palos Verdes. Accessed on: 24 June 2009. "Natural Communities Conservation Planning Act (NCCP)." *Planning & Zoning*. Available at: http://www.palosverdes.com/rpv/planning/NCCP/index.cfm

[34] City of Rancho Palos Verdes. Accessed on: 24 June 2009. "Natural Communities Conservation Planning Act (NCCP)." *Planning & Zoning*. Available at: http://www.palosverdes.com/rpv/planning/NCCP/index.cfm

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in adverse impacts to biological resources in relation to conflicts with the provisions of any adopted HCP or NCCP. As previously mentioned, only one NCCP exists within the County, the Palos Verdes Peninsula Subregional Plan.[35,36] The proposed ordinances would not include components that would conflict with any HCP. Therefore, there would be no expected adverse impacts to biological resources related to conflicts with the provisions of any adopted HCP or NCCP. However, the proposed ordinances would have the potential to result in a beneficial effect to biological resources in relation to the Palos Verdes Peninsula Subregional Plan by reducing litter associated with plastic carryout bags in the sensitive coastal sage scrub habitat, thereby potentially contributing to better area-wide protection of natural wildlife diversity.[37] Further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

[35] California Department of Fish and Game. Accessed on: 24 June 2009. "NCCP Plan Status." *Resource Management*. Available at: http://www.dfg.ca.gov/habcon/nccp/status/PalosVerdes.html

[36] City of Rancho Palos Verdes. Accessed on: 24 June 2009. "Natural Communities Conservation Planning Act (NCCP)." *Planning & Zoning*. Available at: http://www.palosverdes.com/rpv/planning/NCCP/index.cfm

[37] City of Rancho Palos Verdes. Accessed on: 24 June 2009. "Natural Communities Conservation Planning Act (NCCP)." *Planning & Zoning*. Available at: http://www.palosverdes.com/rpv/planning/NCCP/index.cfm

## 3.5 CULTURAL RESOURCES

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to cultural resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1]

State CEQA Guidelines recommend the consideration of four questions when addressing the potential for significant impacts to cultural resources.

Would the proposed ordinances:

(a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5 [of the State CEQA Guidelines]?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to cultural resources related to a substantial adverse change in the significance of a historical resource. According to Section 15064.5 of the State CEQA Guidelines, a substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource is materially impaired. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County and would not include any demolition, destruction, relocation, or alteration of historical resources. Therefore, there would be no expected impacts to cultural resources related to a substantial adverse change in the significance of a historical resource. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to cultural resources related to a substantial adverse change in the significance of a historical resource. As previously noted, according to Section 15064.5 of the State CEQA Guidelines, a substantial adverse change in the significance of a historical resource is defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource is materially impaired. The proposed ordinances would not include any demolition, destruction, relocation, or alteration of historical resources. Therefore, there would be no expected impacts to cultural resources related to a substantial adverse change in the significance of a historical resource. No further analysis is warranted.

(b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to cultural resources related to a substantial adverse change in the significance of an archeological resource. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories the County and would not include any ground-disturbing activities that could serve to

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

adversely impact archeological resources. Therefore, there would be no expected impacts to cultural resources related to a substantial adverse change in the significance of an archeological resource. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to cultural resources related to a substantial adverse change in the significance of an archeological resource. The proposed ordinances would not include any ground-disturbing activities that could serve to adversely impact archeological resources. Therefore, there would be no expected impacts to cultural resources related to a substantial adverse change in the significance of an archeological resource. No further analysis is warranted.

(c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource or unique geologic feature. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County and would not include any ground-disturbing activities that could adversely impact paleontological resources, paleontological sites, or unique geologic features. Therefore, there would be no expected impacts to cultural resources related to the destruction of a unique paleontological resource or unique geologic feature. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to cultural resources related directly or indirectly to the destruction of a unique paleontological resource or unique geologic feature. The proposed ordinances would not include any ground-disturbing activities that could adversely impact paleontological resources, paleontological sites, or unique geologic features. Therefore, there would be no expected impacts to cultural resources related to the destruction of a unique paleontological resource or unique geologic feature. No further analysis is warranted.

(d) Disturb any human remains, including those interred outside of formal cemeteries?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to disturb any human remains, including those interred outside of formal cemeteries. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County and would not include any ground-disturbing activities. Therefore, the proposed ordinance would not be expected to disturb any human remains, including those interred outside of formal cemeteries. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to disturb any human remains, including those interred outside of formal cemeteries. The proposed ordinances would not include any ground-disturbing activities. Therefore, the proposed ordinances would not be expected to disturb any human remains, including those interred outside of formal cemeteries. No further analysis is warranted.

## 3.6 GEOLOGY AND SOILS

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to geology and soils, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Geology and soils within the County, which would be subject to the proposed ordinances, were evaluated with regard to the County of Los Angeles General Plan[2] and in consideration of the most recent Alquist-Priolo Earthquake Fault Zoning (APEFZ) Maps.[3]

The State CEQA Guidelines recommend the consideration of seven questions when addressing the potential for significant impacts to geology and soils.

Would the proposed ordinances:

(a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent APEFZ Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. Although numerous active earthquake faults exist throughout the County, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail the development of structures or elements that would expose or place people within vicinity of a known earthquake fault. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving the rupture of a known earthquake fault. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthquake fault. The proposed ordinances would not entail the development of structures or elements that would expose or place people within vicinity of a known earthquake fault. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving the rupture of a known earthquake fault. No further analysis is warranted.

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] California Geological Survey. 2007 (Interim Revision). "Fault-Rupture Hazard Zones in California." *Special Publication 42*. Supplements 1 and 2 added 1999. Contact: 655 S. Hope Street, #700, Los Angeles, CA 90017. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sp/Sp42.pdf

ii) Strong seismic ground shaking?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Although numerous active faults exist that could result in strong seismic ground shaking, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail the development of structures or elements that would expose or place people near or in areas susceptible to strong seismic ground shaking. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving strong seismic ground shaking. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. The proposed ordinances would ban plastic carryout bags issued by certain stores and would not entail the development of structures or elements that would expose or place people near or in areas susceptible to strong seismic ground shaking. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving strong seismic ground shaking. No further analysis is warranted.

iii) Seismic-related ground failure, including liquefaction?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. Although numerous active faults exist that could result in strong seismic ground shaking, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail the development of structures or elements that would expose or place people near or in an area susceptible to seismic-related ground failure, including liquefaction. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving seismic-related ground failure, including liquefaction. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. The proposed ordinances would ban plastic carryout bags issued by certain stores and would not entail the development of structures or elements that would expose or place people near or in an area susceptible to seismic-related ground failure, including liquefaction. Therefore, there would be no expected impacts from exposing people or structures to potential substantial adverse effects involving seismic-related ground failure, including liquefaction. No further analysis is warranted.

iv) Landslides?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Due to the substantial topographical changes throughout southern California, there are numerous locations within the County that are susceptible to landslides. However, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not contain components that would require the development of structures or elements that would expose people to potential adverse impacts related to landslides. Therefore, there would be no expected impacts related to exposing people or structures to potential substantial adverse effects involving landslides and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts related to exposing people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. The proposed ordinances would not contain components that would require the development of structures or elements that would expose people to potential adverse impacts related to landslides. Therefore, there would be no expected impacts related to exposing people or structures to potential substantial adverse effects involving landslides and no further analysis is warranted.

(b) Result in substantial soil erosion or the loss of topsoil?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to geology and soils in relation to substantial soil erosion and the loss of topsoil. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail construction-related activities such as grading or elements that would be expected to result in changes to the existing soil conditions or create a loss of topsoil within the unincorporated areas of the County. Therefore, there would not be any expected impacts on geology and soils related to substantial soil erosion or the loss of topsoil. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to geology and soils in relation to substantial soil erosion and the loss of topsoil. The proposed ordinances would not contain elements that would require construction-related activities, such as grading or development that would be expected to result in changes to the existing soil conditions or to create a loss of topsoil within the incorporated areas of the County. Therefore, there would not be any expected impacts on geology and soils related to substantial soil erosion or the loss of topsoil. No further analysis is warranted.

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to geology and soils in relation to location on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed ordinance, and that could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail construction-related activities or the development of structures or elements that would be expected to have the potential to result in impacts related to soil or geologic units that are unstable or that would become unstable. Therefore, there would be no expected impacts to geology and soils related to location on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed ordinance, and that could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to geology and soils in relation to location on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed ordinance, and that could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. As previously stated, the proposed ordinances would not require construction-related activities or the development of structures or elements that would be expected to have the potential to result in impacts related to soil or geologic units that are unstable or that would become unstable. Therefore, there would be no expected impacts to geology and soils related to location on a geologic unit or soil that is unstable or that would become unstable as a result of the proposed ordinance, and that could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse. No further analysis is warranted.

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to geology and soils in relation to location on expansive soil creating substantial risks to life or property. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail the development of structures or features that would be located on expansive soils. Therefore, there would be no expected impacts to geology and soils related to location of the proposed ordinance on expansive soil creating substantial risks to life or property, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to geology and soils in relation to location on expansive soil creating substantial risks to life or property. The proposed ordinances would not entail the development of structures or features that would be located on expansive soils. Therefore, there would be no expected impacts to geology and soils related to

location of the proposed ordinance on expansive soil creating substantial risks to life or property, and no further analysis is warranted.

(e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to geology and soils in relation to having soils that are incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not include any components requiring the use of septic tanks or alternative waste water disposal systems. Therefore, there would be no expected impacts to geology and soils related to having soils that are incapable of supporting septic tanks or alternative waste systems where sewers are not available. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to geology and soils in relation to having soils that are incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available. The proposed ordinances would not entail any components requiring the use of septic tanks or alternative waste water disposal systems. Therefore, there would be no expected impacts to geology and soils related to having soils that are incapable of supporting septic tanks or alternative waste systems where sewers are not available. No further analysis is warranted.

## 3.7 GREENHOUSE GAS EMISSIONS

This analysis is undertaken to determine if the proposed ordinances may have significant environmental impacts due to greenhouse gas (GHG) emissions. The analysis is based on the two recommended questions proposed by OPR in April 2009 as additions to Appendix G of the State CEQA Guidelines.[1] GHG emissions within the County, which would be subject to the proposed ordinances, were evaluated based on guidance provided by regulatory publications from the California Air Pollution Control Officers Association;[2] the State Office of the Attorney General;[3] CARB;[4] and OPR.[5]

The U.S. Environmental Protection Agency (EPA) has reported that the majority of GHG emissions in the United States can be attributed to the energy sector, which accounted for 86.3 percent of total U.S. GHG emissions in 2007 due to stationary and mobile fuel combustion.[6] The manufacture and distribution of plastic and paper carryout bags, as well as reusable bags, requires energy use, and therefore contributes to the total GHG emissions in the energy sector. The industrial sector accounted for only 4.9 percent of U.S. GHG emissions in 2007.[7] In the industrial sector, the top 10 contributors to GHG emissions, which account for more than 90 percent of the total GHG emissions from the industrial sector, include substitution of ozone-depleting substances; iron and steel production and metallurgical coke production; cement production; nitric acid production; hydrochlorofluorocarbon (HCFC) production, specifically, HCFC-22; lime production; ammonia production and urea consumption; electrical transmission and distribution; aluminum production; and limestone and dolomite use. Although the production of plastic, paper, and reusable carryout bags can be categorized as part of the industrial sector, it is not included in the top 10 contributors.

OPR recommends the consideration of two questions when addressing the potential for significant impacts to GHG emissions.

Would the proposed ordinances:

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

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[1] California Governor's Office of Planning and Research. 2007. *CEQA Guidelines and Greenhouse Gases*. Available at: http://www.opr.ca.gov/index.php?a=ceqa/index.html

[2] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[3] California Department of Justice, Office of the Attorney General. 21 May 2008 (Updated 26 September 2008). *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level*. Sacramento, CA.

[4] California Air Resources Board. 24 October 2008. *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*. Available at: http://www.opr.ca.gov/ceqa/pdfs/Prelim_Draft_Staff_Proposal_10-24-08.pdf

[5] California Governor's Office of Planning and Research Technical Advisory. 19 June 2008. *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. Sacramento, CA.

[6] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

[7] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

**Unincorporated Territories of the County of Los Angeles**

The net impact on the environment due to the proposed ordinance in relation to the direct or indirect generation of GHGs would be expected to be below the level of significance. The proposed ordinance would be expected to assist the County in reducing GHG emissions over time. However, certain representatives of the plastic bag industry have argued that similar proposed ordinances may have the potential to generate GHG emissions due to increased reliance on paper carryout bags;[8] therefore, the County has decided to present the analysis of this issue in an EIR.

The proposed ordinance would ban the issuance of plastic carryout bags by certain stores, which would be expected to result in beneficial impacts in relation to GHG emissions. The proposed ordinance is expected to result in a net reduction in the use of plastic carryout bags, as it is intended to result in a net conversion to the use of reusable bags. Direct reductions in GHGs would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag litter along roadways and water channels. In addition, reductions in GHG emissions would be expected to result from the reduction in demand for the production of plastic carryout bags. The production of plastic bags is a chemical process that begins with the conversion of crude oil or natural gas into hydrocarbon monomers such as ethylene;[9] further processing leads to the polymerization of ethylene to form polyethylene. During processing, volatile organic compounds (VOCs) are emitted into the atmosphere.[10] Due to the fact that VOCs undergo a sequence of reactions in the atmosphere to form ozone ($O_3$) and carbon dioxide ($CO_2$), VOCs have an indirect global warming potential;[11] therefore, the emission of VOCs during the manufacture of plastic bags cause an indirect increase in GHGs. In addition, fuel combustion is required to operate the facilities that manufacture plastic bags.[12] The emission of VOCs and the combustion of fuel during the manufacture of plastic bags results in the emission of GHGs into the atmosphere; therefore, a reduction in the manufacture, transport, and disposal of plastic carryout bags would be expected to reduce the emission of GHGs into the atmosphere.

However, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in increases in GHG emissions due to potential increased demand for paper bags.[13] Certain representatives of the plastic bag industry have argued that as paper bags are significantly heavier than plastic bags, the transport of a higher volume of paper

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[8] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[9] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Ethylene." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B451vs2.3.pdf

[10] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[11] Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis. Chapter 2: Changes in Atmospheric Constituents and in Radiative Forcing.* Cambridge, UK, and New York, NY, USA.

[12] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[13] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

bags could require the combustion of more fossil fuel, thereby resulting in the increased emission of GHGs.[14] The manufacturing process of paper bags requires fuel consumption; consequently, representatives of the plastic bag industry have argued that an increase in the production of paper carryout bags would increase the emission of GHGs into the atmosphere.[15] However, any increases in GHG emissions would be offset to some extent by the ability of paper bags to contain a larger volume of groceries than plastic bags; therefore, a conversion of use from plastic to paper would be expected to result in a smaller number of individual paper and plastic carryout bags being manufactured, transported, and used. In addition, a net increase in the use of reusable bags would also be encouraged, which would further reduce the number of paper carryout bags utilized.

Certain representatives of the plastic bag industry have argued that the production of paper carryout bags could cause an adverse environmental impact due to the release of GHGs into the atmosphere due to deforestation.[16] In addition, certain representatives of the plastic bag industry have argued that GHG emissions may occur due to the process of decomposition of paper bags in landfills, which releases methane into the atmosphere.[17] Therefore, certain representatives of the plastic bag industry have concluded that an increase in the production, use, and disposal of paper carryout bags could have the potential to generate increased GHG emissions, either directly or indirectly.[18] In a similar manner, the production and transport of reusable bags could also result in the emission of GHGs; however, the emissions resulting from reusable bags would be expected to be significantly lower than the emission per plastic carryout bag since reusable bags can be reused multiple times and can last two to five years.[19]

It is also important to note that, as previously mentioned, although the manufacture and distribution of paper and plastic carryout bags and reusable bags require some fuel consumption that results in GHG emissions, the production of paper and plastic carryout bags and reusable bags is not one of the top 10 contributors to GHG emissions in the U.S. industrial sector.[20]

The expected net impacts to GHG emissions from the proposed ordinance in relation to the direct or indirect generation of GHGs would be expected to be below the level of significance. However, the County has decided to present the analysis of this issue in an EIR to verify these findings.

**Incorporated Cities of the County of Los Angeles**

The net impact on the environment due to the proposed ordinances in relation to the direct or indirect generation of GHGs would be expected to be below the level of significance. The proposed ordinances would be expected to assist the incorporated cities in the County in reducing GHG emissions over time. However, certain representatives of the plastic bag industry have

[14] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[15] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[16] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[17] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[18] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[19] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[20] U.S. Environmental Protection Agency. April, 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

argued that the proposed ordinances may also have the potential to generate GHG emissions due to increased reliance on paper carryout bags;[21] therefore, the County has decided to present the analysis of this issue in an EIR to verify these findings.

As with the unincorporated territories of the County, the proposed ordinances would ban the issuance of plastic carryout bags, which would be expected to result in beneficial impacts in relation to the generation of GHG paper and plastic carryout bags, as it is intended to result in a net conversion to the use of reusable bags. Direct reductions in GHGs would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag litter along roadways and water channels. In addition, reductions in GHG emissions would be expected to result from the reduction in demand for the production of plastic carryout bags. The production of plastic bags is a chemical process that begins with the conversion of crude oil or natural gas into hydrocarbon monomers such as ethylene;[22] further processing leads to the polymerization of ethylene to form polyethylene. During processing, VOCs are emitted into the atmosphere.[23] Due to the fact that VOCs undergo a sequence of reactions in the atmosphere to form $O_3$ and $CO_2$, VOCs have an indirect global warming potential;[24] therefore, the emission of VOCs during the manufacture of plastic bags cause an indirect increase in GHGs. In addition, fuel combustion is required to operate the facilities that manufacture plastic bags.[25] The emission of VOCs and the combustion of fuel during the manufacture of plastic bags results in the emission of GHGs into the atmosphere; therefore, a reduction in the manufacture, transport, and disposal of plastic carryout bags would be expected to reduce the emission of GHGs into the atmosphere.

However, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in increases in GHG emissions due to the potential increased demand for paper bags.[26] As paper bags are significantly heavier than plastic bags, representatives of the plastic bag industry have argued that the transport of a higher volume of paper bags could require the combustion of more fossil fuel, thereby resulting in the increased emission of GHGs.[27] The manufacturing process of paper bags requires fuel consumption; consequently, representatives of the plastic bag industry have argued that an increase in the production of paper carryout bags could increase the emission of GHGs into the atmosphere.[28] However, any increases would be offset to some extent by the ability of paper bags to contain a larger volume of groceries than plastic bags; therefore, a conversion of use from plastic to paper

[21] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[22] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Ethylene." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B451vs2.3.pdf

[23] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[24] Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis. Chapter 2: Changes in Atmospheric Constituents and in Radiative Forcing.* Cambridge, UK, and New York, NY, USA.

[25] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[26] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[27] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[28] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

would be expected to result in a smaller number of individual paper and plastic carryout bags being manufactured, transported, and used. In addition, a net increase in the use of reusable bags would also be encouraged, which would further reduce the number of paper carryout bags utilized.

Certain representatives of the plastic bag industry have argued that the production of paper carryout bags could cause an adverse environmental impact due to deforestation.[29] In addition, certain representatives of the plastic bag industry have argued that GHG emissions may occur due to the process of decomposition of paper bags in landfills, which releases methane into the atmosphere.[30] Therefore, certain representatives of the plastic bag industry have concluded that a potential increase in the production, use, and disposal of paper carryout bags could have the potential to generate GHG emissions.[31] In a similar manner, the production and transport of reusable bags could also be expected to result in the emission of GHGs; however, the emissions per reusable bag would be expected to be significantly lower than the emission per plastic carryout bag due to the fact that reusable bags can be reused multiple times and can last for between two to five years.[32] It is also important to note that, as previously mentioned, although the manufacture and distribution of plastic and paper carryout bags and reusable bags require some fuel consumption that results in GHG emissions, the production of carryout bags and reusable bags is not one of the top 10 contributors to GHG emissions in the U.S. industrial sector.[33] The expected net impacts to GHGs from the proposed ordinances in relation to the direct or indirect generation of GHGs would be expected to be below the level of significance. However, the County has decided to present the analysis of this issue in an EIR to verify these findings.

(b) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance's net impacts on the environment related to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs would be expected to be below the level of significance. However, certain representatives of the plastic bag industry have argued that similar proposed ordinances may also have the potential to generate GHG emissions due to increased reliance on paper carryout bags,[34] the County has decided to present its analysis of this issue in the EIR to verify these findings. The County, in its consideration of the proposed ordinance, must consider consistency with applicable standards such as Executive Order S-3-05, the Global Warming Solutions Act of 2006 (AB 32), and Senate Bill (SB) 97 of 2007.

[29] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[30] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[31] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[32] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[33] U.S. Environmental Protection Agency. April 2009. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*. Washington, DC.

[34] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

Executive Order S-3-05 establishes statewide climate change emission reduction targets to reduce $CO_{2equivalent}$ ($CO_{2e}$) to the year 2000 level (473 million metric tons) by 2010, to the 1990 level (427 million metric tons of $CO_{2e}$) by 2020, and to 80 percent below the 1990 level (85 million metric tons of $CO_{2e}$) by 2050.[35] The executive order directs the California Environmental Protection Agency secretary to coordinate and oversee efforts from multiple agencies to reduce GHG emissions to achieve the target levels.

AB 32 also establishes statewide GHG emission reduction targets to reduce carbon dioxide equivalent to the 2000 level by 2010 and to the 1990 level by 2020. AB 32 regulates the following GHG emissions: $CO_2$, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

Furthermore, SB 97 requires OPR "to prepare, develop, and transmit to the [CARB] guidelines for the feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, as required by CEQA, including, but not limited to, effects associated with transportation or energy consumption."[36] Although SB 97 exempts certain transportation projects and projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006, it would apply to any environmental documents required by CEQA that have not been certified or adopted by the CEQA lead agency by the date of the adoption of the regulations on or before January 1, 2010.

The proposed ordinance would ban the issuance of plastic carryout bags by certain stores, which would be expected to result in beneficial impacts in relation to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Direct reductions in GHG emissions would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag litter along roadways and water channels. In addition, reductions in GHG emissions would be expected to result from the expected reduction in production of plastic carryout bags. The production of plastic bags is a chemical process that begins with the conversion of crude oil or natural gas into hydrocarbon monomers such as ethylene;[37] further processing leads to the polymerization of ethylene to form polyethylene. During processing, VOCs are emitted into the atmosphere.[38] Due to the fact that VOCs undergo a sequence of reactions in the atmosphere to form $O_3$ and $CO_2$, VOCs have an indirect global warming potential;[39] therefore, the emission of VOCs during the manufacture of plastic bags causes an indirect increase in GHGs. In addition, fuel combustion is required to operate the facilities that manufacture plastic bags.[40] The emission of VOCs and the combustion of fuel during the manufacture of plastic bags results in an increase in the emission of GHGs into the atmosphere; therefore, reduced manufacture, transport, and

[35] California Governor. 2005. Executive Order S-3-05. Sacramento, CA.

[36] California Governor's Office of Planning and Research. 24 August 2007. Senate Bill No. 97, Chapter 185. Available at: http://www.opr.ca.gov/ceqa/pdfs/SB_97_bill_20070824_chaptered.pdf

[37] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Ethylene." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B451vs2.3.pdf

[38] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

[39] Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Basis. Chapter 2: Changes in Atmospheric Constituents and in Radiative Forcing.* Cambridge, UK, and New York, NY, USA.

[40] European Environment Agency. 5 December 2007. "Processes in Organic Chemical Industries (Bulk Production) Polyethylene Low Density." *EMEP / CORINAIR Emission Inventory Guidebook* – 2007. Copenhagen, Denmark. Available at: http://www.eea.europa.eu/publications/EMEPCORINAIR5/B456vs2.2.pdf

disposal of plastic carryout bags would be expected to reduce GHG emissions in compliance with Executive Order S-3-05 and AB 32.

As previously noted, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in increases in GHG emissions due to the increased reliance on paper bags.[41] As paper bags are significantly heavier than plastic bags, certain representatives of the plastic bag industry have argued that the transport of a higher volume of paper bags could require the combustion of more fossil fuel, thereby possibly resulting in the increased emission of GHGs.[42] The manufacturing process of paper bags also requires fuel consumption; consequently, certain representatives of the plastic bag industry have argued that an increase in the production of paper carryout bags could increase the emission of GHGs into the atmosphere.[43] However, any increases would be offset to some extent by the ability of paper carryout bags to contain a larger volume of groceries than plastic carryout bags; therefore, a conversion of use from plastic to paper would be expected to result in a smaller number of individual paper and plastic carryout bags used. In addition, a net increase in the use of reusable bags would also be encouraged, which would further reduce the number of paper carryout bags utilized. In a similar manner, the production and transport of reusable bags would also be expected to result in the emission of GHGs; however, the emissions per reusable bag would be expected to be significantly lower than the emission per plastic carryout bag due to the fact that reusable bags can be reused multiple times and can last two to five years.[44] Certain representatives of the plastic bag industry have also argued that the production of paper carryout bags could impact the amount of GHGs in the atmosphere due to deforestation.[45] Certain representatives of the plastic bag industry have also stated that GHG emissions may occur due to the process of decomposition of paper bags in landfills, which releases methane into the atmosphere.[46] Therefore, certain representatives of the plastic bag industry have concluded that increased production, use, and disposal of paper carryout bags could have the potential to increase GHG emissions.[47]

Adoption of the proposed ordinance would not be expected to facilitate the violation of any existing applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. As such, the expected environmental impacts from the proposed ordinance in relation to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs would be expected to be below the level of significance. However, the County has decided to present the analysis of this issue in an EIR to verify these findings.

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[41] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[42] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[43] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[44] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16).* Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[45] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[46] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[47] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

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The net environmental impacts from the proposed ordinances related to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions would be expected to be below the level of significance. However, certain representatives of the plastic bag industry have argued that similar proposed ordinances would have a potential to generate GHG emissions due to increased reliance on paper carryout bags;[48] the County has decided to present its analysis of this issue in the EIR to verify these findings. As with the unincorporated territories of the County, the proposed ordinances within the incorporated cities of the County would be required to comply with AB 32 and Executive Order S-3-05.

The proposed ordinances would ban the issuance of plastic carryout bags, which would be expected to result in beneficial impacts in relation to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions. Direct reductions in GHG emissions would be expected to occur as a result of decreased vehicle emissions related to the distribution of plastic carryout bags, the transport of plastic bag waste, and the collection of plastic bag litter along roadways and water channels. In addition, reductions in GHG emissions would be expected to result from the expected reduction in production of plastic carryout bags. The emission of VOCs and the combustion of fuel during the manufacture of plastic bags results in an increase in the emission of GHGs into the atmosphere; therefore, reduced manufacture, transport, and disposal of plastic carryout bags would be expected to reduce GHG emissions in compliance with Executive Order S-3-05 and AB 32.

However, certain representatives of the plastic bag industry have argued that potential increases in GHG emissions could occur as a result of the potential increase in the consumption of paper bags.[49] Paper bags are heavier than plastic bags; therefore, certain representatives of the plastic bag industry have argued that transport of a higher volume of paper bags could require the combustion of more fossil fuel, thereby possibly resulting in the increased emission of GHGs.[50] The manufacturing process of paper bags also requires fuel consumption; consequently, certain representatives of the plastic bag industry have argued that an increase in the production of paper carryout bags could increase the emission of GHGs into the atmosphere.[51] However, any increases would be offset to some extent by the ability of paper bags to contain a larger volume of groceries than plastic bags, which would be expected to result in a smaller number of individual paper and plastic carryout bags being manufactured, transported, and used. In addition, a net increase in the use of reusable bags would also be encouraged, which would further reduce the number of paper carryout bags utilized. In a similar manner, the production and transport of reusable bags could result in the emission of GHGs; however, the emissions per reusable bag would be expected to be significantly lower than the emissions per plastic carryout bag, due to the fact that reusable bags can be reused multiple times and can last two to five years.[52]

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[48] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[49] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[50] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[51] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[52] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16).* Washington, DC. Available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

Certain representatives of the plastic bag industry have argued that the production of paper carryout bags could cause an adverse environmental impact due to deforestation.[53] In addition, certain representatives of the plastic bag industry have argued that GHG emissions may occur due to the decomposition process of paper bags in landfills, which releases methane into the atmosphere.[54] Therefore, certain representatives of the plastic bag industry have concluded that a potential increase in the production, use, and disposal of paper carryout bags could potentially increase GHG emissions.[55]

Adoption of the proposed ordinances would not be expected to facilitate the violation of any existing applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Therefore, expected impacts to GHGs from the proposed ordinances in relation to conflicts with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHG emissions would be expected to be below the level of significance. However, the County has decided to present the analysis of this issue in an EIR to verify these findings.

[53] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[54] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

[55] Save the Plastic Bag. Accessed on: 21 October 2009. Web Site. Available at: http://www.savetheplasticbag.com/

## 3.8 HAZARDS AND HAZARDOUS MATERIALS

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to hazards and hazardous materials, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1]

Hazardous wastes are by-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Hazardous wastes exhibit at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity—or appear on special U.S. EPA lists.[2]

Hazards and hazardous materials related to the proposed ordinances were evaluated based on expert opinion supported by facts, and a review of the County of Los Angeles General Plan.

The State CEQA Guidelines recommend the consideration of eight questions when addressing the potential for significant impact to hazards and hazardous materials.

Would the proposed ordinances:

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed ordinance would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act.[3] The proposed ordinance would ban plastic carryout bags issued by certain stores, which do not meet the criteria of a hazardous substance, because they do not possess at least one of four characteristics of hazardous wastes in the condition in which they are intended to be used from stores and do not appear on special U.S. EPA lists.[4] Therefore, the proposed ordinance would not be expected to create impacts related to the routine transport, use, or disposal of hazards or hazardous materials. Therefore, there would be no expected impacts from hazards and hazardous materials related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed ordinances would not involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] *Code of Federal Regulations*, Title 40, Chapter 1, Part 261: "Identification and Listing of Hazardous Waste."

[3] *Code of Federal Regulations*, Title 40, Chapter 1, Parts 106–180.

[4] *Code of Federal Regulations*, Title 40, Chapter 1, Part 261: "Identification and Listing of Hazardous Waste."

Materials Transportation Uniform Safety Act.[5] In addition, plastic carryout bags that would be banned do not meet the criteria of a hazardous substance for the reasons described above.[6] Therefore, the proposed ordinances would not be expected to create impacts related to the routine transport, use, or disposal of hazards or hazardous materials. There would be no expected impacts from hazards and hazardous materials related to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. No further analysis is warranted.

(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts from hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The proposed ordinance would ban plastic carryout bags issued by certain stores, which could potentially reduce the prevalence of plastic bags in the litter stream and could result in a reduction in the accidental release of plastic bags into the environment. However, carryout and compostable plastic bags, in the condition in which they are intended to be used from stores, do not meet the criteria of a hazardous substance, including possessing at least one of the four characteristics of hazardous wastes or appearing on special U.S. EPA lists.[7] The proposed ordinance would not involve any type of construction or activities that would require the use of hazardous materials or that would result in the accidental release of hazardous materials into the environment. Therefore, there would be no expected impacts from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environmental. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts from hazards and hazardous materials with respect to creating a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. As previously noted, carryout and compostable plastic bags, in the condition in which they are intended to be used from stores, do not meet the criteria of a hazardous substance, including possessing at least one of the four characteristics of hazardous wastes or appearing on special U.S. EPA lists.[8] The proposed ordinances would not involve any type of construction or activities that would require the use of hazardous materials or that would result in the accidental release of hazardous materials into the environment. Therefore, there would be no expected impacts from hazards and hazardous materials related to the creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environmental. No further analysis is warranted.

[5] *Code of Federal Regulations*, Title 40, Chapter 1, Parts 106–180.

[6] *Code of Federal Regulations*, Title 40, Chapter 1, Part 261: "Identification and Listing of Hazardous Waste."

[7] *Code of Federal Regulations*, Title 40, Chapter 1, Part 261: "Identification and Listing of Hazardous Waste."

[8] *Code of Federal Regulations*, Title 40, Chapter 1, Part 261: "Identification and Listing of Hazardous Waste."

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials with respect to the emission of hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Numerous schools exist within the unincorporated territories of the County; however, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not include any physical elements, or otherwise, that would involve the emission or handling of hazardous or acutely hazardous materials. Therefore, there would be no expected impacts to hazards and hazardous materials related to the emission of hazardous emissions or the handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials with respect to the emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Numerous schools exist within the incorporated areas of the County; however, the proposed ordinances would not include any physical elements, or otherwise, that would involve the emission or handling of hazardous or acutely hazardous materials. Therefore, there would be no expected impacts to hazards and hazardous materials related to the emissions or handling of hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. No further analysis is warranted.

(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to the Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials related to the location of the proposed ordinance on a site that is included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. Although there are numerous hazardous materials sites within the unincorporated territories of the County, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail elements that would be located on a site or sites, including hazardous materials sites. Therefore, there would be no expected impacts from hazards and hazardous materials related to location of the proposed ordinance on a hazardous materials site, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials related to the location of the proposed ordinances on a site that is included on a list of hazardous materials sites pursuant to Government Code Section 65962.5. Although there are numerous hazardous materials sites within the incorporated cities of the County, the proposed

ordinances would not entail elements that would be located on a site or sites, including hazardous materials sites. Therefore, there would be no expected impacts from hazards and hazardous materials related to location of the proposed ordinances on a hazardous materials site, and no further analysis is warranted.

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials in relation to its proximity to an airport and thus would not be expected to result in a safety hazard for people residing or working in the unincorporated territories of the County, which would be subject to the proposed ordinance. Numerous airports exist within the unincorporated territories of the County; however, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not include elements that would be located on any site or sites, including one near a public airport or public use airport or within an airport land use plan. Therefore, there would be no expected impacts to hazards and hazardous materials in relation to the proximity of the proposed ordinance to an airport and would not be expected to create a safety hazard for people residing or working in the proposed ordinance area. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials in relation to its proximity to an airport and thus would not be expected to result in a safety hazard for people residing or working in the incorporated cities of the County, which would be subject to the proposed ordinances. Numerous airports exist within the incorporated cities of the County; however, the proposed ordinances would not include elements that would be located on any site or sites, including one near a public airport or public use airport or within an airport land use plan. Therefore, there would be no expected impacts to hazards and hazardous materials in relation to the proximity of the proposed ordinances to an airport and would not be expected to create a safety hazard for people residing or working in the area that would be affected by the proposed ordinances. No further analysis is warranted.

(f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials due to the location of the proposed ordinance in the vicinity of a private airstrip and the potential for safety hazards for people residing or working in the unincorporated territories of the County, which would be subject to the proposed ordinance. Although many private airstrips exist throughout the unincorporated territories of the County, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not include physical elements that would be located on a site or sites within the vicinity of a private airstrip that would be expected to result in impacts related to safety hazards for people residing or working in the vicinity of a private airstrip.

Therefore, there would be no expected impacts to hazards and hazardous materials due to the location of the proposed ordinance within a private airstrip and the potential for safety hazards for people residing or working in the proposed ordinance area. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials due to the location of the proposed ordinances in the vicinity of a private airstrip and the potential for safety hazards for people residing or working in the incorporated areas of the County, which would be subject to the proposed ordinances. Although many private airstrips exist throughout the incorporated cities of the County, the proposed ordinances would not include physical elements that would be located on a site or sites within the vicinity of a private airstrip that would consequently be expected to result in impacts related to safety hazards for people residing or working in the vicinity of a private airstrip. Therefore, there would be no expected impacts to hazards and hazardous materials due to the location of the proposed ordinances within a private airstrip and the potential for safety hazards for people residing or working in the areas that would be subject to the proposed ordinances. No further analysis is warranted.

(g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not entail the development of structures or any components that would interfere with emergency response plans or evacuation plans. Therefore, there would be no expected impacts from hazards and hazardous materials from impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials related to impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan. The proposed ordinances would not entail the development of structures or include any components that would interfere with emergency response plans or evacuation plans. Therefore, there would be no expected impacts from hazards and hazardous materials from impairing the implementation of or physically interfering with an adopted emergency response plan or emergency evacuation plan, and no further analysis is warranted.

(h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hazards and hazardous materials related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Although wildlands exist within the unincorporated territories of the County, the proposed ordinance would ban plastic carryout bags issued by certain stores and would not contain any components that would expose people or structures to significant risks. Therefore, there would be no expected impacts related to the exposure of people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hazards and hazardous materials related to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. Although wildlands exist within the incorporated cities of the County, the proposed ordinances would not contain any components that would expose people or structures to significant risks. Therefore, there would be no expected impacts related to the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No further analysis is warranted.

## 3.9 HYDROLOGY AND WATER QUALITY

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to hydrology and water quality, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Hydrology and water quality within the County, which would be subject to the proposed ordinances, were evaluated with regard to the County of Los Angeles General Plan,[2] State of California Regional Water Quality Control Board (RWQCB) Basin Plan for the Colorado River RWQCB Region 7,[3] and the National Flood Insurance Program Flood Insurance Rate Maps for the County.[4]

The State CEQA Guidelines recommend the consideration of 10 questions when addressing the potential for significant impacts to hydrology and water quality.

Would the proposed ordinances:

(a) Violate any water quality standards or waste discharge requirements?

**Unincorporated Territories of the County of Los Angeles**

The net impact to hydrology and water quality in relation to water quality standards or waste discharge requirements would be expected to be below the level of significance. The impacts to hydrology and water quality related to water quality standards or waste discharge requirements from the proposed ordinance would be expected to assist the County in better achieving water quality standards over time through a net reduction of litter comprised of plastic carryout bags. Over time, the transition from carryout bags to reusable bags would be anticipated to reduce the amount of litter found in water sources such as drain outlets and storm water runoff that can be attributed to plastic carryout bags, which in turn would be expected to have a positive impact on the water waste discharge requirements within the unincorporated territories of the County. However, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts that could result in violations of water quality standards due to the increased reliance on paper bags during the period required for consumers to transition to using reusable bags.[5]

The proposed ordinance would not entail elements that would directly violate the standards or requirements specified in the County of Los Angeles General Plan[6] or the Water Quality Control Plan for the Colorado River Basin (Region 7), and adoption of the proposed ordinance would not

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] State Resources Control Board. 2007 (Adopted June 2006). *Water Quality Control Plan - Colorado River Basin – Region 7*. Palm Desert, CA. Available at: http://www.waterboards.ca.gov/coloradoriver/publications_forms/publications/docs/basinplan_2006.pdf

[4] Federal Emergency Management Agency. December 1980. *Flood Insurance Rate Maps for the County of Los Angeles*. Washington, DC.

[5] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco*. Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[6] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

permit or sanction the violation of any established industry standards, management, or policies.[7] The proposed ordinance would ban the issuance of plastic carryout bags by certain stores within the unincorporated territories of the County that are subject to the ordinance. While certain representatives of the plastic bag industry argue that any proposed ordinance could potentially temporarily increase the consumption and production of paper bags as stores and consumers transition to the use of reusable bags, any ordinance would be consistent with the applicable standards or requirements for the area. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County.[8] Direct discharge of pollutants into a water body from point sources such as the manufacturing of paper bags, which could be subject to the regulatory authority of the RWQCB under the federal Clean Water Act, is required to comply with the Water Quality Control Plan for the Colorado River Basin (Region 7). However, due to arguments raised by certain representatives of the plastic bag industry in this area, the County has decided to present the analysis of this issue in an EIR.

**Incorporated Cities of the County of Los Angeles**

Impacts to hydrology and water quality in relation to water quality standards or waste discharge requirements would be expected to be below the level of significance. As with the discussion above for the unincorporated territories of the County, the proposed ordinances would ban the issuance of plastic carryout bags by certain stores within the incorporated cities of the County that are subject to the ordinance. While certain representatives of the plastic bag industry argue that any proposed ordinance could potentially temporarily increase the consumption and production of paper bags as stores and consumers transition to the use of reusable bags, any ordinance would be consistent with the applicable standards or requirements for the area. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County.[9] Direct discharge of pollutants to a water body from point sources such as the manufacturing of paper bags, which could be subject to the regulatory authority of the RWQCB under the federal Clean Water Act, would be required to be consistent with the Water Quality Control Plan for the Colorado River Basin (Region 7). However, due to arguments raised by certain representatives of the plastic bag industry in this area, the County has decided to present the analysis of this issue in an EIR.

[7] State Resources Control Board, California Regional Water Quality Control Board. 2007 (adopted June 2006). *Water Quality Control Plan: Colorado River Basin – Region 7*. Palm Desert, CA. Available at: http://www.waterboards.ca.gov/coloradoriver/publications_forms/publications/docs/basinplan_2006.pdf

[8] Reusable bags have been defined as having a lifetime of 2 to 5 years or at least 300 uses for its useful lifetime. Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Also available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[9] Reusable bags have been defined as having a lifetime of 2 to 5 years or at least 300 uses for its useful lifetime. Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Also available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

(b) 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 that would not support existing land uses or planned uses for which permits have been granted)?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to hydrology and water quality in relation to groundwater supplies or groundwater recharge in relation to the proposed ordinance. The proposed ordinance would ban the issuance of plastic carryout bags by certain stores within the unincorporated territories of the County. Certain representatives of the plastic bag industry have argued that the proposed ordinance could result in an increase in the consumption of paper bags as stores and consumers transition to the use of reusable bags.[10] As a result, they argue that there could be an expected increase in the manufacturing of paper bags. Studies prepared or referred to by certain representatives of the plastic bag industry that compare the production of plastic bags to that of paper bags have stated their position that manufacturing of plastic bags consumes less than 4 percent of the total amount of water needed to manufacture paper bags (5,527 cubic meters of water to produce 100 million plastic bags versus 145,729 cubic meters of water to produce 100 million paper bags).[11] Their perception of the comparable water demand for production of paper bags versus production of plastic bags underlies their position that the banning of plastic bags would result in a net increase in water consumption due to production of alternative bag choices; therefore, the County has decided to present the analysis of this issue in an EIR.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to hydrology and water quality in relation to impacts from the proposed ordinances to groundwater supplies or groundwater recharge. As discussed above, the proposed ordinances would be expected to cause a decrease in the number of plastic carryout bags used throughout the County, which would be expected to reduce the amount of water consumed related to the manufacturing of plastic carryout bags. However, based on the perception of certain representatives in the plastic bag industry that the comparable water demand for production of paper bags versus production of plastic bags would result in a net increase in water consumption, the County has decided to present the analysis of this issue in an EIR.

[10] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[11] Based upon an anticipated worst case scenario as described in: Save the Plastic Bag. 2008. *Review of Life Cycle Data Relating to Disposable, Compostable, Biodegradable, and Reusable Grocery Bags*. Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.deq.state.mi.us/documents/deq-ess-p2-recycling-PaperPlasticSummary_2.pdf

(c) 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?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to altering existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. The proposed ordinance would not entail construction elements and would not involve any changes to existing physical property within the unincorporated territories of the County, which would be subject to the proposed ordinance. Alterations to drainage patterns are subject to the regulatory authority of the U.S. Army Corps of Engineers, the CDFG, and the County, and the proposed ordinance does not sanction any change in drainage pattern. Consequently, there would be no potential for impacts to hydrology and water quality in relation to the alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. Therefore, there would be no expected impacts to hydrology and water quality related to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to altering existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. The proposed ordinances would not entail construction elements and would not involve any changes to existing physical property within the incorporated cities of the County that would be subject to the proposed ordinance. . Alterations to drainage patterns are subject to the regulatory authority of the U.S. Army Corps of Engineers, the CDFG, and the County, and the proposed ordinances do not sanction any change in drainage pattern. As a result, there would be no potential for impacts to hydrology and water quality in relation to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site. Therefore, there would be no expected impacts to hydrology and water quality related to alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on or off site, and no further analysis is warranted.

(d) 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?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to altering existing drainage patterns in a manner that would result in flooding on or off site. The proposed ordinance would not entail construction elements and would not involve any changes to existing physical property within the unincorporated territories of the County. As such, there would be no potential for impacts to hydrology and water quality in relation to the alteration of existing drainage patterns in a manner that would result in flooding on site or off site. Therefore, there would be no significant impacts to hydrology and water quality related to alteration of existing drainage patterns in a manner that would result in flooding on site or off site, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to altering existing drainage patterns in a manner that would result in flooding on or off site. The proposed ordinances would not entail construction elements and would not involve any changes to existing physical property within the incorporated cities of the County. As such, there is no potential for impacts to hydrology and water quality in relation to the alteration of existing drainage patterns in a manner that would result in flooding on site or off site. Therefore, there would be no significant impacts to hydrology and water quality related to alteration of existing drainage patterns in a manner that would result in flooding on site or off site, and no further analysis is warranted.

(e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or providing substantial additional sources of polluted runoff?

**Unincorporated Territories of the County of Los Angeles**

There would be no anticipated impacts from the proposed ordinance to hydrology and water quality in relation to creating or contributing runoff water that would exceed the capacity of existing or planned storm water drainage systems or providing substantial additional sources of polluted runoff. The proposed ordinance would ban the issuance of plastic carryout bags by certain stores within the unincorporated territories of the County. Plastic carryout bags have a high propensity to become litter and account for as much as 25 percent of the litter stream within the County.[12] Due to the thin film used to create plastic carryout bags (which is generally 0.025 millimeter or less),[13] their low density, and their light weight (which has been noted as anywhere between 6 to 10 times lighter than paper bags),[14] plastic carryout bags have a very high propensity to become airborne and to ultimately contribute to the pollution in storm water drainage systems and runoff. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County.

The proposed ordinance would not entail construction elements and would not involve any changes to existing physical property within the unincorporated territories of the County. Consequently, there would be no potential for impacts to hydrology and water quality in relation to creating or contributing runoff water that would exceed the capacity of existing or planned storm water drainage systems or providing substantial additional sources of polluted runoff. No further analysis is warranted.

[12] County of Los Angeles Department of Public Works, Environmental Programs Division. October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program – Program Resource Packet*. Alhambra, CA.

[13] Green Seal, Inc. 13 October 2008. *Green Seal Proposed Revised Environmental Standard For Reusable Bags (GS-16)*. Washington, DC. Also available at: http://www.greenseal.org/certification/gs-16_reusable_bag_proposed_revised_standard_background%20document.pdf

[14] Save the Plastic Bag. 2008. *Scottish Executive 2005 Environment Group Research Report (2005/06).* Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf

**Incorporated Cities of the County of Los Angeles**

There would be no anticipated impacts from the proposed ordinances to hydrology and water quality in relation to creating or contributing runoff water that would exceed the capacity of existing or planned storm water drainage systems or providing substantial additional sources of polluted runoff.

As with the proposed ordinance discussed above, the proposed ordinances would not entail construction elements and would not involve any changes to existing physical property within the incorporated cities of the County. Consequently, there would be no potential for impacts to hydrology and water quality in relation to creating or contributing runoff water that would exceed the capacity of existing or planned storm water drainage systems or providing substantial additional sources of polluted runoff. No further analysis is warranted.

(f) Otherwise substantially degrade water quality?

**Unincorporated Territories of the County of Los Angeles**

There would be no anticipated adverse impacts from the proposed ordinance to hydrology and water quality related to the substantial degradation of water quality. Water quality and use within California is regulated by the State Water Resources Control Board. The proposed ordinance would not entail construction elements and would not involve any changes to existing physical property within the unincorporated territories of the County that would negatively affect water quality. However, the reduction of plastic bag litter in the litter stream resulting from implementation of the proposed ordinance would be expected to benefit the unincorporated territories of the County. Consequently, further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinance.

**Incorporated Cities of the County of Los Angeles**

There would be no anticipated adverse impacts from the proposed ordinances to hydrology and water quality related to the substantial degradation of water quality. As previously mentioned, water quality and use within California is regulated by the State Water Resources Control Board. The proposed ordinances would not entail construction elements and would not involve any changes to existing physical property within the incorporated cities of the County that would negatively affect water quality. The reduction of plastic bag litter in the litter stream resulting from implementation of the proposed ordinance would be expected to benefit the incorporated cities within the County. Consequently, further analysis is warranted to discuss the potential beneficial effects that may result from the proposed ordinances.

(g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to the placement of housing within a 100-year flood hazard area. The proposed ordinance would ban the issuance of plastic carryout bags by certain stores and would not entail the construction of housing units; thus, there is no potential for impacts to hydrology and water

quality in relation to the placement of housing within a 100-year flood hazard area. Therefore, there are be no expected impacts to hydrology and water quality related to the placement of housing within a 100-year flood hazard area, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to the placement of housing within a 100-year flood hazard area. The proposed ordinances would not entail the construction of housing units or the development of any structures. As such, there would be no potential for impacts to hydrology and water quality in relation to the placement of housing within a 100-year flood hazard area. Therefore, there are no expected impacts to hydrology and water quality related to the placement of housing within a 100-year flood hazard area, and no further analysis is warranted.

(h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to the placement of structures (other than housing) within a 100-year flood hazard area. Although there are 100-year flood hazard areas identified within the unincorporated territories of the County that would be subject to the proposed ordinance, the proposed ordinance would ban the issuance of plastic carryout bags by certain stores and would not entail any construction and thus would not place or develop structures within a 100-year flood hazard area.[15] As such, there would be no potential for impacts to hydrology and water quality in relation to placement of structures (other than housing) within a 100-year flood hazard area. Therefore, there are no expected impacts to hydrology and water quality related to placement of structures (other than housing) within a 100-year flood hazard area, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to the placement of structures (other than housing) within a 100-year flood hazard area. As within the unincorporated territories of the County, there are 100-year flood hazard areas identified within the incorporated cities of the County. The proposed ordinances would ban the issuance of plastic carryout bags by certain stores and would not entail any construction, and thus structures would not be placed or developed within a 100-year flood hazard area.[16] As such, there would be no potential for impacts to hydrology and water quality in relation to placement of structures (other than housing) within a 100-year flood hazard area. Therefore, there are no expected impacts to hydrology and water quality related to placement of structures (other than housing) within a 100-year flood hazard area, and no further analysis is warranted.

[15] Federal Emergency Management Agency. December 1980. *Flood Insurance Rate Maps for the County of Los Angeles*. Washington, DC.

[16] Federal Emergency Management Agency. December 1980. *Flood Insurance Rate Maps for the County of Los Angeles*. Washington, DC.

(i) 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?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to the failure of a levee or dam. The proposed ordinance would ban the issuance of plastic carryout bags by certain stores and would not entail the construction, placement, or development of structures within or adjacent to an area that would be susceptible to flooding.[17] The proposed ordinance would not result in or expose people to areas that are susceptible to flooding.[18] There would be no potential for and thus no expected impacts to hydrology and water quality related to the failure of a levee or dam, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to the failure of a levee or dam. The proposed ordinances would not entail the construction, placement, or development of structures within or adjacent to an area that would be susceptible to flooding.[19] The proposed ordinances would ban the issuance of plastic carryout bags by certain stores, and as such, they would not result in or expose people to areas that are susceptible to flooding.[20] There would be no potential for and thus no expected impacts to hydrology and water quality related to the failure of a levee or dam, and no further analysis is warranted.

(j) Inundation by seiche, tsunami, or mudflow?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to hydrology and water quality in relation to inundation by seiche, tsunami, or mudflow. Although there are areas located within the unincorporated territories of the County where seiches, tsunamis, or mudflows are potential threats, the proposed ordinance would not entail components that would result in or be subject to a potential threat by such occurrences. The proposed ordinance would ban the issuance of plastic carryout bags by certain stores and would not be expected to impact lakes and/or flood control basins or areas adjacent to any steep-sided slopes covered with soils and/or vegetation. Therefore, there would be no potential for and thus no expected impacts to hydrology and water quality in relation to inundation by seiche, tsunami, or mudflow, and no further analysis is warranted.

[17] Federal Emergency Management Agency. December 1980. *Flood Insurance Rate Maps for the County of Los Angeles*. Washington, DC.

[18] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[19] Federal Emergency Management Agency. December 1980. *Flood Insurance Rate Maps for the County of Los Angeles*. Washington, DC.

[20] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to hydrology and water quality in relation to inundation by seiche, tsunami, or mudflow. As with the unincorporated territories of the County, there are areas within the incorporated cities of the County where seiches, tsunamis, or mudflows are potential threats. The proposed ordinances would not entail components that would result in or be subject to a potential threat by such occurrences. The proposed ordinances would not be expected to impact lakes and/or flood control basins or areas adjacent to any steep-sided slopes covered with soils and/or vegetation. Therefore, there would be no potential for and thus no expected impacts to hydrology and water quality in relation to inundation by seiche, tsunami, or mudflow, and no further analysis is warranted.

## 3.10 LAND USE AND PLANNING

This analysis is undertaken to determine if the proposed ordinances might have a significant impact to land use and planning, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Land use and planning within the County, which would be subject to the proposed ordinances, were evaluated with regard to the County of Los Angeles General Plan[2] and its adopted maps, the County Code,[3] and coordination with the USFWS and the CDFG regarding the applicable proposed or adopted land use plans and regulations.

The State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to land use and planning.

Would the proposed ordinances:

(a) Physically divide an established community?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to land use and planning through the physical division of an established community. The proposed ordinance would ban plastic carryout bags issued at certain stores within the unincorporated territories of the County. Specifically, implementation of the proposed ordinance would require that no store subject to the proposed ordinance would be allowed to make available or distribute plastic bags to customers. As such, it would not be expected that there would be a physical division of an established community resulting from the implementation of the proposed ordinance. Therefore, there would be no expected impacts to land use and planning related to the physical division of an established community, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to land use and planning through the physical division of an established community. The proposed ordinances would ban plastic carryout bags issued at certain stores within the incorporated cities of the County. The proposed ordinances would not require any changes to the existing conditions within the established communities. As such, implementation of the proposed ordinances would not be expected to physically divide an established community. Therefore, there would be no expected impacts to land use and planning related to the physical division of an established community, and no further analysis is warranted.

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles. 2 June 2009. Los Angeles County Code. Tallahassee, FL. Available at: http://ordlink.com/codes/lacounty/index.htm

(b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to land use and planning in relation to a conflict with adopted or proposed land use plans, policies, or regulations. A review of the Land Use element of the County of Los Angeles General Plan identifies Policy 9.0 pursuant to the goal of providing sufficient commercial and industrial land to protect major landfill and solid waste disposal sites from encroachment of incompatible uses.[4] This policy observes the existing conditions in the County, where each year approximately 6 billion plastic carryout bags are consumed,[5] and where the annual disposal rate of plastic carryout bags at landfills is 45,000 tons.[6] The proposed ordinance would aim to significantly reduce the amount of litter that can be attributed to carryout or compostable plastic bags by ensuring that no subject retail establishment would be allowed to distribute or make available to customers any carryout or compostable plastic bags. As such, the proposed ordinance would comply with Policy 9.0 of the County of Los Angeles General Plan Land Use element, as it would be anticipated that the reduced number of plastic bags available to consumers would in turn lower the volume of waste deposited in landfills. Therefore, there would be no expected impacts to land use and planning related to a conflict with adopted or proposed land use plans, policies, or regulations, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to land use and planning in relation to a conflict with adopted or proposed land use plans, policies, or regulations. As previously noted, the County of Los Angeles General Plan Land Use element identifies Policy 9.0 pursuant to the goal of providing sufficient commercial and industrial land to protect major landfill and solid waste disposal sites from encroachment of incompatible uses.[7] The proposed ordinances would aim to significantly reduce the amount of litter that can be attributed to carryout or compostable plastic bags by ensuring that no subject retail establishment would be allowed to distribute or make available to customers any carryout or compostable plastic bags. As such, the proposed ordinances would be in compliance with Policy 9.0 of the County of Los Angeles General Plan Land Use element, as it would be anticipated that the reduced number of plastic bags available to consumers would in turn lower the volume of waste deposited in landfills. Therefore, there would be no expected impacts to land use and planning related to a conflict with adopted or proposed land use plans, policies, or regulations, and no further analysis is warranted.

[4] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[5] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[6] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table 7: Composition of California's Overall Disposed Waste Stream, 2003." *Contractor's Report to the Board: 2004 Statewide Waste Characterization Study*. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097

[7] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

(c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to land use and planning in relation to a conflict with any applicable HCP or NCCP. The proposed ordinance would not alter the existing land uses in the unincorporated areas of the County. According to the National Community Conservation Planning program of the CDFG, the only Natural Community Conservation Planning region[8] that would be affected by the proposed ordinance is the Palos Verdes Peninsula NCCP, which lies approximately 26 miles south of the City of Los Angeles and which addresses the conservation of most of the coastal sage scrub habitat as well as other habitats on the Palos Verdes Peninsula.[9] Moreover, the USFWS HCP program does not include any HCPs that would apply to the unincorporated territories of the County.[10] Therefore, there would be no expected impacts to land use and planning related to a conflict with any adopted HCP or NCCP, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to land use and planning in relation to a conflict with any applicable HCP or NCCP. The territory that would be affected by the proposed ordinances would encompass the incorporated cities of the County, whose existing land uses would not be altered by implementation of the proposed ordinances. Therefore, there would be no expected impacts to land use and planning related to a conflict with any adopted HCP or NCCP, and no further analysis is warranted.

[8] California Department of Fish and Game. Accessed on: 5 August 2009. "Natural Community Conservation Planning (NCCP)." *Resource Management*. Available at: http://www.dfg.ca.gov/habcon/nccp/

[9] U.S. Fish and Wildlife Service. May 2005. *Habitat Conservation Plans: Working Together for Endangered Species*. Available at: http://www.fws.gov/endangered/pubs/HCPBrochure/HCPsWorkingTogether5-2005web%20.pdf

[10] U.S. Fish and Wildlife Service. May 2005. *Habitat Conservation Plans: Working Together for Endangered Species*. Available at: http://www.fws.gov/endangered/pubs/HCPBrochure/HCPsWorkingTogether5-2005web%20.pdf

## 3.11 MINERAL RESOURCES

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to mineral resources, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Mineral resources within the County, which would be subject to the proposed ordinances, were evaluated with regard to California Geological Survey and U.S. Geological Survey (USGS) publications and the adopted County of Los Angeles General Plan.[2]

The State CEQA Guidelines recommend the consideration of two questions when addressing the potential for significant impact to mineral resources.

Would the proposed ordinances:

(a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource. The proposed ordinance would affect approximately 2,649 square miles encompassing the unincorporated territories of the County. According to the USGS,[3] the County is a major producing area of common clay, crushed stone, construction sand and gravel, perlite, lime, sulfur (oil), and gypsum. A review of the County of Los Angeles General Plan confirmed that California is the largest producer of sand and gravel in the nation, and that the greater Los Angeles area is the nation's leading producer for its geographic size.[4] As such, sand and gravel must be protected and conserved because sand and gravel reserves have declined in the past due to the encroachment of incompatible development. According to "Mines and Minerals Producers Active in California (1997–98)," published by the Division of Mines and Geology of the CDC, there are 25 active mines located within the County, which further indicates the presence of mineral resources within the boundary of the jurisdictional areas for the proposed ordinance.[5] However, the proposed ordinance would ban plastic carryout bags issued at certain stores and would not be expected to affect the extraction of these resources. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known mineral resource, and no further analysis is warranted.

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] U.S. Department of the Interior, U.S. Geological Survey. 2006. *2006 Minerals Yearbook: California*. Available at: http://minerals.usgs.gov/minerals/pubs/state/2006/myb2-2006-ca.pdf

[4] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[5] California Department of Conservation, Division of Mines and Geology.1990. "Mines and Mineral Producers Active in California (1997–98)." *Special Publication 103*. Prepared by: Division of Mines and Geology, Los Angeles, CA.

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The proposed ordinances would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource. Based on a review of California Division of Mines and Geology publications, it is found that there are 25 active mines located within the County, which further indicates the presence of mineral resources within the incorporated territories included within the jurisdictional areas of the proposed ordinances.[6] However, the proposed ordinances would not be expected to affect the extraction of these resources. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known mineral resource, and no further analysis is warranted.

(b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource recovery site. Based on a review of California Division of Mines and Geology publications,[7,8] in conjunction with the Conservation element of the County of Los Angeles General Plan, there are no known mineral resources of state-wide or regional importance located within the unincorporated territories of the County, nor are there known mineral resource recovery sites of local importance located within the unincorporated territories.[9] Furthermore, the proposed ordinance would ban plastic carryout bags issued at certain stores and would not be expected to alter the availability of locally important mineral resources. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known locally important mineral resource recovery site, and no further analysis is warranted.

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The proposed ordinances would not be expected to result in impacts to mineral resources in relation to the loss of availability of a known mineral resource recovery site. There are no known mineral resources of state-wide or regional importance located within the incorporated cities of the County, nor are there any known mineral resource recovery sites of local importance located within the incorporated cities.[10] Moreover, the proposed ordinances would ban plastic carryout bags issued at certain stores and would not be expected to alter the availability of locally important mineral resources. Therefore, there would be no expected impacts to mineral resources related to the loss of availability of a known locally important mineral resource recovery site, and no further analysis is warranted.

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[6] California Department of Conservation, Division of Mines and Geology.1990. "Mines and Mineral Producers Active in California (1997–98)." *Special Publication 103*. Prepared by: Division of Mines and Geology, Los Angeles, CA.

[7] California Department of Conservation, Division of Mines and Geology. 1966. "Minerals of California Volume (1866–1966)." *Bulletin 189*. Prepared by: CDMG, Los Angeles, CA.

[8] California Department of Conservation, Division of Mines and Geology. 1990. "Mines and Mineral Producers Active in California (1988–89)." *Special Publication 103*. Prepared by: CDMG, Los Angeles, CA.

[9] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[10] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

## 3.12 NOISE

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to noise, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Noise within the County, which would be subject to the proposed ordinances, was evaluated with regard to the County of Los Angeles General Plan Noise element[2] and the County Noise Control Ordinance.[3]

The State CEQA Guidelines recommend the consideration of six questions when addressing the potential for significant impact to noise.

Would the proposed ordinances result in:

(a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to noise in relation to exposure or generation of noise levels in excess of established standards. The proposed ordinance would ban plastic carryout bags issued at certain stores and would apply to areas located within the unincorporated territory of the County. The County's unincorporated areas have a wide range of noise environments, from quiet residential and rural areas to relatively noisy commercial and industrial areas. The method commonly used to quantify environmental noise involves evaluation of all frequencies of sound, with an adjustment to reflect the constraints of human hearing. Since the human ear is less sensitive to low and high frequencies than to midrange frequencies, noise measurements are weighted more heavily within those frequencies of maximum human sensitivity in a process called "A-weighting." A measured noise level is called the A-weighted sound level measured in A-weighted decibels, written as dBA. The County does not set land use standards for noise in the Noise element of the County of Los Angeles General Plan. However, the County has adopted a noise control ordinance that specifies exterior noise standards as shown in Table 3.12-1, *County of Los Angeles Exterior Noise Standards*.[4] The exterior noise levels presented in the final column of Table 3.12-1 indicate the average hourly dBA to be maintained for designated noise zone level use.

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

[4] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

## TABLE 3.12-1
## COUNTY OF LOS ANGELES EXTERIOR NOISE STANDARDS

| Noise Zone | Designated Noise Zone Land Use (Receptor Property) | Time Interval | Exterior Noise Level[1] |
|---|---|---|---|
| I | Noise-Sensitive Area[2] | Anytime | 45 dBA |
| II | Residential Area | 10:00 p.m.–7:00 a.m. (nighttime)<br>7:00 a.m.–10:00 p.m. (daytime) | 45 dBA<br>50 dBA |
| III | Commercial Area | 10:00 p.m.–7:00 a.m. (nighttime)<br>7:00 a.m. – 10:00 p.m. (daytime) | 55 dBA<br>60 dBA |
| IV | Industrial Area | Anytime | 70 dBA |

**NOTES:**
1. Required average hourly noise standard
2. Noise-sensitive area is designated to ensure exceptional quiet

**SOURCE:** County of Los Angeles. 1978 (updated 21 July 2009). *Noise Control Ordinance of the County of Los Angeles*, Title 12, Chapter 12.08.390. Ordinance 11778, Section 2 (Article1, Section 101); and Ordinance11773, Section 2 (Article 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

The proposed ordinance would be expected to have an inconsequential impact to noise levels in the unincorporated areas of the County and the surrounding vicinity. There are two ways in which the proposed ordinance could have potential noise impacts:

1. Certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in increased numbers of vehicles transporting carryout bags. A change in the noise generated by these vehicles, which are mobile noise sources, could potentially alter the noise levels in the areas surrounding major roadways.
2. Certain plastic bag industry representatives of the plastic bag industry have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, thus requiring the consideration of the effect of fixed-point manufacturing noise sources on ambient noise levels.

While the proposed ordinance would be expected to reduce the need for vehicles to transport plastic carryout bags, it could also potentially increase the number of vehicles or the number of vehicle miles traveled for vehicles transporting paper bags and reusable bags. Certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase reliance on paper carryout bags.[5] Implementation of the proposed ordinance could potentially lead to an increase in noise levels related to the increase in delivery of paper carryout and reusable bags to the unincorporated areas of County. Although the number of vehicles on the roads does affect ambient noise levels, neither the decrease in vehicles transporting plastic carryout bags nor the potential increase in the number of vehicles transporting paper carryout and reusable bags would likely be on a scale that would be large enough to result in a discernable change in noise levels around roadways in areas in and around the unincorporated

[5] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

areas of the County. Further, the truck trips would be dispersed over a large network of roadways and highways and would not substantially increase truck traffic along any one route.

While the proposed ordinance would potentially result in reduced demand for plastic bags, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase demand for paper carryout bags.[6] A lower demand for plastic bags would likely result in either a decrease in the number of plastic carryout bag manufacturing facilities or a decrease in the operation of existing facilities, or some combination of the two scenarios. Therefore, the noise produced by these facilities would be either eliminated or reduced. A potential increase in the demand for paper bags could likely result in either an increase in the number of paper carryout bag and reusable manufacturing facilities or an increase in the operation of existing facilities, or some combination of the two scenarios. An increase in production at existing facilities could potentially increase the noise produced by those facilities.

However, it is assumed that both plastic and paper carryout bag manufacturing facilities are located within areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted. The facilities would also be required to comply with the relevant local or County noise ordinances. Similarly, the proposed ordinance could potentially result in an increased number of reusable bag manufacturing facilities that in turn could create new noise sources. It is assumed that any new manufacturing facilities would be located in similar locations where noise-sensitive receptors would not be expected to be impacted. Therefore, the proposed ordinance would be expected to result in less than significant impacts to noise in relation to exposure or generation of noise levels in excess of established standards. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to noise in relation to exposure or generation of noise levels in excess of established standards. As stated in the previous discussion, the proposed ordinances would be expected to reduce the need for vehicles to transport plastic carryout bags, but would also potentially increase the number of vehicles or the number of vehicle miles traveled for vehicles transporting paper carryout and reusable bags. While the number of vehicles on the roads does affect ambient noise levels, neither the decrease in vehicles transporting plastic bags nor the potential increase in the number of vehicles transporting paper carryout and reusable bags would likely be on a scale large enough to result in a discernible change in noise levels around roadways in the incorporated cities of the County. Furthermore, the truck trips would be dispersed over a large network of roadways and highways and would not substantially increase truck traffic along any one route.

In addition, a lower demand for plastic bags would likely result in a decrease in the number of plastic carryout bag manufacturing facilities or a decrease in the operation of existing facilities, or some combination of the two scenarios. Therefore, the noise produced by these facilities would be either eliminated or reduced. Conversely, a potential increase in the demand for paper carryout and reusable bags would likely result in either an increase in the number of facilities that manufacture paper bags and reusable bags or an increase in the operation of existing facilities, or some combination of the two scenarios. An increase in production at existing facilities would

[6] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

potentially increase the noise produced by those facilities. However, it is assumed that paper carryout and reusable bag manufacturing facilities are, and would continue to be, located within areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted. The facilities would also be required to comply with the relevant local or County noise ordinances. Therefore, the proposed ordinances would be expected to result in less than significant impacts to noise in relation to exposure or generation of noise levels in excess of established standards. No further analysis is warranted.

(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to noise in relation to generation of excessive groundborne vibration or groundborne noise. The County deems it a violation of the Noise Control Ordinance to operate or permit the operation of any device that creates vibration that is above the vibration perception threshold of any individual at or beyond the property boundary of the source if on private property, or at 150 feet (46 meters) from the source if on a public space or public right-of-way. The Noise Control Ordinance considers the perception threshold to be a motion velocity of 0.01 inch per second over the range of 1 to 100 Hertz.[7] There would be two ways in which the proposed ordinance could have potential vibration impacts:

1. Certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in increased numbers of vehicles transporting carryout bags. A change in the vibration levels generated by these vehicles, which are mobile noise sources, could potentially alter the perceived vibration levels in the areas surrounding major roadways.
2. Certain plastic bag industry representatives of the plastic bag industry have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, thus requiring the consideration of the effect of fixed-point manufacturing noise sources on perceived vibration levels.

In regard to the transportation of plastic carryout bags, paper carryout bags, and reusable bags, while the proposed ordinance would be expected to eliminate the need for vehicles to transport plastic bags to and from the unincorporated territory of the County, it could also potentially increase the number of vehicles or the number of vehicle miles traveled for vehicles transporting paper bags and reusable bags, as certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the reliance on paper bags .[8] The proposed ordinance would also potentially result in increased demand for reusable bags. While the number of vehicles on the roads does affect vibration levels in the vicinity of the roadway, neither the decrease in the number of vehicles transporting plastic bags nor the potential increase in the number of vehicles transporting paper bags would likely be on a scale that would be large enough to result in a discernable change in vibration levels at sensitive receptors near roadways in areas in and around the unincorporated areas of the County.

[7] County of Los Angeles. 1978. *Noise Control Ordinance of the County of Los Angeles*. Ord. 11778, Section 2 (Art.1, Section 101), and Ord.11773, Section 2 (Art. 1, Section 101). Available at: http://ordlink.com/codes/lacounty/index.htm

[8] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

In terms of the production of plastic and paper bags, while the proposed ordinance would potentially result in reduced demand for plastic bags, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase demand for paper bags.[9] The proposed ordinance would also potentially result in increased demand for reusable bags.

A lower demand for plastic bags would likely result in either a decrease in the number of plastic bag manufacturing facilities or a decrease in the operation of existing facilities, or some combination of the two scenarios. Therefore, the vibration levels produced by these facilities would be expected to be either eliminated or reduced. An increase in the demand for paper bags and reusable bags could likely result in either an increase in the number of manufacturing facilities or an increase in the operation of existing facilities, or some combination of the two scenarios. An increase in the production at existing facilities would potentially increase the vibration levels produced by those facilities. However, it is assumed that paper bag manufacturing facilities are located within areas zoned for industrial uses, where receptors sensitive to vibration would not be expected to be impacted.

There are two ways in which the proposed ordinance could have potential impacts related to groundborne noise:

1. Certain plastic bag industry representatives have postulated that the banning of plastic carryout bags could potentially result in increased numbers of vehicles transporting carryout bags. A change in the groundborne noise generated by these vehicles, which are mobile noise sources, could potentially alter the noise levels in the areas surrounding major roadways.
2. Certain plastic bag industry representatives of the plastic bag industry have postulated that the banning of plastic carryout bags could potentially result in the increased manufacture of paper carryout bags, thus requiring the consideration of the effect of fixed-point manufacturing noise sources on groundborne noise levels.

In regard to the transportation of plastic carryout bags, paper carryout bags, and reusable bags, while it would be anticipated that the proposed ordinance would reduce or eliminate the need for vehicles to transport plastic bags, it would also potentially increase the number of vehicles or the number of vehicle miles traveled for vehicles transporting paper bags as certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the reliance on paper bags.[10] While the number of vehicles on the roads does affect ambient noise levels, neither the decrease in vehicles transporting plastic bags nor the increase in the number of vehicles transporting paper bags would likely be on a scale that would be large enough to result in a discernable change in groundborne noise levels around roadways in areas in and around the unincorporated areas of the County.

In terms of the production of plastic and paper carryout bags, while the proposed ordinance would potentially result in a reduction in the demand for plastic carryout bags, certain representatives of the plastic carryout bag industry have argued that similar proposed ordinances have the potential to

[9] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[10] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

result in an increase in the demand for paper carryout bags.[11] Furthermore, it could be anticipated that the proposed ordinance would increase the demand for reusable bags. As noted, a lower demand for plastic bags would likely result in either a decrease in the number of plastic bag manufacturing facilities or a decrease in the operation of existing facilities, or some combination of the two scenarios. Therefore, the groundborne noise produced by these facilities would be expected to be either eliminated or reduced. A potential increase in the demand for paper bags and reusable bags would likely result in either an increase in the number of paper bag manufacturing facilities or an increase in the operation of existing facilities, or some combination of the two scenarios. An increase in the production at existing facilities would potentially increase the noise produced by those facilities. However, it is assumed that paper bag manufacturing facilities are located within areas zoned for industrial uses where higher noise levels are permitted or in areas where noise-sensitive receptors would not be impacted due to their distance away from these facilities. Therefore, an increase in the level of production of paper bags at manufacturing facilities would be expected to result in less than significant impacts to noise in relation to exposure or generation of groundborne vibration or groundborne noise levels in excess of established standards. An anticipated increase in the number of paper bag manufacturing facilities would be expected to create new noise sources; however, it is assumed that any new manufacturing facilities would be located in areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted. The facilities would be required to comply with the relevant local or County noise ordinances. Therefore, the proposed ordinance would be expected to result in less than significant impacts related to exposure or generation of groundborne vibration or groundborne noise levels in excess of established standards, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to noise in relation to generation of excessive groundborne vibration or groundborne noise. While it would be anticipated that the proposed ordinances would reduce or eliminate the need for vehicles to transport plastic bags, they would also potentially increase the number of vehicles or the number of vehicle miles traveled for vehicles transporting paper bags, as certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase reliance on paper bags.[12] While the number of vehicles on the roads does affect ambient noise levels, neither the potential decrease in vehicles transporting plastic bags nor the potential increase in the number of vehicles transporting paper bags would be on a scale that would be large enough to result in a discernible change in groundborne noise levels around roadways in and around the incorporated areas of the County.

In addition, while the proposed ordinances would potentially result in reduced demand for plastic bags, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase demand for paper bags.[13] It could also be anticipated

[11] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[12] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[13] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

that the proposed ordinance would increase the demand for reusable bags. As previously noted, a lower demand for plastic bags would likely result in either a decrease in the number of plastic bag manufacturing facilities or a decrease in the operation of existing facilities, or some combination of the two scenarios. Therefore, the groundborne noise produced by these facilities would be expected to be either eliminated or reduced. A potential increase in demand for paper bags would likely result in either an increase in the number of paper bag manufacturing facilities or an increase in the operation of existing facilities, or some combination of the two scenarios. An increase in production at existing facilities could potentially increase the noise produced by those facilities. However, it is assumed that paper bag manufacturing facilities are located within areas zoned for industrial uses, where noise-sensitive receptors would not be impacted, and where higher noise levels are permitted. Therefore, an increase in the level of production of paper bags at manufacturing facilities would be expected to result in less than significant impacts to noise in relation to exposure or generation of groundborne vibration or groundborne noise levels in excess of established standards. An anticipated increase in the number of paper bag manufacturing facilities would be expected to create new noise sources; however, it is assumed that any new manufacturing facilities would be located in areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted. The facilities would be required to comply with the relevant local or County noise ordinances. Therefore, the proposed ordinances would be expected to result in less than significant impacts related to exposure or generation of groundborne vibration or groundborne noise levels in excess of established standards, and no further analysis is warranted.

(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to noise in relation to permanent increases in ambient noise levels. The County Noise Control Ordinance does not define "substantial." In general, one way of estimating a person's subjective reaction to a new noise is to compare the new noise with the existing noise environment to which the person has become adapted; for example, the increase over the so-called "ambient" noise level. An increase of 1 dBA over the ambient noise level cannot be perceived unless it occurs in carefully controlled laboratory experiments; a 3-dBA increase is considered as a just-perceivable difference; an increase of at least 5 dBA is a noticeable change, thereby causing community response and often being considered a significant impact; and a 10-dBA increase is subjectively heard as approximately a doubling in loudness, thereby almost always causing an adverse community response. As a 5-dBA increase is often considered a significant increase, in lieu of a County standard, this analysis will consider an increase in noise levels of 5 dBA to be considered substantial.

As discussed in the response to question (a), any potential increase in noise levels that would result from the implementation of the proposed ordinance would not be perceptible at noise-sensitive receptors. A doubling of traffic volumes on a roadway would be expected to result in a 3-dBA increase in noise generated by traffic, which is the human threshold for perceiving a change in the ambient noise level. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase reliance on paper bags,[14] the potential

[14] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

decrease in the number of vehicles transporting plastic bags, when compared with the potential increase in the number of vehicles transporting paper bags resulting from implementation of the proposed ordinance, would not double traffic volumes on the roadways in and around the unincorporated areas of the County. While the proposed ordinance could likely result in either an increase in the number of paper bag manufacturing facilities or an increase in the operation levels of existing facilities, or some combination of the two scenarios, it is assumed that existing and new manufacturing facilities would be located in areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted.

Similarly, the proposed ordinance could potentially result in an increase in demand for reusable bags, subsequently leading to a potential increase in the number of vehicles transporting and facilities manufacturing reusable bags. It is anticipated that any potential increase in the number of vehicles transporting reusable bags would not likely be on a scale that would be large enough to result in a discernable change in noise levels around roadways in areas in and around the unincorporated areas of the County. The facilities would also be required to comply with the relevant local or County noise ordinances. Consequently, any increase in ambient noise levels would not be considered a significant impact. Therefore, the proposed ordinance would be expected to result in less than significant impacts to noise in relation to permanent increases in ambient noise levels, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to noise in relation to permanent increases in ambient noise levels. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County. As previously discussed, lower demand for plastic bags would likely result in either a decrease in the number of plastic bag manufacturing facilities or a decrease in the operation of existing facilities. While the proposed ordinances would likely result in either an increase in the number of paper bag manufacturing facilities or an increase in the operation levels of existing facilities, or some combination of the two scenarios, it is assumed that existing and new manufacturing facilities would be located in areas zoned for industrial uses, where noise-sensitive receptors would not be expected to be impacted, and where higher noise levels are permitted. Consequently, any increase in ambient noise levels would not be considered significant. The proposed ordinance could potentially result in an increase in demand for reusable bags, and subsequently lead to a potential increase in the number of vehicles transporting and facilities manufacturing reusable bags. It is anticipated that any potential increase in the number of vehicles transporting reusable bags would not be on a scale that would be large enough to result in a discernable change in noise levels around roadways in areas in and around the incorporated areas of the County. The facilities would be required to comply with the relevant local or County noise ordinances. Therefore, the proposed ordinances would be expected to result in less than significant impacts to noise in relation to permanent increases in ambient noise levels, and no further analysis is warranted.

(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity about levels existing without the project?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to noise in relation to temporary or periodic increases in ambient noise levels. The proposed ordinance would not

include components that would be sources of temporary or periodic noise. Therefore, there would be no expected impacts to noise related to temporary or periodic increases in ambient noise levels, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to noise in relation to temporary or periodic increases in ambient noise levels. The proposed ordinances would not include components that would be sources of temporary or periodic noise. Therefore, there would be no expected impacts to noise related to temporary or periodic increases in ambient noise levels, and no further analysis is warranted.

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to noise in relation to public airports. The proposed ordinance would not require people to be located or to work near any public airport. Therefore, there would be no expected impacts to noise related to public airports, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to noise in relation to public airports. The proposed ordinances would not require people to be located or to work near any public airport. Therefore, there would be no expected impacts to noise related to public airports, and no further analysis is warranted.

(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to noise in relation to private airstrips. The proposed ordinance would not require people to be located or to work near any private airstrips. Therefore, there would be no expected impacts to noise related to private airstrips, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to noise in relation to private airstrips. The proposed ordinances would not require people to be located or to work near any private airstrips. Therefore, there would be no expected impacts to noise related to private airstrips, and no further analysis is warranted.

## 3.13 POPULATION AND HOUSING

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to population and housing, thus requiring the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State CEQA Guidelines.[1] Population and housing within the County, which would be subject to the proposed ordinance, was evaluated with regard to state, regional, and local data and forecasts for population and housing, and the proximity of the County to existing and future planned utility infrastructure.

The State CEQA Guidelines recommend the consideration of three questions when addressing the potential for significant impacts to population and housing.

Would the proposed ordinances:

(a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to population and housing in relation to inducing substantial direct or indirect population growth. The proposed ordinance would ban plastic carryout bags issued at certain stores within the unincorporated territories of the County. As such, the proposed ordinance would not be anticipated to increase the demand for new housing, nor would it be expected to increase the quantity of new homes and businesses constructed. In addition, the proposed ordinance would not entail construction of infrastructure in areas not currently served by existing roads and utilities. As determined in the LACDPW staff report on plastic bags, the expansive and lightweight characteristics of plastic bags allow them to be carried by wind to become entangled in brush, tossed along freeways, and caught on fences throughout the County, thereby causing a visual impact to the surrounding areas.[2] The proposed ordinance would be expected to reduce the occurrence of fly-away plastic bag litter and consequently to improve the visual quality of the areas that are accessible and visible to sensitive receptors such as residences, schools, churches, and recreational areas. Furthermore, the distinct white or bright colors of plastic bags, and the difficulty of collecting the bags, cause a greater visual eyesore than other materials. The aesthetic and economic value associated with an increase in visual quality of the areas as viewed from such sensitive receptors could potentially induce a minor migration of individuals into these areas. However, it is expected that population growth within the jurisdictional areas for the proposed ordinance would remain consistent with the existing population growth projection for the County because the proposed ordinance would not entail development or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories of the County. Migration is a basic component of observed population growth, of which a majority of people relocate for housing-related reasons.[3] It is unlikely then that the proposed ordinance would be a contributor to population growth within the unincorporated areas of the County.

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[3] U.S. Census Bureau. 2000. *Population Profile of the United States: 2000*.

According to data obtained from the California Department of Finance, the population of the unincorporated territories of the County was estimated to be 1,083,392 in 2008, and in 2009 added 8,586 residents, which represents an annual average growth rate of approximately 0.79 percent,[4] indicating a limited projected population growth. Therefore, there would be no expected impacts to population and housing related to inducing substantial direct or indirect population growth. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to population and housing in relation to inducing substantial direct or indirect population growth. The proposed ordinances would not be expected to cause an increase in demand for new housing, nor would it be expected to increase the quantity of new homes and businesses constructed within the 88 cities that govern the incorporated cities of the County. In addition, the proposed ordinances would not entail construction of infrastructure in areas not currently served by existing roads and utilities. As such, it would be expected that population growth in the incorporated cities of the County would remain consistent with the existing population growth projection for the County. Therefore, there would be no expected impacts to population and housing related to inducing substantial direct or indirect population growth. No further analysis is warranted.

(b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to population and housing in relation to the displacement of substantial amounts of existing housing that would necessitate construction of replacement housing elsewhere. The proposed ordinance would aim to curb the amount of litter that can be attributed to plastic carryout bags within the unincorporated territories of the County and it would not contain any components that would result in the displacement of existing housing. The unincorporated areas that would be affected by the proposed ordinance provide residences and employment for approximately 1 million people in the County.[5] The implementation of the proposed ordinance would not be expected to lead to an increase in population, but rather would be expected to be consistent with the County's projected population growth. As such, existing housing is anticipated to accommodate the current population and projected population growth in the County and thus would not necessitate construction of replacement housing elsewhere. Therefore, there would be no expected impacts to population and housing related to the displacement of substantial amounts of existing housing as a result of the proposed ordinance. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to population and housing in relation to the displacement of substantial amounts of existing housing that would necessitate the construction of replacement housing elsewhere. The proposed ordinances would not be expected

[4] State of California Department of Finance. May 2009. *E-4 Population Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, CA.

[5] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

to result in the displacement of existing housing. The implementation of the proposed ordinances would not be expected to lead to an increase in population, but rather would be expected to be consistent with the projected population growth for the 88 incorporated cities of the County. As such, existing housing is anticipated to accommodate the present population and projected population growth in these areas, and thus would not necessitate the construction of replacement housing elsewhere. Therefore, there would be no expected impacts to population and housing related to the displacement of substantial amounts of existing housing as a result of the proposed ordinance. No further analysis is warranted.

(c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to population and housing in relation to the displacement of substantial numbers of people that would necessitate the construction of replacement housing elsewhere. The proposed ordinance would limit the amount of litter that can be attributed to plastic carryout bags within the unincorporated territories of the County and would not contain any components that would result in the displacement of substantial numbers of people. The implementation of the proposed ordinance would not be expected to lead to an increase in population, but rather would be expected to be consistent with the County's projected population growth. As such, existing housing would accommodate the projected County population growth and would not necessitate the construction of replacement housing elsewhere. Therefore, there would be no expected impacts to population and housing related to the displacement of substantial numbers of people. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to population and housing in relation to the displacement of substantial numbers of people that would necessitate construction of replacement housing elsewhere. The implementation of the proposed ordinances would not be expected to lead to an increase in the population of the 88 incorporated cities of the County; the proposed ordinances would be expected to be consistent with the projected population growth for these areas. As such, existing housing would accommodate the projected growth in population in the County and would not necessitate the construction of replacement housing elsewhere. Therefore, there would be no expected impacts to population and housing related to the displacement of substantial numbers of people. No further analysis is warranted.

## 3.14 PUBLIC SERVICES

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to public services, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Public services within the County, which would be subject to the proposed ordinances, were evaluated based on review of the County of Los Angeles General Plan,[2] the County Web site,[3] Web sites of the County police and fire departments,[4,5] and previously completed environmental documentation related to the proposed ordinances.

The State CEQA Guidelines recommend the consideration of one question when addressing the potential for significant impact to public services.

Would the proposed ordinances result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

(1) Fire protection?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to public services in relation to fire protection. As determined in Section 3.12 of this Initial Study, the proposed ordinance would not be anticipated to contribute to significant population growth in the County, and would not include the provision of new or physically altered fire protection services. Implementation of the proposed ordinance would be expected to improve the visual quality of areas of the unincorporated of the County that are accessible and visible to sensitive receptors–residences, schools, churches, and recreational areas–due to the anticipated reduction of plastic bag litter in those areas. The aesthetic and economic value associated with the anticipated increase in the visual quality of the areas as viewed from sensitive receptors could potentially induce migration of individuals into these areas. However, it is anticipated that population growth within the unincorporated territories of the County would remain consistent with the current population growth projection for the County. Migration is a basic component of observed population growth, with a majority of people relocating for housing-related reasons.[6] The proposed ordinance would not entail development or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories of the County. Therefore, the proposed ordinance would not be expected to affect population growth or migration

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles. Accessed June 2009. *Unincorporated Areas*. County of Los Angeles Web site. Available at: http://portal.lacounty.gov/

[4] Los Angeles County Sheriff's Department. Accessed August 2009. Los Angeles County Sheriff's Department Web site. Available at: http://www.lasd.org/lasdservices.html

[5] Los Angeles County Fire Department. Accessed 6 July 2009. Los Angeles County Fire Department Web site. Available at: http://www.fire.lacounty.gov/

[6] U.S. Census Bureau. 2000. *Population Profile of the United States: 2000*.

within the unincorporated territories of the County, and thus would not be expected to increase the need for fire protection services or related facilities.

According to data obtained from the California Department of Finance, the population of the unincorporated territories of the County was estimated to be 1,083,392 in 2008, with the addition of 8,586 residents in 2009, representing an annual average growth rate of approximately 0.79 percent.[7] Implementation of the proposed ordinance would not be expected to affect the County's current growth rate projection, and thus would not be anticipated to overburden existing fire protection facilities or to interfere with service benchmarks, response times, or other performance objectives related to fire protection. As a result, it is anticipated that existing fire protection services would be adequate to support the projected population growth of the unincorporated territories of the County, and no additional fire protection facilities would be required. Therefore, there would be no expected impacts to public services related to fire protection, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to public services in relation to fire protection. As previously discussed, the proposed ordinances would not be anticipated to contribute to significant population growth in the County, and would not include the provision of new or physically altered fire protection services. According to data obtained from the California Department of Finance, the population of the incorporated cities of the County was estimated to be 9,218,266 in 2008, with the addition of 82,941 residents in 2009, representing an annual average growth rate of approximately 0.90 percent.[8] The aesthetic and economic value associated with the anticipated increase in the visual quality of these areas could potentially induce migration of individuals into these areas. However, it is anticipated that population growth within the incorporated cities of the County would remain consistent with the existing population growth projection for the County. Moreover, the proposed ordinances would not entail development or other features that would be expected to shift or influence the growth or migration rates within the incorporated cities of the County. Therefore, the proposed ordinances would not be expected to affect population growth or migration within the incorporated cities of the County, and thus would not be expected to increase the need for fire protection services or related facilities. Therefore, there would be no anticipated impacts to public services related to fire protection, and no further analysis is warranted.

(2) Police protection?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to public services in relation to police protection. As determined in Section 3.12 of this Initial Study, the proposed ordinance would not be anticipated to contribute to the County's projected population growth and would not include or require the provision of new or physically altered facilities for police protection services. Implementation of the proposed ordinance would be anticipated to improve the visual quality of areas of the unincorporated territories of the County that are accessible and visible to sensitive

[7] State of California Department of Finance. May 2009. *E-4 Population Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, CA.

[8] State of California Department of Finance. May 2009. *E-4 Population Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, CA.

receptors–residences, schools, churches, and recreational areas–due to the anticipated reduction of plastic bag litter in those areas. The aesthetic and economic value associated with an increase in the visual quality of the areas as viewed from sensitive receptors could potentially induce migration of individuals into these areas. However, the population growth within the unincorporated territories of the County would be expected to remain consistent with the current County population growth projection. Migration is a basic component of observed population growth, with a majority of people relocating for housing-related reasons.[9] The proposed ordinance would not entail any development or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories the County. It would not be anticipated that the proposed ordinance would contribute to population growth or migration within the unincorporated territories of the County and thus would not be expected to affect the need for police protection.

According to data obtained from the California Department of Finance, the population of the unincorporated territories of the County was estimated to be 1,083,392 in 2008, with the addition of 8,586 residents in 2009, representing an annual average growth rate of approximately 0.79 percent.[10] Implementation of the proposed ordinance would not be expected to affect the projected population change in relation to this average growth rate, and thus it would not be anticipated to overburden existing police protection facilities or to interfere with service benchmarks, response times, or other performance objectives for police protection services. As a result, it is anticipated that existing police protection services would be adequate to support the projected population growth of the unincorporated territories of the County, and no additional police protection or related facilities would be required. Therefore, there would be no expected impacts to public services related to police protection, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to public services in relation to police protection. The proposed ordinances would not entail any development or other features that would be expected to shift or influence population growth within the incorporated cities of the County. The proposed ordinances would not be expected to contribute to population growth or migration within the incorporated cities of the County and thus would not be expected to increase the need for police protection. As a result, it is anticipated that existing police protection services would be adequate to support the projected population growth of the incorporated cities of the County, and no additional police protection or related facilities would be required. Therefore, there would be no anticipated impacts to public services related to police protection, and no further analysis is warranted.

(3) Schools?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to public services in relation to schools. As determined in Section 3.12 of this Initial Study, the proposed ordinance is not anticipated to contribute to the County's projected population growth. The proposed ordinance would not include or be expected to require the provision of new or physically altered

[9] U.S. Census Bureau. 2000. *Population Profile of the United States: 2000*.

[10] State of California Department of Finance. May 2009. *E-4 Population Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, CA.

governmental facilities related to schools. Implementation of the proposed ordinance would be anticipated to improve the visual quality of areas of the unincorporated territories the County that are accessible and visible to sensitive receptors–residences, schools, churches, and recreational areas–due to the anticipated reduction of plastic bag litter in those areas. The aesthetic and economic value associated with an increase in the visual quality of these areas as viewed from sensitive receptors could potentially induce migration of individuals and families into these areas. However, it is anticipated that population growth within the unincorporated territories of the County would remain consistent with the currently projected population growth for the County. As noted, migration is a basic component of observed population growth, with a majority of people relocating for housing-related reasons.[11] The proposed ordinance would not entail development of structures or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories of the County. It would not be expected that the proposed ordinance would contribute to population growth or migration within the unincorporated territories of the County, and thus would not be expected to create an additional demand for schools or related facilities.

As previously stated, according to data obtained from the California Department of Finance, the population of the unincorporated territories of the County was estimated to be 1,083,392 in 2008, with the addition of 8,586 residents in 2009, representing an annual average growth rate of approximately 0.79 percent.[12] Implementation of the proposed ordinance would not be expected to affect the County's current or projected average growth rates, and thus would not be anticipated to contribute to the exceedance of existing school facility capacities or to prevent the attainment or maintenance of school-related performance objectives. As a result, it would be expected that the services provided by the Los Angeles Unified School District as well as other educational facilities would be adequate to support the projected population growth of the County, including areas within the unincorporated territories of the County, and no additional schools would be required. Therefore, there would be no expected impacts to public services related to schools, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to public services in relation to schools. It is anticipated that population growth within the incorporated cities of the County would remain consistent with the currently projected population growth for the County. The proposed ordinances would not entail any development or other features that would be expected to shift or influence the growth or migration rates within the incorporated cities of the County. It would not be expected that the proposed ordinances would contribute to population growth or migration within the incorporated areas of the County, and thus would not be expected to create an additional demand for schools or related facilities. As a result, it would be expected that the services provided by the Los Angeles Unified School District as well as other educational facilities would be adequate to support the projected population growth of the County, including areas within the incorporated cities of the County, and no additional schools would be required. Therefore, there would be no anticipated impacts to public services related to schools, and no further analysis is warranted.

[11] U.S. Census Bureau. 2000. *Population Profile of the United States: 2000*.

[12] State of California Department of Finance. May 2009. *E-4 Population Estimates for Cities, Counties and the State, 2001–2009, with 2000 Benchmark*. Sacramento, CA.

(4) Parks?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to public services in relation to parks. As determined in Section 3.12 of this Initial Study, the proposed ordinance would not be anticipated to affect the projected population growth in the County, and would not include the provision of new or physically altered governmental facilities related to parks. As previously mentioned, implementation of the proposed ordinance would be anticipated to improve the visual quality of areas of the unincorporated territories of the County that are accessible and visible to sensitive receptors–residences, schools, churches, and recreational areas–due to the anticipated reduction of plastic bag litter in those areas. The aesthetic and economic value associated with an expected increase in the visual quality of the areas as viewed from sensitive receptors could potentially induce migration of individuals into these areas. However, it is anticipated that population growth within the unincorporated territories of the County would remain consistent with the current County population growth projection. Migration is a basic component of observed population growth, with a majority of people relocating for housing-related reasons.[13] The proposed ordinance would not entail development or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories of the County. It would not be expected that the proposed ordinance would significantly contribute to population growth or migration within the unincorporated territories of the County.

The currently projected population change according to the average growth rate noted in the two previous responses would not be anticipated to lead to the exceedance of existing park facility capacities with the implementation of the proposed ordinance, as the proposed ordinance would not expected to affect population. As such, existing local and regional parks within the County would be expected to adequately accommodate the projected population growth of the unincorporated territories of the County, and no additional parks would be required. Therefore, there would be no expected impacts resulting from the proposed ordinance to public services related to parks, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to public services in relation to parks. As previously discussed, the proposed ordinances would not be anticipated to affect population growth in the County, and would not include the provision of new or physically altered governmental facilities related to parks. It is anticipated that population growth within the incorporated cities of the County would remain consistent with the current population growth projection for the County. The proposed ordinances do not entail development or other features that would be expected to shift or influence the growth or migration rates within the incorporated cities of the County. It would not be expected that the proposed ordinance would significantly contribute to population growth or migration within the incorporated cities of the County. As such, existing local and regional parks within the County would be expected to adequately accommodate the projected population growth of the incorporated cities of the County, and no additional parks would be required. Therefore, there would be no anticipated impacts resulting from the proposed ordinance to public services related to parks, and no further analysis is warranted.

[13] U.S. Census Bureau. 2000. *Population Profile of the United States: 2000*.

(5) Other public facilities?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to public services in relation to other public facilities. The proposed ordinance would ban plastic carryout bags issued by certain stores in the unincorporated territories of the County and would not entail any development or features that would be expected to affect population growth in the County in such a way that it would lead to an increase in the demand for and use of public facilities. Furthermore, the proposed ordinance would not include elements that would directly or indirectly require residential development or the construction of public facilities. Therefore, there would be no expected impacts to public services related to other public facilities, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to public services in relation to other public facilities. The proposed ordinances would not entail any development or features that would be expected to affect population growth in the incorporated cities of the County in such a way that it would lead to an increase in the demand for and use of other public facilities. Furthermore, the proposed ordinances do not include elements that would directly or indirectly require residential development or the construction of public facilities. Therefore, there would be no anticipated impacts to public services related to other public facilities, and no further analysis is warranted.

## 3.15 RECREATION

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to recreation, thus requiring the consideration of mitigation measures or alternatives in accordance with Section 15063 of the State CEQA Guidelines.[1] Recreation within the County, which would be subject to the proposed ordinances,was evaluated with regard to the County of Los Angeles General Plan,[2] expert opinion, and technical studies, and in consideration of the potential for growth-inducing impacts evaluated in Section 3.12, Population and Housing, of this Initial Study.

The State CEQA Guidelines recommend the consideration of two questions when addressing the potential for significant impacts to recreation:

(a) Would the proposed ordinances increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to recreation in relation to the increased use of existing neighborhood and regional parks or other recreational facilities that would contribute to their physical deterioration. A review of the Conservation, Open Space, and Recreation elements of the County of Los Angeles General Plan indicates that 71,800 acres of existing open space in the County consist of public and private land utilized for outdoor recreation.[3] This land area includes, but is not limited to, 67 local parks, 17 community regional parks, and 10 regional parks.[4] As such, the County's recreational resources are varied and extensive, where the National Forests and Santa Catalina Island are the largest recreational areas in the County. The proposed ordinance would not contain any components that would increase or impact the demand for the existing recreational facilities. As such, it is expected that existing recreational facilities would be able to support the present and future needs of residents and visitors to the County. This is supported by Section 3.12 of this Initial Study, which states that the proposed ordinance would not be expected to cause an increase in residents or visitors because the proposed ordinance would not entail development or other features that would be expected to shift or influence the growth or migration rates within the unincorporated territories of the County. Furthermore, the proposed ordinance, which would aim to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags, would likely lead to the improved aesthetic appearance and opportunities of recreational facilities, because, as found in the County staff report on plastic bags, due to their expansive and lightweight characteristics, plastic bags are easily carried by wind to become entangled in brush, tossed along freeways, and caught on fences throughout the County.[5] Furthermore, the distinct white or bright colors of plastic bags and the

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[4] County of Los Angeles Department of Parks and Recreation. 2007. *Department of Parks and Recreation Annual Report 2005–2006 County of Los Angeles*. Los Angeles, CA. Available at: http://parks.lacounty.gov/cms1_069242.pdf?Title=2005-2006%20Annual%20Report

[5] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

difficulty of collecting the bags cause a greater visual eyesore than other materials when they are improperly disposed of. Therefore, there would be no expected impacts to recreation related to increased use of existing neighborhood and regional parks or other recreational facilities that would contribute to the physical deterioration of existing facilities. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to recreation in relation to the increased use of existing neighborhood and regional parks or other recreational facilities that would contribute to their physical deterioration. The proposed ordinances would not contain any components that would increase or impact the demand for the existing recreational facilities. As such, it is expected that existing recreational facilities would be adequate to support the present and future needs of residents and visitors to the County. Therefore, the proposed ordinances would not require any changes to the established existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. No further analysis is warranted.

(b) Do the proposed ordinances include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in adverse physical effects on the environment as a result of existing recreational facilities or proposed construction or expansion of recreational facilities. Section 3.12 of this Initial Study concluded that although it would be expected that the implementation of the proposed ordinance would improve the visual quality of the areas accessible and visible to sensitive receptors, such as residences, schools, churches, and recreational areas, the projected population growth would remain consistent with the existing growth rates. The proposed ordinance would not increase or impact the demand for the existing recreational facilities. As such, it is expected that existing recreational facilities would be able to support the present and future needs of residents and visitors to the County. The proposed ordinance would aim to limit the amount of litter that can be attributed to the use of plastic carryout bags within the unincorporated territories of the County, and it would not include construction or expansion of recreational facilities. Therefore, there would be no expected impacts to recreation related to adverse physical effects on the environment as a result of existing recreational facilities or proposed construction or expansion of recreational facilities. No further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in adverse physical effects on the environment as a result of existing recreational facilities or proposed construction or expansion of recreational facilities. The proposed ordinances would not increase or impact the demand for the existing recreational facilities. As such, it is expected that existing recreational facilities would be able to support the present and future needs of residents and visitors to the County. Therefore, there would be no expected impacts to recreation related to adverse physical effects on the environment as a result of existing recreational facilities or proposed construction or expansion of recreational facilities. No further analysis is warranted.

## 3.16 TRANSPORTATION AND TRAFFIC

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to transportation and traffic, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Transportation and traffic related to the proposed ordinances were evaluated with regard to the Circulation element of the County of Los Angeles General Plan,[2] the Congestion Management Plan for the County,[3] and Caltrans.[4]

The State CEQA Guidelines recommend the consideration of seven questions when addressing the potential for significant impact to transportation and traffic.

Would the proposed ordinances:

(a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in less than significant impacts to transportation and traffic related to creating a substantial increase in traffic in relation to the existing traffic load and capacity of the street system. The proposed ordinance would aim to significantly reduce the amount of litter in the unincorporated territories of the County that can be attributed to the use of plastic carryout bags, which would potentially lead to a reduction in the amount of waste transported throughout the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to increase the number of paper carryout bags used, disposed of, and transported throughout the County,[5] the proposed ordinance would also be expected to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags used, disposed of, and transported throughout the County compared to existing conditions. In addition, a decrease in the number of plastic carryout bags delivered throughout the County would be expected to further reduce the volume of traffic related to the transportation of plastic bags. As a result, the proposed ordinance would not be expected to generate any vehicle trips that would contribute to the existing traffic within the County, and may have the potential to reduce the number of vehicle trips caused by the transportation of plastic carryout bag waste throughout the County. Therefore, the proposed ordinance would not be expected to increase vehicle/capacity ratio or level of service (LOS) at any of the streets, highways, or intersections located throughout the County. Therefore, impacts related to transportation and traffic related to creating a substantial increase in traffic would be expected to be less than significant, and no further analysis is warranted.

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, CA. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] County of Los Angeles Metropolitan Transportation Authority. 2004. *2004 Congestion Management Program for Los Angeles County*. Los Angeles, CA.

[4] California Department of Transportation. Web site. Available at: http://www.dot.ca.gov/

[5] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to transportation and traffic related to creating a substantial increase in traffic in relation to the existing traffic load and capacity of the street system. The proposed ordinances would aim to significantly reduce the amount of litter in the incorporated cities of the County that can be attributed to the use of plastic carryout bags, which would potentially lead to a reduction in the amount of waste transported throughout the incorporated cities of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags used, disposed of, and transported throughout the County,[6] the proposed ordinances would also serve to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags used, disposed of, and transported throughout the County compared to existing conditions. In addition, a decrease in the number of plastic carryout bags delivered throughout the County would further reduce the volume of traffic related to the transportation of bags. As a result, the proposed ordinances would not be expected to generate any vehicle trips that would contribute to the existing volume of traffic within the County, and would have the potential to reduce the number of vehicle trips generated during the transportation of plastic carryout bag waste throughout the County. Therefore, the proposed ordinances would be expected to increase vehicle/capacity ratio or LOS at any of the streets, highways, or intersections located throughout the incorporated cities of the County. Therefore, impacts to transportation and traffic related to creating a substantial increase in traffic would be expected to be less than significant, and no further analysis is warranted.

(b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to exceeding, either individually or cumulatively, an LOS standard established by the County congestion management agency for designated roads or highways. The proposed ordinance would aim to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags, which would have the potential to lead to a reduction in the amount of waste transported throughout the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags used, disposed of, and transported throughout the County,[7] the proposed ordinance would be expected to facilitate an increase in the use of reusable bags, thereby resulting in an expected reduction in the total number of carryout bags used, disposed of, and transported throughout the County compared to existing conditions. In addition, a decrease in the number of plastic carryout bags being delivered throughout the County would further reduce the volume of traffic related to the transportation of bags. The County congestion management

[6] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[7] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

program set the threshold for arterial roadways to achieve an LOS E or above.[8] The proposed ordinance would not directly generate new or additional trips as it is not anticipated to increase development in the unincorporated areas of the County more than would be expected without the proposed ordinance. The proposed ordinance may have the potential to reduce the amount of vehicle trips caused by transporting plastic bag waste throughout the County. Therefore, the proposed ordinance would not serve to increase LOS at any of the streets, highways, or intersections located throughout the County. There would be no expected adverse impacts to transportation and traffic related to exceeding an LOS standard established by the County congestion management agency for designated roads or highways, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to exceeding, either individually or cumulatively, an LOS standard established by the County congestion management agency for designated roads or highways. The proposed ordinances would aim to significantly reduce the amount of litter that can be attributed to the use of plastic carryout bags, which would have the potential to lead to a reduced amount of waste transported throughout the incorporated cities of the County. As previously noted, although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags used, disposed of, and transported throughout the County,[9] the proposed ordinances would be expected to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags used, disposed of, and transported throughout the County compared to existing conditions. In addition, a decrease in the amount of plastic carryout bags being delivered throughout the County would further reduce the volume of traffic related to the transportation of bags. The County congestion management program set the threshold for arterial roadways to achieve an LOS E or above.[10] The proposed ordinances would not directly generate new or additional trips as it is not anticipated to increase development in the incorporated areas of the County more than would be expected without the proposed ordinances. The proposed ordinances would have the potential to reduce the number of vehicle trips generated by transporting plastic bag waste throughout the County. Therefore, the proposed ordinances would not be expected to increase LOS at any of the streets, highways, or intersections located throughout the incorporated cities of the County. There would be no expected adverse impacts to transportation and traffic related to exceeding an LOS standard established by the County congestion management agency for designated roads or highways, and no further analysis is warranted.

[8] County of Los Angeles Metropolitan Transportation Authority. 2004. *2004 Congestion Management Program for Los Angeles County*. Los Angeles, CA.

[9] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[10] County of Los Angeles Metropolitan Transportation Authority. 2004. *2004 Congestion Management Program for Los Angeles County*. Los Angeles, CA.

(c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

**Unincorporated territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The proposed ordinance would not include any direct development, and as such it would not entail elements that would be located near a private or public airport. The proposed ordinance would ban plastic carryout bags issued by certain stores and it would not result in any direct or indirect effects upon air traffic patterns. Therefore, there would be no expected impacts to transportation and traffic related to a change in air traffic patterns that would result in substantial safety risks, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks. The proposed ordinances would not include any direct development, and as such they would not entail elements that would be located near a private or public airport. The proposed ordinances would ban plastic carryout bags issued by certain stores and it would not be expected to result in any direct or indirect impacts to air traffic patterns. Therefore, there would be no expected impacts to transportation and traffic related to a change in air traffic patterns that would result in substantial safety risks, and no further analysis is warranted.

(d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to substantially increasing hazards due to a design feature or incompatible uses. The proposed ordinance would not include any development. The proposed ordinance would ban plastic carryout bags issued by certain stores and it would not entail elements that require construction, and thus would not result in any direct or indirect effects upon increasing hazards due to a design feature. Therefore, there would be no expected impacts to transportation and traffic related to substantially increasing hazards due to a design feature, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to substantially increasing hazards due to a design feature or incompatible uses. The proposed ordinances would not include any development. The proposed ordinances would ban plastic carryout bags issued by certain stores, which would not entail elements that require construction, and thus would not result in any direct or indirect effects upon increasing hazards due to a design feature. Therefore, there would be no expected impacts to transportation and traffic related to substantially increasing hazards due to a design feature, and no further analysis is warranted.

(e) Result in inadequate emergency access?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to inadequate emergency access. The proposed ordinance would not include any development. The proposed ordinance would ban plastic carryout bags issued by certain stores, and would not be expected to result in any direct or indirect effects upon the availability of emergency access as the proposed ordinance would not include elements that would require or alter the availability of or access to any emergency route within the unincorporated territories of the County. Therefore, there would be no expected impacts to transportation and traffic related to inadequate emergency access, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to inadequate emergency access. The proposed ordinances would not include any development. The proposed ordinances would ban plastic carryout bags issued by certain stores, and would not be expected to result in any direct or indirect effects upon the availability of emergency access as the proposed ordinances would not include elements that would require or alter the availability of or access to any emergency route within the incorporated cities of the County. Therefore, there would be no expected impacts to transportation and traffic related to inadequate emergency access, and no further analysis is warranted.

(f) Result in inadequate parking capacity?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to inadequate parking capacity. The proposed ordinance would not include any development. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not include any components that would be expected to result in any direct or indirect effects upon parking capacity within the unincorporated territories of the County. Therefore, there would be no expected impacts to transportation and traffic related to inadequate parking capacity, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to inadequate parking capacity. The proposed ordinances would not include any development. The proposed ordinances would ban plastic carryout bags issued by certain stores and would not include any components that would be expected to directly or indirectly affect parking capacity within the incorporated cities of the County. Therefore, there would be no expected impacts to transportation and traffic related to inadequate parking capacity, and no further analysis is warranted.

(g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to transportation and traffic in relation to conflicts with adopted policies, plans, or programs supporting alternative transportation. The proposed ordinance would not include any development that would conflict with alternative transportation in the unincorporated areas of the County. The proposed ordinance would ban plastic carryout bags issued by certain stores and would not include any components that would directly or indirectly affect adopted policies, plans, or programs supporting alternative transportation within the unincorporated territories of the County. Therefore, there would be no expected impacts to transportation and traffic related to conflicts with adopted policies, plans, or programs supporting alternative transportation, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to transportation and traffic in relation to conflicts with adopted policies, plans, or programs supporting alternative transportation. The proposed ordinances would not include any development that would conflict with alternative transportation in the incorporated areas of the County. The proposed ordinances would ban plastic carryout bags issued by certain stores and would not include any components that would be expected to directly or indirectly affect adopted policies, plans, or programs supporting alternative transportation within the incorporated cities of the County. Therefore, there would be no expected impacts to transportation and traffic related to conflicts with adopted policies, plans, or programs supporting alternative transportation, and no further analysis is warranted.

## 3.17 UTILITIES AND SERVICE SYSTEMS

This analysis is undertaken to determine if the proposed ordinances may have a significant impact to utilities and service systems, thus requiring the consideration of mitigation measures or alternatives, in accordance with Section 15063 of the State CEQA Guidelines.[1] Utilities and service systems within the County, which would be subject to the proposed ordinances, were evaluated with regard to the County of Los Angeles General Plan[2] and the California RWQCB Basin Plan for the Los Angeles Region. The scope of the utilities and service systems investigations included natural gas, telephone, electric, sewer, storm drain, and water utilities.

The State CEQA Guidelines recommend the consideration of seven questions when addressing the potential for significant impacts to utilities and service systems.

Would the proposed ordinances:

(a) Exceed wastewater treatment requirements of the applicable regional water quality control board?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in a less than significant impact to utilities and service systems in relation to exceeding the wastewater treatment requirements of the Los Angeles RWQCB. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in increased reliance on paper bags,[3] the proposed ordinance would facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags consumed in the unincorporated territories of the County compared to existing conditions. In addition, although the proposed ordinance would be expected to lead to an increase in the number of reusable bags manufactured for use in the unincorporated territories of the County, the number of reusable bags required would be significantly lower than the number of plastic carryout bags currently consumed. Therefore, a reduction in the total consumption of plastic bags would be expected to decrease the amount of wastewater generated by bag manufacturing facilities. Further, a potential increase, if any, in the production of paper bags would not be expected to increase wastewater treatment requirements of the Los Angeles RWQCB. Any County project or facility is adjudicated by the Water Quality Control Plan for the Los Angeles Region (Basin Plan) for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, impacts to utilities and service systems related to exceeding wastewater treatment requirements of the Los Angeles RWQCB would be expected to be less than significant, and no further analysis is warranted.

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[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

[2] County of Los Angeles Department of Regional Planning. 1980 (updated 6 December 1990). *Existing Adopted Los Angeles County General Plan*. Los Angeles, California. Available at: http://planning.lacounty.gov/generalplan#gp-existing

[3] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would be expected to result in less than significant impacts to utilities and service systems in relation to exceeding the wastewater treatment requirements of the Los Angeles RWQCB. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the reliance on paper bags,[4] the proposed ordinances would serve to facilitate an increase in the use of reusable bags in the long-term, thereby resulting in a reduction in the total number of carryout bags consumed in the incorporated cities of the County compared to existing conditions. In addition, although the proposed ordinances would be expected to lead to an increase in the number of reusable bags manufactured for use in the incorporated cities of the County, the number of reusable bags required would be significantly lower than the number of carryout bags currently consumed. A reduction in the total consumption of plastic bags would be expected to decrease the amount of wastewater generated by bag manufacturing facilities. Therefore, as with the unincorporated territories of the County, the proposed ordinances would be expected to result in less than significant impacts to utilities and service systems in the incorporated cities of the County in relation to exceeding the wastewater treatment requirements of the Los Angeles RWQCB, and no further analysis is warranted.

(b) Require or result in the construction of new water or wastewater treatment facilities, the construction of which could cause significant environmental effects?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to utilities and service systems in relation to the construction of new water or wastewater treatment facilities or expansion of facilities, causing significant environmental effects. The proposed ordinance would ban the plastic carryout bags issued by certain stores within the unincorporated territories of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags,[5] the proposed ordinance would serve to facilitate an increase in the use of reusable bags in the long-term, thereby resulting in a reduction in the total number of carryout bags consumed in the County compared to existing conditions. In addition, although the proposed ordinance is expected to lead to an increase in the number of reusable bags manufactured for use in the County, the number of reusable bags required would be significantly lower that the number of carryout bags currently consumed. Therefore, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of wastewater generated by bag manufacturing facilities. A potential increase in the production of

[4] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[5] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

paper bags would not be expected to increase the requirement for water or wastewater treatment facilities. Any County project or facility is adjudicated by the Basin Plan for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, there would be no expected impacts to utilities and service systems related to the construction of new water or wastewater treatment facilities or expansion of facilities that could cause significant environmental effects, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to utilities and service systems in relation to the construction of new water or wastewater treatment facilities or expansion of facilities, causing significant environmental effects. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of carryout paper bags consumed,[6] the proposed ordinances would serve to facilitate an increase in the use of reusable bags in the long-term, thereby resulting in a reduction in the total number of carryout bags consumed in the incorporated cities of the County compared to existing conditions. In addition, although the proposed ordinances are expected to lead to an increase in the number of reusable bags manufactured for use in the incorporated cities of the County, the number of reusable bags required would be significantly lower that the number of carryout bags currently consumed. Therefore, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of wastewater generated by bag manufacturing facilities. Therefore, as with the unincorporated territories of the County, there would be no expected impacts to utilities and service systems related to the construction of new water or wastewater treatment facilities or expansion of facilities that could cause significant environmental effects, and no further analysis is warranted.

(c) 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 impacts?

**Unincorporated County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to utilities and service systems in relation to the construction of new storm water drainage facilities or expansion of existing facilities, which could cause significant environmental impacts. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County, which would not be expected to result in an increase in storm water runoff in the County. Plastic bags that end up in storm drain systems serve to impede the system's ability to channel storm water runoff.[7] Therefore, a reduction in the number of plastic bags used in the County would have the potential to lead to improvements in the efficiency of the currently existing storm water

[6] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[7] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf.

drainage facilities. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags disposed of,[8] paper bags are less likely to be littered and to end up in storm water runoff as they are heavier (paper bags have been noted to be anywhere between 6 to 10 times heavier than plastic bags) and also quickly biodegrade, even if littered, and therefore less likely to become airborne and scattered throughout the areas that would be subject to the proposed ordinance.[9] Therefore, there would be no expected adverse impacts to utilities and service systems related to the construction of new storm water drainage facilities or expansion of existing facilities, which could cause significant environmental impacts, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to utilities and service systems in relation to the construction of new storm water drainage facilities or expansion of existing facilities, which could cause significant environmental impacts. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County, which would not be expected to result in an increase in storm water runoff in the incorporated cities of the County. Plastic bags that end up in storm drain systems serve to impede the system's ability to channel storm water runoff.[10] Therefore, a reduction in the number of plastic bags used in the incorporated cities of the County would have the potential to lead to improvements in the efficiency of the currently existing storm water drainage facilities. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags disposed of,[11] paper bags are less likely to be littered and to end up in storm water runoff as they are heavier (paper bags have been noted to be anywhere between 6 to 10 times heavier than plastic bags) and also quickly biodegrade, even if littered and therefore less likely to become airborne and scattered throughout the areas served by the proposed ordinances.[12] Therefore, there would be no expected adverse impacts to utilities and service systems related to the construction of new storm water drainage facilities or expansion of existing facilities, which could cause significant environmental impacts, and no further analysis is warranted.

[8] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[9] Save the Plastic Bag. 2008. *Scottish Executive 2005 Environment Group Research Report (2005/06).* Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf

[10] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf.

[11] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[12] Save the Plastic Bag. 2008. *Scottish Executive 2005 Environment Group Research Report (2005/06).* Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf

(d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to utilities and service systems in relation to having sufficient water supplies available to serve the unincorporated territories within the County from existing entitlements and resources, or having new expanded entitlements needed. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags manufactured for use,[13] it is anticipated that the proposed ordinance would serve to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags consumed in the County as compared to existing conditions. In addition, although the proposed ordinance would be expected to lead to an increase in the number of reusable bags consumed in the County, the number of reusable bags required would be expected to be significantly lower that the number of carryout bags (both paper and plastic) that are currently used. Therefore, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of water required by bag manufacturing facilities. A potential increase in the production of paper bags, if any, would not be expected to increase the demand for water supplies in California. Any County project or facility is adjudicated by the Basin Plan for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, there would be no expected adverse impacts to utilities and service systems related to having sufficient water supplies available to serve the proposed ordinance from existing entitlements and resources, or having new expanded entitlements needed, and no further analysis is warranted.

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to utilities and service systems in relation to having sufficient water supplies available to serve the incorporated cities within the County from existing entitlements and resources, or having new expanded entitlements needed. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags manufactured for use,[14] it is anticipated that the proposed ordinances would serve to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags consumed in the incorporated cities of the County as compared to existing conditions. In addition, although the proposed ordinances would be expected to lead to an increase in the number of reusable bags consumed in the

[13] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[14] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

incorporated cities of the County, the number of reusable bags required would be expected to be significantly lower than the number of carryout bags (both paper and plastic) that are currently used. Therefore, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of water required by bag manufacturing facilities. Any County project or facility is adjudicated by the Basin Plan for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, as with the unincorporated territories of the County, there would be no expected adverse impacts to utilities and service systems related to having sufficient water supplies available to serve the proposed ordinances from existing entitlements and resources, or having new expanded entitlements needed, and no further analysis is warranted.

(e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would not be expected to result in impacts to utilities and service systems in relation to resulting in a determination by the wastewater treatment provider which serves or may serve the unincorporated territories of the County that it has adequate capacity to serve the projected demand in the unincorporated territories of the County in addition to the provider's existing commitments. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the unincorporated territories of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags consumed,[15] the proposed ordinance would also serve to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags consumed in the County compared to existing conditions. In addition, although the proposed ordinance is expected to lead to an increase in the number of reusable bags manufactured for use in the County, the number of reusable bags required would be significantly lower that the number of carryout bags currently consumed. Therefore, over time, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of water required and discharged by bag manufacturing facilities. A potential increase, if any, in the production of paper bags would not be expected to increase wastewater treatment requirements in California. Any County project or facility is adjudicated by the Basin Plan for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, there would be no expected adverse environmental impacts to utilities and service systems related to resulting in a determination by the wastewater treatment provider that serves or may serve the unincorporated territories of the County that it has adequate capacity to serve the projected demand of these areas in addition to the provider's existing commitments, and no further analysis is warranted.

[15] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

**Incorporated Cities of the County of Los Angeles**

The proposed ordinances would not be expected to result in impacts to utilities and service systems in relation to resulting in a determination by the wastewater treatment provider that serves or may serve the incorporated cities of the County that it has adequate capacity to serve the projected demand in the incorporated cities of the County in addition to the provider's existing commitments. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County. The proposed ordinance would be expected to result in a significant reduction in the consumption of plastic carryout bags and to significantly increase the use of reusable bags within the incorporated cities of the County. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags consumed,[16] it is anticipated that the proposed ordinances would also be expected to facilitate an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags consumed in the incorporated cities of the County compared to existing conditions. In addition, although the proposed ordinances would be expected to lead to an increase in the number of reusable bags manufactured for use in the incorporated cities of the County, the number of reusable bags required would be significantly lower that the number of carryout bags currently consumed. Therefore, over time, a reduction in the total number of bags manufactured would be expected to lead to a decrease in the amount of water required and discharged by bag manufacturing facilities. Any County project or facility is adjudicated by the Water Quality Control Plan for the Los Angeles Region (Basin Plan) for water resources and is required to comply with the relevant local or County wastewater regulations and ordinances. Therefore, as with the unincorporated territories of the County, there would be no expected adverse environmental impacts to utilities and service systems related to resulting in a determination by the wastewater treatment provider that serves or may serve the incorporated cities of the County that it has adequate capacity to serve the projected demand of these areas in addition to the provider's existing commitments, and no further analysis is warranted.

(f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

**Unincorporated Territories of the County of Los Angeles**

The proposed ordinance would be expected to result in potentially significant impacts to utilities and service systems in relation to being served by a landfill that has sufficient permitted capacity to accommodate the solid waste disposal needs resulting from the implementation of the proposed ordinance. The expected impacts would be reduced to below the level of significance with the incorporation of mitigation measures. The proposed ordinance would ban plastic carryout bags issued by certain stores within the unincorporated territories of the County, which would be expected to result in a significant decrease in the amount of waste attributable to plastic carryout bags. The California Integrated Waste Management Board estimates that approximately 3.9 percent of plastic waste can be attributed to plastic carryout bags related to grocery and other merchandise. That represents approximately 0.4 percent of the total waste stream in California.[17,18]

[16] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[17] California Environmental Protection Agency, Integrated Waste Management Board. December 2004. "Table ES-3: Composition of California's Overall Disposed Waste Stream by Material Type, 2003." *Contractor's Report to the Board:*

Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags that are consumed,[19] it is anticipated that the proposed ordinance would also lead to an increase in the use of reusable bags, thereby resulting in a reduction in the total number of carryout bags (both paper and plastic) disposed of in the County compared to existing conditions. In addition, paper bags are more likely to be recycled than plastic bags, as supported by the higher recycling rate of paper as compared to that of plastic.[20] Due to the fact that paper bags have a greater volume than plastic bags,[21] some representatives of the plastic bag industry have argued that similar proposed ordinances may result in adverse impacts to utilities and service systems related to being served by a landfill with sufficient permitted capacity to accommodate the solid waste disposal needs that would be anticipated to result from implementation of the proposed ordinance. If true, the potential increase in the usage of paper bags that would be expected to result from the implementation of the proposed ordinance would require mitigation to reduce the impact to below the level of significance. However, the County has decided to present the analysis of this issue in an EIR.

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The proposed ordinances would be expected to result in potentially significant impacts to utilities and service systems in relation to being served by a landfill with sufficient permitted capacity to accommodate the solid waste disposal needs that would be anticipated to result from the implementation of the proposed ordinances. The expected impacts would be reduced to below the level of significance with the incorporation of mitigation measures. The proposed ordinances would ban plastic carryout bags issued by certain stores within the incorporated cities of the County, which would be expected to result in a significant decrease in the amount of waste attributable to plastic carryout bags. Due to the greater volume of paper bags than of plastic bags,[22] some representatives of the plastic bag industry have argued that similar proposed ordinances would be expected to result in adverse impacts to utilities and service systems related to being served by a landfill with sufficient permitted capacity to accommodate the solid waste disposal needs that would be anticipated to result from implementation of the proposed ordinances. If true, the potential increase in the usage of paper bags that would be expected to result from the implementation of the proposed ordinances would require mitigation to reduce the impact to below the level of significance. However, the County has decided to present the analysis of this issue in an EIR.

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*Statewide Waste Characterization* Study, p. 6. Produced by: Cascadia Consulting Group, Inc. Berkeley, CA. Available at: http://www.ciwmb.ca.gov/Publications/default.asp?pubid=1097

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

[19] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[20] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

[21] Save the Plastic Bag. 2008. *Scottish Executive 2005 Environment Group Research Report (2005/06).* Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf

[22] Save the Plastic Bag. 2008. *Scottish Executive 2005 Environment Group Research Report (2005/06).* Available at: http://www.savetheplasticbag.com/ReadContent486.aspx or http://www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf

(g) Comply with federal, state, and local statutes and regulations related to solid waste?

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The proposed ordinance would not be expected to result in adverse environmental impacts to utilities and service systems in relation to compliance with federal, state, and local statutes and regulations related to solid waste. The California Integrated Waste Management Act of 1989 (AB 939) requires the County to attain specific waste diversion goals. These goals can be met through the implementation of County waste reduction policies, which could include the proposed ordinance once adopted. The California Integrated Waste Management Board estimates that approximately 3.9 percent of plastic waste can be attributed to plastic carryout bags related to grocery and other merchandise. That represents approximately 0.4 percent of the total waste stream in California.[23,24] Therefore, the proposed ordinance, which would be expected to significantly reduce the amount of litter attributed to plastic carryout bags, would serve to facilitate compliance with AB 939. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags that are consumed,[25] it is anticipated that the proposed ordinance would also promote an increase in the use of reusable bags, thereby resulting in a reduction in the total number of plastic carryout bags disposed of in the County compared to existing conditions. In addition, paper bags are more likely to be recycled than plastic bags, as supported by the higher recycling rate of paper as compared to that of plastic.

The Los Angeles RWQCB adopted a Basin Plan Amendment on March 4, 2004, requiring the TMDL of trash in the Ballona Watershed to be incrementally reduced to zero within 10 years.[26] In addition, the Los Angeles RWQCB adopted a Basin Plan Amendment on August 9, 2007, requiring the TMDL of trash in the Los Angles River Watershed to be incrementally reduced to zero within 9 years.[27] The Los Angeles RWQCB acknowledges that the majority of the trash in these watersheds comes primarily from trash in storm water runoff, and it has been documented that a significant percentage of trash in storm water runoff in the County is composed of plastic film, such as plastic carryout bags.[28] Therefore, the proposed ordinance, which would aim to significantly reduce the amount of litter attributable to plastic carryout bags, would comply with the TMDL requirements of

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

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

[25] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco*. Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

[26] Los Angeles Regional Water Quality Control Board. 4 March 2004. *Amendments to the Water Quality Control Plan – Los Angeles Region for the Ballona Creek Trash TMDL*. Available at: http://63.199.216.6/larwqcb_new/bpa/docs/2004-023/2004-023_RB_BPA.pdf

[27] Los Angeles Regional Water Quality Control Board. 9 August 2007. *Amendments to the Water Quality Control Plan – Los Angeles Region to Incorporate the TMDL for Trash in the Los Angeles River Watershed*. Available at: http://63.199.216.6/larwqcb_new/bpa/docs/2007-012/2007-012_RB_BPA.pdf

[28] Combs, Suzanne, John Johnston, Gary Lippner, David Marx, and Kimberly Walter. *Results of the Caltrans Litter Management Pilot Study*. Sacramento, CA: California Department of Transportation. Available at: http://www.owp.csus.edu/research/papers/papers/PP020.pdf

the Los Angeles RWQCB. In addition, the adopted TMDL requirements also call for the initial 20-percent reduction to be achieved by September 30, 2006, and 100-percent trash reduction to be achieved by September 30, 2015.[29] There would be no expected adverse environmental impacts to utilities and service systems related to compliance with federal, state, and local statutes and regulations related to solid waste. Therefore, no further analysis is warranted.

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The proposed ordinances would not be expected to result in adverse environmental impacts to utilities and service systems in relation to compliance with federal, state, and local statutes and regulations related to solid waste. As with the unincorporated territories of the County, the proposed ordinances, which would be expected to significantly reduce the amount of litter attributed to plastic carryout bags, would serve to facilitate compliance with AB 939. Although certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in an increase in the number of paper carryout bags that are consumed,[30] it is anticipated that the proposed ordinances would also promote increased use of reusable bags, thereby resulting in a reduced total number of plastic carryout bags disposed of in the incorporated cities of the County compared to existing conditions.

As with the unincorporated territories of the County, the proposed ordinances, which would aim to significantly reduce the amount of litter attributable to plastic carryout bags, would comply with the TMDL requirements of the Los Angeles RWQCB. There would be no expected adverse environmental impacts to utilities and service systems related to compliance with federal, state, and local statutes and regulations related to solid waste. Therefore, no further analysis is warranted.

[29] City of Los Angeles. 2009. *City of Los Angeles Stormwater Program: Trash TMDLs.* Available at: http://www.lastormwater.org/Siteorg/program/TMDLs/trashtmdl.htm

[30] Save the Plastic Bag. 2008. *The ULS Report: A Qualitative Study of Grocery Bag Use in San Francisco.* Available at: http://www.savetheplasticbag.com/ReadContent700.aspx or http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

## 3.18 MANDATORY FINDINGS OF SIGNIFICANCE

This analysis was undertaken to determine if the proposed ordinances would result in any of the conditions that would require the preparation of an EIR, in accordance with Section 15065 of the State CEQA Guidelines.[1] Mandatory Findings of Significance for the proposed ordinances were evaluated with regard to the information contained in this Environmental Analysis gathered during literature reviews (see Section 4.0, References, for a list of reference materials consulted).

The State CEQA Guidelines require the consideration of three questions when determining whether a project may have a significant effect on the environment.

Would the proposed ordinances:

(a) Do the proposed ordinances have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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The proposed ordinance would not be expected to result in Mandatory Findings of Significance in relation to the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. The proposed ordinance intends to ban plastic carryout bags issued in certain stores in the unincorporated territories of the County, and thus would not be expected to create or result in any changes to the existing environmental as related to biological and cultural resources. As discussed in Section 3.4, Biological Resources, and Section 3.5, Cultural Resources, of this Initial Study, the proposed ordinance does not include any development, alteration, or degradation of any habitat, physical sites, buildings, or structures, nor does it include any ground-disturbing activities. Conversely, the proposed ordinance would be expected to result in beneficial environmental effects (resulting from the reduction of litter in plant and wildlife habitats, aesthetic improvements, and other impacts discussed in this Initial Study) as they relate to biological and cultural resources within the County. Adoption of the proposed ordinance would not permit any direct or indirect degradation of the existing conditions within the County. Therefore, there would be no expected Mandatory Findings of Significance related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. No further analysis is warranted.

[1] *California Code of Regulations*, Title 14, Division 6, Chapter 3, Sections 15000–15387, Appendix G.

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The proposed ordinances would not be expected to result in Mandatory Findings of Significance in relation to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. The proposed ordinances would not include any development, alteration, or degradation of any habitat, physical sites, buildings, or structures, nor would they include any ground-disturbing activities. The proposed ordinances would be anticipated to result in beneficial environmental effects as described above. Adoption of the proposed ordinances would not permit any direct or indirect degradation of the existing environmental conditions within the County. Therefore, there would be no expected Mandatory Findings of Significance related to the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. No further analysis is warranted.

(b) Do the proposed ordinances have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

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The proposed ordinance would be expected to result in less than significant impacts to Mandatory Findings of Significance in relation to impacts that are individually limited but cumulatively considerable. The proposed ordinance would not be expected to contribute to the incremental environmental impacts when viewed in connection with the effects of past, current, or reasonably foreseeable projects. Although the proposed ordinance would not entail development, a ban of plastic carryout bags issued at some stores may lead to an increase in the consumption of paper bags as subject stores transition to the use of reusable bags. A temporary increase could result in indirect impacts to air quality, greenhouse gases, hydrology and water quality, noise, and utilities and service systems as discussed in this Initial Study. However, the indirect impacts that would be attributed to the proposed ordinance would be anticipated to be temporary and localized, and the County maintains that the adoption of the proposed ordinance would not permit the violation of existing County policies. Furthermore, the County has proposed efforts to minimize these impacts through outreach and educational programs. In addition, although there have been comparable ordinances in other jurisdictions, the proposed ordinance would not be expected to exacerbate any existing conditions within the County. As such, these indirect impacts would not be cumulatively considerable in connection with the effects of past, current, or reasonably foreseeable projects. Therefore, the expected Mandatory Findings of Significance related to impacts that are individually limited but cumulatively considerable would be below the level of significance. However, the County has decided to present the analysis on this issue in an EIR to verify these findings.

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The proposed ordinances would be expected to result in Mandatory Findings of Significance in relation to impacts that are individually limited but cumulatively considerable. The proposed ordinances would not be expected to contribute to the incremental impacts when viewed in connection with the effects of past, current, or reasonably foreseeable projects. As discussed above, a ban on plastic carryout bags issued at certain stores may lead to a temporary increase in the consumption of paper bags as subject stores transition to the use of reusable bags. This temporary increase could result in indirect impacts to air quality, greenhouse gases, hydrology and water quality, noise, and utilities and service systems as discussed in this Initial Study. However, the indirect impacts that would be attributed to the proposed ordinances would be anticipated to be temporary and localized, and the County maintains that the adoption of the proposed ordinances would not permit the violation of existing County policies. Furthermore, the County has proposed efforts to minimize these impacts through outreach and educational programs. As such, these indirect impacts would not be cumulatively considerable in connection with the effects of past, current, or reasonably foreseeable projects. Therefore, the expected Mandatory Findings of Significance related to impacts that are individually limited but cumulatively considerable would be below the level of significance. However, the County has decided to present the analysis on this issue in an EIR to verify these findings.

(c) Does the proposed ordinance have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

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The proposed ordinance would not be expected to result in Mandatory Findings of Significance in relation to having environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. While the adverse impacts related to the issuance and consumption of plastic carryout bags designed for single use, and the litter associated with them, have been evaluated,[2] the proposed ordinance would ban the issuance of such bags to significantly reduce these impacts. However, the proposed ordinance may result in indirect impacts because a ban on plastic carryout bags would be expected to increase the issuance and consumption of paper bags within the unincorporated territories of the County. An increase in the use of paper bags could be expected to result in indirect impacts to air quality, greenhouse gases, hydrology and water quality, noise, and utilities and service systems as discussed in this Initial Study. These indirect impacts to human beings would not be considered substantial as they would be limited and would be significantly reduced by the County's efforts to encourage the use of reusable bags in place of plastic carryout bags. The beneficial environmental impacts discussed in the response to question (a) above and throughout this Initial Study would be expected to have positive impacts on human beings and their environment. In addition, the five goals of the proposed ordinance––(1) litter reduction, (2) blight prevention, (3) coastal waterways and animals and wildlife protection, (4) sustainability (as it relates to the County's energy and environmental goals), and (5) landfill reduction––are intended to directly and indirectly benefit human beings. Therefore, there would be no expected Mandatory Findings of Significance related to environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly, and no further analysis is warranted.

[2] County of Los Angeles Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

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The proposed ordinances would not be expected to result in Mandatory Findings of Significance in relation to having environmental effects that would cause substantial adverse effects to human beings, either directly or indirectly. As previously discussed, the proposed ordinances may result in indirect impacts, as a ban on plastic carryout bags issued at certain stores would be expected to increase the issuance and consumption of paper bags within the incorporated cities of the County. An increase in the use of paper bags would be expected to result in indirect impacts to air quality, greenhouse gases, hydrology and water quality, noise, and utilities and service systems as discussed in this Initial Study. These indirect impacts would not be considered substantial to human beings as they would be limited and would be significantly reduced by the County's efforts to encourage the use of reusable bags in place of plastic carryout bags designed for a single use. The beneficial environmental impacts discussed in the response to question (a) above and throughout this Initial Study would be expected to have positive impacts on human beings and their environment. In addition, the five goals of the proposed ordinance––(1) litter reduction, (2) blight prevention, (3) coastal waterways and animals and wildlife protection, (4) sustainability (as it relates to the County's energy and environmental goals), and (5) landfill reduction––are intended to directly and indirectly benefit human beings. Therefore, there would be no expected Mandatory Findings of Significance related to environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly, and no further analysis is warranted.

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**Sent:** Wednesday, December 09, 2009 4:44 PM
**To:** Skye, Coby
**Subject:** RE: EIR for plastic bags

Coby—

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

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

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

Thanks
Lisa

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

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

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

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

Hi Coby and Paul—

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

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

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

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

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

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

Thanks
Lisa

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

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December 21, 2009

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

Dear Mr. Skye:

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

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

**Air Quality Analysis**

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

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

The SCAQMD has developed a methodology for calculating PM2.5 emissions from construction and operational activities and processes. In connection with developing PM2.5 calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM2.5 emissions and compare the results to the recommended PM2.5 significance thresholds. Guidance for calculating PM2.5 emissions and PM2.5 significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

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

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

**Mitigation Measures**

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

**Data Sources**

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

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

Sincerely,

Susan Nakamura

Susan Nakamura
Planning Manager
Planning, Rule Development and Area Sources

SN:DG:AK
LAC091201-10AK
Control Number

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December 22, 2009

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

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

Dear Mr. Skye:

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

From our own cleanups in Los Angeles County, plastic single-use bags have been one of the top five most abundant items of plastic debris found on Santa Monica Bay beaches.[1] Despite both voluntary and statewide efforts to implement recycling programs, less than 5% of plastic bags are actually recycled[2]; the majority ends up in our landfills and litter stream, polluting our inland and coastal communities. We provide detailed comments below regarding the Initial Study and EIR scoping for the proposed plastic bag ban policy.

**The Program Objectives Should Be Strengthened**

Given the magnitude of the plastic bag pollution problem, Heal the Bay believes that these objectives need to be strengthened to adequately address this issue. The Initial Study currently includes the following areas in the program objectives[3]:

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

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

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

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

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

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

**Impacts of Single-Use Plastics on Biological Resources**

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

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

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

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

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

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

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

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

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

**Impacts of Single-Use Plastics on Water Quality**

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

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

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

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

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

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

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

**Impacts of Other Types of Single-Use Bags**

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

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

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

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

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

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

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

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

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

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

**Definition of Reusable Bags Must Be Modified**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Conclusion**

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

Sincerely,

Sarah Sikich
Director of Coastal Resources

Sonia Díaz
Legislative Associate

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

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

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

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

# SAVE THE PLASTIC BAG COALITION

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January 4, 2010

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

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

## INTRODUCTION

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

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

> There is a danger that the green herd, in pursuit of a good cause, stumbles into misguided campaigns….
>
> Analysis without facts is guesswork. Sloppy analysis of bad science is worse. Poor interpretation of good science wastes time and impedes the fight against obnoxious behavior. There is no place for bad science, or weak analysis, in the search for credible answers to difficult questions….
>
> Many of those who have demonized plastic bags have enlisted scientific study to their cause. By exaggerating a grain of truth into a larger falsehood they spread misinformation, and abuse the trust of their unwitting audiences.

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

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

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

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

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

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

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

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

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

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

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

CEQA Guidelines §15144 states:

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

STPB will be vigilant in enforcing the "substantial evidence" requirement. Every statement and source cited in the EIR, without exception, will be thoroughly scrutinized by STPB. If there is any deviation from the substantial evidence standard including §15064(f), STPB will not hesitate to litigate the issue. Regrettably, we believe that we need to emphasize this point to the County because the plastic bag issue has been plagued with environmental misinformation, including by the County. See for example:
www.savetheplasticbag.com/ReadContent676.aspx

We will object to the cherry-picking of facts.

We will object to selective photographs.

We will object when context is not provided.

We will object to anything that is misleading.

We will object to vague or ambiguous statements or terminology.

We will object to sweeping statements.

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

We will object to bias and sensationalism.

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

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

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

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

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

> At least 267 different species are known to have suffered from entanglement or ingestion of ***marine debris*** including seabirds, turtles, seals, sea lions, whales and fish. (Emphasis added.)
>
> http://oceans.greenpeace.org/raw/content/en/documents-reports/plastic_ocean_report.pdf

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

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

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

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

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

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

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

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

## THE INITIAL STUDY AND THE PROSPECT OF LITIGATION

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

Accordingly, we urge and strongly recommend that the County abandon the anti-plastic bag bias that is clearly evident in the Initial Study, including blatantly misrepresenting and exaggerating the impacts of plastic bags and understating and concealing the environmental impacts of paper bags and reusable bags (including $CO_2$ emissions). The County cannot ignore data that does not conform to its predetermined objective to ban plastic bags.

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

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

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

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

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

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

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

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

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

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

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

The Weyerhaeuser pulp and paper mill
Longview, Washington State

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

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


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

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

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

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

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

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

- *Increase* in GHG per 1,000 paper bags = 0.04 $CO_2$ equivalent tons
- 4 billion paper bags divided by 1,000 = 4 million
- 4 million x 0.04 = 160,000 added $CO_2$ equivalent tons

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

- **Annual $CO_2$ emissions from 27,753 passenger vehicles**
- **Annual $CO_2$ emissions from 16,327,284 gallons of gasoline consumed**
- **Annual $CO_2$ emissions from 337,557 barrels of oil consumed**
- **Annual $CO_2$ emissions from 1,938 tanker truck's worth of gasoline**
- **Annual $CO_2$ emissions from the *total electricity* use of 18,851 homes**
- **Annual $CO_2$ emissions from the *total energy* use of 12,948 homes**

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

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

- *Increase* in GHG per 1,000 paper bags = 0.092 $CO_2$ equivalent tons
- 4 billion paper bags divided by 1,000 = 4 million
- 4 million x 0.092 = 368,000 added $CO_2$ equivalent tons

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

- **Annual $CO_2$ emissions from 63,832 passenger vehicles**
- **Annual $CO_2$ emissions from 37,552,752 gallons of gasoline consumed**
- **Annual $CO_2$ emissions from 776,381 barrels of oil consumed**
- **Annual $CO_2$ emissions from 4,458 tanker truck's worth of gasoline**
- **Annual $CO_2$ emissions from the *total electricity* use of 43,356 homes**
- **Annual $CO_2$ emissions from the *total energy* use of 29,781 homes**

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

The fact that plastic bags do not degrade in landfills "for a thousand years" is an environmental benefit. Why? *Because the carbon is trapped in the bags.* The U.S. Government is trying to find ways to trap carbon. Plastic does it automatically. When paper decomposes in a landfill, it emits methane which is a greenhouse gas with 23 times the global warming power of $CO_2$. http://en.wikipedia.org/wiki/Carbon_sequestration

The fact that plastic bags do not degrade in landfills "for a thousand years", and therefore do not emit methane, must be noted in the EIR as an environmental benefit. The carbon is trapped in the bags. The U.S. Government is trying to find ways to trap carbon. Plastic does it automatically. When paper decomposes in a landfill, it emits methane which is a greenhouse gas with 23 times the global warming power of $CO_2$.
http://en.wikipedia.org/wiki/Carbon_sequestration

$CO_2$ emissions have a major impact on ocean acidification and marine life, which must be stated in the EIR. The County will do far more harm than good to marine life by banning plastic bags. http://news.bbc.co.uk/2/hi/science/nature/8411135.stm.

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

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

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

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

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

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

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

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

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

## SUBJECTS THAT MUST BE ADDRESSED IN THE EIR

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

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

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

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

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

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

## 1. Objective and consequences of the proposed ordinance

A. State in as much detail as possible how the proposed ordinance(s) would achieve the Program Goals and Countywide Objectives described in the Initial Study §1.10. Cite substantial evidence and credible verifiable sources.

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

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

C. State in as much detail as possible the meaning of "greener" practices in the Initial Study (at page 1-5) and whether it includes reducing greenhouse gas emissions.

D. State in as much detail as possible alternative ways to achieve the Program Goals and Countywide Objectives without adopting the proposed ordinance and the costs of each such alternative. Cite substantial evidence and credible verifiable sources.

E. State in as much detail as possible the unintended environmental consequences of the proposed ordinance, including but not limited to increased paper bag litter and (based on a cumulative analysis) increased $CO_2$ and methane emissions resulting from paper bag production and disposal.

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

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

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

B. How many *paper* carryout bags are used in the County each year?

C. How many paper carryout bags would replace the plastic bags in the County if the County bans plastic bags (1)?

## 3. Extent and causes of the carryout bag litter issue

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

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

- City of Los Angeles, 10 June 2004, *Waste Characterization Study*, Los Angeles CA.

- County of Los Angeles Department of Public Works, Environmental Programs Division, October 2008. *County of Los Angeles Single Use Bag Reduction and Recycling Program - Program Resource Packet*, Alhambra, CA

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

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

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

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

*Watershed Quality Compliance Master Plan For Urban Runoff*, Watershed Protection Division, Bureau of Sanitation, Department of Public Works, City of Los Angeles, May 2009 at page 4-2.
www.lacitysan.org/wpd/Siteorg/download/pdfs/tech_docs/WQCMPURChapters.pdf

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

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

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

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

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

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

The LA River: ***not*** 25% plastic bags

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

**Table 5 -- Summary of Litter Studies**

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

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

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

Reports by the Washington State Department of Ecology found that plastic bags accounted for a much smaller percentage of urban and rural litter than we are often led to believe.
http://www.ecy.wa.gov/pubs/0007023.pdf
http://www.ecy.wa.gov/pubs/0507029.pdf

The Florida Litter Study 2001 shows plastic retail bags in 32nd place among littered items, constituting just 0.72% of litter.
www.hinkleycenter.com/publications/Litter2001.pdf.

The Toronto Litter Survey shows plastic retail bags in 25th places among littered items, constituting just 1% of all litter.
www.cpia.ca/anti-litter/pdf/Litter%20Survey-final.pdf

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

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

*and film* by weight:

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

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

Figure 3-27 Plastic and Other Materials at Storm Drains

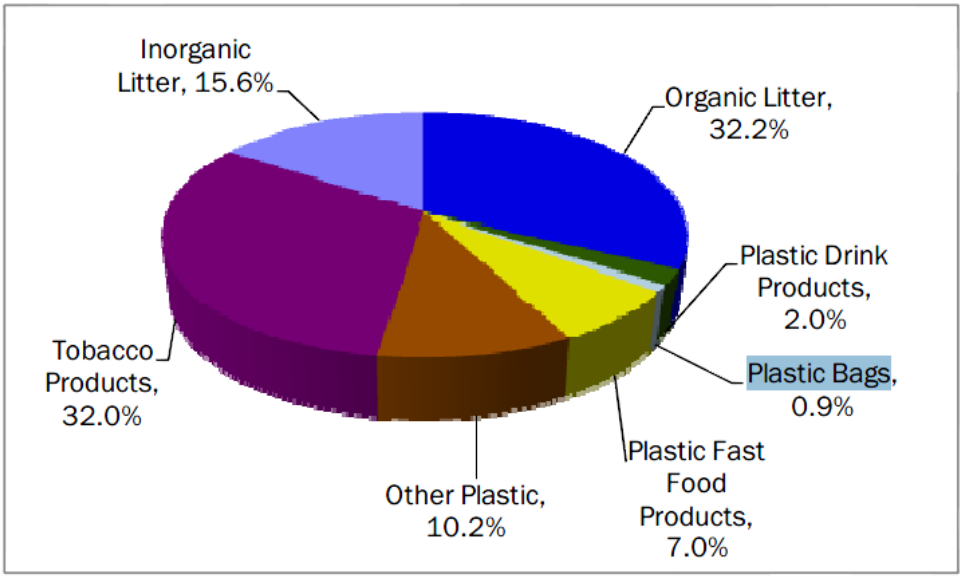

Figure 3-30 Top 10 Most Common Litter Items at Retail Areas (Items/1,000 sq ft)

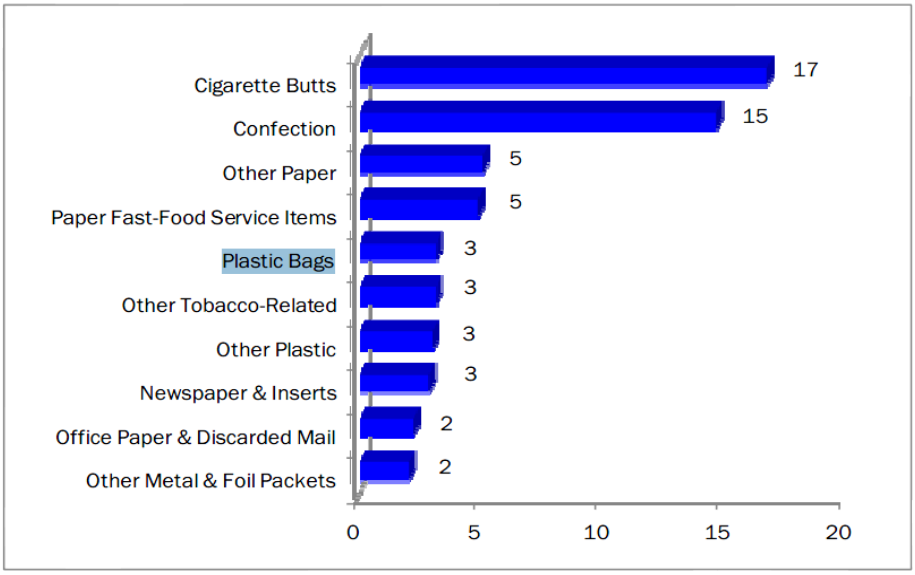


Table ES-3 Top 5 Most Common Litter Items at Non-Roadway Sites (Items/1,000 sq ft)

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

**Table 6. Type and Frequency of Disposed Objects**

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

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

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

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

C. What are the exact locations of the highest concentrations or "hotspots" of plastic bag (1) and paper carryout bag litter in and near to the County? Cite substantial evidence and credible verifiable sources.

D. Other than "hotspots," what other locations in and near to the County tend to accumulate concentrations of plastic bag (1) litter? Cite substantial evidence and credible verifiable sources.

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

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

F. To what extent are plastic bags (1) and paper carryout bags being carried by the wind as a result of refuse collection and transportation practices? Quantify. Cite substantial evidence and credible verifiable sources. Can improvements be made to refuse collection practices and vehicles to address this problem?

G. What are the other sources and causes of plastic bag (1) and paper carryout bag litter in the County? Cite substantial evidence and credible verifiable sources, including litter audits.

H. To what extent are plastic bags (1) and paper carryout bags blocking or entering the County's storm drains? Quantify. Once in the storm drains, where do the bags go?

I. What regulatory requirements (including stormwater permitting) does the County have to comply with as a result of plastic bags (1) and paper carryout bags being provided to consumers in the County?

J. What are the locations of the highest concentrations or "hotspots" of plastic bag (1) litter in and near to the County? Cite substantial evidence and credible verifiable sources. STPB plans to visit the location, so precise locations and addresses are requested. It is not sufficient to state "LA River" for example. STPB needs to know where along the LA River.

K. What are the alternative solutions to the plastic bag (1) and paper carryout bag litter issue other than the proposed ordinance?

**4. <u>Environmental impacts of plastic bags on the marine environment</u>**

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

The following questions must be addressed:

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

Note that the Project Kaisei log states as follows:

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

http://newhorizonprojectkaisei.wordpress.com/

> We have just passed through the convergence zone, leaving the gyre, after two weeks in only one area of a large water mass, known as the North Pacific Gyre. Our findings made believers out of doubters, if there were any before we set out. We found bits of plastic debris, consistently, in over 100 sample nets, towed on the surface, over 900 miles of water. These samples were random in their location, but scheduled in their intervals.
>
> I too was surprised. I knew we would not find an "island" out here, but I also didn't expect to find the mass-existence of so much smaller debris. Now the question is "how deep does it go?" How fast does the material break down into this small, "confetti" state, after being at sea in the form of a large object from the beginning of its journey to the gyre?
>
> We only scratched the surface. That is sad, because there is a lot of ocean that we did not survey, and the water characteristics in the gyre suggest that there is much more than what we witnessed in just a two-week period.

http://newhorizonprojectkaisei.wordpress.com/

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

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

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

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

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

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

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

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

The following article appeared in the *Seattle Times*:

> I figured if anyone would jump for joy at Seattle's crusade against plastic bags, it would be the flotsam guy.
>
> Maybe you've heard of Curt Ebbesmeyer. He's considered one of the world's leading oceanic garbologists (though, as he jokes, how many can there be?). From his basement in Ravenna, he uses beachcomber reports to track the comings and goings of floating sea trash. Like dozens of rat-poison canisters that washed onto Washington shores this spring. Or computer monitors, which "always float screen up, eyes peering out of the waves."
>
> An oceanographer, he also named the Earth's most shameful man-made feature, the "great Eastern garbage patch." That's a Texas-sized soup of plastic junk, swirling in floating clouds across the Pacific between us and Hawaii.
>
> It's such a huge and indestructible soiling of the sea that Ebbesmeyer feels bad he dubbed it only a "patch."
>
> "It's trash that will never go away, stretching across the water farther than you can see," Ebbesmeyer says. "It would absolutely horrify you to see it."
>
> So when I asked him what he thought of Seattle's plan to crack down on disposable grocery bags, I was surprised when he sort of shrugged.
>
> "It's OK, but plastic bags are not the real problem," he said. "It's one little battle out of a million. Go look at what the ocean carries in on a given day. You'll see what I mean."
>
> Last month, Ebbesmeyer held a "Dash for Trash" in Ocean Shores.

> In two hours, 50 people collected an astonishing 2,000 pounds of junk from the beach. Almost all of it was plastic -- from fishing floats to shotgun shells to dolls from Japan. Yet very little of it was the plastic bags targeted by Seattle.
>
> I did my own garbology "dig" at low tide in Seattle's Myrtle Edwards Park. In half an hour poking along 300 yards of shoreline, I found a demoralizing 173 pieces of trash.
>
> Take out the wood (paintbrush), the metal (beer cans, foil wrappers) and the miscellaneous (earplugs, nicotine patches, ropes, a corncob, an orange traffic cone), and I was left with 137 pieces of plastic.
>
> Top item, by far: Plastic bottles. Followed by plastic bottle caps. Then plastic lids and plastic cups. Plus a slew of plastic food packaging.
>
> Number of plastic grocery or drugstore bags? One.
>
> The plan is to levy a 20-cent-per-bag fee on both plastic and paper bags, in hopes we'll all stop using them. That's fine, Ebbesmeyer told me. But it's such a tiny slice of the global plastic problem it's scarcely worth commenting on.
>
> "If the mayor really wants to get on the stick, he should go after plastic bottles. Or plastic wrapping of food products. Or how about a tax or a ban on petroleum-based plastic, period?"
>
> Now some of you have written to say the mayor, for proposing even this mild intrusion into our lives, is an eco-fascist who'll pry your bags only from your cold, dead fingers.
>
> But take it from the flotsam guy. He has seen a seabird with 700 bits of plastic in its stomach. He has sampled seawater in which plastic particles outnumber plankton six to one. He has gazed into the planet's plasticizing heart of darkness.
>
> From out there, this bag flap is a drop in the ocean.

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

H. Do plastic bags (1) break down in the North Pacific Gyre? If so, to what extent do they break down? What causes them to break down? How long does it take for them to break down? Cite substantial evidence and credible verifiable sources.

I. If it is believed that any of the plastic debris in the North Pacific Gyre is from plastic bags (1) in the County, describe in detail the basis for this belief, including testing of samples collected from the North Pacific Gyre. Cite substantial evidence and credible verifiable sources.

J. What percentage of any plastic bag (1) debris in the North Pacific Gyre comes from Asia or other Pacific Rim countries such as China, Australian and New Zealand? Cite substantial evidence and credible verifiable sources.

K. Are inadequate litter cleanup practices in other Pacific Rim countries, including along beaches, the source of some, most or all of the (alleged) plastic bags (1) in the Pacific Ocean, including but not limited to the North Pacific Gyre? Quantify with percentages. Cite substantial evidence and credible verifiable sources.

L. Are ships vessels the source of some of the plastic bag (1) debris in the Pacific Ocean? Quantify with percentages. Cite substantial evidence and credible verifiable sources.

M. If it is asserted that marine mammals, marine animals, and seabirds in the Pacific Ocean (including but not limited to the North Pacific Gyre) ingest or become entangled in plastic bags (1) and die as a result, state in detail the basis for the belief. Quantify annual ingestion and deaths per species. Cite substantial evidence and credible verifiable sources.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

In a postscript to the correction they admitted that the original

> Canadian study had referred to fishing tackle, not plastic debris, as the threat to the marine environment.
>
> Regardless, the erroneous claim has become the keystone of a widening campaign to demonise plastic bags.
>
> David Santillo, a marine biologist at Greenpeace, told The Times that bad science was undermining the Government's case for banning the bags. "It's very unlikely that many animals are killed by plastic bags," he said. "The evidence shows just the opposite. We are not going to solve the problem of waste by focusing on plastic bags.
>
> "It doesn't do the Government's case any favours if you've got statements being made that aren't supported by the scientific literature that's out there. With larger mammals it's fishing gear that's the big problem. On a global basis plastic bags aren't an issue. It would be great if statements like these weren't made…."
>
> A 1968 study of albatross carcasses found that 90 per cent contained some form of plastic but only two birds had ingested part of a plastic bag.
>
> Professor Geoff Boxshall, a marine biologist at the Natural History Museum, said: "I've never seen a bird killed by a plastic bag. Other forms of plastic in the ocean are much more damaging. Only a very small proportion is caused by bags…."

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

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

## MARINE WILDLIFE FOUND ENTANGLED IN MARINE DEBRIS

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

Source: Ocean Conservancy/2008 International Coastal Cleanup

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

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

**5. Costs of the plastic bag issue**

A. What is the annual cost to the County of cleaning up plastic bag (1) litter? What would be the annual cost to the County of maximizing the cleanup of all plastic bag (1) litter by dedicating more manpower and resources for this purpose? Provide a complete detailed breakdown of all costs and expenditures, including man-hours. Make a reasonable allocation of cost between plastic bag types 1 and 2 and state the basis for the allocation. Include and identify any funding received from the state. Cite substantial evidence and credible verifiable sources.

B. The Initial Study (at page 1-3) states: "The County of Los Angeles Flood Control District alone spent more than $18 million annually for prevention, clean up, and enforcement efforts to reduce litter, of which plastic bags are a component." The cited source for this assertion is the County's August 2007 staff report on plastic bags. That report states (at page 25):

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

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

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

C. Provide a detailed and complete breakdown and explanation of how the $18 million (or updated amount) is spent.

D. How much of that $18 million (or updated amount) will be saved if plastic bags (1) are banned? Explain exactly how it will be saved? Cite substantial evidence and credible verifiable sources.

E. What is the annual cost to the County of all of the environmental problems that plastic bags (1,2) cause (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? Provide a detailed and complete breakdown and explanation of the costs. Make a reasonable allocation of cost between bag types 1 and 2 and state the basis for the allocation. Include and identify any funding received from the state or state agencies. Cite substantial evidence and credible verifiable sources.

F. As an alternative to a ban, if plastic bag (1,2) manufacturers or suppliers were to be asked to pay money to the County each year to solve the environmental problems caused by plastic bags (1,2) (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much money would that be? Provide a detailed and complete breakdown of the basis and justification for the figure. Make a reasonable allocation between bag types 1 and 2 and state the basis for the allocation. Cite substantial evidence and credible verifiable sources.

G. As an alternative to the proposed ordinance, if plastic bag (1) manufacturers or suppliers were to be asked to pay money to a statewide fund each year to solve the environmental problems caused by plastic bags (1) statewide (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much of that money would the County need to solve those problems? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.

H. If the proposed ordinance is adopted, would the County save any money as a result of the solving of any environmental problems (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? If the answer is yes, provide a detailed and complete breakdown and explanation of the savings. Cite substantial evidence and credible verifiable sources.

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

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

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

www.lbpost.com/ryan/7415

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

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

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

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

www.lbpost.com/ryan/7415

**6. Costs of the paper bag issue**

A. What is the annual cost to the County of cleaning up paper carryout bag litter? What would be the annual cost to the County of maximizing the cleanup of all paper carryout bag litter by dedicating more manpower and resources for this purpose? Provide a complete detailed breakdown of all costs and expenditures, including man-hours. Cite substantial evidence and credible verifiable sources.

B. What is the annual cost to the County of all of the environmental problems that paper carryout bags cause (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements)? Provide a complete detailed breakdown of the costs and expenditures. Include and identify any funding received from the state or state agencies. Cite substantial evidence and credible verifiable sources.

C. If paper carryout bag manufacturers or suppliers were to be asked to pay money to the County each year to solve the environmental problems caused by paper carryout bags (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much money would that be? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.

D. If paper carryout bag manufacturers or suppliers were to be asked to pay money to a statewide fund each year to solve the environmental problems caused by paper carryout bags statewide (including but not limited to litter, storm drain issues, and storm water permitting and other regulatory requirements), how much of that money would the County need to solve those problems? Provide a detailed and complete breakdown of the basis and justification for the figure. Cite substantial evidence and credible verifiable sources.

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

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

Use-less-stuff.com ("ULS") conducted a survey on the effect of the plastic bag (1) ban in San Francisco on paper carryout bag usage. ULS found that paper bag (3,4) use increased significantly. There is no fee on paper carryout bags in San Francisco.
http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf

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

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

**8. <u>Environmental impacts of plastic versus paper bags.</u>**

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

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

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

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

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

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

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

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

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

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

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

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

The County must consider the following reports:

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

- The energy requirements for plastic bags are between 20% and 40% less than for paper carryout bags at zero percent recycling of both kinds of bags. Assuming paper carryout bags carry 50% more than plastic bags (1), the plastic bag (1) continues to require 23% less energy than paper bags even at 100% recycling.

- Plastic bags (1) contribute between 74% and 80% less solid waste than paper carryout bags at zero percent recycling. Plastic bags (1) continue to contribute less solid waste than paper carryout bags at all recycling rates.

- Atmospheric emissions for plastic bags (1) are between 63% and 73% less than for paper carryout bags at zero percent recycling. Plastic bags (1) continue to contribute less atmospheric emissions than paper carryout bags at all recycling rates.

- At a zero percent recycling rate, plastic bags (1) contribute over 90% less waterborne wastes than paper carryout bags. This percentage actually increases as the recycling rate increases.

- The landfill volume occupied by plastic bags (1) is 70% to 80% less than the volume occupied by paper carryout bags (2) based on 10,000 uses.

**The 2005 Scottish report:** www.scotland.gov.uk/Resource/Doc/57346/0016899.pdf. This report was published by the Scottish Government. It is an environmental impact assessment of the effects of a proposed plastic bag (1) levy in Scotland. The report (at page 22) takes into account the fact that a paper carryout bag holds more than a plastic bag (1) and makes appropriate adjustments. The report includes the following findings:

- Page vi: "If only plastic bags were to be levied…, then studies and experience elsewhere suggest that there would be some shift in bag usage to paper bags (which have worse environmental impacts)."

- Page 31: "[A] paper bag has a more adverse impact than a plastic bag for most of the environmental issues considered. Areas where paper bags score particularly badly include water consumption, atmospheric acidification (which can have effects on human health, sensitive ecosystems, forest decline and acidification of lakes) and eutrophication of water bodies (which can lead to growth of algae and depletion of oxygen)."

- Page 31: "Paper bags are anywhere between six to ten times heavier than lightweight plastic carrier bags and, as such, require more transport and its associated costs. They would also take up more room in a landfill if they were not recycled."

- Page 23: Paper carryout bags result in:

  - 1.1 times more consumption of nonrenewable primary energy than plastic bags (1).

  - 4.0 times more consumption of water than plastic bags (1).

  - 3.3 times more emissions of greenhouse gases than plastic bags (1).

  - 1.9 times more acid rain (atmospheric acidification) than plastic bags (1).

  - 1.3 times more negative air quality (ground level ozone formation) than plastic bags (1).

  - 14.0 times more water body eutrophication than plastic bags (1).

  - 2.7 times more solid waste production than plastic bags (1).

**The 2007 Boustead report:**
www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212
This report is an extremely thorough and detailed life cycle assessment of the environmental impacts of plastic bags (1) and paper carryout bags in the United States. It is packed with data. It studied the types of plastic bags (1) and paper carryout bags commonly used in the United States. It takes into account that a paper carryout bag holds more than a plastic bag (1) and applies an adjustment factor.

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

- Total energy use: Paper carryout bags = 2622 megajoules. Plastic bags (1) = 763 megajoules.
- Fossil fuel use: Paper carryout bags = 23.2 kilograms. Plastic bags (1) = 14.9 kilograms.
- Municipal solid waste: Paper carryout bags = 33.9 kilograms. Plastic bags (1) = 7.0 kilograms.
- Greenhouse gas emissions: Paper carryout bags = 0.08 $CO_2$ equivalent tons. Plastic bags (1) = 0.04 $CO_2$ equivalent tons.
- Fresh water usage: Paper carryout bags = 1004 gallons. Plastic bags (1) = 58 gallons.

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

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

(Boustead report at page 63.)

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

**The March 2008 ULS report:**
http://use-less-stuff.com/Paper-and-Plastic-Grocery-Bag-LCA-Summary-3-28-08.pdf
This report addresses the impact of San Francisco's ordinance banning plastic bags (1) at large stores. San Francisco defines acceptable paper carryout bags as containing "no old growth fiber…100% recyclable… contains a minimum of 40% post-consumer recycled content." San Francisco Environment Code, Chapter 17, §1702(j). The report contains the following findings (at pages 3-4):

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

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

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

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

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

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

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

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

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

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

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

In *Massachusetts v. EPA*, 549 U.S. 497 (2007), the U.S. Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act. The U.S. Environmental Protection Agency has made a finding under the Clean Air Act that carbon dioxide ($CO_2$) and methane ($CH_4$) (and other greenhouse gases) in the atmosphere "threaten the public health and welfare of current and future generations."
http://epa.gov/climatechange/endangerment.html

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

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

**9. Impacts on air quality**

**(SEE ALSO SECTION OF THESE COMMENTS ENTITLED: "CALCULATING AND DISCLOSING GREENHOUSE GAS EMISSIONS"**

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

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

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

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

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

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

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

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

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

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

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

D. The Initial Study (at page 3.3-2) states that ozone ($O_3$) would be reduced as a result of the production of plastic bags. According to the Scottish report (at page 23), the life cycle of paper carryout bags (with equivalent carrying capacity) creates 1.3 times more negative air quality (ground level ozone formation) than plastic bags (1). STPB objects to the failure to mention and address this point in the Initial Study. In fact, ozone would *increase* if plastic bags are banned. If this is contended that this is not correct, state in detail the basis for the contention and cite substantial evidence and credible verifiable sources.

**10. <u>The effect of $CO_2$ emissions on the marine environment</u>**

The issue of the effect of $CO_2$ emissions on the oceans must be considered and addressed in the EIR, because paper carryout bags create significantly more $CO_2$ emissions than plastic bags (1). See:

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

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

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

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

**11. <u>Biodegradability of plastic bags</u>**

A. Will plastic bags (1) degrade or biodegrade in certain conditions such as when exposed to oxygen and sunlight? Cite substantial evidence and credible verifiable sources.

B. There are different additives available that will make plastic bags (1) biodegrade or degrade in different environments and various conditions. Are such additives effective? Cite substantial evidence and credible verifiable sources.

C. In what ways do such additives lessen the negative environmental impacts of plastic (1) bags? Cite substantial evidence and credible verifiable sources.

D. Should such additives be required as an alternative to banning plastic bags (1)? Cite substantial evidence and credible verifiable sources.

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

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

- "Compostable" bags designed to turn into compost in an industrial composting facility; and

- "Biodegradable" bags, that is plastic bags that have a biodegrading additive added. (There are two kinds of additive: the kind produced by ECM and the kind produced by Symphony. See below.)

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

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

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

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

**ECM BIOFILMS, INC.**
1 Victoria Square, Suite 304, Painesville, OH 44077.
Phone: (440) 350-1400. Fax: (440) 350-1444.
Website: www.ecmbiofilms.com.
Contact persons:
Alan Poje alan.poje@ecmbiofilms.com
Robert Sinclair robert.sinclair@ecmbiofilms.com.

The ECM MasterBatch technology is delivered in the form of a pellet that may be added to many conventional plastic resins. The pellet is blended into the resin at a loading of not less than one percent. Bags can be produced from the resin with little or no process changes and the physical/structural properties of the resultant bags are virtually unchanged.

Biodegradation of plastic bags (1) produced with the ECM MasterBatch technology is initiated when the bag is exposed to other organic materials that are biodegrading. The components of the additive allow for the creation of communities, or biofilms, composed of microorganisms such as bacteria, fungi and algae. As these communities grow, acids, enzymes and other compounds, capable of breaking the polymer chemical bonds, are created. As the microbes consume the polymer, bonds are broken and more organics are available for food, strengthening the community and the process continues. Since the microorganisms exist in aerobic, anaerobic and marine conditions, the bags produced with ECM technology will biodegrade above ground, underground and in marine environments.

ECM's additive is fully available today and is being used in plastic bags (1).

**SYMPHONY ENVIRONMENTAL TECHNOLOGIES**
Elstree House, Elstree Way, Borehamwood, Herts, WD6 1LE, England.
Phone: Tel: +44 20 8207 5900. Fax: +44 20 8207 5960.
Website: www.symphonyplastics.com.
Contact persons:
Michael Laurier. michael.laurier@d2w.net, michael@symphonyplastics.com.
Michael Stephen: michael.stephen@degradable.net and kkrkyz@gmail.com.

Oxo-biodegradation is degradation resulting from oxidative and cell-mediated phenomena, either simultaneously or successively. Symphony's oxo-biodegradation additive breaks the molecular chains within the polymer and makes it degrade and then biodegrade in the presence of air, on land or at sea, in the light or the dark, in heat or cold, leaving no methane, no toxic dust, and no other harmful residues. Oxo-bio can be tested according to American Standard 6954. Plastics with Symphony's additive can be recycled and made from recyclate, and there is little or no additional cost.
See www.biodeg.org/position-papers/recycling/?domain=biodeg.org.

Symphony's d2w additive has been independently tested to prove degradation, biodegradation and non eco-toxicity. and is certified safe for food-contact.

Symphony's additive is fully available today and is being used in plastic bags (1) around the world.

Oxo-biodegradable plastic is not a disposal option. It is a low cost insurance if all else fails. These plastics have been in use now for more than five years and are available in more than 80 countries. There is no evidence that degradable plastics (whether oxo-biodegradable or hydro-biodegradable) are more likely to be littered than any other packaging material.

**12. <u>Superfast oxo-biodegradable bags</u>**

Are superfast oxo-biodegradable bags a viable alternative to the proposed ordinance? Cite substantial evidence and credible verifiable sources.

Superfast oxo-biodegradable bags degrade and disappear very quickly. The bags are vacuum packed so that they will not biodegrade before they are handed out by stores. The bags will biodegrade in a few days or a few weeks. The speed of biodegradation can be controlled by the manufacturer by changing the amount of the biodegrading additive and anti-oxidants and making other adjustments.

Upon exposure to the environment the molecular weight is be rapidly reduced by an oxidative process and the bag disintegrates into small pieces. Because the pieces are no longer composed of long entangled molecular-chains, they are no longer a plastic and they are bioassimilated by naturally-occurring micro-organisms. They leave no fragments, no methane, and no harmful residues.

The bags will be *very conspicuously* marked so that consumers will know that the bags will disappear very quickly.

The bags will not be a litter problem because they will vanish in the open air and in water within a very short period of time.

**Contact SYMPHONY ENVIRONMENTAL TECHNOLOGIES for samples and further information. (See section 11 above.)**

**13. <u>Water soluble bags</u>**

Are water soluble bags a viable alternative to the proposed ordinance? Cite substantial evidence and credible verifiable sources.

Water soluble bags made of polyvinyl alcohol dissolve and disappear very quickly when they come into contact with water. The bags would be *very conspicuously* marked so that consumers would know that the bags should not come into contact with water as they will dissolve. The bags will not be a problem in storm drains, the LA River or the oceans.

STPB has such bags available to demonstrate to the County. The demonstration consists of placing the bag in tap water or seawater. The Bag disappears in about 30 seconds without leaving any particles.

The bags can be made more or less soluble and more or less rapidly soluble.

Bags can also be made that will dissolve only in hot water.

In Los Angeles County's dry summer climate, the bags would be completely practical. They simply have to withstand the journey from the store to the home, most of which would be in a car or on public transportation. The only time not to use them is when it is

raining. When it rains, plastic or paper carryout bags or reusable bags can be used.

**Contact SYMPHONY ENVIRONMENTAL TECHNOLOGIES for samples and further information. (See section 11 above.)**

**14. <u>Biodegradability of paper bags</u>**

The Initial Study (at page 1-9) states: "However, paper bags have the potential to biodegrade when exposed to oxygen, sunlight, moisture, soil, and microorganisms (such as bacteria…."

A. Do paper carryout bags biodegrade in landfills, the open air, or in water? Cite substantial evidence and credible verifiable sources.

B. Over what period of time do paper carryout bags fully degrade? Cite substantial evidence and credible verifiable sources.

C. What chemicals, particles or residues remain after such full biodegradation? Cite substantial evidence and credible verifiable sources.

D. Do such particles or residues absorb or serve as a vehicles for PCB, DDT, and other toxic substances in the ocean or elsewhere? Cite substantial evidence and credible verifiable sources.

Polyethylene consists of two elements of carbon and hydrogen. These two elements are strongly bonded together, which means that they cannot bond with molecules of PCBs, DDT or any other chemicals in the ocean at ocean temperatures. Consequently, the allegation that is frequently heard that PCBs, DDT and other chemicals in the ocean bond with plastic bag debris is physically impossible and false. Such chemicals will simply wash off plastic film in the water.

Organic materials such as paper contain oxygen, nitrogen, sulfur and phosphorus. These are elements that have a weaker bond with carbon and/or each other and therefore can easily bond with chemicals such as DDT and PCBs.

**15. <u>Verification and environmental impacts of recycled content in paper bags</u>**

The Initial Study (at page 1-6) defines a Recyclable Paper Bag as having a minimum of 40 percent post-consumer recycled content and containing no old growth fiber. However, the term is not used again in the Initial Study. It is not clear why the term is defined if it is not used. On the *assumption* that the County may require that paper carryout bags be Recycled Paper Bags as defined, then this section applies.

A. How will the County verify that Recyclable Paper Bags actually contain 40% post-consumer recycled content, including but not limited to in imported bags? Cite substantial evidence and credible verifiable sources.

B. If Recyclable Paper Bags are not permitted to contain old growth fibers, how will that be verified? Cite substantial evidence and credible verifiable sources.

C. To what extent does the inclusion of post-industrial scrap reduce the environmental impacts of paper carryout bags? Quantify. Cite substantial evidence and credible verifiable sources.

D. To what extent does the inclusion of post-consumer recycled content reduce the environmental impacts of paper carryout bags? Quantify. Cite substantial evidence and credible verifiable sources.

The EIR must make no assumptions regarding the "green" nature of paper carryout bags with 40% "recycled" content. Paper carryout bag recycling is an operation that involves collection, transportation, washing, and reprocessing. This all needs to be taken into account and addressed in the EIR.

The following article appeared in the Sacramento Bee on November 9, 2009: http://www.sacbee.com/capitolandcalifornia/story/2314229.html.

> **Bee exclusive: State's recycled paper trail not so green for climate**
>
> Near Mark Oldfield's desk at the California Department of Conservation sits a ream of copy paper that is more than a routine office commodity.
>
> Made in part from recycled fiber, it is a symbol of the state's green spirit, one ream among thousands backing the department's claim that it is a champion of the environment -- and complies with state law requiring it to buy recycled paper.
>
> There is a dark side to those sheets of bright, white paper: the part that isn't recycled comes from trees logged in the biologically rich but endangered forests of Indonesia.
>
> Oldfield, a public affairs officer, was not aware of the connection until contacted by The Bee. Now that he knows, Oldfield said his office will not buy anymore and may try to return the unused reams.
>
> "We're required to buy this type of paper," he said. "And that's what we did."
>
> California has a worldwide reputation as a leader in global warming, more so than any other state. But an ongoing Bee investigation has found some of the state's choices -- such as

failing to evaluate environmental costs of printer ink cartridge recycling and allowing its employees to travel on the dime of energy companies -- raise questions about the effectiveness of its efforts.

The state law requiring agencies to buy large quantities of paper with a minimum of 30 percent recycled content is another seemingly green choice that may be backfiring on the climate.

Over the past two decades, that mandate has helped achieve one of the bedrock missions of the environmental movement: keeping as much scrap paper from piling up in landfills as possible. But the state makes no effort to track the carbon footprint of its policies.

In fact, records obtained by The Bee through the California Public Records Act indicate the state -- which purchases about 6 million pages of office copy paper a day and recycles much of it – actually knows little about the full impact of recycled paper.

"There is on-going controversy regarding…post-consumer recycled content in paper products," says a June 24 Department of General Services memo. "We do not understand the process…or its environmental impact."

**Wisdom of mandate argued**

Like offices everywhere, the state consumes a blizzard of copy paper. About 3.2 million reams, each containing 500 sheets – 1.6 billion in all -- were bought last year, state officials estimate. Lay those pages end-to-end and they would reach around the world 11 times.

One of the largest worries is that relying on recycled paper without reducing consumption will hasten climate change because the paper is shipped in from distant locations, increasing greenhouse gas pollution. Nearly all of the paper the state recycles, in turn, is shipped back out again, generating still more greenhouse gas.

"The world is going to fry because we want to buy recycled fiber from the wrong sources around the world and ignore the transportation impacts," said Stan Rhodes, president of Scientific Certification Systems, a Bay Area company that verifies green standards for Starbucks, Home Depot and other companies.

Yalmaz Siddiqui, director of environmental strategy for Office

Depot, a major supplier of recycled paper to California from sources in the southern United States and Wisconsin, has urged the state to be skeptical about Rhodes' concerns.

“It's very dangerous to open up the notion that ‘recycled is not good’ to the marketplace,” Siddiqui wrote in an April 27 e-mail to the Department of General Services.

“Yes, Stan will be able to find specific examples where recycling loops cause additional carbon,” Siddiqui added. “We need to be very careful that these examples do not confuse the marketplace and force people to simply give up buying green altogether because they don't know what the right 'green' thing to do is.”

Currently, about $7 out of every $10 state agencies spend on paper buys paper with 30 percent or higher recycled content -- exceeding the legal requirement that half of such spending be for recycled paper. Some agencies -- including California Environmental Protection Agency, the state Integrated Waste Management Board and the Department of General Services -- even buy 100 percent recycled-content paper.

**Conservation focus shifting**

California's State Agency Buy Recycled Campaign grew out of legislation passed in 1989, when times were simpler. Garbage was the enemy. Almost no one talked about global warming.

Now that the state is a leader in the war against climate change and seeking to shrink its carbon footprint, some say it's time to adapt and measure the effort's climate impact.

“You can't automatically assume recycled content is good,” said Robert Tetz, former manager of the state's environmentally preferable purchasing program at a conference this spring.

“You have to be careful about the energy and environmental impacts we incur in the process of recycling,” he continued. "When we talk about what's green, a lot of the 100 percent-recycled paper we're buying in California is not green.”

Chris Peck, director of the office of public affairs at the California Integrated Waste Management Board, which oversees the Buy Recycled campaign, said agency staffers are interested but must remain focused on their legislative mission.

“Because of our statutory responsibility, which is to keep material out of the landfill, we have to filter what we see and learn through that lens,” Peck said.

Tetz convened a June meeting on the subject with paper specialists.

“There is growing debate regarding the wisdom of our many choices,” he said in an April e-mail invitation.

At the meeting, Rhodes -- the green certification specialist - displayed slides and data suggesting the state's carbon footprint actually grows larger when it buys recycled paper from distant mills.

“Is the (recycled content) law counterproductive for global warming?” Rhodes asked in an interview. “Yes. It's insane. … It has ignored the fact we're in a climate crisis. And stubbornly the state of California refuses to deal with it.”

Others challenge his assertions. “Some of the information doesn't make sense,” said Susan Kinsella, executive director of Conservatree, a nonprofit that promotes the purchase of recycled-content paper.

“When you produce recycled paper, you're reducing the amount of energy overall that's used; you reduce what goes into landfills,” said Kinsella, who attended the June meeting. “If paper goes into landfills, it produces methane, which is 25 times the strength of carbon dioxide.”

Minutes of the June session show that interest was high: “Scott Harvey, DGS chief deputy director…commented on the importance of the topic of discussion and expressed strong support for our efforts from the Director all the way to the Governor's office.”

The minutes also note that Tetz hoped that in-depth study – known as a life-cycle impact analysis – would grow from the meeting, to sort out competing claims and scrutinize all of the environmental impacts of recycled paper.

Instead, Tetz was transferred to another job in September after complaining that a state printer ink cartridge recycling program was less eco-friendly than refilling and re-using them. At the time,

his boss said the transfer was not related to his criticism.

“I did not have the necessary support here at the Department of General Services,” he wrote in an e-mail to meeting participants apologizing for the lack of action. “At least we tried.”

Jeffrey Young, deputy director for public affairs at General Services, said officials would like to have an in-depth paper study done -- and actually solicited bids for one earlier this year -- but were unable to proceed because of the state's budget crisis.

**Conserving and recycling**

There is a far more certain way for state employees to help forests, landfills and climate, according to Rhodes: Don't hit the print button.

“Don't use paper,” he said. “Only use paper when you want to archive.”

Indeed, some e-mails sent by state employees now contain a green logo that says: “Please consider the environment before printing.”

Nonetheless, thousands of tons of scrap paper find their way every month from state recycling bins and loading docks to a 3-acre industrial site in south Sacramento, where it is sorted and bundled for shipment to China on fossil fuel-powered ocean tankers.

What happens once it gets to China is not clear, but paper industry officials say little comes back to California as recycled office paper. Instead, they said, much of it is made into cardboard, tissue paper and paper plates, at paper mills powered by polluting coal-fired power plants.

Dave Kuhnen, general manager of the Sacramento facility, Recycling Industries, recently walked through gigantic mounds and bales of paper speckled with state trash, from a Department of Fish and Game manual on waterfowl and upland game hunting regulations to unused Department of Motor Vehicles change of address forms.

“Recycling is always better,” said Kuhnen. “Anytime you can reduce the demand for the Earth's resources, and keep material out of the landfill, I think we are better off.”

It is not a panacea, however. Some pulp from trees always will be a necessary part of the paper-making process because the microscopic fibers that bind it together eventually break down.

“One hundred percent post-consumer recycled content paper isn't sustainable,” said Andrew Hurst, a waste management specialist at the California Integrated Waste Management Board. “If everybody did it…we wouldn't have paper.

“A piece of fiber is only good for about seven turns,” Hurst said. “And then it is so short, it comes out in the wash and is part of the sludge.”

**Paper's sources questioned**

Dwelling on the recycled content of paper overlooks other critical issues, according to Jim Butler, director of procurement at the Department of General Services.

“There is nothing inherently wrong with 100 percent, or 30 percent,” Butler said. “We have to get beyond what percent recycled it is (to) where the source is, and what are the feed stocks that are contributing to this.”

Interviews and records obtained by The Bee show that the state buys recycled paper from at least two companies that environmentalists say are logging in destructive ways.

One is International Paper, which operates across the American South. Last year, dozens of state agencies, departments and other jurisdictions, from the California Conservation Corps to the Governor's Office, bought at least 20,000 reams of paper -- or 10 million pages -- made in IP mills.

“IP is known for some of the most egregious practices in the region, including large-scale clear-cutting and conversion of natural forests to plantations,” said Scott Quaranda, campaign director for the Dogwood Alliance, a North Carolina environmental group.

Kathleen Bark, an IP spokeswoman, disputed that. “International Paper has a long history of responsible forest practices,” she said in an e-mail. “When we owned forest lands, we continually balanced the growing and harvesting of trees with protecting biodiversity. … Although we no longer own forest lands, we have continued our

commitment to sustainable forestry."

The other company targeted by environmentalists is Asia Pulp and Paper, which has extensive operations in Indonesia and manufactures the 30 percent recycled content paper called Exceedo purchased in June by the Department of Conservation.

When those five boxes of paper – containing 50 reams – arrived in the state office wrapped in greenish paper with a leafy motif, they certainly looked eco-friendly.

But Lafcadio Cortesi, forest campaign director for the Rain Forest Action Network in San Francisco, said the company's logging practices are so harmful that his organization and others have persuaded major U.S. retailers to stop selling its paper.

"It's some of the worst forest destruction in the world," said Cortesi, who has visited Indonesia several times. Because carbon-rich peat lands are logged and converted to plantations – releasing greenhouse gases into the atmosphere in the process – it is bad for global warming, too, he said.

Asked about the state's purchase, Cortesi said: "They need to do their due diligence. If you do any homework at all, Indonesia pops up with a big red flag."

Oldfield, the Department of Conservation spokesman, said his office was focusing instead on recycled content.

"We were consuming a paper with certain guidelines -- 30 percent recycled content -- without knowing the background of the manufacturer," he said. "It's not something we would typically look into."

They also were focusing on price. Each case cost the department $32.98 -- the lowest of four bids solicited.

Now, Oldfield said, the office is debating what to do with the 30 or so reams of paper that remain.

"We are going to see if we can return it," he said.

That would mean contacting Burkett's Office Supplies on Younger Creek Drive in Sacramento where owner Randy Mael said he also sold some of the paper to the Department of Health Services.

> Mael said he was not aware of any problem with it.
>
> "We buy 50,000 different products," Mael said. "We are a company with 30 people. Unfortunately, we just don't have the time to research all the products that we buy."
>
> But, he added, "I don't have any interest in harming the environment. … If it was found that this was something that -- according to reliable standards -- was harming the environment, we wouldn't sell it."

In addition, there has been a recycled paper fraud scandal in Japan. See: http://wildsingaporenews.blogspot.com/2008/01/recycled-paper-scandal-in-japan.html

The County is on notice that there are serious issues regarding the accuracy of claims that paper contains recycled content. There is no certification program to verify recycled content in paper bags. This must be addressed in the EIR.

**16. <u>The issue of what materials are used in the manufacture of plastic bags</u>**

A. It is often alleged that plastic bags (1,2) are made of oil and that we import 12 million barrels of oil into the United States each year to make plastic bags. (Google: "plastic bags 12 million barrels".) Is the allegation true? What are the true facts? Cite substantial evidence and credible verifiable sources.

In fact 85% of plastic bags (1) used in the United States are made in the United States. Plastic bags are made out of polyethylene. Polyethylene is made of ethylene. In the United States, ethylene is made of ethane which is extracted from *domestically* produced natural gas. As a result, plastic bags (1) manufactured in the United States are not made out of oil.

Ethane must be removed from the natural gas anyway to lower the BTU value of the natural gas to an acceptable level. Ethane burns too hot to be allowed to remain in high levels in natural gas that is delivered to homes and businesses for fuel. There is nothing else that the ethane can be used for except to make ethylene. If ethane is not used to make plastic, it will have to be burned off, resulting in greenhouse gas emissions.

Using the ethane to make plastic does not in any way reduce the amount of fuel available for transportation or power generation or increase our energy imports.

Some *imported* bags are made from naphtha which is a *waste by-product* of oil. As long as the world refines crude oil there will be a naphtha residue after the petroleum has been extracted. Naphtha needs a secondary use such as plastics. At the present time, too much is being produced so the need for secondary uses is more pressing.
www.poten.com/Opinion.aspx?id=4030.

Domestic plastic bag (1) manufacturers say that it would be economically absurd to make

plastic bags from oil. The price of oil is presently $77 per barrel and in July 2008 reached per barrel. At those prices, the plastic bags (1) would be much more expensive.

The myth about plastic bags (1) being made out of oil has become one of the major justifications for banning plastic bags (1).

Far more oil (and non-renewable energy) is used to make paper carryout bags as the Scottish and Boustead reports show.

B. The County asserted in the staff report, *An Overview of Carryout Bags in Los Angeles County*, August 2007 (at page 30) that "plastic carryout bags contain many different additives such as PCBs, DDT and nonylphenols which can seep into marine animals that inadvertently ingest them, which endangers their health." If it alleged in the EIR that the allegation is true, cite substantial evidence and credible verifiable sources.

In fact, plastic bags (1,2) in the United States contain no such additives. Such additives are illegal and are not used in bags in this country. If they are used in any other country, we are not aware of it.) There is no reason for such additives to be used. It should be obvious that DDT, which is a pesticide, would not be used as an additive in a plastic bag.

Polyethylene consists of two elements of carbon and hydrogen. These two elements are strongly bonded together, which means that they cannot bond with molecules of PCBs, DDT or any other chemicals in the ocean at ocean temperatures. Consequently, the allegation that PCBs, DDT and other chemicals in the ocean bond with plastic bag debris is physically impossible and false. Such chemicals will simply wash off plastic film in the water.

Organic materials such as paper contain oxygen, nitrogen, sulfur and phosphorus. These are elements that have a weaker bond with carbon and/or each other and therefore can easily bond with chemicals such as DDT and PCBs.

**17. <u>Environmental impacts of cockroach infestation</u>**

Would an increase in the number of paper carryout bags result in a greater number of cockroaches in the County, including increased infestation of apartment blocks? Will such infestation result in the need for increased spraying of harmful insecticides in homes and workplaces? Cite substantial evidence and credible verifiable sources.

Here is an extract from a commercial website regarding cockroach infestation:

> The German cockroach loves grocery bags. This roach will infest a stack of paper grocery bags at the grocery store and then sneak home in between the flaps in the bottom of the bag. You will not even know that the roaches are there until the bag is put away or used. The roach may stay hidden until it is dark and then come out to infest your home. The best way to prevent this type of intrusion

is to keep your paper grocery bags stored outside or in a sealed container.

www.gettingridofroaches.net/How-To-Prevent-Roaches-In-Cardboard-and-Paper-Grocery-Bags.html

Orkin advises as follows: "Disposing of cardboard boxes and paper grocery bags, which provide shelter sites for cockroaches." www.orkin.com/press-room/article-1059

Terminix gives similar advice: "In homes, do not store paper bags under the sink or elsewhere in the kitchen." [Click on the "Tips for Control" tab on the Terminix website.] www.terminix.com/Information/Pest-Identification/Cockroaches/Brown_Banded_Cockroach/

The U.S. Environmental Protection Agency states advises that in order to prevent roach infestation: "Get rid of stacks of newspapers, paper bags, and cardboard boxes." www.epa.gov/opp00001/kids/roaches/english/keepthem/index.html

http://www.acsh.org/healthissues/newsID.1692/healthissue_detail.asp

**18. <u>Environmental impact of the loss of plastic bag recycling bins at stores.</u>**

Plastic bags are 100% recyclable. However, in the County, plastic bags may not be placed in curbside recycling bins.
http://www.sjrecycles.org/residents/special_stuff.asp#bags

Consequently, the *only* plastic bag (1,2) recycling infrastructure in the County is the plastic bag (1,2) recycling bins required by Pub. Res. Code §42251(a) and §42252(b).

All stores that are (i) supermarkets or (ii) occupy over 10,000 square feet and have a licensed pharmacy are required to install those bins and arrange for the recycling of the contents, if the store "provides plastic carryout bags." Pub. Res. Code §42250(e). If the store does not "provide plastic carryout bags" it is not required to install a plastic bag recycling bin.

The effect of banning plastic bags (1) is that stores will be free to remove every single plastic bag recycling bin in the County. The County is not permitted to require the stores to retain the bins because Pub. Res. Code §42254b)(1) states that cities and counties may not "require a store that is in compliance with this chapter to collect, transport, or recycle plastic carryout bags." Therefore, one of the environmental impacts of the proposed ordinance will be the destruction of the County's only plastic bag recycling infrastructure.

It is not just plastic grocery bags that are deposited in the bins. *Newspaper bags, dry cleaning bags, and plastic film are deposited in the bins and recycled. Such bags and film would not be banned under the proposed ordinance but would lose their recycling infrastructure.* Therefore all such bags and film would be sent to landfills.

Virtually every plastic bag (1,2) and the plastic film deposited in store recycling bins is recycled. The major recycling customers for the contents of the bins are Trex and AERT, which use them instead of wood for plastic and composite lumber. They buy the contents of the bags from stores, sometimes for 25 cents per lb or more.

Many plastic bags contain recycled post-industrial and post-consumer material, but that fact has not been well advertised. The paper industry has done a far better job of marketing its products as "recycled." For example, the largest manufacturer of plastic bags (1), Hilex Poly, picks up used plastic bags (1), transports them to its recycling facility, and turn them into new bags. Hilex is in the process of doubling its recycling capacity. See:

http://hilexpoly.com/going-green/bag-2-bag.html.

http://hilexpoly.com/going-green/recycling-plant.html

http://hilexpoly.com/news/single/article/hilex-poly-announces-plan-to-double-recycling-capacity-37//nbp/194.html

**19. Environmental impacts on landfills.**

A. Would an increase in the number of paper carryout bags as a result of the proposed ordinance result in a greater volume and weight of paper carryout bags in landfills? Would this cost the County more in tipping fees (which are determined by weight)? Cite substantial evidence and credible verifiable sources.

We often hear in the media and from anti-plastic bag activists that plastic bags (1,2) "clog up" landfills. However, in a Statewide Waste Characterization Study conducted in 2004 for the California Integrated Waste Management Board, it was determined that plastic bags (1,2) constitute a mere 0.4% of the content of landfills. Paper carryout bags constitute 1.0%. The tonnage is about the same despite the facts that retailers provide far more plastic bags (1) than paper carryout bags. Paper carryout bags are bigger, thicker and heavier. Tipping fees are based on weight.
http://www.ciwmb.ca.gov/Publications/LocalAsst/Extracts/34004005/ExecSummary.pdf.

B. What are the environmental impacts of increasing the number of paper carryout bags in landfills? Cite substantial evidence and credible verifiable sources.

This is discussed in an Environmental Paper Network ("EPN") report: "The State of the Paper Industry." www.environmentalpaper.org/stateofthepaperindustry/confirm.htm. The EPN report states (at page v):

> If paper is landfilled rather than recycled, it decomposes and produces methane, a greenhouse gas with 23 times the heat-trapping power of carbon dioxide. More than one-third of municipal solid waste is paper, and municipal landfills account for

> 34 percent of human related methane emissions to the atmosphere, making landfills the single largest source of such emissions. The U.S. Environmental Protection Agency has identified the decomposition of paper as among the most significant sources of landfill methane.

An article in the *Ecocycle Times* states:

> Methane is produced in a landfill when the organic materials like paper, yard debris, wood, and food waste undergo anaerobic decomposition—a process that shouldn't be confused with the oxygen-dependent aerobic process that breaks downs the fruit rinds and leaves in your backyard composter. As a result of anaerobic decomposition, the methane gas seeps to the surface, enters the lower atmosphere, and in concert with carbon dioxide and other gases, creates a warming blanket that retains solar infrared radiation and warms the earth.

http://www.ecocycle.org/TimesSpring2002/NewEvidence.cfm

**20. <u>Environmental impacts of reusable bags.</u>**

What would be the environmental impacts of an increased number of reusable bags? Cite substantial evidence and credible verifiable sources.

Like any other manufactured product, reusable bags have a negative environmental impact. The following information and metrics must be addressed in the EIR:

- Metrics of consumption of nonrenewable energy to produce reusable bags. (An article in the *Wall Street Journal* ("An Inconvenient Bag," Sep 26, 2008, states: "Many of the cheap, reusable bags that retailers favor are produced in Chinese factories and made from nonwoven polypropylene, a form of plastic that requires about 28 times as much energy to produce as the plastic used in standard disposable bags and eight times as much as a paper sack, according to Mr. Sterling, of Natural Capitalism Solutions."
  http://online.wsj.com/article/SB122238422541876879.html
  (The *Wall Street Journal* website requires a password. STPB will provide a copy of the article if requested.)

- Metrics on emissions of greenhouse gases in the production of reusable bags.

- Metrics on consumption of water to produce reusable bags.

- Metrics on creation of acid rain (atmospheric acidification) in the production of reusable bags.

- Metrics on creation of negative air quality in the production of reusable bags

- Metrics on water pollution or eutrophication in the production of reusable bags.

- Metrics on the consumption of nonrenewable energy to transport reusable bags. (Most reusable bags are made in China and have to be shipped to the United States and then transported by truck. Reusable bags are more voluminous and heavier than plastic bags, thereby requiring more diesel fuel to transport.)

- Recyclability of reusable bags. (Most reusable bags are made from nonwoven polypropylene, which is not recyclable.)

- Metrics on solid waste production caused by disposal of reusable bags.

- Metrics on the extent to which reusable bags are actually reused. (The above-mentioned *Wall Street Journal* article states: "Earlier this year, KPIX in San Francisco polled 500 of its television viewers and found that more than half -- 58% -- said they almost never take reusable cloth shopping bags to the grocery store."

We can't always anticipate what we will need.
Sometimes we need carryout bags as well as reusable bags.

**21. Environmental impacts of lead and other toxics in reusable bags**

A. To what extent are lead and heavy metals present in reusable bags? Cite substantial evidence and credible verifiable sources.

B. What is the environmental impact of the presence of such amounts of lead and heavy metals in reusable bags? Cite substantial evidence and credible verifiable sources.

C. Has the County determined whether any of the reusable bags that it has been providing to the public contain lead or heavy metals?

D. What steps must the County take to *ensure* that all retailers covered by the proposed ordinance comply with Health and Safety Code §§25214.11-25214.26, including obtaining Certificates of Compliance?

www.dtsc.ca.gov/toxicsinpackaging/index.cfm

www.dtsc.ca.gov/ToxicsInPackaging/upload/TIP_FS_Bags_Totes.pdf

**22. Hygiene of reusable bags**

A. To what extent are reusable bags actual or potential carriers of dangerous or unhealthy bacteria? Cite substantial evidence and credible verifiable sources.

www.cpia.ca/epic/media/default.php?ID=2054

www.cpia.ca/files/files/A_Microbiological_Study_of_Reusable_Grocery_Bags_May20_09.pdf

http://network.nationalpost.com/np/blogs/theappetizer/archive/2009/05/20/back-to-plastic-reusable-grocery-bags-may-pose-public-health-risk.aspx

B. There is substantial evidence that some reusable bags are manufactured in grossly unhygienic conditions, including an eyewitness report with photographs in the Scottish Sunday Express on February 10, 2008. This must be addressed in the EIR. What steps will the County take to prevent such bags from being distributed, sold or used in the County? See:

http://www.google.com/url?sa=t&source=web&ct=res&cd=2&ved=0CBMQFjAB&url=http%3A%2F%2Fwww.carrierbagtax.com%2Fdownloads%2FSunday%2520Express%252010%2520feb.pdf&ei=KNMrS7KPFouMswPJ5oHXAw&usg=AFQjCNHGZR6R2PgPA-1msv30-xKmo3-ZMA&sig2=4z2ove15MZSTeVZaFealDw

C. Plastic bag (1) manufacturers have obtained "No Objection Letters" from the U.S. Food and Drug Administration, permitting plastic bags (1) including supermarket/grocery checkout bags to come into contact with food. To what extent have reusable bag manufacturers complied with FDA regulations and standards regarding food contact?

Cite substantial evidence and credible verifiable sources.

www.fda.gov/Food/FoodIngredientsPackaging/FoodContactSubstancesFCS/default.htm

Hygiene of reusable bags is an important issue
that must be addressed in the EIR.

**23. <u>The reusability and reuse of plastic bags.</u>**

A. STPB objects to the use of the term "single-use" plastic bags. Plastic bags (1) are reused for many purposes such as bin liners and animal waste pickup. The metrics of plastic bag (1) and paper carryout bag reuse must be factored into all aspects of the EIR. Cite substantial evidence and credible verifiable sources.

B. If plastic bags (1) are not available for reuse, will consumers buy plastic bags to replace them for bin liners and other uses? This would reduce any environmental benefits from banning plastic bags. Cite substantial evidence and credible verifiable sources. See: http://archives.tcm.ie/irishexaminer/2003/01/29/story651891687.asp

**24. <u>The alternative of improving plastic bag litter prevention and cleanup</u>**

A. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter *abatement* in the County?

B. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter *cleanup* in the County?

C. As an alternative to banning plastic bags (1), what changes can the County make to improve plastic bag (1) litter cleanup at the *litter hotspots* in the County?

**25. The Los Angeles County "Plastic Litter Patrol" would make banning plastic bags unnecessary**

In 2001, STPB's counsel Stephen Joseph and a colleague developed a "Green Patrol" concept in San Francisco. The sole purpose of the Green Patrol was to clean up litter and graffiti in North Beach. The San Francisco Department of Public Works hired personally for the Green Patrol and Mayor Brown launched the program in 2001. The program was successful and proved the concept, but ultimately it was the victim of budget cuts. Stephen Joseph received a commendation from the Board of Supervisors. www.californians4epr.com/Green_Patrol_resolution.pdf

The Green Patrol consisted of two full time San Francisco Department of Public Works employees with special T-shirts and baseball caps and a dedicated van with the Green Patrol logo. The principle was that they would become familiar with the area and take pride in keeping it clean. They would also be accountable. North Beach went from litter and graffiti-strewn to litter and graffiti-free virtually overnight and remained that way as long as the Green Patrol existed.

STPB is *considering* creating a Los Angeles County Plastic Litter Patrol ("PLP") along the lines of the San Francisco Green Patrol. PLP will be a separate entity. The PLP will manage the operation and employ its own personnel. Plastic bag, film and other plastic product manufacturers and retailers will make direct payments to the PLP. No government funds or personnel will be used.

The PLP will employ full-time personnel to search the County on a regular basis looking for littered plastic bags (1,2), plastic film, plastic packaging and (possibly) plastic bottles. The search locations will include the coast and beaches, streets, highways, stormwater drains, creeks, rivers, landfills, and trees, etc. They will clean the cleanable bags and film (and possibly bottles) and deposit them in store plastic bag recycling bins or deliver them directly to recyclers such as Trex, AERT, Hilex and TieTek.

The frequency of visits will be reviewed after determining the rate of the accumulation of such litter. The objective will be to keep the areas clean of all plastic bags (1,2), plastic film, plastic packaging, and possibly plastic bottles. The PLP will perform special cleanups of storm drains, creek and rivers following storms.

The PLP will maintain a website at www.plasticlitterpatrol.com. Photographs of "before and after" cleanups will be posted. Anyone noticing plastic bags or film caught in tree or at any other location will be able to report them by e-mail to the PLP and personnel will be sent to remove them.

The PLP will work in conjunction with the County "adopt-a" programs and the CalTrans adopt-a-highway program.

http://adopt-a-highway.dot.ca.gov.

The PLP will submit its cleanup plan to the County for comments. The PLP is not

dependent on the County's cooperation.

It is easy to keep the County free of plastic bag (1,2) litter without banning bags. All that is required is to stop talking about the problem and actually do something about it. Banning a product to prevent litter is an absurd overkill solution to an easily solvable problem.

The EIR must take the PLP into account in determining the environmental impacts of the proposed ordinance. If the County is truly incapable of cleaning up plastic bags as it claims, the industry will take matters into its own hands.

San Francisco Mayor Willie Brown cuts the ribbon launching the Green Patrol in 2001.

The tarnished Italian flags on the North Beach lamp posts were eventually restored by the Green Patrol.

The first San Francisco Green Patrol. Note the tarnished Italian flag painted on the North Beach lamp post. The Green Patrol kept the area 100% litter free on a daily basis.

**26. <u>The alternative of legislating mandatory best practices for stores.</u>**

What would be the environmental benefits of legislating the following program instead of the proposed ordinance?

- Store cashiers or baggers would be *required by law* to ask customers purchasing a single item whether they need a carryout bag. Note that Pub. Res. Code §42252(e) requires stores (as defined) to make reusable bags (as defined) available to customers.

- Double bagging of plastic bags (1) and paper carryout bags would be *prohibited by law*.

- Store cashiers or baggers would be *required by law* to ask all customers to return plastic bags (1,2) to the store for recycling and point out the location of plastic bag recycling bins. This should result in a huge increase in the number of plastic bags (1,2) deposited in bins by consumers. Note that Pub. Res. Code §42252(b) requires stores (as defined) to make plastic bag recycling bins available to customers.

- Uniform signage and a logo would be *required by law* for all plastic bag recycling bins.

- See photograph of Tesco recycling bin at: www.californians4epr.com/Waste-reduction.html. Bins as prominent and well-marked as the Tesco bins should be placed in stores in the County.

- Encourage stores to fill the maximum item count or weight per carryout bag.

- Encourage stores not to give carryout bags to customers to hold a single item, subject to appropriate exceptions.

- Encourage stores to ensure that the required plastic bag recycling bins are placed in highly visible locations and clearly marked with a uniform logo.

- Encourage stores to print their logo and commercial messages on only one side of plastic bags (1) and use the opposite side only for prominent messages to request and encourage customers to use the plastic bag recycling bins.

- Encourage stores to ask customers to bring *clean* plastic (1,2) and paper carryout bags back to the store for future shopping rather than asking for new bags. Plastic bags (1,2) can be reused many times and can fit into a glove compartment when not in use. (See the wording on the Tesco bin: www.californians4epr.com/Waste-reduction.html.)

The major British stores achieved a 48% reduction of plastic carryout bags in three years based on best practices. (There is some disagreement about how the calculation of the percentage but the raw numbers speak for themselves: 870 million plastic bags in May 2006; 418 million plastic bags in May 2009.) American stores can achieve similar results.www.retail-week.com/in-business/responsible-retail/grocers-slash-plastic-bag-usage-by-48/5004605.article.

**27. The alternative of legislating mandatory percentage reductions for stores.**

As an alternative to the ordinance, what would be the environmental benefits of legislating mandatory percentage reductions of the number of plastic bags (1) and paper carryout bags provided by stores? For example, stores as defined in Pub. Res. Code §42250(e) might be required to reduce such bags by x% using 2011 as the baseline and 2013 as the goal. The goal could be enforced by sanctions.

Under Pub. Res. Code §42252(d) and California Integrated Waste Management Board regulations, store (as defined) are required to report plastic bag (1) usage. See: www.ciwmb.ca.gov/RuleArchive/2008/PlasticBags/default.htm. The collected data is being made available to the County. The County could legislate a similar reporting requirement for paper carryout bags at stores as defined in Pub. Res. Code §42250(e).

**28. Cumulative environmental impacts.**

What are the cumulative environmental impacts of the proposed ordinance? Quantify. Cite substantial evidence and credible verifiable sources.

CEQA Guidelines §15130(a) states that an EIR "shall discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in section 15065(a)(3).

CEQA Guidelines §15065(3) states that an EIR must be prepared if "the project has possible environmental effects that are individually limited but cumulatively considerable." CEQA Guidelines §15065(3) states that "cumulatively considerable" means that the "incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

CEQA Guidelines §15355 defines "cumulative impacts" as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." CEQA Guidelines §15355(b) states that "[c]umulative impacts can result from individually minor but collectively significant projects taking place over a period of time."

In *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98, the court stated:

> At 114: Cumulative impact analysis is necessary because the full environmental impact of a proposed project cannot be gauged in a vacuum. [Footnote] One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact.
>
> At 118: From *Kings County* and *Los Angeles Unified*, the guiding criterion on the subject of cumulative impact is whether *any* additional effect caused by the proposed project should be considered significant given the existing cumulative effect. (Emphasis added.)
>
> At 119: However, under CEQA section 21083, under the Guidelines section 15355 definition of cumulative impacts, and under the *Kings County/Los Angeles Unified* approach, the need for an EIR turns on the impacts of *both* the project under review and the relevant past, present and future projects. [Emphasis by court.]

Based on the foregoing, the EIR must consider the impact of the proposed County ordinance together with the following projects:

- The San Francisco plastic bag (1) ban ordinance adopted in 2007.
- The City of Los Angeles resolution to ban plastic bags (1) in 2010 if no plastic bag fee bill is enacted by the state by that time.
- The City of Malibu plastic bag (1) ban ordinance adopted in 2008.
- The City of Manhattan Beach plastic bag (1) ban ordinance adopted in 2008 (if it is not invalidated).
- The City of San Jose proposed plastic bag ban (and probable paper bag fee).
- The Palo Alto plastic bag (1) ban ordinance adopted in 2009.
- The proposed City of Santa Monica plastic bag (1) ban ordinance.
- The proposed City of Berkeley plastic bag (1) ban ordinance.
- All plastic bag (1) ban ordinances and reduction projects that are being considered or may be or have been implemented in California and outside California.

In *San Franciscans for Reasonable Growth v. City and County of San Francisco*, (1984) 151 Cal.App.3d 61, 75, the court stated:

> [W]e must reject the argument that, because some of the projects under review might never be built, it was reasonable for the Commission not to consider any of them in its cumulative analyses. Such argument is without merit. The fact that the EIR's

subject project itself might be built, rather than the fact that it might not be built, creates the need for an EIR. Similarly, the fact that other projects being reviewed are as close to being built as the subject project makes it reasonable to consider them in the cumulative analyses.

## REQUEST FOR NOTICES

I request that you send me by e-mail and regular mail any future public notices regarding the proposed ordinance and the EIR.

## CONTACT PERSON

I am the designated contact person for the Save The Plastic Bag Coalition.

## CONCLUSION

STPB is available to provide information, documents, contacts, and research regarding the EIR. We want to help in every possible way to ensure the whole truth is described and disclosed to the Board of Supervisors and the voters.

All rights are reserved, including the right to challenge the validity of a plastic bag ban based on the preemptive effect of Pub. Res. Code §42250-57. See: http://gov.ca.gov/pdf/press/ab_2449_sign.pdf.

Nothing is waived by any statement or omission herein. Strict compliance with all the applicable provisions of CEQA is hereby demanded.

Dated: January 4, 2010

STEPHEN L. JOSEPH
Counsel, Save The Plastic Bag Coalition

Surfrider Foundation
P.O. Box 6010
San Clemente, CA 92674
www.surfrider.org

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

# Re: Ordinance to Ban Plastic Carryout Bags in Los Angeles County- Initial Study and EIR Scoping Documents

Dear Mr. Skye,

On behalf of the Surfrider Foundation ("Surfrider") and our over 55,000 members, we would like to thank you for providing us with the opportunity to submit comments on the Los Angeles County's proposed Environmental Impact Review (EIR) and Initial Study for an ordinance to ban plastic carryout bags. Through our collaborations with environmental groups and local government entities, as well as our own "Rise Above Plastics" campaign, The Surfrider Foundation continuously works to address what is potentially the most harmful threat to our oceans today – the ubiquitous and destructive presence of ocean litter polluting our marine environment.

Plastic currently comprises 60 to 80 percent of all marine debris, and 90 percent of floating debris.[1] The prevalence of this plastic pollution results in both direct and indirect negative impacts to marine wildlife. Seabirds, sea turtles, fish, and marine mammals often ingest marine debris after mistaking it for food, or become entangled in the debris which can suffocate them or interfere with their growth. [2] Other substantial impacts include ecosystem alterations, clean-up

[1] Resolution of the California Ocean Protection Council on Reducing and Preventing Marine Debris, (February 8, 2007, November 20, 2008) Implementation Strategy to Reduce and Prevent Ocean Litter. http://resources.ca.gov/copc/

[2] U.S. Environmental Protection Agency, Marine Debris impacts. (Available at http://www.epa.gov/owow/oceans/debris/md_impacts.html)

costs, and aesthetic impacts which may affect California's tourism industry. Reducing the amount of single-use plastic grocery bags, 6 billion of which are used each year in Los Angeles County alone[3], will save the County money in clean-up costs as well as help us to achieve our mission of protecting our oceans, waves, and beaches. We are extremely supportive of Los Angeles County's initiatives to reduce the consumption of single-use plastic carryout bags, and we have included in this comment letter constructive suggestions regarding the Initial Study and EIR Scoping document for the proposed bag ban.

**The Proposed Ordinance Should Be Expanded to Include a Greater Number of Stores**

The proposed ordinance would only apply to stores within the County that (1) meet the definition of a "supermarket" as found in the California Public Resources Code, Section 14526.5; (2) are buildings that have over 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. The initial study also indicates that the County is considering extending the jurisdiction of the proposed County ordinance to stores within the unincorporated territories of the County that are part of a chain of convenience food stores, including franchises primarily engaged in retailing a limited line of goods that includes milk, bread, soda, and snacks, that have a total combined area of 10,000 square feet or greater within the County.

We urge the County to expand the jurisdiction of the proposed ordinance to include chains of convenience stores and franchises, as these establishments contribute significantly to the level of plastic bag pollution in Los Angeles County. This would be similar to the plastic bag ban enacted in San Francisco, which in May 2008 was broadened to include not only large grocery stores and pharmacies, but also chain pharmacies with 5 or more locations in the city[4]. Furthermore, we believe that the ordinance should also include retail stores in addition to supermarkets, as well as facilities that have less than 10,000 square feet of retail space. Enacting a ban on plastic bags which will cover a broad range of stores will result in a further reduction of clean-up costs to the County of Los Angeles ("the County") and the state of California, and go further than the currently proposed policy towards protecting marine life and the ocean environment.

**The County Should Establish More Ambitious Program Objectives**

The program objectives discussed in the initial study, although capable of producing a positive environmental impact, are not strong enough to encourage an adequate level of plastic carryout bag litter reduction and should be strengthened to include more ambitious goals that will

[3] Ordinances to Ban Plastic Carryout Bags in Los Angeles County, Initial Study. Contribution of Plastic Carryout bags to the litter stream.

[4] http://www.sfgov.org/site/uploadedfiles/bdsupvrs/ordinances07/o0081-07.pdf

more effectively support the policies behind the proposed ordinance. Included in the list of objectives are for the county to "Reduce the Flood Control District's cost for prevention, clean-up, and enforcement efforts to reduce litter in the county by $4 million," and "Reduce Countywide disposal of plastic carryout bags from landfills by 50 percent from 2007 annual amounts." Both of these objectives could be more readily achieved, and even exceeded, if the following other objectives were strengthened:

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

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

If the ordinance enacted includes prohibiting large supermarkets and retailers from distributing single-use plastic bags, then these objectives would be easily achieved and further actions to reduce plastic bag litter may not be pursued by the state or individual distributors. Setting higher goals will encourage a more timely reduction of plastic litter, and will result in a corresponding decrease in cleanup costs to the County as well as a decrease in the adverse environmental impacts. Therefore, we urge the County to strengthen these objectives by aiming for the Countywide contribution of plastic carryout bags to be reduced by 90%, rather than the stated 50%. Furthermore, the County should aim to reduce the Countywide consumption of plastic carryout bags to fewer than 400 per household annually, rather than the less ambitious 800 bags per household contemplated by the current objectives.

Another of the program objectives is to "Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 50,000 residents (5 percent of the population) with an environmental awareness message." Educating the public about this issue is absolutely essential, and should be a great priority with regards to this proposed ordinance. Few citizens are aware of the numerous negative biological impacts caused by plastic bag pollution, and even fewer are likely aware of great costs to themselves, as tax-payers, that must go towards the clean-up of this pollution. We therefore encourage the County to aspire to reach at least 100,000 residents, if not more, with an environmental awareness message. We believe that this will help substantially in the furtherance of the County's other goals and objectives.

**Biological Impacts of Single-Use Plastic Carryout Bags**

We urge the County to take into consideration the following additional information, and to enact strict plastic bag prohibitions in order to benefit not only the citizens of the County and the State, but the United States as a whole.

*Increased Dependency on Fossil Fuels*

It is estimated that about 1 trillion of these plastic bags are used each year world-wide. Over 100 billion of these petroleum-based bags are used in the United States annually and in addition to the harm caused to the marine environment, the production of these bags requires 12 million barrels of oil per year.[5] Given the difficult state that our economy is in, and the mounting crisis regarding the limited supply of fossil fuel energy available to us, decreasing the unnecessary use of the petroleum- based plastic bags will help to reduce the United States' dependency on foreign oil supplies and serve as a step on the way towards utilizing clean, renewable energy resources.

*Harms Caused to Marine Life*

It is estimated that more than 267 species have suffered a negative impact as a result of plastic marine debris, and it is estimated that this debris results in the deaths of thousands of marine mammals and turtles each year. Often these animals mistake the plastic (bags especially) for food, and consume the non-digestible materials[6]. One study found that out of 38 green turtles found and tested, 61 percent had ingested some form of marine debris including plastic bags, cloth, and rope or string (Bugoni et al., 2001)[7]. As described on the U.S. Environmental Protection Agency website:

> Ingestion can lead to starvation or malnutrition when the marine debris collects in the animal's stomach causing the animal to feel full. Starvation also occurs when ingested marine debris in the animal's system prevents vital nutrients from being absorbed. Internal injuries and infections may also result from ingestion. Some marine debris, especially some plastics, contain toxic substances that can cause death or reproductive failure in fish, shellfish, or any marine life. In fact, some plastic particles have even been determined to contain certain chemicals up to one million times the amount found in the water alone (Moore, C., 2002).

There are many other statistics regarding the severe negative impacts that plastic bags can cause to the marine environment, several of which are very well discussed in the initial study prepared for the proposed ordinance. We urge you to take these concerns seriously, and we emphasize how important our marine ecosystems are to all of the members of the Surfrider Foundation.

**The County Should Consider a Tax or Ban on Paper Bags in Addition to Plastic Bags in The Future**

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[5] http://www.healthebay.org/assets/pdfdocs/actionalerts/2007_08_27_plasticbagban/staffreport.pdf

[6] Californians Against Waste. The Problem With Plastic Bags. http://cawrecycles.org/issues/plastic_campaign/plastic_bags/problem

[7] U.S. Environmental Protection Agency. Marine Debris Impacts. http://www.epa.gov/owow/oceans/debris/md_impacts.html

One major concern of plastic bag ban ordinances, and a large part of why an EIR is being considered for this Los Angeles County Ordinance, is that some consumers will opt to use paper bags as a substitute for plastic bags, rather than use reusable bags. The Initial Study states the following: "The County anticipates that a measurable percentage of affected consumers would subsequently use reusable bags (this percentage includes consumers currently using reusable bags) once the proposed ordinances take effect. The County further anticipates that some of the remaining consumers, those who choose to forgo reusable bags, may substitute plastic carryout bags with paper carryout bags." While we recognize that evaluating the realistic environmental impacts of a plastic bag ban ordinance is essential, we believe that the county should take further measures in the future to further assure the transition to reusable bags and away from disposable, single use bagging options.

The City of Berkeley has recently proposed an ordinance that would ban the distribution of single-use plastic carryout bags at certain locations, and also place a 25 cent tax on paper bags in order to reduce the negative environmental impact of the ordinance[8]. Before declaring that the ordinance would result in no significant environmental impacts, the City released an initial study, part of which explained the following:

> Life cycle analyses of the relative environmental impacts of manufacturing and transporting paper compared to plastic single use bags reach different conclusions. Some studies conclude that paper bags have more impact than plastic[9], while a more recent study concludes that paper bags have substantially less impact than plastic[10]. The analyses differ in the specific pollutants measured, the manufacturer's location, sources of raw materials and energy, manufacturing practices, and the degree of local recycling of the product[111213]
>
> A 2005 study of various proposed plastic and paper bag levies in Scotland concludes that setting a fee on both plastic and paper bags results in improvement in all eight environmental indicators considered, because of the resulting shift to reusable bags.

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[8] City of Berkeley, Public Works Department. Proposed Bag Reduction Ordinance. http://www.ci.berkeley.ca.us/ContentDisplay.aspx?id=44530

[9] "Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks", Franklin Associate, Ltd., 1990.

[10] "Distribution in Paper Sacks", CIT Ekologik, Chalmers Industriteknik, 2000.

[11] Cadman, Evans, Holland and Boyd; AEA Technology Environment: Environment Group Research Report: Proposed Plastic Bag Levy – Extended Impact Assessment; produced for the Scottish Executive, August 2005. (www.scotland.gov.uk/publications)

[12] Fridge: "Socio-economic Impact Assessment of Proposed Plastic Bag Regulations"

[13] Alternatives to Disposable Shopping Bags and Food Service Items, Appendix N. Prepared for Seattle Public Utilities by Herrera Environmental Consultants, Inc., January 29, 2008, (http://www.seattle.gov/util/Services/Recycling/Reduce,_Reuse_&_Exchange/ProposedGreenFee/index.htm)

> There is general agreement that a shift to reusable bags has less environmental impact than any single use bag system. Therefore, to minimize possible negative impacts of conversion to paper bags, the Ordinance is designed to reduce total bag use, whether paper or plastic, and to minimize he impact of those paper bags that are used....
>
> In 2008 the City of Seattle commissioned a study of the environmental, economic and social impacts of various programs to reduce the use of single-use carryout bags[14]. As part of this study, the contractor prepared a sensitivity analysis, which predicts the shift from single use to reusable bags at various fee levels. It concluded that a fee on both paper and plastic would result in reduced bag use as follows:
>
> 60% bag reduction at 10 cents
> 70% reduction at 20 cents
> 80% reduction at 25 cents.

As this information makes clear, placing a tax on paper bags in addition to plastic could serve as an effective part of a comprehensive plan to achieve the goals that the county of Los Angeles has set out in this proposed bag ban ordinance.

**Conclusion**

We thank the County of Los Angeles for taking the initiative to protect our precious and valuable marine resources from the threat of plastic pollution. We are greatly concerned with the ongoing detriment to our ocean ecosystems and wasteful use of our natural resources posed by the unregulated use of plastic bags. We strongly urge the County to accept our recommendations and take into account our recommended considerations, and thank you for the opportunity to comment on this issue.

Sincerely,

Rachel E. Dorfman, Esq.
Surfrider Foundation
San Diego Chapter Executive Committee, Surfrider Rise Above Plastics Program Contact
Phone: (770) 630- 6956
Rachel@surfridersd.org

[14] Alternatives to Disposable Shopping Bags and Food Service Items, Appendix N. Prepared for Seattle Public Utilities by Herrera Environmental Consultants, Inc., January 29, 2008, (http://www.seattle.gov/util/Services/Recycling/Reduce,_Reuse_&_Exchange/ProposedGreenFee/index.htm)

# *APPENDIX E*
# *KEY PERSONNEL RÉSUMÉS*

**MARIE C. CAMPBELL**
**PRINCIPAL**

Ms. Marie Campbell is principal of Sapphos Environmental, Inc. She is an environmental compliance specialist with more than 20 years of experience in project management of all aspects of environmental compliance and resource management planning. As principal of Sapphos Environmental, Inc., she has served as project manager on more than 100 projects, including state and federal environmental compliance documents, technical reports, mitigation monitoring plans, resource management plans, and consensus planning efforts. During her tenure as president of Sapphos Environmental, Inc. she has overseen the firm's successful performance pursuant to 13 open-end contracts for environmental services. Typically, these projects involve coordination of a multidisciplinary team with the project design and engineering team. In addition, Ms. Campbell has extensive experience with capital improvement projects undertaken by the County of Los Angeles. Ms. Campbell has served in the role as project coordinator representing clients in the public and private sectors, including not-for-profits, on environmental compliance matters pursuant to the regulatory oversight of the California Environmental Protection Agency, Department of Toxic Substances Control.

**Project Management**

Since establishing Sapphos Environmental, Inc., Ms. Campbell has served as project manager on open-end contracts for environmental services, as well as numerous high-profile, complex environmental documents. Under Ms. Campbell's direction, Sapphos Environmental, Inc. has provided open-end environmental services to numerous public agencies: Caltrans, Metropolitan Water District of Southern California, Southgate Recreation and Park District, Great Basin Unified Air Pollution Control District, County of Los Angeles Chief Executive Office, County of Los Angeles Department of Public Works, County of Los Angeles Department of Parks and Recreation, and City of Los Angeles Bureau of Engineering. In the performance of services under these open-end contracts, she has managed multidisciplinary teams consisting of geologists, registered environmental assessors, health risk assessment professionals, biologists, archaeologists, paleontologists, land use planners, air and water quality specialists, acoustical engineers, traffic engineers, and civil engineers. As many as 15 simultaneous delivery orders (during a one-month period) have been managed during the course of these contract efforts. As project manager, Ms. Campbell's responsibilities included preparation of individual scopes of service for each delivery order (including schedules and estimated costs), client and project team coordination, project staffing, supervision of all work efforts, timely submission of all work products, provision of technical input and graphics for internal and external project briefings, and quality control. Ms. Campbell has managed the preparation of environmental compliance and public involvement efforts for a variety of projects where hazards and hazardous materials were a key issue:

- Long Beach Memorial Medical Center Expansion and 2010 Master Plan Environmental Impact Report (EIR)
- South Coast Golf Course (at Palos Verdes Landfill) EIR
- Victoria County Golf Course Rehabilitation EIR and Supplemental EIR
- Victoria Cricket Fields Rehabilitation EIR
- Biological Resources Technical Report, Oak Tree Report, and Expert Witness for Puente Hills Landfill EIR

- Huntington Regional Park Complex EIR (closed Landfill and active petroleum extraction field)
- Kenneth Hahn Ballfield Complex EIR (closed petroleum extraction and storage field)

**Environmental Compliance**

***National Environmental Protection Agency / California Environmental Quality Act Documents***

Ms. Campbell has prepared all types of environmental compliance documents for state and federal lead agencies, including categorical exclusions, negative declarations, mitigated negative declarations, environmental assessments, EIRs, environmental impact statements (EISes), and joint environmental documents (EIRs/EISes). Ms. Campbell served as project manager for the National Environmental Protection Agency (NEPA) input to the EIS/EIR in support of the Berth 97–109 Container Terminal Project (China Shipping I, II, and III) project at the Port of Los Angeles. Ms. Campbell also served as a strategic consultant for the EIS/EIR for the Los Angeles International Airport Expansion for all issues related to biological resources, threatened and endangered species, wetlands, and related regulatory permits. Ms. Campbell served in a similar capacity on the recently completed EIR for the 2003 Owens Lake Demonstration of Attainment for $PM_{10}$ State Implementation Plan that addresses a 38-square mile study area requiring implementation of a variety of dust control measures. Ms. Campbell completed joint NEPA / California Environmental Quality Act (CEQA) documents for several other projects: Categorical Exclusion / EIR for the Grand Avenue Environs Project, Programmatic Negative Declaration / Environmental Assessment (Los Angeles County Department of Public Works and U.S. Army Corps of Engineers), Environmental Assessment / Mitigated Negative Declaration for the R-Line Interstate Transmission Corridor, Mitigated Negative Declaration and Environmental Assessment / Finding of No Significant Impact (FONSI) for the Bosque del Rio Hondo Riverfront Park Project (Mountains Recreation and Conservation Authority, Los Angeles County Department of Parks and Recreation, and U.S. Army Corps of Engineers, and Joint Environmental Assessment and Mitigated Negative Declaration for the Lake Mathews Ecological Reserve (U.S. Fish and Wildlife Service and The Metropolitan Water District of Southern California).

***Public Outreach***

Effective communication and public and agency outreach is fully integrated into the technical approach and scope of services for all work efforts undertaken by Sapphos Environmental, Inc. Ms. Campbell has successfully completed the federal government training for Negotiating, Bargaining, and Conflict Resolution. In addition, Ms. Campbell has taught at the collegiate level. Ms. Campbell has the ability to assist clients and regulatory oversight personnel in developing a strategy to address complex environmental issues and the related public outreach program to ensure that the goals of NEPA and CEQA are fulfilled. Ms. Campbell has extensive experience preparing and delivering oral presentations that effectively convey technical information in a manner that is understandable for the layperson. Ms. Campbell developed the technical training program used to train all technical staff at Sapphos Environmental, Inc. in effective listening and facilitation of community and agency meetings and workshops. Ms. Campbell has made numerous presentations to Special District Boards, County Boards of Supervisors, and City Councils and Planning Commission for a variety of high-profile capital projects.

***Legal Defensibility***

As principal of Sapphos Environmental, Inc., Ms. Campbell developed the standard work approach to minimize exposure to litigation and maximize protection in the limited cases where a plaintiff pursues litigation. In this approach, the project manager initiates each project with the assumption that the potential for litigation is always present. Therefore, the work plan consists of the necessary efforts to build a comprehensive and defensible administrative record to support the lead agency's decision-making process. Sapphos Environmental, Inc. has prepared numerous environmental documents, including negative declarations, mitigated negative declarations, and various types of EIRs for public- and private-sector clients under the threat of potential litigation. Of the hundreds of environmental documents prepared, legal challenges pursuant to the CEQA were ultimately filed in only nine instances. Each of these documents successfully withstood all legal challenges:

- **Hollywood Bowl Shell Rehabilitation Project and Acoustical Improvements EIR**
  Prepared for the Los Angeles Philharmonic Orchestra and County of Los Angeles Chief Executive Office
  On August 20, 2002, the appellate court upheld the adequacy of the EIR. The project was completed in 2004 for the new season.

- **Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment State Implementation Plan EIR**
  Prepared for the Great Basin Unified Air Pollution Control District
  On July 28, 1998, the superior court upheld the adequacy of the EIR. The project has been successfully completed.

- **Frank G. Bonelli Regional Park Master Plan EIR**
  Prepared for the County of Los Angeles Department of Parks and Recreation
  On February 24, 1998, litigation was withdrawn as a result of a Negotiated Settlement Agreement.

- **Longden Reservoir No. 1, Van Nuys Reservoir, Van Nuys Booster Pump Station and 24-inch Parallel Pipeline Project EIR**
  Prepared for the San Gabriel County Water District
  On October 31, 1997, the superior court upheld the adequacy of the EIR. The project has been completed.

- **Deane Dana Friendship Community Regional County Park EIR**
  Prepared for County of Los Angeles Department of Parks and Recreation
  On November 15, 1996, the superior court of the County of Los Angeles ruled to deny writ of mandate.

- **Los Angeles International Airport Master Plan EIR/EIS**
  As a subcontractor to CDM and URS, Sapphos Environmental, Inc. prepared the biological resources, threatened and endangered species, and wetlands components of the EIR/EIS.
  In December 2005, litigation was withdrawn as a result of a Negotiated Settlement Agreement.

- **Symantec Office Development 800-900 Corporate Pointe EIR**
  Sapphos Environmental, Inc. worked in concert with Century Housing's legal team on the CEQA writ and mandate against the City of Culver City. Century Housing

received their requested mitigation as compensation as a result of a Negotiated Settlement Agreement.

- **EIR for Specific Plan for the Development of State Surplus Property and Amendment to the Redevelopment Plan for the Merged Chino Development Project Area**
  Prepared for the City of Chino and the State Department of Health Services.
  Litigation was withdrawn as a result of a Negotiated Settlement Agreement. Project construction initiated January 2005.

- **Hyundai Annexation, Detachment, Sphere of Influence, Amendment, Redevelopment Area Expansion, General Plan Update for the Automotive Test Course Project EIR**
  Prepared for the City of California City and Hyundai Motor America
  Defenders of Wildlife and the Center for Biological Diversity filed a lawsuit against the U.S. Fish and Wildlife Service over permits issued to Hyundai Motor Company and California City to build an automotive test track near California City. On February 27, 2004, the lawsuit was settled in favor of the project applicant as a result of a Settled Arbitration Agreement, Case Number CV04-01073TJH (AJMx).

***Regulatory Permitting***

Regulatory permitting has been undertaken by Ms. Campbell in support of a variety of infrastructure projects. Ms. Campbell served as the principal-in-charge, representing the City of Carson, in after-the-fact Section 404 permit from the U.S. Army Corps of Engineers, water quality certification with the Regional Water Quality Control Board, and Streambed Alteration Agreement with the California Department of Fish and Game for the Del Amo Boulevard overcrossing. Ms. Campbell prepared the Mitigation Plan Biological Assessment for the Proposed Erosion Protection Facilities for the Valencia Water Reclamation Plant Solids Processing Plant, Los Angeles County, California, for the County Sanitation Districts of Los Angeles County. Regulatory permitting included documentation for a Pre-discharge Notification for use of Nationwide Permit submitted to the U.S. Army Corps of Engineers (including formal consultation with the U.S. Fish and Wildlife Service), Streambed Alteration Agreement submitted to the California Department of Fish and Game), and Request for Waiver of Water Quality Certification to the Regional Water Quality Control Board. Similar efforts were undertaken for two projects for the Metropolitan Water District of Southern California, emergency pipeline repairs and recurring maintenance for the Box Springs Feeder Project, and emergency debris removal and routing channel maintenance for the Weldon Canyon Creek tributary to Bull Creek at the Jensen Filtration Plant.

***Hazards and Hazardous Materials***

Ms. Campbell has served as project coordinator for a number of high-profile projects involving redevelopment of closed landfill and active or closed petroleum extraction fields. Most recently, Ms. Campbell served as the project coordinator representing Memorial Health Services and the City of Long Beach in relation to the proposed redevelopment of the Long Beach Memorial Medical Center Campus. Ms. Campbell worked with the clients and the Department of Toxic Substances Control to negotiate a Voluntary Clean-up Agreement that provided for assessing the Campus as three operable units. Assessment of two of the operable units was successfully completed; the investigation of the third operable unit is ongoing. Ms. Campbell served in a similar capacity, representing Meritage Partners and the County of Los Angeles, in relation to the proposed

redevelopment of the closed Palos Verdes Landfill as a public golf course. Ms. Campbell has represented public agencies, including the Mountains Restoration and Conservation Authority, the County of Los Angeles, the County Sanitation Districts of Los Angeles County, and the City of Huntington Beach in the redevelopment of brownfield properties to accommodate public benefit land uses, including the Bosque del Rio Hondo community park, Kenneth Hahn Ballfield Complex, Puente Hills Landfill, and Huntington Regional Sports Complex.

***Resource Management***

Ms. Campbell has extensive experience conducting Section 7 consultations on behalf of federal agencies, including the U.S. Army Corps of Engineers, USDA Bureau of Land Management, and the USDOT Federal Aviation Administration, and USDOT Federal Highway Administration with the US Fish and Wildlife Service. Similarly, Ms. Campbell has overseen the negotiation and environmental documentation related to federal Section 10(a) permits and State 2081 permits for incidental take of endangered species. All these projects have involved the preparation and implementation of long-term habitat management and conservation plans:

- Long-term Habitat Management Plan for the Red Tail Golf and Equestrian Project
- Long-term Habitat Management Plan for Los Angeles Airport / El Segundo Dunes
- Lake Mathews Fire Management Plan, Riverside County, California
- Habitat Restoration Program for Palos Verdes Blue Butterfly at Deane Dana Friendship Community Regional County Park,
- Revegetation Plan in Support of the Bosque del Rio Hondo Project
- Habitat Restoration Program in Support of the Valencia Water Reclamation Plant Solids Processing Expansion Project
- Biological Assessment, Negotiated Settlement Agreement, and Biological Resources Evaluation for the East Orange General Plan Amendment EIR

***Construction Monitoring***

Numerous construction monitoring projects have been supervised by Ms. Campbell to ensure compliance with mitigation programs defined in environmental compliance documents and as part of regulatory permitting programs. She prepared a construction monitoring and wildlife relocation program for the Cascades Golf Course project. Previously, she served as the in-field supervisor for construction monitoring of the repair and rehabilitation of the Orange County Feeder Extension and Related Protective Improvements, Newport Back Bay, California. Construction monitoring was required to ensure compliance with permit conditions established by the U.S. Fish and Wildlife Services (California gnatcatcher), U.S. Army Corps of Engineers (Nationwide Permit), Regional Water Quality Control Board (Water Quality Certification), California Department of Fish and Game (Streambed Alteration Agreement), and California Coastal Commission (Coastal Development Permit).

**Professional History**

- Sapphos Environmental, Inc., Principal, October 1992–Present
- Michael Brandman Associates, Associate, Manager of Environmental Protection Services, 1989–1992
- U.S. Army Corps of Engineers, Environmental Protection Specialist, 1984–1989

- University of California at Los Angeles, Teaching Assistant / Research Analyst, 1982–1985

**Education**

- Master of Arts, Geography (Geomorphology/Biogeography), University of California, Los Angeles, 1988
- Bachelor of Arts, Ecosystems: Conservation of Natural Resources, University of California, Los Angeles, 1982

**Professional Affiliations**

- American Planning Association
- Association of Environmental Professionals
- Association of American Geographers
- UCLA Alumni Association

**Selected Publications**

Campbell, Marie. 1990. *Mitigation Monitoring AB 3180: The NEPA Perspective*. California Chapter of the American Planning Association. AB 3180 Revisited Workshops. March 16, 23, and 30, 1990.

Campbell, Marie. 1990. *Mitigation Monitoring AB 3180: The NEPA Perspective*. California Chapter of the American Planning Association. AB 3180 Revisited Workshops. March 16, 23, and 30, 1990.

Campbell, M.C. 1988. Rill Erosion in a Post-Burn Chaparral Environment. Unpublished master's thesis. Department of Geography, University of California, Los Angeles.

Mackey, Ellen, R. Green, B. Newby, D. Matis, J. Bradley, D. Karavidas, and M. Campbell. 11 August 1994. *Integrating Fire Management Plans and Conservation of Endangered Species*. Poster session. Ecological Society of America Conference, Knoxville, Tennessee.

Mackey, Ellen (Metropolitan Water District of Southern California, Los Angeles), and Marie C. Campbell (Sapphos Environmental, Inc., Pasadena, CA). 1995. *Using Integrated Pest Management Approach to Ensure Conservation of Endangered Species*. Ecological Society of America Conference, Snow.

**LAURA R. KAUFMAN, AICP**
**DIRECTOR OF ENVIRONMENTAL COMPLIANCE**

Ms. Kaufman is the Director of Environmental Compliance overseeing Sapphos Environmental, Inc.'s Environmental Assessment and Planning/GIS programs. Experienced in environmental assessment and planning, Ms. Kaufman has provided technical and administrative direction and management to a multitude of projects in both the public and private sectors. In particular, she has developed a well-balanced expertise in environmental compliance for development and re-development projects, specializing in California Environmental Quality Act and National Environmental Policy Act (CEQA/NEPA) compliance.

**Project Management and Oversight**

Ms. Kaufman has provided consulting services meeting the standards of a wide array of southern California city, regional, state, and federal agencies, and accepted by public and private sector legal counsel. Ms. Kaufman has provided CEQA/NEPA guidance for varied development teams on large, complex and controversial projects. Past projects for which she provided consulting services include the Pasadena Art Center Master Plan for the City of Pasadena; the Malibu Bay Company Development Agreement project for the City of Malibu (12 development sites in three separate geographic areas, evaluated by site, by geographic area and cumulatively), Douglas Ranch Planning Unit #5 for the City of Simi Valley; the East Branch Extension Project for the state Department of Water Resources, and several projects for the Port of Long Beach and Port of Los Angeles; the City of Coachella General Plan Update for the City of Coachella; JMBM's high rise office building (now MGM Plaza) in Century City for JMBM and the City of Los Angeles as lead agency; several redevelopment projects for the Community Redevelopment Agency of Los Angeles (CRA/LA); the Burbank Hydrogen Refueling Station for the City of Burbank, US DOE and BP; Devers Mirage Transmission Line/Substation Improvement Project EIR for the CPUC; Fogarty Substation Project Proponent's Environmental Assessment (EA) for Southern California Edison (SCE); Tosco Oil Tank and Pipeline Relocation Project and Tank Site Redevelopment Project for Tosco; several environmental consulting for industrial and energy-related projects (both in the preparer and peer review capacity) for the Port of Long Beach; and three Sand and Gravel Mining EIRs located in Grimes Canyon for the County of Ventura, among others. Ms. Kaufman has also prepared CEQA instructional materials as project manager for the City of Los Angeles CEQA Thresholds Guide.

Ms. Kaufman has prepared or overseen preparation of joint CEQA/NEPA documents for the Federal Emergency Management Agency (FEMA), U.S. Department of Veterans Affairs (VA), US. Department of Energy (DOE), and the Army Corps of Engineers (ACOE); served as consulting project manager for the City of Los Angeles Threshold Guide under direction from the Los Angeles Department of Environmental Affairs; has participated in long range general plan, community plan, and specific plan processes; and has provided development counseling regarding local government zoning and permitting requirements.

The following list is a sampling of Ms. Kaufman's project experience in various development sectors:

*Capital Improvement/Educational/Institutional*

- Martin Luther King, Jr. Medical Center Campus Redevelopment, Willowbrook, CA.
- County of Los Angeles Data Center, Downey, CA.

- Los Angeles Unified School District (LAUSD) 9th Street K-8 Span School Redevelopment, Los Angeles (City Center), CA.
- Art Center College of Design Development Master Plan EIR, Pasadena, CA.
- West Los Angeles College Master Plan EIR, Los Angeles, CA.
- Los Angeles Unified School District, Ambassador Hotel Conversion SEIR, Los Angeles, CA.
- VA Sepulveda Buildings Renovation (Veterans Housing) MND/EA, Los Angeles (Sepulveda), CA.

*Energy/Industrial*

- CPUC/SCE Devers Mirage Transmission Line/Substation Improvement Project MND. Palm Springs, CA.
- SCE Fogarty Substation Project PEA, Lake Elsinor, CA.
- Port of Long Beach On-call Master Services for CEQA/NEPA Peer Review (various projects including pier/terminal improvement projects, bridges, tank farm/storage facilities), Long Beach, CA.
- Port of Long Beach On-call Master Services for CEQA/NEPA Document Preparation (various projects including pier/terminal improvement projects, aggregate and cement import facilities, rail upgrades), Long Beach, CA.
- Port of Los Angeles On-call Master Services for CEQA/NEPA Document Preparation (various projects including pier/terminal modification/upgrades), Los Angeles, CA.
- Port of Los Angeles San Pedro Waterfront Economic Analysis, Los Angeles, CA.
- Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) EIR, SCAG region, Southern California, CA.
- Tosco Oil Tank and Pipeline Relocation Project and Tank Site Redevelopment Project Entitlement and CEQA counseling, Los Angeles County, CA.
- US DOE, BP, Chrysler & Burbank Hydrogen Fuel Station MND/EA, Burbank, CA.

*Water Resources*

- CA DWR Lake Perris Dam Renovation Project EIR/EIS, Perris, CA.
- Las Virgenes Municipal Water District (various CEQA projects, including recycled water pipeline extensions and pump stations, Unincorporated Los Angeles County, Calabasas and Los Angeles, CA.

*Plans/Planning/Entitlement Application/Sustainability*

- City of Coachella General Plan EIR, Coachella, CA.
- Port of Los Angeles Sustainability Plan, Los Angeles, CA.
- Port of Los Angeles Sustainability Plan, Los Angeles, CA. (noted above, as well)
- Baldwin Park Specific Plan and EIR, City of Baldwin Park, CA.
- Santa Clarita Valley Areawide General Plan and EIR, Unincorporated Los Angeles County, CA.
- County of Los Angeles Development Project Entitlement, Unincorporated Los Angeles County, CA.
- City of Los Angeles CEQA Threshold Guide, Los Angeles, CA.
- Holiday Harbor Courts Mixed Use Development Entitlement Applications and MND, Unincorporated Los Angeles County (Marina del Rey), CA.
- Oceana Retirement Facility Housing Project Entitlement Applications and MND, Unincorporated Los Angeles County (Marina del Rey), CA.
- *Community Development (Residential, Commercial, Parks)*
- Luxe Mixed Use Project (commercial/residential) MND, Los Angeles, CA.
- Andalusia Senior Housing Project MND, Los Angeles, CA.

- Caruso Burton Way Mixed Use Project (commercial/residential) MND, Los Angeles, CA.
- Palazzo Westwood Mixed Use Project (commercial/residential) EIR, Los Angeles (Westwood), CA.
- Constellation Place (MGM Tower) Office High-rise EIR, Los Angeles (Century City), CA.
- Sorensen County Park Gymnasium/Community Building Project EIR/EA.
- Agua Dulce Residential Project Supplemental EIR, No. LA County Unincorporated Area, CA.
- Bee Canyon Manufactured Housing Project EIR, No. LA County Unincorporated Area, CA.
- Rancho Malibu Hotel Project CEQA analysis, Malibu, CA.
- Malibu Bay Development Agreement Projects EIR, Malibu, CA.
- City of Los Angeles/US ACOE - Field of Dreams Ball Field MND/EA, Los Angeles (Bielensen Park), CA.
- Documentation for expert witness testimony (various projects, regarding environmental and planning factors affecting the valuation of land)

**Professional History**

- Sapphos Environmental, Inc., Director of Environmental Compliance (2009–Present)
- Environmental Science Associates (ESA), (Senior Director I) Director Community Development/Office Director Woodland Hills (2006-2009
- Envicom Corporation, Vice President and Director of Environmental Services (2000-2006)
- Christopher A Joseph & Associates (CAJA), Senior Project Manager (1999-2000)
- PCR Services Corporation, Project Manager/Principal Planner (1995-1999)
- Sikand Engineering, Project Manager (1988-1995)
- County of Los Angeles Department of Regional Planning, Associate Planner (1980-1987)

**Education**

- B.S., Social Science/Urban Planning, Michigan State University (1979)
- Attendance at Conferences or Seminars: AEP Conferences and Workshops, APA Conferences, UCLA Land Use Law Conference, CELSOC/ACEC and HAIC Events

**Professional Affiliations and Achievements**

- Member, American Planning Association (APA)
- Member, American Institute of Certified Planners (AICP)
- Member, Association of Environmental Professionals (AEP)
- Board Member, Los Angeles Chapter Association of Environmental Professionals (Channel Counties Chapter 2007, 2008) (Los Angeles County Chapter 2009, 2010)
- Moderator,.Advanced CEQA Workshop, Ventura, CA, 2008
- Evaluation Juror, California AEP statewide environmental document awards (2005, 2006)
- Lecturer for Los Angeles Chapter AEP for "California Environmental Quality Act (CEQA) Basics Workshop," 2009
- Member, Southern California Planning Congress

**LAURA A. WATSON, PhD**
**ENVIRONMENTAL COMPLIANCE SPECIALIST**

Dr. Laura Watson, environmental compliance specialist for Sapphos Environmental, Inc., holds a PhD in atmospheric chemistry, with an emphasis on computer modeling of urban air pollution. Dr. Watson also holds a master's degree in Chemistry and is a LEED Accredited Professional. Her experiences cover the broad areas of chemistry and environmental science, but her specialization is in air quality.

Since joining Sapphos Environmental, Inc., Dr. Watson has been involved in numerous California Environmental Quality Act (CEQA) projects. Most recently, she has been the project manager for a project that includes a data center facility and a specific plan for a 123-acre redevelopment project, including public participation, environmental impact report, and project-level air quality and greenhouse gas emissions technical analysis. Dr. Watson has also performed air quality impact analyses and prepared environmental documentation for several projects, including the proposed development of a 10-story courthouse building, a recreational facility, and a wind energy farm.

Before joining Sapphos Environmental, Inc., Dr. Watson served as a chemist for the South Coast Air Quality Management District (SCAQMD). Her responsibilities included preparing equipment for use at air quality monitoring stations throughout Southern California, using state-of-the-art laboratory techniques to quantify pollutants in air samples, and compiling and analyzing air quality data.

Dr. Watson focused her PhD thesis on the photochemical reactions that occur in the urban atmosphere to produce secondary pollutants, such as ozone. She developed an efficient code to describe gas-phase atmospheric reactions. This code has recently been implemented in several global atmospheric models that will be used for research purposes in the United Kingdom and the United States. Using dispersion modeling, Dr. Watson tracked the chemical evolution of air parcels traveling across the Atlantic Ocean and the European continent. In addition to her thesis and dissertation research, she also supervised undergraduate students, published several papers in scientific journals, and participated in conferences on air quality and global warming. For her undergraduate studies, Dr. Watson spent one year working in the research and development department of ICI Paints, developing water-based wood stain to comply with volatile organic compound (VOC) emission standards.

**Professional History**

- Sapphos Environmental, Inc., Environmental Compliance Analyst, 2008–present
- South Coast Air Quality Management District, 2008
- ICI Paints, 2002–2003

**Education**

- PhD, Atmospheric Chemistry, University of Bristol, Bristol, United Kingdom, 2008
- MS, Chemistry, University of Bristol, Bristol, United Kingdom, 2004

**Conferences/Workshops/Training**

- AEP Spring CEQA Workshop, Los Angeles, 2010
- Navigating the American Carbon World Conference, Santa Barbara, 2010
- Air & Waste Management Association's Specialty Conference: Guideline on Air Quality Models: Next Generation of Models, Raleigh, North Carolina, 2009
- Introduction to the CALPUFF Modeling System, Raleigh, North Carolina, 2009
- Introduction to AERMOD, Raleigh, North Carolina, 2009
- Navigating the American Carbon World Conference, San Diego, 2009
- International Seminar on Energy and Resource Productivity, Santa Barbara, 2008
- AEP CEQA Basics Workshop, Los Angeles, 2008
- One Planet Agriculture: Preparing for a post-peak oil food and farming future, Cardiff, Wales, 2007
- American Geophysical Union, Fall Meeting, San Francisco, 2005

**Publications**

- Watson, Laura. March 2009. *CEQA Approach to Addressing AB32*. Association of Environmental Professionals Interchange, Los Angeles, CA.
- Watson, L.A.; Shallcross, D.E.; Utembe, S.R.; Jenkin, M.E. 2008. "A Common Representative Intermediates (CRI) Mechanism for VOC Degradation. Part 2." In *Atmospheric Environment*, Volume 42, Issue 31, pp. 7196-7204.
- Watson, L.A. 2007. *Energy Efficiency and Production Elan Valley Case Study*. Soil Association, Bristol, UK.
- Watson, L.A.; Wang , K.Y.; Hamer, P.D.; Shallcross, D.E. 2006. "The Potential Impact of Biogenic Emissions of Isoprene on Urban Chemistry in the United Kingdom." In *Atmospheric Science Letters*, Volume 7, Issue 4, pp. 96-100.

**Professional Affiliations**

- Association of Environmental Professionals
- Leadership in Energy and Environmental Design (LEED) Accredited Professional
- Air and Waste Management Association

## EIMON RAOOF
## SENIOR ENVIRONMENTAL COMPLIANCE COORDINATOR

Ms. Eimon Raoof, senior environmental compliance coordinator at Sapphos Environmental, Inc., holds a master's degree in public policy from the University of Southern California. With more than five years of experience in the field of consulting, Ms. Raoof's experience has involved developing, evaluating, and implementing projects and plans that comply with local and national policies for both the private and public sector. Her work has included project management, environmental compliance assessments, and environmental and economic analysis for organizations in Southern California; New Haven, Connecticut; and Chicago, Illinois. Ms. Raoof has evaluated environmental events and policies as they relate to urban life and has considered methods to reduce undesired impacts. In addition, Ms. Raoof's efforts are supported by her bachelor of science degree in Environmental Engineering from Yale University. Ms. Raoof has conducted a significant amount of research pertaining to environmental compliance that has strengthened her work with environmental regulations, including the National Environmental Policy Act (NEPA), the California Environmental Quality Act (CEQA), and sustainable development.

Ms. Raoof currently serves as the Legislative Liaison for the Association of Environmental Professionals (AEP) Los Angeles Chapter board. Additionally, Ms. Raoof has collaborated with a team of consultants to develop a standards-setting environmental agenda for planning in the City of Los Angeles, specifically assessing current development practices and presenting advice on sustainable methods, standards, and implementation. Ms. Raoof has served as a liaison to various agencies during projects that required her to assess their compliance with state and national environmental policies and standards. Ms. Raoof has researched specific environmental areas of interest to contribute to programs and projects located throughout California. She has also led and provided additional support to staff conducting site assessments and evaluating potential opportunities for mediation, program, and site development.

Ms. Raoof's project management expertise and ability to plan, develop, and execute activities, and other agency events has led to the successful completion of a significant number of projects over the years. Currently, Ms. Raoof is the project manager for a wind energy project located in County of Kern, California, as well as for a project for the County of Los Angeles Department of Public works. Ms. Raoof has recently completed a project for the development of the Kroc Community Center in the City of Long Beach; a second wind energy project located in Kern County; and a school project located in Los Angeles, California. She has also successfully managed the evaluation of various project scenarios and site locations for various projects, including work with the Long Beach Memorial Medical Center and a redevelopment project for improvements at the Martin Luther King Jr. hospital facilities located in the Community of Willowbrook, in the County of Los Angeles, California. Ongoing projects in the County of Los Angeles and throughout Southern California are representative of Ms. Raoof's project management experience and have allowed her the opportunity to successfully coordinate interagency activities; complete costs analyses; write environmental, technical, and legal documents; perform environmental assessments; and continue to grow in her work and knowledge of the environmental compliance and consulting fields.

**Professional History**

- Sapphos Environmental, Inc., Environmental Compliance Coordinator, 2007–present
- Resource Opportunities Consulting, Consultant, 2007-2005
- Los Angeles Unified School District, Program Coordinator, 2004 – 2006

**Education**

- Master Public Policy, Environmental Policy, Economic Development, University of Southern California, 2007
- Bachelor of Science, Environmental Engineering, Yale University, 2004

**Conferences/Workshops/Training**

- U.S. Green Building Conference, Boston, MA, 2008
- Retrofitting Green, Los Angeles, CA, 2008
- Association of Environmental Professionals Advanced CEQA Workshop, Los Angeles, CA, 2008
- University of California Los Angeles Project Management Extended Learning Course, Pasadena, CA 2007
- U.S. Green Building Conference, Chicago, Il, 2007
- Association of Environmental Professionals CEQA Workshop and Advanced CEQA Workshop, Pasadena, CA 2007

**Professional Affiliations**

- Association of Environmental Professionals (AEP), Los Angeles Chapter Board Member, Legislative Liaison
- US Green Building Council(USGBC), Los Angeles Chapter, Member
- Western Center on Law and Poverty (WCLP), Advisory Board

**TONY BARRANDA**
**ENVIRONMENTAL SPECIALIST**

Mr. Tony Barranda is currently pursuing his PhD in Geography at UCLA, with concentrations in cultural, sociopolitical, and urban geography. He holds a master's degree in Geography, with an emphasis in transportation planning, environmental analysis, and architectural perception. Mr. Barranda is attempting to frame his dissertation around the reconfigured spatiality of the modern day airport terminal, using LAX as the basis for his research. He intends to investigate how the airport experience has changed given the heightened security measures after September 11 and to determine whether such measures have come to deter terrorist attacks and alter passenger perception of the terminal as a place. His knowledge and professional experience straddles the disciplines of geography, architecture and urban design, and urban planning. Mr. Barranda's role at Sapphos Environmental, Inc. is balanced between the preparation and the coordination of environmental compliance documents such as Environmental Impact Reports (EIRs), Mitigated Negative Declarations, Environmental Assessments, Initial Studies, and preparation of regulatory permits.

Since joining Sapphos Environmental, Inc., Mr. Barranda has been involved in numerous California Environmental Quality Act (CEQA) projects. Mr. Barranda's recent efforts as project manager have included projects for the 2008 Owens Valley $PM_{10}$ Planning Area Demonstration of Attainment State Implementation Plan, a Right-of-Way Grant for Wind Energy Development in San Bernardino County, an adaptive reuse for Descanso Gardens, and for an Addendum EIR for the Rancho Los Amigos Medical Center. He has also been involved in various projects including a proposed interpretive center for Vasquez Rocks Natural Area Park, a proposed County of Los Angeles Fire Station, Long Beach Memorial Center Miller Children's Hospital, and policy for Marina del Rey.

Prior to joining Sapphos Environmental, Inc., Mr. Barranda served as a teaching associate at UCLA and Arizona State University. His teaching experience includes both the physical and cultural fields of geography, especially issues of urbanization, community, demography and population, climatology, biogeography, and geology. He also served as book review editorial assistant for the academic journal *Ethics, Place, and Environment*. During his master's work, Mr. Barranda took an internship with the City of Phoenix, Water Services department, analyzing water and sewer coordinates to update the city's geographic information system (GIS) database. His master's thesis evaluated the architectural perceptions of the historic Art Deco District in Miami Beach, Florida, comparing architectural perceptions by residents and aesthetic practitioners working in the city. Mr. Barranda also had the opportunity to study the historical and geographic contexts of the British Landscape during his study abroad experience at the University of Oxford.

**Professional History**

- Sapphos Environmental, Inc., environmental specialist, 2006–present
- UCLA, undergraduate advisor, College of Letters and Science, 2005–2007
- UCLA, teaching associate, Department of Geography, 2004–2005
- UCLA, graduate research assistant and book review editorial assistant, 2003–2004
- Arizona State University, research and teaching assistant, Department of Geography, 2001–2003

**Education**

- PhD (in progress), Geography, University of California, Los Angeles, 2003–present
- MA, Geography, Arizona State University, Tempe, Arizona, 2001–2003
- BA, Geography and Psychology, University of Texas, Austin, Texas, 1996–2001

**Conference Presentations**

- Transgressing the Airport Terminal: Are We There Yet? Presented at the 101st Annual Meeting of the Association of American Geographers, Denver, Colorado, April 2005.

- Places of Remembrance: American Commemoration of the Jewish Holocaust. Presented at the 100th Annual Meeting of the Association of American Geographers, Philadelphia, Pennsylvania, March 15, 2004.

- Cracking the Architectural Codes of Miami Beach: Postmodern Space and Place. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4–8, 2003.

- A Regression Model of Passenger Boardings at Light-Rail Stations in the U.S. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4–8, 2003 (with M. Kuby and C. Upchurch).

- Combining Raster and Vector Data Models for Generating Mutually Exclusive Network-Based Service Areas. Presented at the 99th Annual Meeting of the Association of American Geographers, New Orleans, Louisiana, March 4-8, 2003 (with C. Upchurch, M. Kuby, and M. Zoldak).

- Stratified Architectural Preferences: Sense of Place in Miami Beach. Presented at the 4th Annual Graduate Earth, Life and Social Sciences Research Symposium, Arizona State University, February 2003.

**Professional Affiliations**

- Association of Environmental Professionals
- Association of American Geographers

**Publications**

- Kuby, M., A. Barranda, and C. Upchurch. 2004. A Regression Model of Passenger Boardings at Light-Rail Stations in the U.S. *Transportation Research Part A*, *38* (3): 223–247.

- Upchurch, C., M. Kuby, M. Zoldak, and A. Barranda. 2004. Using GIS to Generate Mutually Exclusive Service Areas Linking Travel on and off a Network. *Journal of Transport Geography*, *12*:23–33.

- Barranda, A. 2003. Essentials of Geography: Understanding Scale and Direction. *Introductory Physical Geography Laboratory Manual*, ed. E.M. Saffell. Plymouth, MI: Hayden-McNeil. 174 pp.

## *Stephanie W. Watt, MPP*

*MPP, Public Policy, University of California, Los Angeles, 2007*

*BA, Economics, University of California, Berkeley*

*Environmental Compliance Coordinator*

- *CEQA compliance assessment and document preparation for Fatal Flaw Analysis, Initial Study, Environmental Impact Report, Addendum Environmental Impact Report*
- *Environmental impact analysis*
- *Project initiation, management, coordination, and facilitation of project development*
- *Coordination and facilitation of project development and meetings with regulatory agencies*

*Years of Experience: 1.5*

*Relevant Experience:*

- *Applied policy analysis*
- *Knowledge in California carbon dioxide emission and alternative fuel policies*
- *Qualitative data collection*
- *Technical report writing in support of Alternative Fuel Vehicles in California*
- *Project planning and management*
- *Client management*

Ms. Stephanie Watt, environmental compliance coordinator for Sapphos Environmental, Inc., received her master's degree in public policy in 2007 from the University of California, Los Angeles. During her graduate studies, she developed an interest in sustainability, urban planning and design, ecology, and conservation. Sapphos Environmental, Inc. has allowed her to apply her skills of environmental and policy analysis, technical report writing, and project management, and has given her exposure to the complexities of environmental regulation.

While at Sapphos Environmental, Inc., Ms. Watt has supported the work efforts for the Vasquez Rocks Natural Area Park Interpretive Center project, with the incorporation of the Escondido Canyon Road–widening effort. Her larger project work efforts include contributing environmental analysis to the Environmental Impact Report for the Kroc Community Center, helping to prepare the Marina del Rey Affordable Housing Policy Handbook, and contributing analysis to the Pacific Wind Energy Project Initial Study. Most recently, Ms. Watt oversaw the preparation of an Addendum Environmental Impact Report for LA Plaza de Cultura y Artes and the Fatal Flaw Analysis for the Avalon I Wind Energy Project. She is currently overseeing the completion of the geology and hydrology technical reports for the Pacific Wind and Avalon I Wind Energy Projects. Her work across these projects also involved preparing visibility analyses for the various wind energy projects.

Prior to working at Sapphos Environmental, Inc., Ms. Watt's interest in "green" technology brought her to work at Larta Institute as a programs associate. There, she was responsible for management of the IP Review Panels program, which involved the coordination of technology-specific professionals to provide their review and analysis of university research aiming to be patented and entered into the mainstreamed market. Her primary duties included daily communication and scheduling with clients, familiarity with the IP technologies, coordination of written materials for the review panel meetings, coordination of completed reviews, and preparation of IP Review Panel meetings.

As the project lead for her master's thesis group project, Ms. Watt performed short-term and long-term planning and management over the project's eight-month duration, including coordination with team members, the client, and faculty advisors. Her primary responsibilities included research and study of California state regulations for carbon dioxide emission reductions and alternative fuel and alternative fuel vehicle support; data collection via interview from legislative, industry, and nonprofit representatives; project scheduling and planning of the policy problem, objectives, background information, data analysis, recommendations, and criteria for choosing alternatives; and report writing.

## *Donna M. Grotzinger, MS*

*Master of Science, Environmental Science and Engineering, Virginia Tech, 1984*

*Master of Education, Boston College, 2000*

*Bachelor of Science Biology, Gannon University, 1982*

*Senior Environmental Compliance Coordinator*

*Years of Experience: 10*

*Relevant Experience:*

- *Conduct remedial investigations and feasibility studies of hazardous waste sites*
- *Conduct predesign studies of contaminated groundwater*
- *Conduct subsurface investigations, including soil and groundwater sampling*
- *Historical records review of waste management and disposal activities*
- *Evaluation of water quality and hazards issues for CEQA and NEPA*
- *Perform postconstruction restoration assessment*

Ms. Donna Grotzinger, senior environmental compliance coordinator for Sapphos Environmental, Inc., has 10 years of experience in managing remedial investigations and feasibility studies at hazardous waste sites and in participating in environmental assessments and impact statements. Specifically, she has been involved with investigations of contamination at Superfund sites, in public-supply aquifers and former coal gasification facilities, feasibility studies for remedial action of groundwater contamination, and assessment of potential construction impacts on water quality.

Ms. Grotzinger has managed several remedial investigations at hazardous waste sites involving organic and inorganic contamination of surface and subsurface soils, surface water, and groundwater. She has been responsible for project planning with clients and federal, state, and local authorities; project scoping and development; preparation of proposals; work plans and reports; and coordination and supervision of project personnel, field activities, and subcontractors.

Ms. Grotzinger's responsibilities at Superfund sites span a wide range of activities, from project initiation to the final Record of Decision. Specifically, she has been accountable for initial project development for investigating groundwater contamination, management of soil and groundwater sampling activities and data analysis, risk assessment preparation, identification and evaluation of potential cleanup remedies, and client support for community relations and preparation of the Record of Decision. She also managed an enforcement oversight of Potentially Responsible Parties' remedial investigation and feasibility study activities and a predesign study of groundwater treatment. In addition to these federal projects, Ms. Grotzinger was responsible for oversight of subcontractors conducting remedial actions at two sites that involved removal of contaminated soils. She has also conducted a Phase I Environmental Site Assessment for a wind energy project in Kern County, California.

Ms. Grotzinger has provided technical support for preparation of environmental assessments and environmental impact statements for gas pipeline projects in the Northeast, Midwest, and Northwest, United States, providing an assessment of the impacts of natural gas pipeline installation on water resources. She has also conducted postconstruction visits to sensitive right-of-way areas to evaluate restoration progress. Ms. Grotzinger has provided technical evaluation of water quality and hazards impacts on several California Environmental Quality Act (CEQA) projects.

**CRISTINA V. YAMASAKI**
**TECHNICAL EDITOR**

Ms. Cristina Yamasaki earned a Bachelor of Arts degree in English from the University of California at Los Angeles (UCLA) in 2007 and has three years of editing and writing experience for both print and web-based media.

Prior to working at Sapphos Environmental, Inc., Ms. Yamasaki worked as the office manager for Pauley Pavilion at UCLA, where she produced a variety of documents, including memoranda, correspondences, notices, schedules, invoices, timesheets, and maintenance requests. In addition, she oversaw three student clerks and handled facility and personnel scheduling. In this capacity, Ms. Yamasaki became the primary person responsible for answering all editing and proofreading questions from office personnel.

Ms. Yamasaki's prior work also includes editorial internships at print and web-based publications based in El Segundo and North Hollywood, California, respectively. At these positions, Ms. Yamasaki researched and edited stories, reviewed products, and generated content for a web-based community. In addition, as an assistant editor for one installment in a series of print books, she was responsible for editing, proofreading, managing, and generating material. It was in these positions that she became familiar with the magazine and book publishing process, including web-based and print media.

Ms. Yamasaki also worked as a bilingual transcriber and technical editor at a UCLA research center focused on family life. There, she interpreted and transcribed discourse from more than 100 hours of video footage and produced technical documents used for a variety of university research purposes. Ms. Yamasaki oversaw the editing, proofreading, and formatting of bilingual text in line with precise technical specifications. Ms. Yamasaki is also a volunteer associate editor for the UCLA campus-based publication Bruin Business Review.

At Sapphos Environmental, Inc., Ms. Yamasaki verifies the accuracy and consistency of environmental technical reports and other materials for publication and distribution. Responsibilities include ensuring correct grammar and spelling, recasting sentences to ensure readability, formatting documents for consistency, incorporating comments made by project team members, and verifying content and references. She is familiar with the AP, MLA, and Chicago style guides. Her experience in earth and biological sciences includes university courses completed in geography, life sciences, oceanography, landscape architecture, and physics.

In addition, Ms. Yamasaki has worked on various projects as a technical editor while at Sapphos Environmental, Inc.: the proposed Vasquez Rocks Natural Area Park Interpretive Center project, which encompassed a large document consisting of more than 1,000 pages of text and high-quality graphics; the Addendum Environmental Impact Report for the LA Plaza de Cultura y Artes project in El Pueblo de Los Angeles Historic District; the proposed One Carter Avenue Project for the City of Sierra Madre, entailing a cultural resources construction monitoring report; and Initial Studies, Environmental Impact Reports, and other California Environmental Quality Act–related documentation for various projects, among others. Ms. Yamasaki has also edited and produced thousands of pages of documents, including, but not limited to, proposals and statements of qualifications, environmental documents, memoranda for the record, and monthly status reports, and has also coordinated the design and production of high-quality images and graphics.

**Professional History**

- Sapphos Environmental, Inc., Pasadena, California—Technical Editor
- Bruin Business Review, Los Angeles, California–Associate Editor
- UCLA Department of Recreation, Event Facilities Management Office, Los Angeles, California—Office Manager
- Savvy Miss, LLC, Los Angeles, California—Editorial Intern
- UCLA SLOAN Center on the Everyday Lives of Families, Los Angeles, California—Transcriber
- Better Nutrition Magazine / Vegetarian Times Magazine, El Segundo, California—Editorial Intern
- The Guide to Laughing Institute (Shawn Gold, Author), Los Angeles, California—Assistant Editor

**Education**

- BA, English, University of California, Los Angeles
- Professional Certificate in Copyediting, University of California, San Diego (in progress)

# Christine Safriet
## Senior Associate

**Education**
MBA, Anderson School at the University of California, Los Angeles
MA, Urban Planning, University of California, Los Angeles
BS, Geophysics, Boston College

**Affiliations**
Member, Urban Land Institute
Member, American Planning Association

**Lectures + Instruction**
Adjunct Faculty, SCIARC Urban Futures Initiative, Geographic Information Systems, 2008-present

**Professional History**
2006 – Present
Economics at AECOM
(formerly Economics Research Associates or ERA)

Christine Safriet provides real estate and urban planning consulting services to both private industry and public sector clients. Her work focuses on analyzing market support and determining the feasibility of real estate projects, as well as quantifying the fiscal and economic impacts of such projects. She is skilled in the use of mapping technology to analyze spatial and temporal changes in land use and demographics.

Ms. Safriet is a core member of the Geographic Information Systems (GIS) team in the Economics Practice at AECOM, and has wide experience in optimizing GIS applications for land use economics analysis.

**Select Project Experience**

**Fiscal and Economic Impacts of Proposed Solar Farm, Unincorporated Imperial County**
*Fiscal & economic impact analysis of proposed solar facility on Imperial County (2010)*

The Economics practice at AECOM was retained by a confidential client to provide net fiscal analysis of a proposed 50 megawatt, 320-acre photovoltaic solar farm on the Imperial County General Fund and select special revenue funds (fire, police). In addition, we estimated the economic impacts of annual facility operations and one-time construction to the regional economy. Christine served as the project manager for this analysis and worked closely with Amitabh Barthakur and Lance Harris, key members of the project team.

**On-Call Peer Review Services, Sarasota County, Florida**
*Peer review of numerous fiscal neutrality impact analyses for Sarasota County Government (2009 & 2010)*

The Economics practice at AECOM has been retained on an on-call basis by the Sarasota County Planning Department to provide statutorily-required peer reviews of fiscal neutrality reports (fiscal impact analyses) provided by private developers as part of the development review process. Christine has served as the project manager for three fiscal neutrality reviews provided in 2009 and 2010, for projects ranging in size from 500 to 2500 residential units, with additional hotel, retail, and commercial office components. For each peer review, AECOM reviews the developer's fiscal neutrality report and analysis and provides a memorandum presenting our observations and comments on issues related to methodology and assumptions, and how those issues may impact the analytical outcomes.

**Economic Impact of USC , City of Los Angeles, CA**
*Impact analysis of programs and operations at University of Southern California on regional economy, 2006 baseline and 2008 update*

In 2006, we were retained by University of Southern California to develop a baseline analysis of the direct, indirect, and induced economic impacts of activities at USC based on four core sets of activities and agents: students, visitors, general Universtiy operations, and capital expenditures. The analysis was published online and widely distributed to funders, local and regional politicians, and others to demonstrate the impact of the University in theon the local economy. In 2008, the University re-engaged us to complete a two-year update of economic impacts and provide a comparison to the earlier report.

**Fiscal and Economic Impacts of Proposed NFL Stadium, Confidential Location**
*Economic & fiscal impact of proposed NFL stadium on host city and other local municipalities*

We were retained by a confidential client to conduct economic and fiscal impact analyses of a proposed NFL stadium and surrounding mixed-use development on approximately 600 acres of undeveloped land in a large metropolitan area. The stadium facility is proposed as part of a larger, master-planned development that will include retail and office space and an entertainment complex. We analyzed the economic and fiscal impacts of the master plan program on the host city and surrounding municipalities under a regular season scenario and a Super Bowl scenario. The results were also compared to the impacts of the original master plan for the site, which did not include stadium uses.

**Land Swap Valuation Matrix, City of Chula Vista, CA**
*Analysis of the incremental value of land use options at varying densities to inform pricing for a land swap between the City and private developers*

We estimated the economic value of potential land-use entitlement allocations in order to assist the City of Chula Vista in evaluating a land acquisition strategy for the University Park and Research Center by entering into a land swap and/or land dedication arrangement with private landowners in exchange for potentially higher value entitlements. In the course of this assignment, we examined land market and residential sales to benchmark the relationship between use/density and values; analyzed the potential impact of land use category changes from non-residential to residential; and analyzed the incremental value impacts from density changes under alternative scenarios for the University area.

**Laguna Caren Master Plan, Santiago, Chile**
*Market feasibility analysis and financial performance estimates for 1,800-acre mixed use master plan development*

The 1,800 acre Laguna Caren site, located on the outskirts of western Santiago, is currently undeveloped grassland with several lakes and streams running from the foothills. The site is controlled by a local university

via a permanent land lease from the government, and will be developed through a public/private partnership. Overall project components will include a university campus, office, retail, entertainment, and residential land uses.

We were sought out by the private developer partner and design team (project team) to assess market demand for a wide variety of potential land uses. Our results informed the development of a market-based program for the master plan, with appropriate density and product positioning to support active use. Based on our recommendation, the project will be anchored by two recreational components (a waterpark and amphitheater) and an outlet retail center. In phase 2 of the study, we were brought back to analyze the financial performance of the master plan in order to confirm the sizing and product mix for presentation to the University and other investment partners.

**Economic Strategy for Los Angeles State Historic Park (Cornfields), City of Los Angeles, CA**
*Market support, attendance projections, and governance options for the Los Angeles State Historic Park*

ERA conducted a comprehensive market and comparable facilities review for the Los Angeles State Historic Park (also known as the Cornfields) in downtown Los Angeles. In conjunction with a physical plan provided by the park architect and a set of core values provided by the CA Department of Parks and Recreation, ERA developed park attendance projections, estimated earned revenue capacity and operating expenditures, and developed strategic options for the park's governance structure.

# *SECTION 12.0*
# *CLARIFICATIONS AND REVISIONS TO THE DRAFT ENVIRONMENTAL IMPACT REPORT*

## 12.1 NOTE TO READER

Section 12.0 consists of clarifications and revisions to the Draft Environmental Impact Report (EIR) that have resulted from responses to comments received from agencies and the public. All clarifications and revisions to the Draft EIR were made to increase the understanding of the EIR. The Draft EIR was released for a 45-day public review period between June 2, 2010, and July 16, 2010. The County of Los Angeles received 11 letters of comment on the Draft EIR and a petition including over 1,800 signatures urging the County to ban plastic carryout bags.

## 12.2 CLARIFICATIONS AND REVISIONS

### *VOLUME I DRAFT ENVIRONMENTAL IMPACT REPORT*

**TABLE OF CONTENTS**

**Page i**

The title of Section 2.2.4 has been revised to read

Carryout Bag Bans and Fees

An additional subsection has been added

2.2.6 Assembly Bill 1998

**Page iii**

The following sections have been added:

4.2.6 Alternative 5: Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County
- 4.2.6.1 Alternative Components
- 4.2.6.2 Objectives and Feasibility
- 4.2.6.3 Comparative Impacts

Section 4.3 of the EIR has been renumbered as follows:

4.4 Environmentally Superior Alternative

## SECTION ES EXECUTIVE SUMMARY

### ES.3 AREAS OF KNOWN CONTROVERSY

**Page ES-2**

The second sentence in the paragraph under compostable bags has been revised as follows:

> However, the proposed ordinances include a ban on the issuance of compostable and biodegradable bags due to the lack of commercial composting facilities in the County that would be needed to process compostable plastic carryout bags,[1] and also due to the availability of evidence supporting the conclusion that oxo-biodegradable plastic bags do not result in benefits to the environment compared with standard plastic bags.[2,3,4,5]

The fifth sentence of the paragraph under public health impacts has been revised to include two additional footnotes:

> Commentators do note that the health risks, if any, from reusable bags can be minimized if the consumer takes appropriate steps, such as washing and disinfecting the bags, using them only for groceries and using separate bags for raw meat products, being careful with where they are stored, and allowing bags to dry before folding and storing.[6,7,8]

**Page ES-5**

The last sentence in the paragraph under Table ES.5-1 has been revised as follows:

> Six alternatives to the proposed ordinances required under CEQA have been carried forward for detailed analysis in this EIR:

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[1] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[2] Loughborough University. January 2010. *Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle*. London, UK. Available at: http://randd.defra.gov.uk/Document.aspx?Document=EV0422_8858_FRP.pdf Prepared for the Department for Environment, Food, and Rural Affairs.

[3] European Plastic Recyclers. 10 June 2009. *Press Release: Oxo Degradable Additives are Incompatible with Mechanical Recycling*. Brussels, Belgium. Available at: http://www.plasticsrecyclers.eu/docs/press%20release/EuPR%20Press%20Release%20-%20OXO%20Degradables%20Incompatibility%20with%20Plastics%20Recycling.pdf

[4] Pearce, Fred. 18 June 2009. "Biodegradable plastic bags carry more ecological harm than good." Available at: http://www.guardian.co.uk/environment/cif-green/2009/jun/18/greenwash-biodegradeable-plastic-bags

[5] California Integrated Waste Management Board. June 2007. Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Food Service Ware - Final Report Available at: http://www.calrecycle.ca.gov/Publications/Plastics/43208001.pdf

[6] Dragan, James, County of Los Angeles, Department of Public Health, Los Angeles, CA. 17 March 2010 to 9 April 2010. E-mail correspondence with Nilda Gemeniano, County of Los Angeles, Department of Public Works, Alhambra, CA.

[7] Health Canada. 10 August 2010 (Last modified). "Food Safety Tips for Reusable Grocery Bags and Bins." Web site. Available at: http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/reusable-bags-sacs-reutilisable-eng.php

[8] Gerba, C. *et. al*. 9 June 2010. *Assessment of the Potential for Cross Contamination of Food Products by Reusable Shopping Bags*.

One additional bullet point has been added under the first paragraph under Table ES.5-1:

- Alternative 5, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

The third, fourth, fifth, and sixth sentences of the last paragraph on this page have been deleted and replaced with the following:

> Alternatives 1, 2, 3, 4, and 5 would meet all of the basic objectives established by the County for the proposed ordinances. Alternatives 3, 4, and 5 would result in additional benefits to biological resources due to reduced consumption of plastic carryout bags. As with the proposed ordinances, and considering that the County is attempting to evaluate the impacts resulting from paper carryout bags from a conservative worst-case scenario, Alternative 3 may have the potential to result in cumulatively considerable impacts to GHG emissions because it would not place any limitation on the issuance of paper carryout bags. Alternatives 2 and 5 would be expected to reduce consumption of paper carryout bags through implementation of a fee. Unlike the proposed ordinances, Alternatives 1 and 4 would not result be expected to result in any increase in the consumption of paper carryout bags.

## SECTION 1.0 INTRODUCTION

**Page 1-2**

The last sentence of the paragraph beneath the bullet points has been revised to read:

> A total of seven comment letters were received in response to the NOP and Initial Study (Appendix D).

## SECTION 2.0 PROJECT DESCRIPTION

**Page 2-1**

Footnote 4 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

### 2.2.1 Contribution of Plastic Carryout Bags to Litter Stream

**Page 2-2**

The following sentences have been added to the end of the first paragraph in this section:

> For 2008–2009, the most recent year available, the County of Los Angeles Flood Control District spent over $24 million on these activities ($1.9 million on maintenance of structural and treatment control BMPs, $9.3 million on municipal street cleaning, $1.9 million on catch basin cleaning, $9.6 million on trash collection and recycling, and $1.3 million on capital costs).[9] The County of Los Angeles has obtained survey data from employees at solid waste facilities within the County that conclusively indicate that plastic carryout bags pose serious operational problems for landfills.[10] All six survey respondents stated that plastic bags cause serious litter issues due to their lightweight nature and propensity to become airborne.[11] Each survey respondent indicated that it was costly and time consuming to provide clean-up crews to address the plastic bag litter problem in neighborhoods in County unincorporated and incorporated areas adjacent to the landfills.[12]

### 2.2.2.3 Key Findings of the LACDPW Report

**Page 2-4**

The second item in the list in this section has been revised as follows:

> Compostable carryout bags are not a practical solution to this issue in Los Angeles County because there are no local commercial composting facilities able to process compostable carryout bags at this time.

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[9] Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2009. Available at: http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2009/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/Principal%20Permittee%20Annual%20Report.pdf

[10] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

[11] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

[12] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

### 2.2.3 Definitions

**Page 2-4**

Under the first bullet point in this section, the definition of a reusable bag has been revised to read:

- *Reusable bag(s):* 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; (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.

Under the second bullet point in this section, the definition of a paper carryout bag has been revised to read:

- *Paper carryout bag(s)*: a carryout bag made of paper that is provided by a store to a customer at the point of sale and can contain some percentage of post-consumer recycled content. Can be interchangeably referred to as a recyclable paper carryout bag.

Under the third bullet point in this section, the definition of a plastic carryout bag has been revised to read:

- *Plastic carryout bag(s)*: 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.

The fourth bullet point in this section has been deleted, as all types of compostable plastic carryout bags are included in the revised definition of a plastic carryout bag.

**Page 2-5**

Under the first bullet point at the top of this page, the definition of a recyclable paper bag has been revised to read as follows:

- *Recyclable paper carryout bag(s)*: a paper bag 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.

### 2.2.4 Single Use Bag Bans and Fees

**Page 2-5**

The title of Section 2.2.4 has been revised to read:

Carryout Bag Bans and Fees

The first paragraph of Section 2.2.4 has been revised to read as follows:

The State of California considered placing a ban on the issuance of plastic carryout bags under Assembly Bill (AB) 1998. There are currently four city and county governments in California that have imposed bans on plastic carryout bags: City and County of San Francisco, City of Malibu, City of Palo Alto, and Town of Fairfax. Fremont, California is also reconsidering banning single use plastic bags two years after rejecting a similar measure. In addition, there is a plastic carryout bag fee ordinance in effect in the District of Columbia, and Marshall County, Iowa has banned the use of plastic carryout bags. Telluride, Colorado has also voted to ban plastic carryout bags.

An additional subsection has been added under the first paragraph in this section to discuss Assembly Bill 1998:

***Assembly Bill 1998***

AB 1998 was introduced in February 2010 to prohibit convenience food stores, food marts, and certain specified stores in California from providing plastic carryout bags to customers. Initially, the bill would have required a store, beginning on July 1, 2011, to provide only reusable bags, as defined, or to make recycled paper bags available for sale at a cost not less than $0.25. AB 1998 would have preempted local regulations on the use and sales of reusable bags, plastic carryout bags, and recycled paper bags. AB 1998 underwent revisions throughout the legislative process that changed certain provisions in the bill, including changing the $0.25 fee to the actual average cost of the recycled paper bag provided to the consumer, rounded to the nearest penny.[13] Supporters of the bill included Californians Against Waste, Heal the Bay, California Grocers Association, California League of Conservation Voters, over 20+ cities in California, Communities for a Better Environment, the County of Los Angeles and five other California counties, Environment California, certain paper and plastic bag manufacturers, and a number of other environmental, business, and commerce groups.[14] Opposers of AB 1998 included the American Chemistry Council (ACC), and two plastic bag manufacturers—Crown Poly, Inc. and Command Packaging— who sued the County of Los Angeles over its voluntary Single

[13] Assembly Bill No. 1998. Amended in Senate August 27, 2010. Available at: http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_1951-2000/ab_1998_bill_20100827_amended_sen_v94.pdf

[14] Californians Against Waste. Accessed October 19, 2010. AB 1998 (Brownley) – Plastic Bag Ban. Available at: http://www.cawrecycles.org/issues/current_legislation/ab1998_10

Use Bag Reduction and Recycling Program as part of the Save the Plastic Bag Coalition. In August 2010, the ACC, Exxon, and a South Carolina-based bag manufacturer, Hilex Poly Co., made a series of campaign donations to certain California lawmakers.[15] Hilex Poly Co. also gave $10,000 to the Democratic State Central Committee of California on August 5, 2010. The next day, Exxon gave the Republican Party $10,000, among other donations it made. However, AB 1998 failed to achieve the number of votes required to pass the State Senate on August 31, 2010, and is currently no longer under consideration in California. Possibly worried that the bill may be resurrected in the future, plastic bag makers contributed campaign donations to California legislators into late October 2010.[16]

***City and County of San Francisco***

**Page 2-6**

An additional sentence has been added to the end of the first paragraph on this page:

San Francisco has not noted any adverse environmental impacts due to paper carryout bag manufacturing because there are no paper carryout bag manufacturing facilities located in San Francisco.

The following subsections have been added after the last paragraph on this page:

**Town of Fairfax**

The Town of Fairfax, pursuant to Ordinance No. 722, requires that all stores, shops, eating places and retail food vendors, as defined, shall provide only recyclable paper bags, reusable bags, or compostable plastic bags, as checkout bags to customers at the point of sale.[17] With respect to compostable plastic bags, "Because of the ongoing threat that compostable plastic bags pose to marine life, the permitted continued use of compostable plastic bags under Section 4 (a) shall be terminated by operation of law, three years from the date of passage of this ordinance."[18]

**City of Fremont**

Over two years since rejecting a similar measure, the City Council of Fremont, California, is reconsidering a ban or a fee on the issuance of plastic carryout bags.[19]

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[15] The Sacramento Bee. August 26, 2010. Plastic-bag backers donate to California lawmakers ahead of bill's vote. Available at: http://www.sacbee.com/2010/08/26/2983643/plastic-bag-backers-donate-to.html

[16] The Sacramento Bee. October 22, 2010. Plastic-bag maker dumps cash on parties, attacks Blakeslee. Available at: http://blogs.sacbee.com/capitolalertlatest/2010/10/plastic-bag-fight-big-company.html?commentSort=RecommendationsDescending&pageNum=1

[17] Town of Fairfax. Ordinance No. 722, Section 18.18.080. August 1, 2007. Available at: http://www.stopwaste.org/docs/fairfax_plastic_bag_ordinance.pdf

[18] Town of Fairfax. Ordinance No. 722. August 1, 2007. Available at: http://www.stopwaste.org/docs/fairfax_plastic_bag_ordinance.pdf

[19] Oakland Tribune. October 8, 2010. Fremont again will consider banning plastic grovery bags. Available at: http://www.insidebayarea.com/news/ci_16281639

**Page 2-7**

The following subsections have been added after the third paragraph on this page:

**County of Marshall, Iowa**

The County of Marshall, pursuant to its Plastic Bag Reduction Ordinance, requires all retail or wholesale stores, as defined, to provide only the following types of checkout bags to customers: recyclable paper bags, and/or compostable plastic bags, and/or reusable bags.

**City of Telluride, Colorado**

In October, 2010, Telluride became the first city in Colorado to ban the issuance of plastic carryout bags by grocers and other retailers.[20] The law will become effective on March 1, 2011, and will not apply to certain types of bags such as bags used for bulk items, prescription drugs, newspapers, and produce bags used for meat and vegetables within a store.

***Efforts outside the United States***

*Ireland*

**Page 2-7**

The third sentence of this paragraph has been revised to read:

The PlasTax applies to all plastic carryout bags, including biodegradable polymer bags.

*Australia*

**Page 2-8**

The first sentence of this paragraph has been revised to read:

Retailers support plastic carryout bag reductions via a voluntary "Retailers Code."

The following subsection has been added after the paragraph discussing plastic carryout bag reductions in Taiwan:

**American Samoa**

American Samoa was the first US Territory to ban plastic shopping bags. The law, signed by Governor Togiola Tulafono, takes effect February 23, 2011. According to Jared Blumenfeld, the EPA's Regional Administrator for the Pacific Southwest, "We welcome American Samoa's leadership in the Pacific islands to ban plastic shopping bags. This action will decrease the amount of plastic waste in the territory and directly protect marine

[20] USA Today. October 8, 2010. Another US city bans plastic shopping bags. Available at: http://content.usatoday.com/communities/greenhouse/post/2010/10/another-us-city-bans-plastic-shopping-bags/1

and bird life in the Pacific."[21] The USEPA notes that other countries that have banned free plastic bags include China, Bangladesh, Australia, Italy, South Africa, Ireland, and Taiwan.

### 2.2.5 Litigation History

***Save the Plastic Bag Coalition vs. Los Angeles County***

**Page 2-10**

The penultimate sentence in the first paragraph on this page has been revised to read:

> In reaching this conclusion, the Superior Court noted that the January 22, 2008, Board of Supervisors action approved creation of the framework for a voluntary program for plastic carryout bag reduction and recycling that had voluntary goals, and directed that an ordinance banning the issuance of plastic carryout bags be drafted subject to certain contingencies, including completion of any necessary environmental review under CEQA.

***Save the Plastic Bag Coalition vs. City of San Jose***

**Page 2-11**

The second sentence in the second paragraph on this page has been revised as follows:

> On June 7, 2010, the City of Santa Monica issued its Draft EIR, and the public comment period closed on July 22, 2010.

The third, fourth, and fifth sentences of the paragraph that begins at the bottom of page 2-11 have been deleted and replaced with the following:

> On October 22, 2009, the City of San Jose issued a Notice of Preparation of a Draft EIR for the proposed plastic carryout bag ordinance, and in July 2010, the City of San Jose issued a Draft EIR for the proposed plastic carryout bag ordinance.

### 2.3.1 Plastic Carryout Bags

**Page 2-12**

Three additional footnotes have been added at the end of the second sentence in this section:

> Since then, plastic carryout bags have been found to contribute substantially to the litter stream and to have adverse effects on marine wildlife.[22,23,24,25,26,27]

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[21] United States Environmental Protection Agency. September 30, 2010. U.S. EPA applauds American Samoa's decision to ban plastic shopping bags. Available at: http://yosemite.epa.gov/opa/admpress.nsf/0/921A87D72D9AAFC1852577AE007394F1

[22] United Nations Environment Programme. April 2009. *Marine Litter: A Global Challenge*. Nairobi, Kenya. Available at : http://www.unep.org/regionalseas/marinelitter/publications/docs/Marine_Litter_A_Global_Challenge.pdf

[23] California Integrated Waste Management Board. 12 June 2007. Board Meeting Agenda, Resolution: Agenda Item 14. Sacramento, CA.

[24] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of*

The following sentence has been added after the fourth sentence in this paragraph.

> County of Los Angeles Flood Control District staff have photographed carryout bags in the catch basins and storm drains.[28]

A reference has been added after the fifth sentence in this paragraph:

> …quality of life for County residents and visitors.[29]

### 2.3.2 Paper Bags

**Page 2-14**

The following sentences have been added before the final sentence in this paragraph:

> The County currently has an education outreach program for curbside recycling, which includes paper carryout bags.[30] There is nearly universal access to curbside recycling throughout the County, where paper bags can be recycled by homeowners conveniently. The paper used to make standard paper carryout bags is originally derived from wood pulp, which is a naturally biodegradable and compostable material.

The following sentences have been added after the final sentence in this paragraph:

> The brown paper bags commonly found at supermarkets are made from Kraft paper.[31] It also appears that the paper carryout bags currently used by stores in the County are made of at least 40 percent post-consumer recycled content.[32]

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*Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[25] Bjorndal, K. *et. al*. 1994. "Ingestion of marine debris by juvenile sea turtles in coastal Florida habitats." *Marine Pollution Bulletin, 28* (3). Available at: http://accstr.ufl.edu/publications/BjorndalEtAl_1994_IngestionOfMarineDebrisByJuvenileSeaTurtlesInCostalFlorida.pdf

[26] Okeanos Ocean Research Foundation. 1989. *Marine Mammal and Sea Turtle Encounters with Marine Debris in the New York Bight and the Northeast Atlantic*. Available at: http://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-154_P562.PDF

[27] Gomerčić, H. et. al. *European Journal of Wildlife Research*. 2006. "Biological aspects of Cuvier's beaked whale (*Ziphius cavirostris*) recorded in the Croation part of the Adriatic Sea." DOI 10.1007/s10344-006-0032-8

[28] County of Los Angeles. 2010. Photographs of Catch Basins in Los Angeles County provided to Sapphos Environmental, Inc. by the County of Los Angeles Flood Control District. Available for viewing at Sapphos Environmental, Inc. Headquarters, Pasadena, CA.

[29] Keep America Beautiful. Accessed October 19, 2010. Litter Prevention. Available at: http://www.kab.org/site/PageServer?pagename=focus_litter_prevention

[30] County of Los Angeles Department of Public Works. Accessed October 12, 2010. Outreach Programs. Web sites available at: http://dpw.lacounty.gov/epd/recycling/outreach.cfm and http://dpw.lacounty.gov/epd/recycling/crm.cfm

[31] American Forest and Paper Association. Accessed October 25, 2010. Web site. Facts about Paper. Available at: http://www.afandpa.org/FunFacts.aspx

[32] Perez, David. County of Los Angeles, Department of Public Works. October 30, 2008. Email Correspondence; Paper Bag Distribution – Field Survey Summary - On file at Sapphos Environmental, Inc. Pasadena, CA.

### 2.3.3 Reusable Bags

**Page 2-15**

Footnote 92 has been revised to read as follows:

> Reusable bag manufacturers in the United States are expected to enforce industry standards and recommendations to reduce adverse environmental impacts.

### 2.3.4 Voluntary Single Use Bag Reduction and Recycling Program

**Page 2-16**

The following paragraph has been added to the bottom of this page:

> Since that time, the County Working Group found that the program was not successful in achieving its goals. Over a two-year period and despite State law, stores in the unincorporated area did not provide data that would enable County staff to determine if the voluntary Program benchmark of 30 percent disposal reduction of plastic bags had been met. Furthermore, although the public education and outreach aspects of the Program, including the successful Brag About Your Bag Campaign®, were effective in raising awareness of the environmental impacts of carryout bags and the benefits of reusable bags, this awareness did not translate into a shift in consumer behavior that was significant enough to address the major objectives of the County.[33]

## 2.5 PROPOSED PROJECT

**Page 2-19**

The second sentence of the third paragraph on this page has been deleted.

The third sentence of the third paragraph on this page has been revised to read:

> If the County chooses to expand the scope of the proposed ordinance, it may recommend that the 88 incorporated cities of the County consider the same in any proposed ordinances.

## 2.7 ORDINANCE ALTERNATIVES

The second and third sentences in the first paragraph on this page have been revised as follows:

> A total of six project alternatives were evaluated for the proposed ordinances. The No Project Alternative, which is required by the State CEQA Guidelines, was assessed and all six alternatives have been carried forward for detailed analysis in this EIR. The six alternatives to the proposed ordinances are as follows:

[33] County of Los Angeles Chief Executive Office. August 5, 2010. Single Use Bag Reduction and Recycling Program and Expanded Polystyrene Food Containers – Final Quarterly Progress Report. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/BoardLetters/bdls_080510_bagrpt10.pdf

One additional bullet point has been added to the end of the list in this section:

- Alternative 5, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for all Supermarkets and Other Grocery Stores, Convenience Stores, and Pharmacies and Drug Stores in Los Angeles County

## SECTION 3.0 EXISTING CONDITIONS, IMPACTS, MITIGATION, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

## 3.1 AIR QUALITY

### 3.1.1 Regulatory Framework

**Page 3.1-4**

The following subsection has been added under the third paragraph on this page:

*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 require the USEPA 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 any criteria pollutant or hazardous air pollutant 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 Requirement, accessed March 2010). 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.

The following subsections have been added after the final paragraph on this page.

*On-road Heavy-duty Diesel Vehicles (In-use) Regulation*

On December 12, 2008, the CARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles operating in California. The regulation requires affected trucks and buses to meet performance requirements between 2011 and 2023. 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. All diesel trucks making deliveries of carryout bags in California would be required to adhere to this regulation.

*Diesel-fueled Commercial Motor Vehicle Idling Limit*

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. 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 engine when idling more than five

minutes at any location within California beginning in 2008. All trucks making deliveries in the County of Los Angeles would be required to comply with the no-idling requirements.

**Page 3.1-5**

The following paragraph has been added after the fourth paragraph on this page:

> SCAQMD requires 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 emission controls meet the need for the South Coast Region to make steady progress toward achieving and maintaining federal and state air quality standards. Permits also ensure proper operation of control devices, establish recordkeeping and reporting mechanisms, limit toxic emissions, and control dust or odors. In addition, the SCAQMD routinely inspect operating facilities to verify that equipment has been built and installed as required by the, and to confirm that the equipment operates in compliance with SCAQMD rules and regulations.

The following sentence has been added to the end of the fifth paragraph on this page:

> AVAQMD also requires 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.

### 3.1.4 Impact Analysis

*Indirect Emissions Based on Life Cycle Assessments*

**Page 3.1-14**

The third sentence in the first paragraph on this page has been deleted to remove the reference to the CIT Ekologik study.

The last two sentences of the second paragraph on this page have been deleted and replaced by the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[34] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

[34] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**Page 3.1-19**

The last two sentences on this page have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[35] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 3.1-25**

The following paragraph has been added under the second paragraph on this page:

> Further, recent revisions to CEQA and the CEQA Guidelines discuss the speculative nature of lifecycle analysis, especially for GHGs, and note generally that:
>
> > No existing regulatory definition of "lifecycle" exists....Moreover, even if a standard definition of the term "lifecycle" existed, requiring such an analysis may not be consistent with CEQA. As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in section 15358 of the State CEQA Guidelines. Depending on the circumstances of a particular project, an example of such emissions could be those resulting from the manufacture of building materials.[36] CEQA only requires analysis of impacts that are directly or indirectly attributable to the project under consideration (State CEQA Guidelines, § 15064(d).) In some instances, materials may be manufactured for many different projects as a result of general market demand, regardless of whether one particular project proceeds. Thus, such emissions may not be "caused by" the project under consideration.[37]

[35] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[36] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[37] California Natural Resources Agency. December 2009. Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. Available at: http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf

## 3.2 BIOLOGICAL RESOURCES

**Page 3.2-2**

The following sentences have been added to the end of the second paragraph on this page:

> Plastic fragments and plastic resin pellets that are used in the manufacturing process of plastic products can serve as vehicles for persistent organic pollutants such as PCB and DDT, which have the potential to cause adverse impacts to biological resources upon ingestion.[38,39,40] Ingestion of plastic fragments can also lead to internal blockages and toxic poisoning.[41]

### 3.2.4 Impact Analysis

***Impacts to Rare, Threatened, and Endangered Species***

**Page 3.2-19**

An additional footnote has been added to the fifth sentence in this section:

> The impacts include fatalities as a result of ingestion, starvation, suffocation, infection, drowning, and entanglement.[42,43,44]

An additional sentence has been added after the fifth sentence in this section:

> For example, an article published in the *European Journal of Wildlife Research* attributed the death of a beaked whale to the ingestion of four plastic bags, two of which were plastic shopping bags.[45]

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[38] Rios, L. *et. al.* 2007. "Persistent organic pollutants carried by synthetic polymers in the ocean environment." Marine *Pollution Bulletin*, *54*: 1230–1237).

[39] Takada, H. *et. al. Pellet Watch: Global Monitoring of Persistent Organic Pollutants (POPs) using Beached Plastic Resin Pellets*. Available at: http://www.tuat.ac.jp/~gaia/ipw/documents/takadaproceeding.pdf

[40] Teuten, E. L. et. al. 2009. "Transport and release of chemicals from plastic to the environment and to wildlife." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: *2027-2045*.

[41] Todd, Peter, A. et. al. 2010. Impacts of Pollution on marine life in Southeast Asia. In. Biodiversity and Conservation. 19: 1063 – 1082.

[42] California Ocean Protection Council. 20 November 2008. *An Implementation Strategy for the California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter*. Available at: http://www.opc.ca.gov/webmaster/ftp/pdf/opc_ocean_litter_final_strategy.pdf

[43] Gregory, Murray R. 2009. "Environmental Implications of Plastic debris in Marine Settings –Entanglement, Ingestion, Smothering, Hangers-on, Hitch-hiking and Alien Invasions." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 2013–2025.

[44] Azzarello, M. and Van Vleet, E. 1987. "Marine Birds and Plastic Pollution." *Marine Ecology Progress Series, 37*: 295–303.

[45] Gomerčić, H. *et. al.* 2006. "Biological aspects of Cuvier's beaked whale (*Ziphius cavirostris*) recorded in the Croation part of the Adriatic Sea." *European Journal of Wildlife Research*. DOI 10.1007/s10344-006-0032-8

## 3.3 GREENHOUSE GAS EMISSIONS

**Page 3.3-4**

The first, second, and third sentences in the last paragraph on this page have been deleted and replaced by the following:

> While the regulatory framework is discussed in detail below, it is important to note that GHG CEQA Guidelines were adopted in December 2009. However, no federal or State agency (e.g., USEPA, CARB, or SCAQMD) responsible for managing air quality emissions has promulgated a global warming significance threshold that may be used in reviewing newly proposed projects. On a local level, the County has not adopted a climate change significance threshold. Neither the CEQA Statutes nor the CEQA Guidelines establish thresholds of significance for GHG emissions.

**Page 3.3-8**

The following section has been added after the penultimate paragraph on this page:

> *Landfill Methane Capture Strategy*
>
> On June 21, 2007, CARB approved the Landfill Methane Capture Strategy as an early action measure to reduce GHG emissions in accordance with the goals of AB 32.[46] This measure requires enhanced control of methane emissions from municipal solid waste landfills. The control measure will reduce methane emissions from landfills by requiring gas collection and control systems on landfills where these systems are not currently required and the measure establishes statewide performance standards to maximize methane capture efficiencies.

**Page 3.3-15**

The last sentence and the numbered list at the bottom of this page have been deleted and replaced by the following:

> The significance conclusions were based on the application of the significance thresholds provided in Section 3.3.4 above. The threshold "Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases" was applied for conversion from plastic to paper carryout bags and truck trip analyses, and the summary of projections approach was utilized to determine cumulative impact. This is consistent with CEQA Guidelines §15130(b)(1)(B), which provides that cumulative analysis may be based on a "summary of projections in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or *plans for the reduction of greenhouse gas emissions*" (emphasis added). The GHG cumulative analysis was based on consistency with the GHG projections in California's plan to implement AB 32: California Air Resources Board's *Climate Change Scoping Plan* and the County's Energy and Environmental Policy No. 3-045.

[46] California Air Resources Board. June 17, 2010. Methane Emissions from Municipal Solid Waste Landfills. Available at: http://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf

The threshold "Generate greenhouse gas emissions, either directly or indirectly that may have a significant effect on the environment" was applied to the life cycle emissions, including the end of life emissions.

The per capita analysis was utilized to evaluate consistency of the project with the goals of AB 32 and its implementation document, CARB's Climate Change Scoping Plan.[47]

**Page 3.3-17**

The following paragraph has been added below the first paragraph on this page:

It is also important to note that recent amendments to the CEQA Guidelines addressing Appendix F and greenhouse gas analysis, expressly declined to adopt the term "lifecycle", noting as follows: "Lifecycle: The amendments to Appendix F remove the term "lifecycle." No existing regulatory definition of "lifecycle" exists. In fact, comments received during OPR's public workshop process indicate a wide variety of interpretations of that term.[48] Thus, retention of the term "lifecycle" in Appendix F could create confusion among lead agencies regarding what Appendix F requires. Moreover, even if a standard definition of the term "lifecycle" existed, requiring such an analysis may not be consistent with CEQA. As a general matter, the term could refer to emissions beyond those that could be considered "indirect effects" of a project as that term is defined in Section 15358 of the State CEQA Guidelines. Depending on the circumstances of a particular project, an example of such emissions could be those resulting from the manufacture of building materials.[49] CEQA only requires analysis of impacts that are directly or indirectly attributable to the project under consideration (State CEQA Guidelines, § 15064(d).) In some instances, materials may be manufactured for many different projects as a result of general market demand, regardless of whether one particular project proceeds. Thus, such emissions may not be "caused by" the project under consideration. Similarly, in this scenario, a lead agency may not be able to require mitigation for emissions that result from the manufacturing process."[50]

**Page 3.3-19**

The last two sentences of the second paragraph on this page have been deleted and replaced by the following:

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle

[47] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

[48] California Natural Resources Agency. December 2009. Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. Available at: http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf

[49] California Air Pollution Control Officers Association. January 2008. *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA.

[50] California Natural Resources Agency. December 2009. Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. Available at: http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf

impacts of several different types of bags and concludes that polypropylene and calico reusable bags that are used 104 times result in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[51] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

**Page 3.3-22**

The last two sentences on this page have been deleted and replaced with the following:

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that polypropylene and calico reusable bags that are used 104 times result in global warming impacts that are significantly lower than the impacts from and plastic carryout bags (Table R3.3.5-5, *Relative Environmental Impacts of Various Types of Bags*).[52] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

**Page 3.3-23**

The following table has been added after Table 3.3.5-4:

[51] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[52] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

## TABLE R3.3.5-5A
## RELATIVE ENVIRONMENTAL IMPACTS OF VARIOUS TYPES OF BAGS

| Bag Type | Number of Trips | Relative Impacts on a Scale from 1 to 5 | | | | | |
|---|---|---|---|---|---|---|---|
| | | Material Consumption | Global Warming | Energy Consumption | Water Use | Litter Marine Biodiversity | Litter Aesthetics |
| Reusable non-woven plastic (polypropylene) "Green Bag" | 104 | ♠ | ♠ | ♠ | ♠ | ♠ | ♠ |
| Reusable calico (cotton) bag | 104 | ♠ | ♠ | ♠ | ♠♠♠♠♠ | ♠ | ♠ |
| 100-percent recycled content paper carryout bag | 2 | ♠♠♠♠♠ | ♠♠♠ | ♠♠ | ♠ | ♠ | ♠ |
| Oxo-biodegradable carryout bag | 1 | ♠♠♠ | ♠♠ | ♠♠♠ | ♠ | ♠♠♠ | ♠♠ |
| 100-percent recycled content plastic (HDPE) carryout bag | 1 | ♠♠♠ | ♠ | ♠ | ♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |
| Paper carryout bag | 2 | ♠♠♠♠♠ | ♠♠♠♠ | ♠♠♠ | ♠ | ♠ | ♠ |
| Compostable (starch-polyester) carryout bag | 1 | ♠♠♠♠ | ♠ | ♠ | ♠♠♠♠♠ | ♠ | ♠♠ |
| Plastic (HDPE) carryout bag | 1 | ♠♠♠ | ♠♠ | ♠♠♠♠ | ♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |
| 100-percent recycled content paper carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠ | ♠ | ♠ | ♠♠ |
| Paper carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠ | ♠ | ♠♠ |
| Plastic (LDPE) "boutique" carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |

**SOURCE:** Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**NOTES:**

1. A rating of ♠ to ♠♠♠♠♠ is used to show the diversity of impacts for each criterion, with ♠ being the lowest impact. In some cases at the high impact end, the impact value of the bag falls outside of the rating scale. Impacts cannot be added together to produce an overall impact rating.

HDPE = High density polyethylene
LDPE = Low density polyethylene

**Page 3.3-27**

The last sentence of the first paragraph on this page has been deleted.

**Page 3.3-38**

The following paragraph has been added below the first paragraph on this page:

> Any emissions resulting from the end of life of paper carryout bags, including from truck trips transporting paper carryout bag waste to landfills in the County, are currently controlled by regional and state regulations. For example, CARB's Solid Waste Collection Vehicle Rule also requires owners of refuse collection vehicles to use best available control technology that has been verified by CARB to reduce vehicle emissions. In addition, SCAQMD Rule 1193, Clean On-road Residential and Commercial Refuse Collection Vehicles, requires all public and private solid-waste collection fleets within the jurisdiction

of the SCAQMD to acquire alternative-fuel refuse collection vehicles when procuring or leasing these vehicles. SCAQMD Rule 1193 applies to governmental agencies and private entities that operate solid-waste collection fleets with 15 or more solid-waste collection vehicles. Finally, the County is also controlling for emissions by requiring in its new refuse agreements that alternative-fuel refuse vehicles be used.[53,54,55,56]

The following has been added after the second paragraph on this page:

However, the County has identified the following mitigation measure that would minimize the potential increase in use of paper carryout bags and indirectly offset GHG emissions. Although the measures specified in this mitigation measure will help offset cumulative GHG emissions resulting from the proposed ordinances, they may not mitigate them to below the level of significance.

**Mitigation Measure GHG-1:** Implement and/or expand public outreach and educational programs to increase the percentage of paper carryout bags that are recycled curbside.

If the adopted ordinance includes a fee or charge on the issuance of paper carryout bags of at least $0.05, consider increases to the fee or charge to further reduce consumption of paper carryout bags.

Distribute reusable grocery bags, free of charge within the project area to encourage further transitions to reusable bags. Consider public/private partnerships to offset costs of distribution.

Implement an outreach program for affected stores to encourage consumer transition to reusable bags, to reduce double bagging, and to encourage reuse and in-store recycling of paper carryout bags.

Encourage grocery stores to implement energy efficiency technology particularly in relation to storage of cold and frozen foods (assuming a reduction of 0.65 metric ton carbon dioxide equivalent for each megawatt hour saved[57]).

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[53] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Walnut Park Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54560.pdf

[54] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Athens/Woodcrest/Olivita Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54567.pdf

[55] County of Los Angeles, Department of Public Works. 11 May 2010. *Award the Contract for Firestone Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54559.pdf

[56] County of Los Angeles, Department of Public Works. 19 January 2010. *Award of Contract for an Exclusive Franchise Agreement to Valley Vista Services, Inc. for the Unincorporated Area of Hacienda Heights*. Available at: http://file.lacounty.gov/bos/supdocs/52931.pdf

[57] Emission factors taken from http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results

Consider converting public vehicles to low-emitting fuels (assuming a reduction of 0.45 metric ton carbon dioxide equivalent for each 1,000 vehicle miles traveled[58]). Consider funding conversion of vehicles through participation in South Coast Air Quality Management District's Carl Moyer Program.

### 3.3.7 Level of Significance after Mitigation

**Page 3.3-38**

The two sentences in this section have been deleted and replaced with the following:

> While the incorporation of Mitigation Measure GHG-1 would monitor and reduce the consumption of paper carryout bags caused by the proposed ordinances and indirectly offset GHG emissions resulting from end of life to the maximum extent feasible, the County has decided that no emission reduction credit will be taken for the measure, and for the purposes of the decision-making process, the County will proceed with the conclusion that indirect impacts to GHG emissions resulting from end of life would remain cumulatively considerable.

## 3.4 HYDROLOGY AND WATER QUALITY

**Page 3.4-9**

Footnote 29 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

**Page 3.4-12**

Footnote 40 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

**Page 3.4-13**

Footnote 45 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

[58] Emission factors taken from http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results

**Page 3.4-15**

The last two sentences on this page have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[59] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 3.4-16**

The beginning of the second sentence in the paragraph under Table 3.4.4-2, *Eutrophication Due to Reusable Bags Based on Ecobilan Data*, has been revised to read:

> Compostable bags have been noted to have impacts upon eutrophication worse than the impacts of standard plastic carryout bags…

**Page 3.4-18**

Footnote 68 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

## 3.5 UTILITIES AND SERVICE SYSTEMS

**Page 3.5-1**

Footnote 5 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

### 3.5.1 Regulatory Framework

***State***

*Assembly Bill 2449*

[59] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**Page 3.5-2**

The first sentence of the second paragraph on page 3.5-2 has been revised to read:

> AB 2449 also restricts the ability of cities (including charter cities) and counties to regulate plastic grocery bags through imposition of a fee on an entity that is otherwise in compliance with the provisions of AB 2449.

**Page 3.5-5**

Footnote 15 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

**Page 3.5-10**

The third to last and second to last sentences on this page have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[60] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 3.5-11**

Footnote 38 on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Pages 1-5. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

**Page 3.5-15**

The last sentence on this page has been deleted and replaced by the following.

> The Hyder Study does note that water consumption required for the life cycle of a calico (cotton) reusable bag would be greater than the water consumption required for the life

[60] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

cycle of a non-woven polypropylene reusable bag.[61] However, all other life cycle impacts of the calico reusable bag were determined to be just as low as the impacts of the polypropylene reusable bag.[62] It is important to note that calico reusable bags, like all other types of reusable bags, according to the Hyder Study have the lowest impacts on litter marine biodiversity, litter aesthetics, energy consumption, material consumption, and global warming. Polypropylene reusable bags are more widely used in the County than calico reusable bags due to the fact that they are cheaper to produce and are sold at a lower price.[63,64,65] Therefore, it is anticipated that the proposed ordinances would only have the potential for a limited increase in the use of calico reusable bags in the County. Therefore, the additional water supply that may be required by reusable bag manufacturing facilities as an indirect result of the proposed ordinances will not necessitate new or expanded entitlements for water and would not constitute a significant impact under CEQA.

**Page 3.5-21**

The second, third, and fourth sentences of the first paragraph on this page have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[66] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would reasonably be expected to result in an environmental benefit.

The following paragraph has been added under Table 3.5.4-8 on this page:

> In addition, the proposed ordinances would be expected to result in benefits to landfills due to a reduction in the amount of plastic carryout bags sent to landfills. The County of Los Angeles has obtained survey data from employees at solid waste facilities within the County that indicate that plastic carryout bags pose serious operational problems for landfills.[67] All six survey respondents stated that plastic bags cause serious litter issues due

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[61] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

[62] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

[63] Uline. Accessed October 26, 2010, Reusable Shopping Bags. Available at: http://www.uline.com/BL_5528/Reusable-Shopping-Bags

[64] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

65 Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International, San Francisco, CA.

[66] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[67] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

to their lightweight nature and propensity to become airborne.[68] Each survey respondent indicated that it was costly and time consuming to provide clean-up crews to address the plastic bag litter problem in neighborhoods in County unincorporated and incorporated areas adjacent to the landfills.[69]

**Page 3.5-24**

The fourth sentence of the second paragraph under Table 3.5.4-10 has been deleted.

[68] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

[69] County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

## SECTION 4.0 ALTERNATIVES TO THE PROPOSED ORDINANCES

**Page 4-1**

The final sentence of the third paragraph has been revised to read:

> As a result of the Initial Study, comments received during the scoping period, and the environmental analysis undertaken in the Draft EIR, six alternatives including the No Project Alternative were determined to represent a reasonable range.

One additional bullet point has been added under the third paragraph:

6. Alternative 5, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

**Page 4-2**

Table 4-1 has been revised to include Alternative 5, which would meet all of the County objectives.

The second sentence in the paragraph under Table 4-1 has been revised to read:

> However, the County has eliminated this alternative from further consideration due to the lack of commercial composting facilities in the County that would be needed to process compostable plastic carryout bags,[70] and also due to the availability of substantial evidence that supports the conclusion that oxo-biodegradable plastic bags do not result in benefits to the environment compared with standard plastic bags.[71,72,73,74]

**Page 4-5**

The final sentence of the paragraph discussing biological resources will be revised to read:

> In comparison with the proposed ordinances, the No Project Alternative would exacerbate rather than avoid or reduce potential impacts to biological resources.

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[70] County of Los Angeles, Department of Public Works, Environmental Programs Division. August 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. Alhambra, CA. Available at: http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf

[71] Loughborough University. January 2010. *Assessing the Environmental Impacts of Oxo-degradable Plastics Across Their Life Cycle*. London, UK. Available at: http://randd.defra.gov.uk/Document.aspx?Document=EV0422_8858_FRP.pdf Prepared for the Department for Environment, Food, and Rural Affairs.

[72] European Plastic Recyclers. 10 June 2009. *Press Release: Oxo Degradable Additives are Incompatible with Mechanical Recycling*. Brussels, Belgium. Available at: http://www.plasticsrecyclers.eu/docs/press%20release/EuPR%20Press%20Release%20-%20OXO%20Degradables%20Incompatibility%20with%20Plastics%20Recycling.pdf

[73] Pearce, Fred. 18 June 2009. "Biodegradable plastic bags carry more ecological harm than good." Available at: http://www.guardian.co.uk/environment/cif-green/2009/jun/18/greenwash-biodegradeable-plastic-bags

[74] California Integrated Waste Management Board. June 2007. Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Food Service Ware - Final Report Available at: http://www.calrecycle.ca.gov/Publications/Plastics/43208001.pdf

*Greenhouse Gas Emissions*

**Page 4-6**

The final sentence of the paragraph discussing greenhouse gas emissions will be revised to read:

> However, compared with the proposed ordinances, the No Project Alternative may also have the potential to result in a cumulatively considerable significant impact due to indirect GHG emissions resulting from the production, distribution, transport, and disposal of plastic carryout bags.

**Page 4-8**

The third sentence of the second paragraph under air quality has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[75] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would reasonably be expected to result in an environmental benefit.

**Page 4-10**

The last sentence of the second paragraph on this page has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that calico and polypropylene reusable bags that are used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[76] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

**Page 4-11**

The last sentence of the first paragraph under hydrology and water quality has been deleted and replaced by the following:

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[75] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[76] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[77] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-12**

The final sentence of the first paragraph discussing utilities and service systems has been revised to read:

Furthermore, Alternative 1 would be anticipated to result in indirect reductions in solid waste generation, water consumption, and wastewater generation due to a reduction in the manufacture and disposal of paper carryout bags compared to current conditions.

The last sentence of the second paragraph on this page has been deleted and replaced with the following:

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in significantly lower environmental impacts than a paper or plastic carryout bag.[78] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would reasonably be expected to result in an environmental benefit.

**Page 4-13**

The following sentence has been added after the third sentence in the section regarding comparative impacts:

Although a paper carryout bag fee of $0.05 resulted in a significant initial reduction in paper carryout bag use, a higher fee (such as $0.10 or higher) would reasonably be expected to be more effective at encouraging consumers to transition to using reusable bags, as seen in Ireland and Australia.[79,80]

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[77] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[78] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[79] Nolan-ITU Pty Ltd., *et al*. December 2002. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags –Analysis of Levies and Environmental Impacts: Final Report*. Sydney, Australia

[80] Convery, F., S. McDonnell and S. Ferreira. 2007. "The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy." In *Environmental and Resource Economics*, *38*: 1–11.

**Page 4-14**

The last sentence on this page has been replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[81] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-16**

The second to last sentence of the first paragraph on this page has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that calico and polypropylene reusable bags that are used 104 times results in global warming impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[82] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

**Page 4-17**

The last sentence of the first paragraph under hydrology and water quality has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in significantly environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[83] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when

[81] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[82] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[83] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-18**

The last sentence of the second paragraph under utilities and service systems has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[84] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-19**

The seventh sentence of the first paragraph in Section 4.2.4.1 has been revised to read:

> It is important to note that these numbers are likely very high, as 10,000 plastic carryout bags per day is more than twice the average reported by the California Department of Resources Recycling and Recovery in 2008 for AB 2449 affected stores.

**Page 4-24**

The last two sentences of the first paragraph under Table 4.2.4.3-3 have been replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[85] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

[84] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[85] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**Page 4-25**

Footnotes 59 and 60 have been revised to read:

> [59] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) + (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 33 daily truck trips
>
> [60] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) + (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 156.5 daily truck trips

**Page 4-31**

The title of Table 4.2.4.3-8 has been revised to read:

**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE BASED ON BOUSTEAD DATA**

**Page 4-32**

The last two sentences of the first paragraph on this page have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that calico and polypropylene reusable bags that are used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[86] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

Footnotes 74 and 75 have been revised to read:

> [74] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 33 daily truck trips
>
> [75] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 156.5 daily truck trips

**Page 4-35**

The last sentence of the first paragraph on this page has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag

[86] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[87] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-39**

The callout to Table 4.3.4.2-14, after the first paragraph under solid waste on this page has been revised to read:

*Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data and Adjusted for 2007 Recycling Rates*

**Page 4-40**

The title of Table 4.2.4.3-14 has been revised to read:

**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA AND ADJUSTED FOR 2007 RECYCLING RATES**

The header in the fourth column of Table 4.2.4.3-14 has been deleted and replaced with the following:

**Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use[1]**

The header in the fifth column of Table 4.2.4.3-14 has been deleted and replaced with the following:

**Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use[1]**

The following source has been added below Table 4.2.4.3-14:

2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

**Page 4-42**

The last sentence of the first paragraph on this page has been deleted and replaced with the following:

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag

[87] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[88] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-43**

The header in the third column of Table 4.2.4.3-16 has been deleted and replaced with the following:

**Increase Due to 85-percent Conversion from Plastic to Paper Carryout Bag Use**

The header in the fourth column of Table 4.2.4.3-16 has been deleted and replaced with the following:

**Increase Due to 100-percent Conversion from Plastic to Paper Carryout Bag Use**

**Page 4-45**

The last sentence of the first paragraph on this page has been deleted.

**Page 4-46**

The fourth sentence at the top of this page has been revised to read:

It is important to note that these numbers are likely very high, as 10,000 plastic carryout bags per day is more than twice the average reported by the California Department of Resources Recycling and Recovery in 2008 for AB 2449 affected stores.

**Page 4-47**

The last two sentences of the second paragraph under air quality have been deleted and replaced with the following:

Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[89] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

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[88] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[89] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

**Page 4-49**

The last two sentences of the first paragraph under greenhouse gas emissions have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that calico and polypropylene reusable bags that are used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[90] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

**Page 4-51**

The last sentence of the first paragraph above Table 4.2.5.3-3 has been deleted and replaced by the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[91] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-52**

The last sentence of the paragraph under wastewater generation has been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from a paper or plastic carryout bag.[92] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use

[90] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[91] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[92] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-53**

The last sentence of the paragraph under water supply has been deleted.

**Page 4-54**

The last two sentences of the paragraph under solid waste have been deleted and replaced with the following:

> Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifetime of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[93] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

**Page 4-55**

The last sentence of the paragraph under energy conservation has been deleted.

**Page 4-56**

The following section has been added:

### 4.2.6 Alternative 5: Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

#### *4.2.6.1 Alternative Components*

In response to comments on the Draft EIR, the County developed Alternative 5, which is a hybrid of Alternatives 2, 3, and 4. Like Alternative 2, Alternative 5 would ban the issuance of plastic carryout bags and place a fee of at least $0.05 on paper carryout bags. Like Alternatives 3 and 4, Alternative 5 would affect all supermarkets and other grocery stores, pharmacies, drug stores, and convenience stores, with no limits on square footage or sales volumes in the County. Specifically, Alternative 5 would apply to stores within the County that (1) meet the definition of a "supermarket" as written in the California Public Resources Code, Section 14526.5, and (2) are buildings that have retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law and have a pharmacy licensed pursuant to Chapter 9 of Division 2 of the Business and Professions Code. In addition, Alternative 5 would apply to other grocery stores, convenience stores, and drug stores within the County. Alternative 5, like

[93] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

Alternative 3 and 4, which include the same broader range of stores, would include a phased approach in that it would apply to large grocery stores and pharmacies prior to smaller grocery stores, convenience stores, and drug stores.

The number of stores that could be affected by Alternative 5 in the unincorporated areas of the County is approximately 1,091.[94] The number of stores that could be affected by Alternative 5 in the incorporated cities of the County is approximately 5,084.[95] This is the same number of stores as analyzed in Alternatives 3 and 4. It was assumed that each store larger than 10,000 square feet currently uses approximately 10,000 plastic carryout bags per day,[96] and each store smaller than 10,000 square feet currently uses approximately 5,000 plastic carryout bags per day.[97] It is important to note that these numbers are very high, as 10,000 plastic carryout bags per day is more than twice the bag average reported by the California Department of Resources Recycling and Recovery (CalRecycle) in 2008 for AB 2449 affected stores. In 2008, 4,700 stores statewide affected by AB 2449 reported an average of 4,695 bags used per store per day.[98] While 10,000 plastic carryout bags per store per day may not accurately reflect the actual number of bags consumed per day on average for stores greater than 10,000 square feet in the County, for the purposes of this EIR this number was used to conservatively evaluate impacts resulting from such a worst-case scenario. The same may also be true of the 5,000 plastic carryout bags per store per day estimate for stores smaller than 10,000 square feet. While the 5,000 plastic carryout bags per store per day is likely very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from such a worst-case scenario as well.

As with the proposed ordinances, Alternative 5 would not be expected to result in significant adverse impacts to air quality, biological resources, or hydrology and water quality, and would achieve additional benefits. Alternative 5 would lead to a greater reduction in the consumption of plastic carryout bags as a result of including a greater number of stores than the proposed ordinances include; therefore, life cycle impacts of plastic carryout bags to air quality, biological resources, GHG emissions, hydrology and water quality, and utilities and service systems would be eliminated, reduced, or avoided in comparison with the proposed ordinances. A minimal transition, as discussed below, from plastic to paper carryout bags would be expected to occur if a fee or charge were placed on the issuance of paper carryout bags. Alternative 5 would also have

[94] Number of stores in the unincorporated territories of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[95] Number of stores in the 88 incorporated cities of the County was determined from the infoUSA database for businesses with North American Industry Classification System codes 445110, 445120, and 446110 with no filters for gross annual sales volume or square footage. Accessed on: 29 April 2010.

[96] Based on coordination between the County Department of Public Works and several large supermarket chains in the County, it was determined that approximately 10,000 plastic carryout bags are used per store per day. Due to confidential and proprietary concerns, and at the request of the large supermarket chains providing this data, the names of these large supermarket chains will remain confidential. Reported data from only 12 stores reflected a total plastic carryout bag usage of 122,984 bags per day. A daily average per store was then calculated at 10,249 plastic carryout bags and rounded to approximately 10,000 bags per day.

[97] Data from the infoUSA indicates that approximately 40 percent of the stores greater than 10,000 square feet in the unincorporated territories of the County are larger than 40,000 square feet. Therefore, the average size of the stores to be affected by the proposed County ordinance would be greater than 20,000 square feet. Accordingly, it would be reasonable to estimate that the stores smaller than 10,000 square feet that would be affected by Alternative 5 would be at less than half the size of the stores to be affected by the proposed ordinances and would use less than half the number of bags.

[98] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

fewer impacts than Alternative 3, which proposed banning the issuance of plastic carryout bags at the expanded number of stores without imposing a fee or ban on the issuance of paper carryout bags.

#### *4.2.6.2 Objectives and Feasibility*

As shown in Table 4-1, Alternative 5 would accomplish all of the basic objectives of the proposed ordinances established by the County. Alternative 5 would encourage the 88 incorporated cities within the County to adopt similar ordinances to ban the issuance of plastic carryout bags. By expanding the number of stores subject to a ban, Alternative 5 would be more effective than the proposed ordinances in reducing Countywide consumption of plastic carryout bags; plastic carryout bag litter that blights public spaces; and the County's, cities', and Flood Control District's costs for prevention, cleanup, and enforcement efforts to reduce litter in the County. Alternative 5 would increase public awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, by reaching at least 50,000 residents (5 percent of the population) with an environmental awareness message. In addition, Alternative 5 would be more effective than the proposed ordinances in reducing Countywide disposal of plastic carryout bags in landfills. Alternative 5 would also reduce Countywide consumption of paper carryout bags and the Countywide disposal of paper carryout bags in landfills.

#### *4.2.6.3 Comparative Impacts*

Alternative 5 would be expected to cause a greater reduction in plastic carryout bag usage throughout the County because it would affect a greater number of stores than the proposed ordinances. Alternative 5 would also impose a fee or charge on the issuance of paper carryout bags, thus it would not be expected to result in the same degree of increase in paper carryout bag usage as would be expected from Alternative 3.

Carryout-bag fees that have been implemented in other countries and states have been shown to be highly effective in reducing the number of carryout bags used. For example, Ireland's fee on plastic carryout bags resulted in a greater than 90-percent reduction in retailer purchases of plastic carryout bags.[99] The recent $0.05 fee imposed on plastic and paper carryout bags in Washington, DC, resulted in an 86-percent decrease in the number of carryout bags used in the first month after implementation of the fee.[100] Although the $0.05 paper carryout bag fee initially resulted in a significant reduction in the use of paper carryout bags, a higher fee (such as $0.10 or higher) would be expected to be more effective at encouraging consumers to transition to reusable bags.[101,102] Based on the Washington and Ireland scenarios, a County fee on the issuance of paper carryout bags would similarly be expected to reduce the number of paper carryout bags used and disposed of in the County. However, unlike a ban, a fee on the issuance of paper carryout bags would not be expected to completely eliminate retailer purchases of paper carryout bags by affected stores, as consumers would still have the option to purchase paper carryout bags. Therefore, the expected

[99] McDonnell, S., and C. Convery. Paper presented 26 June 2008. "The Irish Plastic Bag Levy – A Review of its Performance 5 Years On."

[100] ABC News. 30 March 2010. "Nickel Power: Plastic Bag Use Plummets in Nation's Capital." Available at: http://abcnews.go.com/Politics/plastic-bag-plummets-nations-capital/story?id=10239503

[101] Nolan-ITU Pty Ltd., *et al*. December 2002. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags –Analysis of Levies and Environmental Impacts: Final Report*. Sydney, Australia

[102] Convery, F., S. McDonnell and S. Ferreira. 2007. "The Most Popular Tax in Europe? Lessons from the Irish Plastic Bags Levy." In *Environmental and Resource Economics*, *38*: 1–11.

reduction in paper carryout bag use resulting from Alternative 5 would not be as substantial as the reduction expected from implementation of Alternative 4, which would ban the issuance of plastic and paper carryout bags. However, as indicated by the results of the Ireland and Washington, DC, bag fees, the reduction in use would still be quite significant.

While it is not possible to determine the actual percentage increase in conversion to paper carryout bags that would result from Alternative 5, the results from bags fees implemented in Ireland and Washington, DC, indicate that the percentage increase would likely be minimal. However, the County cannot predict the exact number of plastic and paper carryout bags that will be eliminated upon implementation of Alternative 5. To evaluate impacts in a conservative worst-case scenario, the County assumed for the purposes of this analysis that 50 percent of customers would switch from using plastic carryout bags to paper carryout bags upon implementation of Alternative 5, and 50 percent of customers would switch from using plastic carryout bags to reusable bags. This assumption is consistent with the analysis undertaken in the City of Santa Monica Nexus Study,[103] and is very conservative in light of the carryout bag reductions in Washington, DC, and Ireland.

During the scoping period for the Initial Study for the proposed ordinances, several members of the public indicated that a fee on paper carryout bags could also cause stores to incur higher administrative costs, which would not be expected to result if a ban were imposed. Therefore, Alternative 5 would be expected to have both adverse and beneficial socioeconomic impacts. Adverse economic impacts upon stores may be offset if the stores are allowed to retain a portion of the paper carryout bag fee for compliance costs.

*Air Quality*

Significance Thresholds

Would the proposed ordinances have the potential for one or more of the following five potential effects?

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- 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 release in emissions that exceed quantitative thresholds for $O_3$ precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

As with the proposed ordinances, impacts to air quality caused by Alternative 5 would be expected to be below the level of significance. Due to the implementation of a fee on the issuance of paper carryout bags, Alternative 5 would be expected to result in a lesser increase in the consumer use of paper carryout bags than the increase expected from implementation of the proposed ordinances. Therefore, Alternative 5 would be expected to result in a lesser increase in $NO_x$ emissions due to a lesser indirect increase in the manufacture, distribution, and disposal of paper carryout bags. Alternative 5 would be expected to result in significant reductions in the use of plastic carryout

[103] City of Santa Monica. January 2010. City of Santa Monica Nexus Study. Prepared by R3 Consulting Group, Inc.

bags in the County, thus it would be expected to indirectly benefit air quality by reducing emissions of CO, PM, and VOCs caused by the manufacture of plastic carryout bags (Table 3.1.4-2). Based on a conservative scenario of 50-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, and using life cycle data from the Ecobilan study, Alternative 5 would be expected to result in an overall decrease in emissions of CO, PM, $SO_x$, and VOCs, but would be expected to result in an increase in $NO_x$ (Table R4.2.6.3-1, *Estimated Daily Emission Changes Due to 50-percent Conversion from Plastic to Paper Carryout Bags Based on Ecobilan Data,* and Appendix C). Accordingly, this result is largely a tradeoff and is inconclusive because the conversion from plastic carryout bags to paper carryout bags would be expected to result in both beneficial and adverse impacts to air quality, depending on which criteria pollutants are analyzed. These impacts are less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

These results cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD because the operational thresholds are intended for specific projects located in the SCAB for the SCAB, whereas LCA data cover all stages of production, distribution, and end-of-life procedures related to a particular product. The production of plastic carryout bags and paper carryout bags is not limited to the SCAB or the MDAB, with manufacturing facilities located in other air basins in the United States and in other countries that may have different emission thresholds and regulations.

**TABLE R4.2.6.3-1**
**ESTIMATED DAILY EMISSION CHANGES DUE TO 50-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Emission Sources | Air Pollutants (Pounds/Day)[2] | | | | |
|---|---|---|---|---|---|
| | VOCs[1] | $NO_x$ | CO | $SO_x$ | PM |
| Emission changes caused by a 50-percent conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | -471 | 183 | -864 | -206 | -334 |
| Emission changes caused by an 50-percent conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | -2,258 | 875 | -4,140 | -984 | -1,601 |
| **Total Emissions** | **-2,729** | **1,058** | **-5,004** | **-1,190** | **-1,936** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.

Other LCAs reviewed during preparation of this EIR state that overall air pollutant emissions due to the life cycle of paper carryout bags would be higher than those emitted during the life cycle of

plastic carryout bags.[104,105] However, as with the Ecobilan data, the majority of these criteria pollutant emissions are likely to originate from processes that occur early in the life cycle of paper and plastic carryout bags, such as raw materials extraction and product manufacturing. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[106] or from countries outside of the United States such as Canada,[107] it is not necessary to extrapolate LCA data to determine emission levels for the SCAQMD portion of the SCAB and the AVAQMD portion of the MDAB.

Although the facilities that manufacture paper carryout bags supplied to the affected stores in the County are not located within the SCAB or the MDAB, the majority of the landfills that accept plastic and paper carryout bag waste are located within these air basins. The Ecobilan data indicate that approximately 21 percent of the $NO_x$ emissions generated during the life cycle of paper carryout bags can be attributed to end of life. The end-of-life data include emissions due to transport of waste from households to landfills; however, the data assumes that a large percentage of solid waste is incinerated, which is not accurate for the County. Using the Ecobilan data for the end of life of plastic and paper carryout bags, and adjusting for a scenario where all bags go to landfills at the end of life and are not incinerated, and further adjusting for USEPA recycling rates for 2007, a 50-percent conversion from the use of plastic to paper carryout bags throughout the unincorporated areas of the County would yield an increase in NOx emissions of approximately 19 pounds per day from the transport of paper carryout bags to landfills (Table R4.2.6.3-2, *Estimated $NO_x$ Emission Increases Due to End of Life Based on Ecobilan Data*). If Alternative 5 were applied to every incorporated city in the County, a 50-percent conversion from plastic to paper carryout bags would yield an increase in $NO_x$ emissions of approximately 91 pounds per day. These impacts are less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

The aforementioned calculations are based on an unlikely worst-case scenario that assumes that every store larger than 10,000 square feet in size currently uses 10,000 plastic carryout bags per day. This assumption is an intentional overestimate, as statewide data indicates that this number is likely to be closer to 5,000 plastic carryout bags per day.[108] The same may also be true of the estimate of 5,000 plastic carryout bags per store per day for stores smaller than 10,000 square feet. While the 5,000 plastic-carryout-bags-per-store-per-day estimate may likely be very high, for the purposes of this EIR, this number was used to conservatively evaluate impacts resulting from a worst-case scenario as well. These results also cannot reasonably be evaluated in relation to the operational thresholds of significance set by SCAQMD for the SCAB or by AVAQMD for the MDAB because the operational thresholds are intended for project-specific level proposed projects located in the SCAB and MDAB, and do not apply to LCA data, which cover all stages of end-of-life procedures related to a particular product. Further, the conservative analysis based on Ecobilan data shows that the emissions due to implementation of Alternative 5 in just the unincorporated

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

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

[106] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

[107] National Council for Air and Stream Improvement. 5 February 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada.

[108] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

areas of the County would be a maximum of only 19 pounds per day (Table R4.2.6.3-2). Operational thresholds apply to individual development projects only; they do not apply to cumulative development (note that the proposed ordinances do not even include any development). In addition, due to the fact that there are 11 landfills within the County,[109] and approximately 20 percent of County waste is distributed to other out-of-County landfills,[110] emissions resulting from the end of life of paper carryout bags would be distributed among the facilities within and outside of the County. Any emissions resulting from the end of life of paper carryout bags, including from truck trips transporting paper carryout bag waste to landfills in the County, are currently controlled by regional and state regulations. For example, CARB's Solid Waste Collection Vehicle Rule also requires owners of refuse collection vehicles to use best available control technology that has been verified by CARB to reduce vehicle emissions. In addition, SCAQMD Rule 1193, Clean On-road Residential and Commercial Refuse Collection Vehicles, requires all public and private solid-waste collection fleets within the jurisdiction of the SCAQMD to acquire alternative-fuel refuse collection vehicles when procuring or leasing these vehicles. SCAQMD Rule 1193 applies to governmental agencies and private entities that operate solid-waste collection fleets with 15 or more solid-waste collection vehicles. Finally, the County is also controlling for emissions by requiring in its new refuse agreements that alternative-fuel refuse vehicles be used.[111,112,113,114] Any increases in air pollutant emissions as an indirect impact from Alternative 5 would be controlled by SCAQMD Rule 1193 and the CARB Solid Waste Collection Vehicle Rule; therefore, the impacts from Alternative 5 to air quality due to vehicle trips transporting paper carryout bag waste to landfills would be expected to be below the level of significance. These impacts are less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

[109] County of Los Angeles, Department of Public Works. Report 13. 30 March 2010. Monthly Solid Waste Disposal Quantity Summary by Aggregated Jurisdiction Data.

[110] County of Los Angeles, Department of Public Works. Report 34. 30 March 2010. Waste Disposal Summary Reports by Quarter by Aggregated Jurisdiction Data.

[111] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Walnut Park Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54560.pdf

[112] County of Los Angeles, Department of Public Works. 11 May 2010. *Award of Contract for Athens/Woodcrest/Olivita Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54567.pdf

[113] County of Los Angeles, Department of Public Works. 11 May 2010. *Award the Contract for Firestone Garbage Disposal District*. Available at: http://file.lacounty.gov/bos/supdocs/54559.pdf

[114] County of Los Angeles, Department of Public Works. 19 January 2010. *Award of Contract for an Exclusive Franchise Agreement to Valley Vista Services, Inc. for the Unincorporated Area of Hacienda Heights.* Available at: http://file.lacounty.gov/bos/supdocs/52931.pdf

## TABLE R4.2.6.3-2
## ESTIMATED $NO_x$ EMISSION INCREASES DUE TO END OF LIFE BASED ON ECOBILAN DATA

| Emission Source | Air Pollutants (Pounds/Day) |
|---|---|
| | 50-percent Conversion from Plastic to Paper Carryout Bags[1] |
| | $NO_x$ |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 19 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 91 |
| **Total Emissions** | **110** |

**SOURCES:**

1. Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
2. U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

**NOTES:**

1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates for bags and sacks.

Alternative 5 would also be expected to result in increased use of reusable bags. The Ecobilan Study also presented an LCA analysis of a reusable bag and concluded that the particular reusable bag studied has a lesser impact on air pollutant emissions than the impact of a plastic carryout bag, as long as the reusable bag is used a minimum of four times (Table 3.1.4-6).[115] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data are particular to a specific type of reusable bag, they illustrate the concept that the air quality impacts of reusable bag manufacturing are reduced the more times a bag is used. Air quality impacts are anticipated to be reduced with the banning of the issuance of plastic carryout bags because it would be expected to increase the use of reusable bags and reduce the use of plastic carryout bags. By the definition established by the proposed ordinances, reusable bags must be designed to have a minimum lifespan of at least 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly lower than the impacts resulting from paper and plastic carryout bags.[116] Therefore, air quality impacts due to the life cycle of a reusable bag would be expected to be significantly lower than the air quality impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit.

As with the proposed ordinances, Alternative 5 would not conflict with or obstruct the implementation of any applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the County is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable

[115] Ecobilan. February 2004. Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[116] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

odors affecting a substantial number of people. As with the proposed ordinances, Alternative 5 would be expected to cause a potential increase in delivery truck trips required to transport paper carryout bags and reusable bags to affected stores. For paper carryout bags, assuming that there are 67 affected stores in the unincorporated territory of the County each using 10,000 plastic carryout bags per day and 1,024 affected stores each using 5,000 plastic carryout bags per day, a 50-percent conversion to paper carryout bags would be expected to require fewer than 17 additional truck trips per day.[117] Assuming that Alternative 5 would affect 462 stores each using 10,000 plastic carryout bags per day, and 4,622 stores each using 5,000 plastic carryout bags per day in the 88 incorporated cities of the County, a 50-percent conversion to paper carryout bags would be expected to require fewer than 79 additional truck trips per day.[118]

The criteria pollutant emissions that would be anticipated to result from 17 additional truck trips per day to and from the 1,091 stores in the unincorporated territory of the County, and up to 79 additional truck trips per day to and from the 5,084 stores in the 88 incorporated cities of the County were calculated using URBEMIS 2007 (Table R4.2.6.3-3, *Estimated Daily Operational Emissions from Increased Truck Trips)* (Appendix D). The unmitigated emissions from delivery truck trips would be expected to be well below the SCAQMD and AVAQMD thresholds of significance (Table R4.2.6.3-3). These impacts are also less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

**TABLE R4.2.6.3-3**
**ESTIMATED DAILY OPERATIONAL EMISSIONS FROM INCREASED TRUCK TRIPS**

| Emission Source | Air Pollutants (Pounds/Day) | | | | | |
|---|---|---|---|---|---|---|
| | VOCs | NOx | CO | SOx | PM2.5 | PM10 |
| 17 delivery truck trips in the unincorporated territory of the County | 0.15 | 0.34 | 2.13 | 0.00 | 0.08 | 0.40 |
| 79 delivery truck trips in the incorporated cities of the County | 0.65 | 1.56 | 9.89 | 0.01 | 0.38 | 1.84 |
| **Total Emissions** | 0.80 | 1.90 | 12.02 | 0.01 | 0.46 | 2.24 |
| **SCAQMD Threshold** | 55 | 55 | 550 | 150 | 55 | 150 |
| **AVAQMD Threshold** | 137 | 137 | 548 | 137 | - | 82 |
| **Exceedance of Significance?** | **No** | **No** | **No** | **No** | **No** | **No** |

An increase in demand for reusable bags would also be expected to result in additional transport of reusable bags to affected stores. However, fewer reusable bags than carryout bags would be expected to be required because reusable bags, as proposed by the County, will be designed to have a minimum lifespan of 125 uses. Therefore, it can be reasonably expected that a conversion from plastic carryout bags to reusable bags would result in fewer required delivery trips than would be required by a conversion from plastic carryout bags to paper carryout bags. Assuming, under a worst-case scenario, that the emissions resulting from the transportation of additional reusable bags to stores would be equivalent to the emissions resulting from the transportation of additional paper carryout bags to stores (Table R4.2.6.3-3), total emissions due to mobile sources as a result of

[117] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) + (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 6.5 ≈ 16.3 daily truck trips

[118] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) + (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 6.5 ≈ 78.2 daily truck trips

Alternative 5 would still be far below the thresholds of significance set by SCAQMD and AVAQMD.

In comparison with the proposed ordinances, Alternative 5 would be expected to reduce total impacts to air quality related to criteria pollutant emissions from potential increases in delivery trucks or from indirect emissions due to the life cycle of paper carryout bags. As with the proposed ordinances, impacts to air quality would still be expected to be below the level of significance, and like the proposed ordinances, would not result in a cumulatively considerable contribution to a significant cumulative impact.

*Biological Resources*

Significance Thresholds

The proposed ordinances would have a significant impact to biological resources when the potential for any one of the following six thresholds is reached:

- Have a substantial adverse effect, through either direct or indirect modification of more than 10 percent of potentially suitable or occupied habitat, or direct take, to any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS
- Have an adverse effect on 10 percent of existing riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS
- Have a substantial adverse effect on more than 0.3 acre of federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere with the movement of any native resident or migratory fish or wildlife species such that migratory patterns are eliminated from within the proposed project area or reduce the use of native wildlife nursery sites by 10 percent of more
- Conflict with the policies established by the County of Los Angeles General Plan to provide protection for threatened and endangered species
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan

As with the proposed ordinances, Alternative 5 would result in a significant reduction in the use and disposal of plastic carryout bags within the County. Consequently, Alternative 5 would achieve additional reductions in litter composed of plastic carryout bag waste found in freshwater and coastal environments, which has been shown to have significant adverse impacts upon biological resources. Alternative 5 would also be expected to increase consumer use of reusable bags. Reusable bags have not been widely noted to have adverse impacts upon biological resources. Although reusable bags do eventually get discarded and become part of the waste stream, the fact that they can be reused multiple times means that the number of reusable bags in the waste stream as a result of Alternative 5 would be much lower than the number of paper and plastic carryout bags that would end up in the waste stream as a result of the proposed ordinances. Fewer reusable bags in the waste stream means that reusable bags are less likely than plastic or paper carryout bags to be littered and to end up in the ocean or other wildlife habitats. Further,

reusable bags are heavier than plastic carryout bags, which means that they are less likely to be blown by the wind and end up as runaway litter.

Alternative 5 may indirectly increase the number of paper carryout bags used in the County. However, a study performed in Washington, DC, demonstrated that paper bags were not found in streams except in localized areas, and were not present downstream.[119] Unlike plastic, paper is compostable; the paper used to make standard paper carryout bags is originally derived from wood pulp, which is a naturally compostable material.[120,121] Due to the biodegradable properties of paper, paper bags do not persist in the marine environment for as long as plastic bags persist.[122] As with the proposed ordinances, Alternative 5 would have the potential to improve wildlife habitats and aquatic life, and would result in potentially beneficial impacts to sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. As with the proposed ordinances, Alternative 5 would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not 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; and would not conflict with County General Plan policies requiring the protection of biological resources. As with the proposed ordinances, Alternative 5 would not be expected to result in any significant adverse impacts to biological resources and would be expected to achieve additional benefits due to a reduction in the use of plastic carryout bags. Similarly, like the proposed ordinances, Alternative 5 would not result in a cumulatively considerable contribution to a significant cumulative impact.

*Greenhouse Gas Emissions*

Significance Thresholds

The proposed ordinances would have a significant impact to biological resources when the potential for any one of the following two thresholds is reached:

- Generate greenhouse gas emissions, either directly or indirectly that may have a significant effect on the environment
- Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases"

The second threshold is further explained by two additional significance criteria:

- "Inconsistency with laws and regulations in managing GHG emissions

[119] Anacostia Watershed Society. December 2008. *Anacostia Watershed Trash Reduction Plan*. Prepared for: District of Columbia Department of the Environment. Bladensburg, MD.

[120] County of Los Angeles, Department of Public Works. Accessed on: 28 April 2010. *Backyard Composting*. Web site. Available at: http://dpw.lacounty.gov/epd/sg/bc.cfm

[121] University of California, Agriculture and Natural Resources. Compost in a Hurry. Available at: http://ucanr.org/freepubs/docs/8037.pdf

[122] Andrady, Anthony L. and Mike A. Neal. 2009. "Applications and Societal Benefits of Plastics." In *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*: 1977–1984.

- Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 metric tons or 9.6 metric tons of $CO_{2e}$ per capita) as required by AB 32"

As with the proposed ordinances, based on the above thresholds, the direct impacts to GHG emissions resulting from Alternative 5 would be expected to be below the level of significance. Compared with the proposed ordinances, Alternative 5 would be expected to result in a lesser increase in the consumer use of paper carryout bags because it would implement a fee or charge on the issuance of paper carryout bags. Therefore, Alternative 5 would result in a lesser increase in GHG emissions due to a smaller indirect increase in the manufacture, distribution, and disposal of paper carryout bags. Due to the fact that Alternative 5 would be expected to result in significant reductions in the use of plastic carryout bags in the County, this alternative would be beneficial in that it would be expected to greatly reduce GHG emissions caused by the manufacture of plastic carryout bags (Table 3.3.5-2). Based on a conservative scenario of 50-percent conversion from the use of plastic carryout bags to the use of paper carryout bags, and using life cycle data from Ecobilan, Alternative 5 would be expected to contribute indirectly to an overall decrease in GHG emissions (Table R4.2.6.3-4, *GHG Emissions Based on Ecobilan Data Using 50-percent Conversion from Plastic to Paper Carryout Bags*). Therefore, Alternative 5 would not be expected to conflict with the County's 2020 target GHG emissions (108 million metric tons per year). However, the emission reductions would not be limited to the County, as manufacturing facilities for paper carryout bags appear to be located in other areas of the United States, or in other countries such as Canada. Unlike the proposed ordinances, indirect GHG emissions due to the life cycle of paper carryout bags would not have the potential to be cumulatively considerable under Alternative 5. These impacts are less than the impacts anticipated as a result of the proposed ordinances and Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

**TABLE R4.2.6.3-4**
**GHG EMISSIONS BASED ON ECOBILAN DATA USING 50-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS**

| | $CO_{2e}$ Emission Sources | | | | 2020 $CO_{2e}$ Target Emissions |
|---|---|---|---|---|---|
| | Plastic Carryout Bags | Increase Resulting from 50-percent Conversion from Plastic Carryout Bags to Paper Carryout Bags | | | |
| Emissions Areas | Metric Tons Per Day | Metric Tons Per Day | Metric Tons Per Year[2] | Metric Tons Per Year Per Capita[1] | Metric Tons Per Year Per Capita[1] |
| Emissions in the 1,091 stores in the unincorporated territory of the County | 98.13 | -5.69 | -2,075 | 0.000 | 9.6 |
| Emissions in the 5,084 stores in the incorporated cities of the County | 469.96 | -27.23 | -9,940 | -0.001 | |
| **Total Emissions in the County** | **568.08** | **-32.92** | **-12,015** | **-0.001** | |

**SOURCE:**
Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

**NOTES:**
1. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.

Other LCAs reviewed during preparation of this EIR state that more GHGs are emitted due to the life cycle of paper carryout bags than are emitted during the life cycle of plastic carryout bags.[123,124,125] However, as with the Ecobilan data, a significant portion of these GHG emissions are likely to originate from processes that occur early in the life cycle of paper and plastic carryout bags, such as raw material extraction and product manufacturing.

Although the facilities that manufacture paper carryout bags that are supplied to affected stores in the County appear to be located outside of the boundaries of the SCAB or the MDAB, the majority of the landfills that accept plastic and paper carryout bag waste are located within these air basins. The Ecobilan data indicate that approximately 18 percent of the GHG emissions generated during the life cycle of paper carryout bags can be attributed to the end of life. The end-of-life data include emissions from the transport of waste from households to landfills. However, the LCA data assume that a large percentage of solid waste is incinerated, which is not accurate for the County. Using the Ecobilan data for the end of life of plastic and paper carryout bags, and adjusting for a) the alternative scenario where all bags go to landfills at the end of life and are not incinerated, and b) for USEPA 2007 recycling rates, landfills would yield approximately 70,250 metric tons of GHG emissions per year, which is equivalent to approximately 0.007 metric tons per capita, based on a 50-percent conversion from the use of plastic carryout bags to paper carryout bags Countywide (Table R4.2.6.3-5, *Estimated GHG Emissions Increases Due to End of Life Based on Ecobilan Data*). These results are likely to be overestimates for the County, as emissions from active landfills in the County are strictly controlled by SCAQMD Rule 1150.1 and AVAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills, as well as the new state requirements that regulate methane emissions from landfills in accordance with the goals of Assembly Bill 32[126] as implemented in the California Air Resources Board Climate Change Scoping Plan.[127]

Applying the threshold of "Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 metric tons or 9.6 metric tons of $CO_{2e}$ per capita) as required by AB 32," even under the worst-case scenario as presented here, the increases resulting from a 50-percent conversion scenario would be expected to be below the level of significance when considered in context with California's 2020 GHG emissions target of 427 million metric tons per year (Table 3.3.2-1) and the County's 2020 GHG emissions target of 108 million metric tons per year (Table 3.3.3-1). The LCA results presented would be equivalent to 0.016 percent of the target 2020 emissions for California and 0.07 percent of the County's 2020 target emissions. The LCA results presented for the entire County, including the 88 incorporated cities, would be equivalent to 0.0066 metric ton per year per capita, which would not conflict with the goals of AB 32 to reduce emissions by the year 2020 to approximately 9.6 metric tons per capita. These impacts are also less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags. These calculations are based on an unlikely worst-case scenario that assumes that every store larger than 10,000 square feet currently uses 10,000 plastic carryout bags per day. This assumption is an intentional overestimate, as statewide data indicate

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

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

[125] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[126] California Environmental Protection Agency Air Resources Board. June 17, 2010. Methane Emissions from Municipal Solid Waste Landfills. Available at: http://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf

[127] California Air Resources Board, Climate Change Scoping Plan, December 2008

that this number is likely to be closer to 5,000 plastic carryout bags per day.[128] The same may also be true of the assumption that 5,000 plastic carryout bags are used per day for stores smaller than 10,000 square feet. While the estimate of 5,000 plastic carryout bags per store per day is likely very high, this number was used for the purposes of this EIR to conservatively evaluate impacts resulting from a worst-case scenario as well. However, even assuming a worst-case scenario where Alternative 5 causes an indirect increase in disposal of paper carryout bags, any potential increases in GHG emissions in landfills in the SCAQMD portion of the SCAB would be controlled by SCAQMD Rule 1150.1, and any potential increases in GHG emissions in landfills in the AVAQMD portion of the MDAB would be controlled by AVAQMD Rule 1150.1.

**TABLE R4.2.6.3-5**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE BASED ON ECOBILAN DATA**

| Emission Sources | GHG Emissions | |
|---|---|---|
| | **Metric Tons $CO_{2e}$ Per Year** | **Metric Tons $CO_{2e}$ Per Year Per Capita** |
| | **Increase Resulting from 50-percent Conversion from Plastic to Paper Carryout Bags[1]** | **Increase Resulting from 50-percent Conversion from Plastic to Paper Carryout Bags[1]** |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 12,134 | 0.0011 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 58,115 | 0.0055 |
| **Total Emissions** | **70,250** | **0.0066** |

**SOURCES:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf
**NOTES:**
1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

The Boustead Study indicates that the majority of GHG emissions (approximately 60 percent) associated with the life cycle of paper carryout bags occur during decomposition in landfills. In fact, the Boustead Study states that from all operations just prior to disposal, the resulting $CO_{2e}$ emissions are more than 20 percent greater for the plastic carryout bag than for the paper carryout bag, if it is assumed that a paper carryout bag holds 1.5 times the amount of groceries that plastic carryout bags hold.[129] Based on the Boustead data, it can be reasonably assumed that under a scenario where 50 percent of customers would switch to using paper carryout bags as a result of Alternative 5, the disposal of paper carryout bags in landfills could potentially result in the emission of 184,621 metric tons of $CO_{2e}$ per year for the entire County (Table R4.2.6.3-6, *Estimated GHG Emissions Increases Due to End of Life Based on Data from Boustead*). These results are approximately 0.17 percent of the 2020 target emissions for the County (108 million

[128] Dona Sturgess, California Department of Resources Recycling and Recovery, Sacramento, CA. 29 April 2010. E-mail to Luke Mitchell, County of Los Angeles, Department of Public Works, Alhambra, CA.

[129] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*, Table 26B. Prepared for: Progressive Bag Affiliates.

metric tons), and approximately 0.04 percent of the 2020 target emissions for California (427 million metric tons).

These results are higher than those calculated using Ecobilan data, emphasizing the uncertainty in using LCA data to estimate GHG emissions. In addition, the Boustead Study calculates GHG emissions for end of life using 20-year $CO_2$ equivalents, which means that $CH_4$ is considered to have 62 times the global warming potential of $CO_2$.[130] It is standard practice to use 100-year $CO_2$ equivalents when calculating $CO_{2e}$, which means that $CH_4$ emissions are considered to have 23 times the global warming potential compared to $CO_2$.[131] The non-standard method of calculating $CO_{2e}$ for end of life in the Boustead Study inflates the result and renders them incomparable directly to $CO_{2e}$ for end of life calculated in other LCAs. In addition, the Boustead Study assumes that only 40 percent of $CH_4$ in landfills is captured, which is a significant underestimate considering that the USEPA's Landfill Methane Outreach Program states that methane collection efficiency typically ranges from 60 to 90 percent.[132] However, even assuming a worst-case scenario where Alternative 5 causes an indirect increase in disposal of paper carryout bags, any potential increases in GHG emissions in landfills in the SCAQMD portion of the SCAB would be controlled by SCAQMD Rule 1150.1, and any potential increases in GHG emissions in landfills in the AVAQMD portion of the MDAB would be controlled by AVAQMD Rule 1150.1, as well as the new state requirements that regulate methane emissions from landfills in accordance with the goals of Assembly Bill 32.[133]

However, like the proposed ordinances, based on the County's conservative worst-case analysis, the indirect impacts to GHG emissions from the end-of-life of paper carryout bags may have the potential to be cumulatively considerable, depending on the actual percentage conversion to paper carryout bags. Applying the threshold "Generate greenhouse gas emissions, either directly or indirectly that may have a significant effect on the environment", the conclusion that GHG emissions due to the end of life of paper carryout bags in landfills would be potentially cumulatively considerable, is based on the County's assumption of a conservative scenario of 50-percent conversion to paper carryout bags as set forth in Table R4.2.6.3-5. However, if the paper bag fee in Alternative 5 has a similar effect of decreasing conversion to paper carryout bags by 80 to 90 percent, like the Ireland and Washington, D.C., bag fees, indirect impacts to GHG emissions could be minimal and less than significant on a cumulative impact level. The County currently has an education outreach program for curbside recycling, which includes paper carryout bags.[134] Further, the Final EIR identifies mitigation for "end of life" GHG emission impacts under which the County would undertake additional public outreach through an education program that would aim to increase the percentage of paper carryout bags that are recycled within the County. There is nearly universal access to curbside recycling throughout the County, where paper bags can be recycled by homeowners conveniently. Additional public education and outreach would increase

[130] Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates. Table 26B.

[131] California Climate Action Registry. January 2009. *California Climate Action Registry General Reporting Protocol, Version 3.1*. Los Angeles, CA.

[132] United States Environmental Protection Agency. Accessed October 7, 2010. Landfill Methane Outreach Program. Available at: http://www.epa.gov/lmop/basic-info/index.html#a03

[133] California Environmental Protection Agency Air Resources Board. June 17, 2010. Methane Emissions from Municipal Solid Waste Landfills. Available at: http://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf

[134] County of Los Angeles Department of Public Works. Accessed October 12, 2010. Outreach Programs. Web sites available at: http://dpw.lacounty.gov/epd/recycling/outreach.cfm and http://dpw.lacounty.gov/epd/recycling/crm.cfm

the number of bags recycled and further reduce indirect impacts of Alternative 5 to GHG emissions. It's also important to note that GHG emissions from landfills located in the County are already controlled in accordance with applicable regional, State, and federal regulations pertaining to GHG emissions. Potential increases in GHG emissions due to decomposition of paper carryout bags in landfills in the County will be controlled by AVAQMD Rule 1150.1 or SCAQMD Rule 1150.1. However, because the County cannot determine with certainty the percentage transition from plastic to paper carryout bags, and the percentage that will end up in the landfills, the County is proceeding forward with the conclusion that indirect impacts resulting from the decomposition of paper carryout bags in landfills would have the potential to be cumulatively significant under the County's conservative worst-case analysis.

Based on this conservative analysis, the indirect impacts to GHG emissions from the end of life of paper carryout bags may have the potential to be cumulatively considerable, depending on the actual percentage increase in conversion to paper carryout bags, the number of stores affected, the actual bag usage per day, the size of the fee or charge, and other relevant factors that are specific to each of the 88 incorporated cities within the County. In the development of this EIR, the County has recognized and acknowledged that each city has the authority to render an independent decision regarding implementation of its own ordinance. For the purposes of this EIR, the County has extended the worst-case scenario for the County ordinance and alternatives to a scenario where all 88 cities adopt comparable ordinances. However, an individual determination, including for cumulative impacts, for each city would be contingent on the exact parameters of the city's proposed ordinance, consideration of the above-identified factors, the city's adopted thresholds of significance, and its projected AB 32 GHG emissions target.

**TABLE R4.2.6.3-6**
**ESTIMATED GHG EMISSIONS INCREASES DUE TO END OF LIFE BASED ON DATA FROM BOUSTEAD**

| Emission Sources | GHG Emissions | |
|---|---|---|
| | Metric Tons $CO_{2e}$ Per Year | Metric Tons $CO_{2e}$ Per Year Per Capita |
| | Increase Resulting from 50-percent Conversion from Plastic to Paper Carryout Bags[1] | Increase Resulting from 50-percent Conversion from Plastic to Paper Carryout Bags[1] |
| Conversion from plastic to paper carryout bags in the 1,091 stores in the unincorporated territory of the County | 31,890 | 0.00300 |
| Conversion from plastic to paper carryout bags in the 5,084 stores in the incorporated cities of the County | 152,731 | 0.01439 |
| **Total Emissions** | **184,621** | **0.01739** |

**SOURCE:** Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper.* Prepared for: Progressive Bag Affiliates.
**NOTE:** 1. Assuming 21 percent of paper carryout bags are diverted from landfills and 5.2 percent of plastic carryout bags are diverted from landfills.

The Ecobilan Study also presented an LCA analysis of a reusable bag and concluded that that particular reusable bag has a smaller impact on GHG emissions than the impact of a plastic

carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.3.5-4).[135] The impacts of the reusable bag are reduced further when the bag is used additional times. Although the Ecobilan data are particular to a specific type of reusable bag, they illustrate the general concept of how GHG emission impacts of the life cycle of reusable bags are reduced with additional uses. The ExcelPlas report supports Ecobilan data with its finding that, of the different types of bags studied, reusable bags had the lowest GHG emission impacts over the total life cycle.[136] Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifespan of 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that calico and polypropylene reusable bags that are used 104 times results in environmental impacts that are significantly less than the impacts resulting from paper and plastic carryout bags (Table R4.2.6.3-7, *Relative Environmental Impacts of Various Types of Bags*).[137] Therefore, GHG emission impacts due to the life cycle of a reusable bag would be expected to be significantly less than the GHG emission impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in a reduction in GHG emissions.

[135] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[136] ExcelPlas Australia, Centre for Design at RMIT, and NOLAN-ITU. 2004. *The Impacts of Degradable Plastic Bags in Australia*. Moorabbin VIC, AU.

[137] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

## TABLE R4.2.6.3-7
## RELATIVE ENVIRONMENTAL IMPACTS OF VARIOUS TYPES OF BAGS

| Bag Type | Number of Trips | Relative Impacts on a Scale from 1 to 5 | | | | | |
|---|---|---|---|---|---|---|---|
| | | Material Consumption | Global Warming | Energy Consumption | Water Use | Litter Marine Biodiversity | Litter Aesthetics |
| Reusable non-woven plastic (polypropylene) "Green Bag" | 104 | ♠ | ♠ | ♠ | ♠ | ♠ | ♠ |
| Reusable calico (cotton) bag | 104 | ♠ | ♠ | ♠ | ♠♠♠♠♠ | ♠ | ♠ |
| 100-percent recycled content paper carryout bag | 2 | ♠♠♠♠♠ | ♠♠♠ | ♠♠ | ♠ | ♠ | ♠ |
| Oxo-biodegradable carryout bag | 1 | ♠♠♠ | ♠♠ | ♠♠♠ | ♠ | ♠♠♠ | ♠♠ |
| 100-percent recycled content plastic (HDPE) carryout bag | 1 | ♠♠♠ | ♠ | ♠ | ♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |
| Paper carryout bag | 2 | ♠♠♠♠♠ | ♠♠♠♠ | ♠♠♠ | ♠ | ♠ | ♠ |
| Compostable (starch-polyester) carryout bag | 1 | ♠♠♠♠ | ♠ | ♠ | ♠♠♠♠♠ | ♠ | ♠♠ |
| Plastic (HDPE) carryout bag | 1 | ♠♠♠ | ♠♠ | ♠♠♠♠ | ♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |
| 100-percent recycled content paper carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠ | ♠ | ♠ | ♠♠ |
| Paper carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠ | ♠ | ♠♠ |
| Plastic (LDPE) "boutique" carryout bag | 1 | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠♠♠♠♠ | ♠ | ♠♠♠♠♠ | ♠♠♠♠♠ |

**SOURCE:** Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives.* Prepared for: Sustainability Victoria, Victoria, Australia.

**NOTES:**

1. A rating of ♠ to ♠♠♠♠♠ is used to show the diversity of impacts for each criteria, with ♠ being the lowest impact. In some cases at the high impact end, the impact value of the bag falls outside of the rating scale. Impacts cannot be added together to produce an overall impact rating.

HDPE = High density polyethylene
LDPE = Low density polyethylene

Similar to the proposed ordinances, Alternative 5 would not directly generate GHG emissions that may have a significant impact on the environment, and applying the second threshold, would not conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing GHGs emissions. As with the proposed ordinances, which would cause a less than significant increase in emissions due to delivery truck trips to transport paper carryout bags to affected stores, Alternative 5 would be expected to cause a potential increase in delivery truck trips required to transport paper carryout bags to affected stores. Assuming that in the unincorporated territory of the County, Alternative 5 would affect 67 stores each using 10,000 plastic carryout bags per day, and 1,024 stores each using 5,000 plastic carryout bags per day, a 50-percent conversion to paper carryout bags would be expected to require fewer than 17 additional truck trips per day.[138] Assuming that in the 88 incorporated cities of the County, Alternative 5 would affect 462 stores each using 10,000 plastic carryout bags per day, and 4,622 stores each using 5,000 plastic carryout bags per day, a 50-percent conversion to paper carryout bags would be expected to require fewer than 79 additional truck trips per day.[139]

[138] (1,024 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (67 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 33 daily truck trips

[139] (4,622 stores x 5,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x (462 stores x 10,000 plastic carryout bags per day / 2,304,000 plastic carryout bags per truck) x 13 ≈ 156.5 daily truck trips

URBEMIS 2007 was used to calculate the GHG emissions that would be anticipated to result from 17 additional truck trips per day to and from the 1,091 stores in the unincorporated territory of the County, and up to 79 additional truck trips per day to and from the 5,084 stores in the incorporated cities of the County (Table R4.2.6.3-8, *Estimated Daily Operational Emissions Due to Increased Vehicle Trips from 50-percent Conversion from Plastic to Paper Carryout Bags)* (Appendix D). The unmitigated emissions due to delivery truck trips would be approximately 46 metric tons per year of $CO_2$ for the 1,091 stores that would be affected by Alternative 5 in the unincorporated territory of the County, and up to an additional 214 metric tons per year if similar ordinances were adopted in the 88 incorporated cities of the County (Table 4.2.6.3-8). The total indirect GHG emissions due to mobile sources as a result of a 50-percent conversion scenario throughout the County represents an increase of approximately 0.00006 percent of California's GHG emissions target for 2020 of 427 million metric tons per year, and approximately 0.0002 percent of the County's target emissions for 2020 (108 million metric tons), or 0.00005 metric ton per capita per year, which would not conflict with the emission reduction goals established to reduce emissions of GHGs in California down to 1990 levels by 2020 as required by AB 32 (approximately 427 million metric tons in total or 9.6 metric tons per capita by 2020).[140] Therefore, the indirect GHG emissions due to mobile sources for Alternative 5 would be expected to be below the level of significance. These impacts are also less than the impacts anticipated as a result of Alternative 3, which would not place any limitation on the issuance of paper carryout bags.

**TABLE R4.2.6.3-8**
**ESTIMATED DAILY OPERATIONAL EMISSIONS DUE TO INCREASED VEHICLE TRIPS FROM 50-PERCENT CONVERSION FROM PLASTIC TO PAPER CARRYOUT BAGS**

| Emission Sources | $CO_2$ Emissions (Pounds/Day) | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) | Target GHG Emissions per Capita in the County (metric tons of $CO_{2e}$) |
|---|---|---|---|---|
| 17 delivery truck trips in the unincorporated territory of the County | 278.44 | 46.10 | 0.000004 | **9.6** |
| 79 delivery truck trips in the incorporated cities of the County | 1293.91 | 214.22 | 0.000020 | |
| **Total Emissions** | **1,572.35** | **260.32** | **0.000025** | |

An increase in demand for reusable bags would also result in additional transport of reusable bags to stores. However, due to the fact that reusable bags must be designed to have a minimum lifetime of at least 125 uses, the number of reusable bags required would be expected to be far less than the number of carryout bags currently used. Therefore, it can be reasonably expected that fewer delivery truck trips would be required if more customers switched from plastic carryout bags to reusable bags than if they switched from plastic carryout bags to paper carryout bags. Therefore, as will the proposed ordinances, GHG emission impacts of Alternative 5 due to mobile source emissions would be expected to be below the level of significance.

[140] California Air Resources Board. December 2008. *Climate Change Scoping Plan: A Framework for Change*. Available at: http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm

Mitigation Measures

Wherever the EIR identifies a potential significant impact from "end of life" GHG emissions, the Final EIR recommends the adoption of all of the following mitigation measures. Although these measures will help offset GHG emissions, they may not mitigate them to below the level of significance.

**Mitigation Measure MM-GHG-1** Implement and/or expand public outreach and educational programs to increase the percentage of paper carryout bags that are recycled curbside.

If the adopted ordinance includes a fee or charge of at least $0.05 on the issuance of paper carryout bags, consider increases to the fee or charge to further reduce consumption of paper carryout bags.

Distribute reusable grocery bags, free of charge within the ordinance-affected area to encourage further transitions to reusable bags. Consider public/private partnerships to offset costs of distribution.

Implement an outreach program for affected stores to encourage consumer transition to reusable bags, to reduce double bagging, and to encourage reuse and in-store recycling of paper carryout bags.

Encourage grocery stores to implement energy efficiency technology particularly in relation to storage of cold and frozen foods (assuming a reduction of 0.65 metric ton carbon dioxide equivalent for each megawatt hour saved).[141]

Consider converting public vehicles to low-emitting fuels (assuming a reduction of 0.45 metric ton carbon dioxide equivalent for each 1,000 vehicle miles traveled).[142] Consider funding conversion of vehicles through participation in the Carl Moyer Program of the South Coast Air Quality Management District.

*Hydrology and Water Quality*

Significance Thresholds

The potential for the proposed ordinances to result in impacts to public services was analyzed in relation to the questions contained in Appendix G of the State CEQA Guidelines. The proposed ordinances would be considered to have a significant impact to hydrology and water quality if they fulfill the following thresholds:

[141] Emission factors taken from http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results

[142] Emission factors taken from http://www.epa.gov/cleanenergy/energy-resources/calculator.html#results

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

As with the proposed ordinances, the impacts to hydrology and water quality caused by Alternative 5 would be expected to be below the level of significance. Alternative 5 would be expected to further reduce the disposal of plastic carryout bags in the County and to create additional benefits for hydrology and water quality. Due to the fee on the issuance of paper carryout bags, Alternative 5 would result in a smaller percentage increase in the consumer use of paper carryout bags than the increase from the proposed ordinances. Therefore, Alternative 5 would be expected to cause less eutrophication due to a smaller indirect increase in the manufacture of paper carryout bags. Several LCAs have analyzed the impacts of bag manufacturing upon eutrophication and concluded that paper carryout bag manufacturing releases more pollutants, such as nitrates and phosphates, into water than does plastic carryout bag manufacturing.[143,144] Using the Ecobilan results, it was determined that a 50-percent conversion from the use of plastic carryout bags to the use of paper carryout bags would be expected to increase eutrophication by approximately 9 kilograms of phosphate equivalent per day for the 1,901 affected stores in the unincorporated territory of the County, and by up to 42 additional kilograms of phosphate per day if similar ordinances were adopted by the 88 incorporated cities of the County (Table R4.2.6.3-9, *Eutrophication Due to Plastic and Paper Carryout Bags Based on Ecobilan Data,* and Appendix C*)*.

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

[144] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

## TABLE R4.2.6.3-9
## EUTROPHICATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA

| Eutrophication Sources | Eutrophication (kilograms phosphate equivalent) | |
|---|---|---|
| | Eutrophication from Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Eutrophication due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 1.79 | 8.79 |
| Eutrophication due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 8.59 | 42.08 |
| **Total eutrophication due to carryout bag use** | **10.39** | **50.87** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Increased demand for reusable bags could also indirectly increase eutrophication impacts from facilities that manufacture reusable bags. However, impacts of reusable bag manufacturing upon eutrophication are likely to be less significant than the impacts due to plastic and paper carryout bag manufacturing, when considered on a per-use basis. For example, the Ecobilan Study evaluated the eutrophication impacts of a reusable bag that measures 70 micrometers thick (approximately 2.8 mils), weighs 44 grams, and holds 37 liters of groceries, and concluded that this particular reusable bag has a lesser impact on eutrophication than the impact from a plastic carryout bag, as long as the reusable bag is used at least three times (Table 3.4.4-2).[145] The impacts of the reusable bag are reduced further when the bag is used additional times (Table 3.4.4-2). Although the Ecobilan data are particular to a specific type of reusable bag, they illustrate the general concept of how the eutrophication impacts of reusable bag manufacturing are reduced with each time a bag is used. Reusable bags, by the definition established by the proposed ordinances, must be designed to have a minimum lifespan of 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly less than the impacts resulting from paper and plastic carryout bags (Table R4.2.6.3-7).[146] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly less than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to be environmentally beneficial.

While a quantitative analysis for eutrophication has been undertaken as discussed above, determining the level of significance of eutrophication impacts from bag manufacturing would be speculative due to the lack of an established baseline or significance threshold, and is further inapplicable and speculative given that the manufacturing facilities for paper carryout bags appear not be located within the County. Since the majority of paper carryout bags supplied to the greater Los Angeles metropolitan area are produced in and delivered from states outside of California,[147] or

[145] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[146] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[147] Watt, Stephanie, Sapphos Environmental, Inc., Santa Monica, CA. 15 July 2009. Telephone communication with Ms. Carol Trout, Customer Service Department, Duro Bag Manufacturing Company, Florence, KY.

from countries outside of the United States, such as Canada,[148] there would be no expected impacts from eutrophication to surface water quality in the watersheds in the County as a result of Alternative 5. Since there appears to be no manufacturing and production of paper carryout bags in the County unincorporated and incorporated areas, there would be no expected impacts to water quality resulting from eutrophication during the manufacturing process. Therefore, indirect impacts to water quality from eutrophication due to a potential increase in the demand for paper carryout bag manufacturing would be expected to be less than significant.

Further, any indirect increase in pollutant discharge from manufacturing plants due to increased demand for paper carryout bags would be regulated and controlled by the local, regional, and federal laws applicable to each manufacturing plant. It is incorrect to assume that eutrophication resulting from the production and manufacture of paper carryout bags would be left unchecked and unregulated. Within the United States, pollutant discharges from bag manufacturing facilities have to comply with National Pollutant Discharge Elimination System requirements and permits. Therefore, impacts of Alternative 5 upon surface water quality outside of the Southern California region due to eutrophication would also be expected to be less than significant. In addition, any adverse indirect impact upon water quality due to eutrophication would likely be offset by the positive impacts Alternative 5 would be expected to have upon water quality due to a decrease of litter attributed to plastic carryout bags in water bodies.

As with the proposed ordinances, Alternative 5 would not violate any water quality standards or waste discharge requirements; would not 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; would not substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or siltation; would not substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding; would not create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; would not otherwise substantially degrade water quality; would not place housing within a 100-year flood hazard area; would not place within a 100-year flood hazard area structures that would impede or redirect flood flows; would not 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; and would not cause inundation by seiche, tsunami, or mudflow. As with the proposed ordinances, Alternative 5 would be expected to benefit surface water drainage, storm drain systems, and surface water quality in the County. Alternative 5 would further assist the County in attaining TMDLs because it would result in even less litter attributable to plastic carryout bags. As with the proposed ordinances, Alternative 5 would not be expected to result in any significant adverse impacts to hydrology and water quality, and would achieve additional benefits due to a greater reduction in the use of plastic carryout bags.

*Utilities and Service Systems*

As with the proposed ordinances, the impacts to utilities and service systems as a result of Alternative 5 would be expected to be below the level of significance. Due to the fact that Alternative 5 would result in additional reductions in the disposal of plastic carryout bags in the County, Alternative 5 would also create additional potential benefits to utilities and service systems

[148] National Council for Air and Stream Improvement. February 5, 2010. *Life Cycle Assessment of Unbleached Paper Grocery Bags*. Prepared for: American Forest and Paper Association and Forest Product Association of Canada

in terms of reducing indirect impacts associated with the production and disposal of plastic carryout bags. Due to the implementation of a fee on the issuance of paper carryout bags, Alternative 5 would result in a smaller degree of increase in the consumer use of paper carryout bags compared with the proposed ordinances. Therefore, Alternative 5 would result in a lesser increase in water use, wastewater generation, energy consumption, and solid waste generation due to a smaller indirect increase in the manufacture of paper carryout bags. Similarly, like the proposed ordinances, Alternative 5 would not result in a cumulatively considerable contribution to a significant cumulative impact.

Wastewater Generation

It is important to note that manufacturing facilities for paper carryout bags appear not to be located within the County. Therefore, any increase in wastewater generation due to paper carryout bag manufacturing would not impact wastewater treatment providers in the County. However, using the Ecobilan results and assuming that 50 percent of consumers switch from plastic carryout bags to paper carryout bags, there would be an expected increase in wastewater of approximately 0.04 MGD for the 1,091 affected stores in the unincorporated territory of the County, and up to an additional 0.17 MGD if similar ordinances were to be adopted by the 88 incorporated cities of the County (Table R4.2.6.3-10, *Wastewater Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The Sanitation Districts of Los Angeles County treat approximately 510 MGD.[149] Therefore, an additional 0.21 MGD due to paper carryout bag use throughout the County, or approximately 0.04 percent of the current amount of wastewater treated per day, would not be considered a significant increase in wastewater and would not be anticipated to necessitate construction of new wastewater treatment facilities or expansion of existing facilities.

**TABLE R4.2.6.3-10**
**WASTEWATER GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Wastewater Sources | Wastewater Generation (MGD) | |
|---|---|---|
| | Wastewater Generation Due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Wastewater generation due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.12 | 0.04 |
| Wastewater generation due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.57 | 0.17 |
| **Total Wastewater Generation** | **0.69** | **0.21** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[149] Sanitation Districts of Los Angeles County. Accessed on: 8 March 2010. "Wastewater Facilities." Web site. Available at: http://www.lacsd.org/contact/facility_locations/wastewater_facilities.asp

Water Supply

The Ecobilan results also show that the potential increase in required water supply due to a 50-percent conversion from plastic carryout bags to paper carryout bags would be approximately 0.08 MGD for the 1,091 affected stores in the unincorporated territory of the County, and up to an additional 0.39 MGD if similar ordinances were adopted within the 88 incorporated cities of the County (Table R4.2.6.3-11, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*). The water districts within the County supplied approximately 1,563 MGD in fiscal year 2007/2008; therefore, the estimated water demands from Alternative 5 would represent approximately 0.03 percent of this total, which would not be considered to be significant.[150] It is also important to note that manufacturing facilities for paper carryout bags appear not to be located within the County. Therefore, any increase in water supply necessary for paper carryout bag manufacturing would not impact water suppliers in the County.

**TABLE R4.2.6.3-11**
**WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Water Consumption Sources | Water Consumption (MGD) | |
|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.13 | 0.08 |
| Water consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 0.60 | 0.39 |
| **Total Water Consumption** | **0.72** | **0.47** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

Other studies, including the Boustead Study, have also noted that paper carryout bag manufacturing requires more water consumption than plastic manufacturing requires.[151] The Boustead results support the conclusion that the potential increase in required water supply due to an 50-percent conversion scenario would be approximately 1.76 MGD for the 1,091 affected stores in the unincorporated territory of the County, and up to an additional 8.44 MGD if similar ordinances were adopted within the 88 incorporated cities of the County (Table R4.2.6.3-12, *Water Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C*)*. The water districts within the County supplied approximately 1,563 MGD in fiscal year 2007/2008; therefore, the estimated water demands from Alternative 5 would represent approximately 0.65 percent of this total.[152] Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout bags for stores in the County

[150] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007 to June 30, 2008. Los Angeles, California. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

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

[152] The Metropolitan Water District of Southern California. 2008. Annual Report for the Fiscal Year July 1, 2007, to June 30, 2008. Los Angeles, California. Available at: http://www.mwdh2o.com/mwdh2o/pages/about/AR/AR08.html

appear not to be located within the County. Therefore, the water supply required for paper carryout bag manufacturing may be supplied by water districts outside of the County or outside of California, so impacts may not directly affect the water districts within the County. Therefore, the additional water supply expected to be required by paper carryout bag manufacturing facilities as an indirect result of Alternative 5 would not be anticipated to necessitate new or expanded entitlements for water.

**TABLE R4.2.6.3-12**
**WATER CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS**
**BASED ON BOUSTEAD DATA**

| Water Consumption Sources | Water Consumption (MGD) | |
|---|---|---|
| | Water Consumption Due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Water consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.22 | 1.76 |
| Water consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 1.07 | 8.44 |
| **Total Water Consumption** | **1.30** | **10.21** |

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

Alternative 5 would be expected to significantly increase consumers' use of reusable bags, the production of which would consume less water than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used multiple times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less water than a plastic carryout bag, as long as the reusable bag is used a minimum of three times.[153] The water demands of the reusable bag are reduced further when the bag is used additional times.[154] Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept of how water supply impacts of reusable bag manufacture are reduced the more times a bag is used. A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in water savings equivalent to approximately 7 liters per household per year (which is equivalent to just under 2 gallons per household per year).[155] As the banning of plastic carryout bags is expected to increase the use of reusable bags, life cycle water supply impacts are anticipated to be reduced. The Hyder Study does note that water consumption required for the life cycle of a calico (cotton) reusable bag would be greater than the water consumption required for

[153] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[154] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[155] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

the life cycle of a non-woven polypropylene reusable bag (Table R4.2.6.3-7).[156] However, all other life cycle impacts of the calico reusable bag were determined to be just as low as the impacts of the polypropylene reusable bag (Table R4.2.6.3-7).[157] Polypropylene reusable bags are more widely available in the County than are calico reusable bags due because they less expensive to produce. Therefore, it is anticipated that Alternative 5 would only have the potential for a limited increase in the use of calico reusable bags in the County. In addition, the manufacturing facilities that produce calico reusable bags for stores in the County appear to not be located within the County. Therefore, the water supply required for reusable bag manufacturing may be supplied by water districts outside of the County or outside of California, so impacts may not directly affect the water districts within the County. Therefore, the additional water supply that may be required by reusable bag manufacturing facilities as an indirect result of Alternative 5 would not necessitate new or expanded entitlements for water and would not constitute a significant impact under CEQA.

Solid Waste

Using the Ecobilan data and adjusting for a scenario in which all bags go to landfills at the end of life, and further adjusting the data for current recycling rates and the number of bags used by stores that would be affected by the Alternative 5 throughout the County, it can be concluded that a 50-percent conversion scenario would result in less solid waste deposited at landfills each day (Table R4.2.6.3-13, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C).[158] Alternative 5 would also be expected to increase the use and eventual disposal of reusable bags, which, by the definition established by the proposed ordinances, must be designed to have a minimum lifespan of 125 uses. The Hyder Study analyzes life cycle impacts of several different types of bags and concludes that a polypropylene reusable bag that is used 104 times results in environmental impacts that are significantly less than the impacts resulting from paper and plastic carryout bags (Table R4.2.6.3-7).[159] Therefore, environmental impacts due to the life cycle of a reusable bag would be expected to be significantly less than the environmental impacts of a plastic or paper carryout bag when considered on a per-use basis, and any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to result in an environmental benefit. The permitted daily maximum capacity of the County landfills in total is 43,749 tons per day (Table 3.5.2-1). Based on first quarter 2009 daily average in-County disposal averages, the County landfills are not accepting anywhere near the daily maximum capacity, averaging only 21,051 tons per day; the estimated remaining permitted capacity of County landfills is 154.386 million tons (Table 3.5.2-1). In addition, approximately 20 percent of County waste is distributed to out-of-County landfills.[160] Therefore, the existing landfills in the County would be expected to accommodate any indirect solid waste impacts of Alternative 5, and expected impacts of Alternative 5 to utilities and service systems related to solid waste generation would be expected to be below the level of significance. Finally, although the impacts to utilities and service systems would be expected to be below the level of significance, the County is considering undertaking

[156] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

[157] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

[158] U.S. Environmental Protection Agency. November 2008. *Municipal Solid Waste in the United States: 2007 Facts and Figures*. Washington, DC. Available at: http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf

[159] Hyder Consulting. 18 April 2007. *Comparison of existing life cycle analyses of plastic bag alternatives*. Prepared for: Sustainability Victoria, Victoria, Australia.

[160] County of Los Angeles, Department of Public Works. Report 34. 30 March 2010. Waste Disposal Summary Reports by Quarter by Aggregated Jurisdiction Data.

additional public outreach through an education program that would aim to increase the percentage of paper carryout bags that are recycled within the County. There is nearly universal access to curbside recycling throughout the County, where paper bags can be recycled by homeowners conveniently. Additional public education and outreach would increase the number of bags recycled and further reduce indirect impacts of Alternative 5 to utilities and service systems with regard to solid waste.

**TABLE R4.2.6.3-13**
**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA**

| Solid Waste Sources | Solid Waste Generation (Tons per day) | |
|---|---|---|
| | Plastic Carryout Bag LCA | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use, Assuming 2007 EPA Recycling Rates[1,2] |
| Waste due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 41.63 | -3.55 |
| Waste due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 199.40 | -16.99 |
| **Total waste** | **241.03** | **-20.54** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTES:**
1. Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion from the current use of plastic carryout bags, to a 50 percent use of paper carryout bags.
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags

Other studies, including the Boustead Study, have noted that paper carryout bag disposal generates more solid waste than the disposal of plastic carryout bags.[161] The Boustead results support the conclusion a 50-percent conversion from use of plastic carryout bags to use of paper carryout bags would result in approximately 44.02 additional tons of solid waste per day from the 1,091 stores in the unincorporated territory of the County, and up to an additional 210.82 tons of solid waste per day if similar ordinances were adopted within the 88 incorporated cities of the County (Table R4.2.6.3-14, *Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C). The permitted daily maximum capacity of the County landfills in total is 43,749 tons per day (Table 3.5.2-1). Under the 50-percent conversion scenario, the amount of solid waste generated throughout the County based on Boustead data is approximately 0.58 percent of the total daily capacity of the landfills in the County. Therefore, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts from Alternative 5; impacts from Alternative 5 to utilities and service systems related to solid waste generation would be expected to be below the level of significance. The amount of solid waste generated for the life cycle of paper carryout bags according to the Boustead Study is considerably higher than the amount of solid waste generated for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study and

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

the importance of understanding study boundaries, inputs, and methodologies.[162] However, the existing landfills in the County would be expected to be able to accommodate any indirect solid waste impacts from Alternative 5; impacts from Alternative 5 to utilities and service systems related to solid waste generation would be expected to be below the level of significance. This is especially true given that the County landfills accept an average of only 21,051 tons per day, which is far from the daily maximum capacity; the estimated remaining permitted capacity of the County landfills is 154.386 million tons (Table 3.5.2-1). Finally, if the County undertakes additional public outreach through a paper bag recycling public education program that would aim to increase the percentage of paper carryout bags that are recycled within the County, it could further reduce indirect impacts from Alternative 5 to utilities and service systems with regard to solid waste.

**TABLE R4.2.6.3-14**
**SOLID WASTE GENERATION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA**

| Solid Waste Sources | Solid Waste Generation (Tons per day) | |
|---|---|---|
| | Waste Generation due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Waste due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 29.93 | 44.02 |
| Waste due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 143.36 | 210.82 |
| **Total Solid Waste** | **173.29** | **254.84** |

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

Energy Conservation

The results of the Ecobilan LCA were used to analyze the potential energy consumption in a conservative worst-case scenario of 50-percent conversion of plastic carryout bags to paper carryout bags (Table R4.2.6.3-15, *Non-renewable Energy Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data*, and Appendix C). The Ecobilan results support the conclusion that there would be a potential decrease in non-renewable energy consumption 50 percent of consumers switched from use of plastic carryout bags to use of paper carryout bags in the County (Table R4.2.6.3-15 and Appendix C).

162 Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

## TABLE R4.2.6.3-15
## NON-RENEWABLE ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON ECOBILAN DATA

| Energy Consumption Sources | Energy Consumption (million kWh) | |
|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use[1] |
| Energy consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.72 | -0.35 |
| Energy consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 3.43 | -1.66 |
| **Total Energy Consumption** | **4.14** | **-2.01** |

**SOURCE:** Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.
**NOTE:**
1. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.

Other studies, including the Boustead Study, have noted that paper carryout bag manufacturing consumes more energy than plastic carryout bag manufacturing consumes.[163] The Boustead results support the conclusion that the potential increase in energy demand due to a 50-percent conversion from use of plastic carryout bags to use of paper carryout bags would be approximately 0.62 million kilowatt hours (kWh) for the 1,091 affected stores in the unincorporated territory of the County, and up to an additional 2.99 million kWh if similar ordinances were adopted within the 88 incorporated cities of the County (Table R4.2.6.3-16, *Total Energy Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data*, and Appendix C). The estimated total electricity consumption in the County in 2007 was 68,120 million kWh, with 47,484 million kWh in the non-residential sector; therefore, the estimated electricity demands from Alternative 5 (not including the energy reductions associated with conversion to reusable bags discussed below) would represent less than 0.01 percent of the total energy use in the non-residential sector of the County.[164] The amount of energy required for the life cycle of paper carryout bags according to the Boustead Study is considerably higher than the amount of energy required for the life cycle of paper carryout bags based on Ecobilan data. These apparently conflicting results emphasize the particularity of each study and the importance of understanding study boundaries, inputs, and methodologies.[165] In addition, the Ecobilan data presented above was specifically for non-renewable energy, rather than total energy. The majority of the energy use analyzed here occurs early in the life cycle of plastic and paper carryout bags, during processes such as fuel extraction and bag manufacturing. Again, it is also important to note that the paper carryout bag manufacturing facilities that produce paper carryout bags for stores in the County appear not to be located within the County. Therefore, the energy supply required for paper carryout bag manufacturing may be supplied by districts outside of the County or outside of

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

[164] California Energy Commission. Accessed on: 4 May 2010. "Electricity Consumption by County." *California Energy Consumption Data Management System*. Available at: http://ecdms.energy.ca.gov/elecbycounty.aspx

[165] Green Cities California. March 2010. *Master Environmental Assessment on Single-Use and Reusable Bags*. Prepared by ICF International. San Francisco, CA.

California, so impacts may not directly affect the County. However, even in the conservative worst-case scenario as presented here, an increase in energy demand of approximately 3.61 million kWh from a 50-percent conversion scenario, which paper carryout bag manufacturing facilities would be expected to require as an indirect result of Alternative 5, would be expected to be below the level of significance.

**TABLE R4.2.6.3-16**
**TOTAL ENERGY CONSUMPTION DUE TO PLASTIC AND PAPER CARRYOUT BAGS BASED ON BOUSTEAD DATA**

| Energy Consumption Sources | Energy Consumption (Million kWh) | |
|---|---|---|
| | Energy Consumption Due to Plastic Carryout Bags | Increase Due to 50-percent Conversion from Plastic to Paper Carryout Bag Use |
| Energy consumption due to carryout bag use in the 1,091 stores in the unincorporated territory of the County | 0.82 | 0.62 |
| Energy consumption due to carryout bag use in the 5,084 stores in the incorporated cities of the County | 3.92 | 2.99 |
| **Total Energy Consumption** | **4.74** | **3.61** |

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

It is also important to note that Alternative 5 would be expected to increase consumers' use of reusable bags, the production of which would consume less energy than the production of both paper carryout bags and plastic carryout bags when considered on a per-use basis, because reusable bags are designed to be used numerous times. For example, the Ecobilan Study concluded that the life cycle of a particular type of reusable bag requires less energy than a plastic carryout bag, as long as the reusable bag is used a minimum of three times (Table 3.5.4-11 and Appendix C).[166] The energy demands of the reusable bag are reduced further when the bag is used additional times (Table 3.5.4-11 and Appendix C). Although the Ecobilan data is particular to a specific type of reusable bag, it illustrates the general concept that energy impacts from reusable bag manufacturing are reduced with every additional use of a bag. A study by Hyder Consulting supports this finding and concludes that a reusable non-woven polypropylene bag that is used 104 times would result in energy savings of 190 mega joules per household, which is equivalent to powering a television for six months.[167] Consumers would be expected to use more reusable bags if the issuance of plastic carryout bags were banned, which would in turn reduce impacts to energy conservation. Therefore, a conversion from plastic carryout bags to reusable bags would be anticipated to have reduced impacts upon energy conservation.

As with the proposed ordinances, Alternative 5 would not be expected to exceed the wastewater treatment requirements of the applicable regional water quality control board; would not require or result in the construction of new water or wastewater treatment facilities; would not require or

[166] Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material*. Prepared for: Carrefour Group. Neuilly-sur-Seine, France.

[167] Hyder Consulting. 18 April 2007. *Comparison of Existing Life Cycle Analyses of Plastic Bag Alternatives*. Prepared for: Sustainability Victoria.

result in the construction of new storm water drainage facilities or expansion of existing facilities; would not require new or expanded entitlements for water supply; would not result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the proposed ordinances' projected demand in addition to the provider's existing commitments; would not be served by a landfill with insufficient permitted capacity to accommodate the proposed ordinances' solid waste disposal needs; and would comply with federal, state, and local statutes and regulations related to solid waste. As with the proposed ordinances, Alternative 5 would lead to reduced operational impacts and costs associated with storm drain system maintenance. Unlike the proposed ordinances, Alternative 5 would be expected to significantly impact utilities and service systems with regard to generation of solid waste, but would achieve additional benefits to the storm drain system due to a greater reduction in the use of plastic carryout bags. As with the proposed ordinances, Alternative 5 would not result in a cumulatively considerable contribution to a significant cumulative impact.

## 4.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The third, fourth, fifth, and sixth sentences under Section 4.4 (please note, Section 4.3 of the EIR has been renumbered to Section 4.4, and is noted above under the revisions and clarifications to the Table of Contents) have been deleted and replaced with the following:

> Alternatives 1, 2, 3, 4, and 5 would meet all of the basic objectives of the proposed ordinances established by the County. Alternatives 3, 4, and 5 would result in additional benefits to biological resources as a result of reduced consumption of plastic carryout bags. As with the proposed ordinances, and considering that the County is attempting to evaluate the impacts resulting from paper carryout bags from a conservative worst-case scenario, Alternative 3 may have the potential to result in cumulatively considerable impacts to GHG emissions because it would not place any limitation on the issuance of paper carryout bags. Alternatives 2 and 5 would be expected to reduce consumption of paper carryout bags through implementation of a fee. Unlike the proposed ordinances, Alternatives 1 and 4 would not result in any increase in the consumption of paper carryout bags.

## SECTION 5.0 SIGNIGIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED ORDINANCES ARE IMPLEMENTED

The first sentence in the third paragraph in this section has been deleted and replaced with the following:

> Although there are no feasible mitigation measures that could be implemented to reduce life cycle GHG emissions of paper carryout bags, the County has identified mitigation measure GHG-1 that would minimize the potential increase in use of paper carryout bags and indirectly offset GHG emissions. Although the measures specified in mitigation measure GHG-1 will help offset cumulative GHG emissions resulting from the proposed ordinances, they may not mitigate them to below the level of significance.

The beginning of the first sentence of the fourth paragraph has been revised as follows:

> Pursuant to CEQA, this EIR identifies five alternatives…

One additional bullet point has been added after the fourth paragraph on this page:

- Alternative 5, Ban Plastic Carryout Bags and Impose a Fee on Paper Carryout Bags for All Supermarkets and Other Grocery Stores, Convenience Stores, Pharmacies, and Drug Stores in Los Angeles County

The beginning of the final sentence on this page has been revised as follows:

> Each of these five alternatives…

## SECTION 10.0 REFERENCES

**Page 10-1**

The following references have been added:


American Forest and Paper Association. Accessed October 25, 2010. Web site. Facts about Paper. Available at: http://www.afandpa.org/FunFacts.aspx

Assembly Bill No. 1998. Amended in Senate August 27, 2010. Available at: http://www.leginfo.ca.gov/pub/09-10/bill/asm/ab_1951 2000/ab_1998_bill_20100827_amended_sen_v94.pdf

Azzarello, M. and Van Vleet, E. 1987. "Marine Birds and Plastic Pollution." *Marine Ecology Progress Series, 37:* 295–303.

Bjorndal, K. *et. al*. 1994. "Ingestion of marine debris by juvenile sea turtles in coastal Florida habitats." *Marine Pollution Bulletin, 28* (3). Available at: http://accstr.ufl.edu/publications/BjorndalEtAl_1994_IngestionOfMarineDebrisByJuvenileSeaTurtlesInCostalFlorida.pdf


**Page 10-2**

The following reference has been added:


California Air Resources Board. June 17, 2010. Methane Emissions from Municipal Solid Waste Landfills. Available at: http://www.arb.ca.gov/regact/2009/landfills09/landfillfinalfro.pdf


**Page 10-4**

The following references have been added:


Californians Against Waste. Accessed October 19, 2010. AB 1998 (Brownley) – Plastic Bag Ban. Available at: http://www.cawrecycles.org/issues/current_legislation/ab1998_10

California Integrated Waste Management Board. June 2007. *Performance Evaluation of Environmentally Degradable Plastic Packaging and Disposable Food Service Ware - Final Report*. Available at: http://www.calrecycle.ca.gov/Publications/Plastics/43208001.pdf

California Natural Resources Agency. December 2009. Final Statement of Reasons for Regulatory Action. Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97. Available at: http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf

**Page 10-5**

The following reference has been deleted:

> CIT Ekologik, Chalmers Industriteknik. 2000. *Distribution in Paper Sacks*. Goteborg, Sweden.

**Page 10-6**

The following references have been added:

> City of Santa Monica. June 2010. Santa Monica Single-use Carryout Bag Ordinance EIR. SCH #2010041004.
>
> City of Santa Monica. January 2010. City of Santa Monica Nexus Study. Prepared by R3 Consulting Group, Inc.
>
> City of San Jose. July 2010. Single-use Carryout Bag Ordinance. Draft Environmental Impact Report. SCH #2009102095.
>
> County of Los Angeles. 2010. Photographs of Catch Basins in Los Angeles County provided to Sapphos Environmental, Inc. by the County of Los Angeles Flood Control District. Available for viewing at Sapphos Environmental, Inc. Headquarters, Pasadena, CA.

The second reference on this page has been revised as follows:

> City of Los Angeles. 18 June 2004. *Characterization of Urban Litter*. Prepared by: Ad Hoc Committee on Los Angeles River and Watershed Protection Division. Los Angeles, CA.

**Page 10-7**

The following reference has been added:

> County of Los Angeles Department of Public Works. Accessed October 12, 2010. Outreach Programs. Web sites available at:
> http://dpw.lacounty.gov/epd/recycling/outreach.cfm and
> http://dpw.lacounty.gov/epd/recycling/crm.cfm
>
> County of Los Angeles Department of Public Works. 2007. Survey – All Solid Waste Facilities: Plastic Bag Analysis for the County of Los Angeles.

**Page 10-8**

The following references have been added:

> European Plastic Recyclers. 10 June 2009. *Press Release: Oxo Degradable Additives are Incompatible with Mechanical Recycling*. Brussels, Belgium. Available at:
> http://www.plasticsrecyclers.eu/docs/press%20release/EuPR%20Press%20Release%20-%20OXO%20Degradables%20Incompatibility%20with%20Plastics%20Recycling.pdf

Gerba, C. *et. al*. 9 June 2010. *Assessment of the Potential for Cross Contamination of Food Products by Reusable Shopping Bag*s.

Gomerčić, H. *et. al*. 2006. "Biological aspects of Cuvier's beaked whale (*Ziphius cavirostris*) recorded in the Croation part of the Adriatic Sea." *European Journal of Wildlife Research*. DOI 10.1007/s10344-006-0032-8

**Page 10-9**

The following references have been added:

Health Canada. 10 August 2010 (Last modified). "Food Safety Tips for Reusable Grocery Bags and Bins." Web site. Available at: http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/reusable-bags-sacs-reutilisable-eng.php

Keep America Beautiful. Accessed October 19, 2010. Litter Prevention. Available at: http://www.kab.org/site/PageServer?pagename=focus_litter_prevention

**Page 10-13**

The following references have been added:

Oakland Tribune. October 8, 2010. Fremont again will consider banning plastic grovery bags. Available at: http://www.insidebayarea.com/news/ci_16281639

Okeanos Ocean Research Foundation. 1989. *Marine Mammal and Sea Turtle Encounters with Marine Debris in the New York Bight and the Northeast Atlantic*. Available at: http://swfsc.noaa.gov/publications/TM/SWFSC/NOAA-TM-NMFS-SWFSC-154_P562.PDF

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***VOLUME II TECHNICAL APPENDICES***

**APPENDIX C: CALCULATION DATA**

Calculation data for Alternative 5 has been added to Appendix C.

| | |
|---|---|
| **Stores in unincorp territory** | 67 |
| **Stores in cities** | 462 |
| **Plastic bag size (liters)** | 14 |
| **Paper bag size (liters)** | 20.48 |
| **Number of plastic bags per store per day** | 10000 |
| **Number of paper bags per store per day** | 6836 |

| | |
|---|---|
| **Resuable Bag Size** | 37 |
| **Ratio of Reusable to Plastic Bags** | 2.6 |

*based on 100% conversion from plastic to paper

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

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

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

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

| Eutrophication - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA** | **Difference** | **Paper LCA** | **Difference** |
| grams phosphate per 9000 liters groceries | 0.20 | 2.35 | 2.15 | 1.17 | 0.98 |
| grams phosphate per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| grams phosphate per bag | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| grams phosphate per day per store | 3.10 | 36.55 | 33.45 | 18.27 | 15.17 |
| kg phosphate per day per store | 0.00 | 0.04 | 0.03 | 0.02 | 0.02 |
| kg phosphate per day in unincorp territory | 0.21 | 2.45 | 2.24 | 1.22 | 1.02 |
| kg phosphate per day in cities | 1.43 | 16.88 | 15.45 | 8.44 | 7.01 |
| **Total kg phosphate for whole county** | **1.64** | **19.33** | **17.69** | **9.67** | **8.03** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

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

*based on 3 uses

**based on 20 uses

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

*Assuming all bags are sent to landfill

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Liters H20 per 9000 liters groceries | 52.60 | 173.00 | 120.40 | 86.50 | 33.90 |
| Liters H2O per 1 liter groceries | 0.01 | 0.02 | 0.01 | 0.01 | 0.00 |
| Liters H2O per bag | 0.08 | 0.39 | 0.31 | 0.20 | 0.12 |
| Liters H2O per day per store | 818.22 | 2691.11 | 1872.89 | 1345.56 | 527.33 |
| Gallons H2O per day per store | 216.15 | 710.92 | 494.76 | 355.46 | 139.31 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.05 | 0.03 | 0.02 | 0.01 |
| MGD per day in cities | 0.10 | 0.33 | 0.23 | 0.16 | 0.06 |
| **Total MGD for whole county** | **0.11** | **0.38** | **0.26** | **0.19** | **0.07** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| Liters H20 per 9000 liters groceries | 52.60 | 45.67 | -6.93 | 6.85 | -45.75 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| Liters H2O per bag | 0.08 | 0.10 | 0.02 | 0.02 | -0.07 |
| Liters H2O per day per store | 818.22 | 710.37 | -107.85 | 106.56 | -711.67 |
| Gallons H2O per day per store | 216.15 | 187.66 | -28.49 | 28.15 | -188.00 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| MGD per day in cities | 0.10 | 0.09 | -0.01 | 0.01 | -0.09 |
| **Total MGD for whole county** | **0.11** | **0.10** | **-0.02** | **0.01** | **-0.10** |

*based on 3 uses

**based on 20 uses

| Water Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Gallons H20 1000 paper bags (1500 plastic) | 58.00 | 1004.00 | 946.00 | 502.00 | 444.00 |
| Gallons H2O per bag | 0.04 | 1.00 | 0.97 | 0.50 | 0.46 |
| Gallons H2O per day per store | 386.67 | 6863.28 | 6476.61 | 3431.64 | 3044.97 |
| MGD per day per store | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.03 | 0.46 | 0.43 | 0.23 | 0.20 |
| MGD per day in cities | 0.18 | 3.17 | 2.99 | 1.59 | 1.41 |
| **Total MGD for whole county** | **0.20** | **3.63** | **3.43** | **1.82** | **1.61** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| Liters H20 per 9000 liters groceries | 50.00 | 45.54 | -4.46 | 6.83 | -43.17 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Liters H2O per bag | 0.08 | 0.10 | 0.03 | 0.02 | -0.06 |
| Liters H2O per day per store | 777.78 | 708.37 | -69.41 | 106.26 | -671.52 |
| Gallons H2O per day per store | 205.47 | 187.13 | -18.34 | 28.07 | -177.40 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| MGD per day in cities | 0.09 | 0.09 | -0.01 | 0.01 | -0.08 |
| **Total MGD for whole county** | **0.11** | **0.10** | **-0.01** | **0.01** | **-0.09** |

*based on 3 uses

**based on 20 uses

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Liters H20 per 9000 liters groceries | 50.00 | 130.70 | 80.70 | 65.35 | 15.35 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| Liters H2O per bag | 0.08 | 0.30 | 0.22 | 0.15 | 0.07 |
| Liters H2O per day per store | 777.78 | 2033.11 | 1255.33 | 1016.56 | 238.78 |
| Gallons H2O per day per store | 205.47 | 537.09 | 331.62 | 268.55 | 63.08 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.01 | 0.04 | 0.02 | 0.02 | 0.00 |
| MGD per day in cities | 0.09 | 0.25 | 0.15 | 0.12 | 0.03 |
| **Total MGD for whole county** | **0.11** | **0.28** | **0.18** | **0.14** | **0.03** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Solid Waste - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| kg waste per 1000 paper bags (1500 plastic) | 7.04 | 33.90 | 26.87 | 16.95 | 9.92 |
| kg waste per bag | 0.00 | 0.03 | 0.03 | 0.02 | 0.01 |
| kg waste per day per store | 46.90 | 231.74 | 184.84 | 115.87 | 68.97 |
| tons waste per day per store | 0.05 | 0.26 | 0.20 | 0.13 | 0.08 |
| tons waste per day in unincorp territory | 3.46 | 17.11 | 13.65 | 8.56 | 5.09 |
| tons waste per day in cities | 23.88 | 118.02 | 94.13 | 59.01 | 35.12 |
| **Total tons waste for whole county** | **27.35** | **135.13** | **107.78** | **67.57** | **40.22** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Solid Waste - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| kg waste per 9000 liters groceries | 4.76 | 4.37 | -0.39 | 0.66 | -4.10 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| kg waste per day per store | 74.04 | 67.98 | -6.07 | 10.20 | -63.85 |
| tons waste per day per store | 0.08 | 0.07 | -0.01 | 0.01 | -0.07 |
| tons waste per day in unincorp territory | 5.47 | 5.02 | -0.45 | 0.75 | -4.72 |
| tons waste per day in cities | 37.71 | 34.62 | -3.09 | 5.19 | -32.52 |
| **Total tons waste for whole county** | **43.18** | **39.64** | **-3.54** | **5.95** | **-37.23** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Solid Waste - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| kg waste per 9000 liters groceries | 4.76 | 12.14 | 7.38 | 6.07 | 1.31 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.03 | 0.02 | 0.01 | 0.01 |
| kg waste per day per store | 74.04 | 188.84 | 114.80 | 94.42 | 20.38 |
| tons waste per day per store | 0.08 | 0.21 | 0.13 | 0.10 | 0.02 |
| tons waste per day in unincorp territory | 5.47 | 13.95 | 8.48 | 6.97 | 1.50 |
| tons waste per day in cities | 37.71 | 96.17 | 58.46 | 48.09 | 10.38 |
| **Total tons waste for whole county** | **43.18** | **110.12** | **66.94** | **55.06** | **11.88** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

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

| Solid Waste - Ecobilan Data | Adjusted for 2007 EPA Recycle Rates | | | Adjusted for 2007 EPA Recycle Rates | | |
|---|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Plastic LCA | Paper LCA | Difference |
| kg waste per 9000 liters groceries | 4.19 | 7.67 | 3.48 | 4.19 | 3.84 | -0.36 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.00 |
| kg waste per day per store | 65.23 | 119.35 | 54.12 | 65.23 | 59.67 | -5.56 |
| tons waste per day per store | 0.07 | 0.13 | 0.06 | 0.07 | 0.07 | -0.01 |
| tons waste per day in unincorp territory | 4.82 | 8.81 | 4.00 | 4.82 | 4.41 | -0.41 |
| tons waste per day in cities | 33.22 | 60.78 | 27.56 | 33.22 | 30.39 | -2.83 |
| **Total tons waste for whole county** | 38.04 | 69.60 | **31.56** | 38.04 | 34.80 | **-3.24** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Energy Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MJ per 9000 liters groceries | 286.00 | 295.00 | 9.00 | 147.50 | -138.50 |
| MJ per 1 liter groceries | 0.03 | 0.03 | 0.00 | 0.02 | -0.02 |
| MJ per bag | 0.44 | 0.67 | 0.23 | 0.34 | -0.11 |
| MJ per day per store | 4448.89 | 4588.89 | 140.00 | 2294.44 | -2154.44 |
| kWh per day per store | 1235.80 | 1274.69 | 38.89 | 637.35 | -598.46 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.08 | 0.09 | 0.00 | 0.04 | -0.04 |
| Million kWh per day in cities | 0.57 | 0.59 | 0.02 | 0.29 | -0.28 |
| **Total million kWh for whole county** | **0.65** | **0.67** | **0.02** | **0.34** | **-0.32** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Energy Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| MJ per 9000 liters groceries | 286.00 | 268.33 | -17.67 | 40.25 | -245.75 |
| MJ per 1 liter groceries | 0.03 | 0.03 | 0.00 | 0.00 | -0.03 |
| MJ per bag | 0.44 | 0.61 | 0.17 | 0.09 | -0.35 |
| MJ per day per store | 4448.89 | 4174.07 | -274.81 | 626.11 | -3822.78 |
| kWh per day per store | 1235.80 | 1159.47 | -76.34 | 173.92 | -1061.88 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.08 | 0.08 | -0.01 | 0.01 | -0.07 |
| Million kWh per day in cities | 0.57 | 0.54 | -0.04 | 0.08 | -0.49 |
| **Total million kWh for whole county** | **0.65** | **0.61** | **-0.04** | **0.09** | **-0.56** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Energy Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MJ per 1000 bags | 763.00 | 2622.00 | 1859.00 | 1311.00 | 548.00 |
| MJ per bag | 0.51 | 2.62 | 2.11 | 1.31 | 0.80 |
| MJ per day per store | 5086.67 | 17923.83 | 12837.16 | 8961.91 | 3875.25 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.09 | 0.33 | 0.24 | 0.17 | 0.07 |
| Million kWh per day in cities | 0.65 | 2.30 | 1.65 | 1.15 | 0.50 |
| **Total Million kWh for whole county** | **0.75** | **2.63** | **1.89** | **1.32** | **0.57** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

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

| | |
|---|---|
| **Stores in unincorp territory** | 1024 |
| **Stores in cities** | 4622 |
| **Plastic bag size (liters)** | 14 |
| **Paper bag size (liters)** | 20.48 |
| **Number of plastic bags per store per day** | 5000 |
| **Number of paper bags per store per day** | 3418 |

*based on 100% conversion from plastic to paper

| **Eutrophication - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA** | **Difference** | **Paper LCA** | **Difference** |
| grams phosphate per 9000 liters groceries | 0.20 | 2.35 | 2.15 | 1.17 | 0.98 |
| grams phosphate per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| grams phosphate per bag | 0.00 | 0.01 | 0.01 | 0.00 | 0.00 |
| grams phosphate per day per store | 1.55 | 18.27 | 16.72 | 9.14 | 7.59 |
| kg phosphate per day per store | 0.00 | 0.02 | 0.02 | 0.01 | 0.01 |
| kg phosphate per day in unincorp territory | 1.59 | 18.71 | 17.13 | 9.36 | 7.77 |
| kg phosphate per day in cities | 7.16 | 84.46 | 77.30 | 42.23 | 35.07 |
| **Total kg phosphate for whole county** | **8.75** | **103.17** | **94.43** | **51.59** | **42.84** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

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

*based on 3 uses

**based on 20 uses

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

*Assuming all bags are sent to landfill

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA** | **Difference** | **Paper LCA** | **Difference** |
| Liters H20 per 9000 liters groceries | 52.60 | 173.00 | 120.40 | 86.50 | 33.90 |
| Liters H2O per 1 liter groceries | 0.01 | 0.02 | 0.01 | 0.01 | 0.00 |
| Liters H2O per bag | 0.08 | 0.39 | 0.31 | 0.20 | 0.12 |
| Liters H2O per day per store | 409.11 | 1345.56 | 936.44 | 672.78 | 263.67 |
| Gallons H2O per day per store | 108.08 | 355.46 | 247.38 | 177.73 | 69.65 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.36 | 0.25 | 0.18 | 0.07 |
| MGD per day in cities | 0.50 | 1.64 | 1.14 | 0.82 | 0.32 |
| **Total MGD for whole county** | **0.61** | **2.01** | **1.40** | **1.00** | **0.39** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Water Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Reusable LCA** | **Difference** | **Reusable LCA** | **Difference** |
| Liters H20 per 9000 liters groceries | 52.60 | 45.67 | -6.93 | 6.85 | -45.75 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| Liters H2O per bag | 0.08 | 0.10 | 0.02 | 0.02 | -0.07 |
| Liters H2O per day per store | 409.11 | 355.19 | -53.93 | 53.28 | -355.83 |
| Gallons H2O per day per store | 108.08 | 93.83 | -14.25 | 14.07 | -94.00 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.10 | -0.01 | 0.01 | -0.10 |
| MGD per day in cities | 0.50 | 0.43 | -0.07 | 0.07 | -0.43 |
| **Total MGD for whole county** | **0.61** | **0.53** | **-0.08** | **0.08** | **-0.53** |

*based on 3 uses

**based on 20 uses

| Water Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Gallons H20 1000 paper bags (1500 plastic) | 58.00 | 1004.00 | 946.00 | 502.00 | 444.00 |
| Gallons H2O per bag | 0.04 | 1.00 | 0.97 | 0.50 | 0.46 |
| Gallons H2O per day per store | 193.33 | 3431.64 | 3238.31 | 1715.82 | 1522.49 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.20 | 3.51 | 3.32 | 1.76 | 1.56 |
| MGD per day in cities | 0.89 | 15.86 | 14.97 | 7.93 | 7.04 |
| **Total MGD for whole county** | **1.09** | **19.38** | **18.28** | **9.69** | **8.60** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| Liters H20 per 9000 liters groceries | 50.00 | 45.54 | -4.46 | 6.83 | -43.17 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| Liters H2O per bag | 0.08 | 0.10 | 0.03 | 0.02 | -0.06 |
| Liters H2O per day per store | 388.89 | 354.18 | -34.70 | 53.13 | -335.76 |
| Gallons H2O per day per store | 102.73 | 93.57 | -9.17 | 14.03 | -88.70 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.10 | -0.01 | 0.01 | -0.09 |
| MGD per day in cities | 0.47 | 0.43 | -0.04 | 0.06 | -0.41 |
| **Total MGD for whole county** | **0.58** | **0.53** | **-0.05** | **0.08** | **-0.50** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Liters H20 per 9000 liters groceries | 50.00 | 130.70 | 80.70 | 65.35 | 15.35 |
| Liters H2O per 1 liter groceries | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 |
| Liters H2O per bag | 0.08 | 0.30 | 0.22 | 0.15 | 0.07 |
| Liters H2O per day per store | 388.89 | 1016.56 | 627.67 | 508.28 | 119.39 |
| Gallons H2O per day per store | 102.73 | 268.55 | 165.81 | 134.27 | 31.54 |
| MGD per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MGD per day in unincorp territory | 0.11 | 0.27 | 0.17 | 0.14 | 0.03 |
| MGD per day in cities | 0.47 | 1.24 | 0.77 | 0.62 | 0.15 |
| **Total MGD for whole county** | **0.58** | **1.52** | **0.94** | **0.76** | **0.18** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Solid Waste - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| kg waste per 1000 paper bags (1500 plastic) | 7.04 | 33.90 | 26.87 | 16.95 | 9.92 |
| kg waste per bag | 0.00 | 0.03 | 0.03 | 0.02 | 0.01 |
| kg waste per day per store | 23.45 | 115.87 | 92.42 | 57.93 | 34.48 |
| tons waste per day per store | 0.03 | 0.13 | 0.10 | 0.06 | 0.04 |
| tons waste per day in unincorp territory | 26.47 | 130.79 | 104.32 | 65.39 | 38.93 |
| tons waste per day in cities | 119.48 | 590.34 | 470.86 | 295.17 | 175.69 |
| **Total tons waste for whole county** | **145.94** | **721.13** | **575.18** | **360.56** | **214.62** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Solid Waste - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| kg waste per 9000 liters groceries | 4.76 | 4.37 | -0.39 | 0.66 | -4.10 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.01 | 0.00 | 0.00 | -0.01 |
| kg waste per day per store | 37.02 | 33.99 | -3.03 | 5.10 | -31.92 |
| tons waste per day per store | 0.04 | 0.04 | 0.00 | 0.01 | -0.04 |
| tons waste per day in unincorp territory | 41.79 | 38.37 | -3.42 | 5.75 | -36.03 |
| tons waste per day in cities | 188.62 | 173.17 | -15.45 | 25.98 | -162.65 |
| **Total tons waste for whole county** | **230.41** | **211.53** | **-18.88** | **31.73** | **-198.68** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Solid Waste - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| kg waste per 9000 liters groceries | 4.76 | 12.14 | 7.38 | 6.07 | 1.31 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.03 | 0.02 | 0.01 | 0.01 |
| kg waste per day per store | 37.02 | 94.42 | 57.40 | 47.21 | 10.19 |
| tons waste per day per store | 0.04 | 0.10 | 0.06 | 0.05 | 0.01 |
| tons waste per day in unincorp territory | 41.79 | 106.58 | 64.79 | 53.29 | 11.50 |
| tons waste per day in cities | 188.62 | 481.07 | 292.45 | 240.54 | 51.91 |
| **Total tons waste for whole county** | **230.41** | **587.65** | **357.24** | **293.83** | **63.41** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

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

| Solid Waste - Ecobilan Data | Adjusted for 2007 EPA Recycle Rates | | | Adjusted for 2007 EPA Recycle Rates | | |
|---|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Plastic LCA | Paper LCA | Difference |
| kg waste per 9000 liters groceries | 4.19 | 7.67 | 3.48 | 4.19 | 3.84 | -0.36 |
| kg waste per 1 liter groceries | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| kg waste per bag | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 | 0.00 |
| kg waste per day per store | 32.62 | 59.67 | 27.06 | 32.62 | 29.84 | -2.78 |
| tons waste per day per store | 0.04 | 0.07 | 0.03 | 0.04 | 0.03 | 0.00 |
| tons waste per day in unincorp territory | 36.82 | 67.36 | 30.54 | 36.82 | 33.68 | -3.14 |
| tons waste per day in cities | 166.18 | 304.04 | 137.86 | 166.18 | 152.02 | -14.16 |
| **Total tons waste for whole county** | 202.99 | 371.40 | **168.40** | 202.99 | 185.70 | **-17.30** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Energy Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MJ per 9000 liters groceries | 286.00 | 295.00 | 9.00 | 147.50 | -138.50 |
| MJ per 1 liter groceries | 0.03 | 0.03 | 0.00 | 0.02 | -0.02 |
| MJ per bag | 0.44 | 0.67 | 0.23 | 0.34 | -0.11 |
| MJ per day per store | 2224.44 | 2294.44 | 70.00 | 1147.22 | -1077.22 |
| kWh per day per store | 617.90 | 637.35 | 19.44 | 318.67 | -299.23 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.63 | 0.65 | 0.02 | 0.33 | -0.31 |
| Million kWh per day in cities | 2.86 | 2.95 | 0.09 | 1.47 | -1.38 |
| **Total million kWh for whole county** | **3.49** | **3.60** | **0.11** | **1.80** | **-1.69** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Energy Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| MJ per 9000 liters groceries | 286.00 | 268.33 | -17.67 | 40.25 | -245.75 |
| MJ per 1 liter groceries | 0.03 | 0.03 | 0.00 | 0.00 | -0.03 |
| MJ per bag | 0.44 | 0.61 | 0.17 | 0.09 | -0.35 |
| MJ per day per store | 2224.44 | 2087.04 | -137.41 | 313.06 | -1911.39 |
| kWh per day per store | 617.90 | 579.73 | -38.17 | 86.96 | -530.94 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.63 | 0.59 | -0.04 | 0.09 | -0.54 |
| Million kWh per day in cities | 2.86 | 2.68 | -0.18 | 0.40 | -2.45 |
| **Total million kWh for whole county** | **3.49** | **3.27** | **-0.22** | **0.49** | **-3.00** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Energy Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MJ per 1000 bags | 763.00 | 2622.00 | 1859.00 | 1311.00 | 548.00 |
| MJ per bag | 0.51 | 2.62 | 2.11 | 1.31 | 0.80 |
| MJ per day per store | 2543.33 | 8961.91 | 6418.58 | 4480.96 | 1937.62 |
| Million kWh per day per store | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Million kWh per day in unincorp territory | 0.72 | 2.55 | 1.83 | 1.27 | 0.55 |
| Million kWh per day in cities | 3.27 | 11.51 | 8.24 | 5.75 | 2.49 |
| **Total Million kWh for whole county** | **3.99** | **14.06** | **10.07** | **7.03** | **3.04** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

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

| | |
|---|---|
| **Stores in unincorp territory 10,000 sq ft** | 1091 |
| **Stores in cities 10,000 sq ft** | 5084 |

| **Eutrophication - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA** | **Difference** | **Paper LCA** | **Difference** |
| kg phosphate per day in unincorp territory | 1.79 | 21.16 | 19.37 | 10.58 | 8.79 |
| kg phosphate per day in cities | 8.59 | 101.35 | 92.75 | 50.67 | 42.08 |
| **Total kg phosphate for whole county** | 10.39 | 122.51 | 112.12 | 61.25 | 50.87 |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

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

*based on 3 uses

**based on 20 uses

| **Water Consumption - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Paper LCA** | **Difference** | **Paper LCA** | **Difference** |
| MGD per day in unincorp territory | 0.13 | 0.41 | 0.29 | 0.21 | 0.08 |
| MGD per day in cities | 0.60 | 1.97 | 1.37 | 0.99 | 0.39 |
| **Total MGD for whole county** | **0.72** | **2.38** | **1.66** | **1.19** | **0.47** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| **Water Consumption - Ecobilan Data** | | | | | |
|---|---|---|---|---|---|
| | **Plastic LCA** | **Reusable LCA** | **Difference** | **Reusable LCA** | **Difference** |
| MGD per day in unincorp territory | 0.13 | 0.11 | -0.02 | 0.02 | -0.11 |
| MGD per day in cities | 0.60 | 0.52 | -0.08 | 0.08 | -0.52 |
| **Total MGD for whole county** | **0.72** | **0.63** | **-0.10** | **0.09** | **-0.63** |

*based on 3 uses

**based on 20 uses

| Water Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MGD per day in unincorp territory | 0.22 | 3.97 | 3.75 | 1.99 | 1.76 |
| MGD per day in cities | 1.07 | 19.03 | 17.96 | 9.52 | 8.44 |
| **Total MGD for whole county** | **1.30** | **23.01** | **21.71** | **11.50** | **10.21** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Reusable LCA | Difference | Reusable LCA | Difference |
| MGD per day in unincorp territory | 0.12 | 0.11 | -0.01 | 0.02 | -0.10 |
| MGD per day in cities | 0.57 | 0.52 | -0.05 | 0.08 | -0.49 |
| **Total MGD for whole county** | **0.69** | **0.63** | **-0.06** | **0.09** | **-0.59** |
| *based on 3 uses | | | | | |
| **based on 20 uses | | | | | |

| Wastewater Generation - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| MGD per day in unincorp territory | 0.12 | 0.31 | 0.19 | 0.16 | 0.04 |
| MGD per day in cities | 0.57 | 1.49 | 0.92 | 0.74 | 0.17 |
| **Total MGD for whole county** | **0.69** | **1.80** | **1.11** | **0.90** | **0.21** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

| Solid Waste - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| tons waste per day in unincorp territory | 29.93 | 147.90 | 117.97 | 73.95 | 44.02 |
| tons waste per day in cities | 143.36 | 708.36 | 565.00 | 354.18 | 210.82 |
| **Total tons waste for whole county** | **173.29** | **856.26** | **682.97** | **428.13** | **254.84** |
| *based on 100% conversion from plastic to paper | | | | | |
| **based on 50% conversion from plastic to paper | | | | | |

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

*based on 3 uses

**based on 20 uses

| Solid Waste - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| tons waste per day in unincorp territory | 47.26 | 120.53 | 73.27 | 60.26 | 13.01 |
| tons waste per day in cities | 226.33 | 577.24 | 350.91 | 288.62 | 62.29 |
| **Total tons waste for whole county** | **273.59** | **697.77** | **424.18** | **348.89** | **75.29** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Solid Waste - Ecobilan Data | Adjusted for 2007 EPA Recycle Rates | | | Adjusted for 2007 EPA Recycle Rates | | |
|---|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Plastic LCA | Paper LCA | Difference |
| tons waste per day in unincorp territory | 41.63 | 76.17 | 34.54 | 41.63 | 38.09 | -3.55 |
| tons waste per day in cities | 199.40 | 364.82 | 165.42 | 199.40 | 182.41 | -16.99 |
| **Total tons waste for whole county** | 241.03 | 440.99 | **199.96** | 241.03 | 220.50 | **-20.54** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

| Energy Consumption - Ecobilan Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Million kWh per day in unincorp territory | 0.72 | 0.74 | 0.02 | 0.37 | -0.35 |
| Million kWh per day in cities | 3.43 | 3.53 | 0.11 | 1.77 | -1.66 |
| **Total million kWh for whole county** | **4.14** | **4.27** | **0.13** | **2.14** | **-2.01** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

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

*based on 3 uses

**based on 20 uses

| Energy Consumption - Boustead Data | | | | | |
|---|---|---|---|---|---|
| | Plastic LCA | Paper LCA | Difference | Paper LCA | Difference |
| Million kWh per day in unincorp territory | 0.82 | 2.88 | 2.06 | 1.44 | 0.62 |
| Million kWh per day in cities | 3.92 | 13.81 | 9.89 | 6.90 | 2.99 |
| **Total Million kWh for whole county** | **4.74** | **16.69** | **11.95** | **8.34** | **3.61** |

*based on 100% conversion from plastic to paper

**based on 50% conversion from plastic to paper

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

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

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

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

| Ecobilan Emission differences caused by a 50% conversion from plastic to paper | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | **-55** | **21** | **-100** | **-24** | **-39** |
| Cities | **-376** | **146** | **-690** | **-164** | **-267** |

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

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

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

| Ecobilan Emission differences caused by a 50% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates |
|---|---|---|---|
| Unincorporated territory | **4** | | **2** |
| Cities | **30** | | **15** |

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

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

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

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

| Boustead Emission differences caused by a 50% conversion from plastic to paper | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | **-1** | **66** | **-38** | **218** | **44** |
| Cities | **-10** | **457** | **-265** | **1,501** | **300** |

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

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

* GWP = Global Warming Potential

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

* GWP = Global Warming Potential

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

| Ecobilan GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase Caused by 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions (grams) per 9,000 liters groceries | 10894.8513 | 20527.0974 | 9632.2461 | 3515769.820 | 0.331 |
| Emissions (metric tons) per 9,000 liter groceries | 0.0109 | 0.0205 | 0.0096 | 3.516 | 0.000 |
| Emissions (metric tons) per 1 liter groceries | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0000 | 0.0000 | 0.011 | 0.000 |
| Emissions (metric tons) per store | 0.1695 | 0.1597 | -0.0098 | -3.584 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 11.35 | 10.70 | -0.66 | -240 | 0.000 |
| Emissions in the cities (metric tons) | 78.30 | 73.76 | -4.54 | -1,656 | 0.000 |
| **Total Emissions in the County** | **89.65** | **84.46** | **-5.19** | **-1,896** | **0.000** |

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

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

| Boustead GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| metric tons for 1,000 paper or 1,500 plastic bags | 0.0400 | 0.0800 | 0.04 | 14.600 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0001 | 0.00 | 0.019 | 0.000 |
| Emissions (metric tons) per store | 0.2667 | 0.2734 | 0.01 | 2.471 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 17.87 | 18.32 | 0.45 | 166 | 0.000 |
| Emissions in the cities (metric tons) | 123.20 | 126.33 | 3.13 | 1,142 | 0.000 |
| **Total Emissions in the County** | **141.07** | **144.65** | **3.58** | **1,307** | **0.000** |

| ExcelPlas GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| kilograms for 520 bags | 6.0800 | 30.5000 | 24.42 | 8913.300 | 0.001 |
| Emissions (metric tons) per bag | 0.0000 | 0.0001 | 0.0000 | 0.017 | 0.000 |
| Emissions (metric tons) per store | 0.1169 | 0.2933 | 0.1763 | 64.366 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 7.83 | 19.65 | 11.82 | 4,313 | 0.000 |
| Emissions in the cities (metric tons) | 54.02 | 135.49 | 81.47 | 29,737 | 0.003 |
| **Total Emissions in the County** | **61.85** | **155.14** | **93.29** | **34,050** | **0.003** |

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

| Conversion Factors | |
|---|---|
| **grams to pounds** | 0.002204623 |
| **pounds to metric tons** | 0.000453592 |

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

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

* GWP = Global Warming Potential

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

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

| Ecobilan Emission differences caused by an 50% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates | |
|---|---|---|---|---|
| Unincorporated territory | | | **1,404** | **0.00013** |
| Cities | | | **9,682** | **0.00091** |

| Ecobilan Emission differences caused by a 100% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates | |
|---|---|---|---|---|
| Unincorporated territory | | | **2,840** | **0.00027** |
| Cities | | | **19,586** | **0.00185** |

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

| Boustead GHG emissions - Just end of life | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| metric tons for 1,000 paper or 1,500 plastic bags | 0.0030 | 0.0500 | 0.05 | 17.155 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0001 | 0.00 | 0.018 | 0.000 |
| Emissions (metric tons) per store | 0.0200 | 0.1709 | 0.15 | 55.078 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 1.34 | 11.45 | 10.11 | 3,690 | 0.00035 |
| Emissions in the cities (metric tons) | 9.24 | 78.96 | 69.72 | 25,446 | 0.00240 |
| **Total Emissions in the County** | **10.58** | **90.41** | **79.83** | **29,136** | **0.00274** |

| | | | |
|---|---|---|---|
| **Stores in unincorp territory** | 1024 | | |
| **Stores in cities** | 4622 | | |
| **Plastic bag size (liters)** | 14 | | |
| **Paper bag size (liters)** | 20.48 | **Resuable Bag Siz** | 37 |
| **Number of plastic bags per store per day** | 5000 | **Ratio of Reusable** | |
| **Ratio of Paper Bags to Plastic Bags** | 1.5 | **to Plastic Bags** | 2.6 |
| **Population in the County in 2010** | 10,615,700 | | |

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

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

| **Ecobilan Emission differences caused by a 50% conversion from plastic to paper** | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | **-417** | **162** | **-764** | **-182** | **-296** |
| Cities | **-1,882** | **729** | **-3,450** | **-820** | **-1,335** |

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

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

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

| Ecobilan Emission differences caused by a 50% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates |
|---|---|---|---|
| Unincorporated territory | **33** | | **17** |
| Cities | **151** | | **76** |

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

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

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

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

| Boustead Emission differences caused by a 50% conversion from plastic to paper | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | **-11** | **506** | **-294** | **1,664** | **332** |
| Cities | **-51** | **2,284** | **-1,327** | **7,510** | **1,500** |

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

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

* GWP = Global Warming Potential

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

* GWP = Global Warming Potential

| Ecobilan GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase Caused by 100 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions (grams) per 9,000 liters groceries | 10894.8513 | 20527.0974 | 9632.2461 | 3515769.821 | 0.331 |
| Emissions (metric tons) per 9,000 liter groceries | 0.0109 | 0.0205 | 0.0096 | 3.516 | 0.000 |
| Emissions (metric tons) per 1 liter groceries | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0000 | 0.0000 | 0.011 | 0.000 |
| Emissions (metric tons) per store | 0.0847 | 0.1597 | 0.0749 | 27.345 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 86.77 | 163.49 | 76.72 | 28,001 | 0.003 |
| Emissions in the cities (metric tons) | 391.66 | 737.93 | 346.27 | 126,388 | 0.012 |
| **Total Emissions in the County** | **478.43** | **901.41** | **422.98** | **154,389** | **0.015** |

| Ecobilan GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase Caused by 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions (grams) per 9,000 liters groceries | 10894.8513 | 20527.0974 | 9632.2461 | 3515769.820 | 0.331 |
| Emissions (metric tons) per 9,000 liter groceries | 0.0109 | 0.0205 | 0.0096 | 3.516 | 0.000 |
| Emissions (metric tons) per 1 liter groceries | 0.0000 | 0.0000 | 0.0000 | 0.000 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0000 | 0.0000 | 0.011 | 0.000 |
| Emissions (metric tons) per store | 0.0847 | 0.0798 | -0.0049 | -1.792 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 86.77 | 81.74 | -5.03 | -1,835 | 0.000 |
| Emissions in the cities (metric tons) | 391.66 | 368.96 | -22.69 | -8,284 | -0.001 |
| **Total Emissions in the County** | **478.43** | **450.71** | **-27.72** | **-10,119** | **-0.001** |

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

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

| Boustead GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| metric tons for 1,000 paper or 1,500 plastic bags | 0.0400 | 0.0800 | 0.04 | 14.600 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0001 | 0.00 | 0.019 | 0.000 |
| Emissions (metric tons) per store | 0.1333 | 0.1367 | 0.00 | 1.236 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 136.53 | 140.00 | 3.47 | 1,265 | 0.00012 |
| Emissions in the cities (metric tons) | 616.27 | 631.91 | 15.65 | 5,711 | 0.00054 |
| **Total Emissions in the County** | **752.80** | **771.91** | **19.11** | **6,977** | **0.00066** |

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

| Conversion Factors | |
|---|---|
| **grams to pounds** | 0.002204623 |
| **pounds to metric tons** | 0.000453592 |

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

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

* GWP = Global Warming Potential

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

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

| Ecobilan Emission differences caused by a 50% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates | |
|---|---|---|---|---|
| Unincorporated territory | | | **10,730** | **0.00101** |
| Cities | | | **48,433** | **0.00456** |

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

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

| Boustead GHG emissions - Just end of life | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| metric tons for 1,000 paper or 1,500 plastic bags | 0.0030 | 0.0500 | 0.05 | 17.155 | 0.000 |
| Emissions (metric tons) per bag | 0.0000 | 0.0001 | 0.00 | 0.018 | 0.000 |
| Emissions (metric tons) per store | 0.0100 | 0.0854 | 0.08 | 27.539 | 0.000 |
| Emissions in the unincorp territory (metric tons) | 10.24 | 87.50 | 77.26 | 28,200 | 0.00266 |
| Emissions in the cities (metric tons) | 46.22 | 394.95 | 348.73 | 127,285 | 0.01199 |
| **Total Emissions in the County** | **56.46** | **482.45** | **425.99** | **155,485** | **0.01465** |

| | |
|---|---|
| **Stores in unincorp territory 10,000 sq ft** | 1091 |
| **Stores in cities 10,000 sq ft** | 5084 |

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

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

| **Ecobilan Emission differences caused by a 50% conversion from plastic to paper** | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | **-471** | **183** | **-864** | **-206** | **-334** |
| Cities | **-2,258** | **875** | **-4,140** | **-984** | **-1,601** |

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

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

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

| **Ecobilan Emission differences caused by a 50% conversion from plastic to paper** | | | **Adjusted for 2007 Recycle Rates** |
|---|---|---|---|
| Unincorporated territory | **38** | | **19** |
| Cities | **181** | | **91** |

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

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

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

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

| Boustead Emission differences caused by a 50% conversion from plastic to paper | | | | | |
|---|---|---|---|---|---|
| Unincorporated territory | -13 | 572 | -332 | 1,882 | 376 |
| Cities | -61 | 2,741 | -1,592 | 9,011 | 1,800 |

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

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

| Ecobilan GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase Caused by 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 98.13 | 92.44 | -5.69 | -2,075 | 0.000 |
| Emissions in the cities (metric tons) | 469.96 | 442.72 | -27.23 | -9,940 | -0.001 |
| **Total Emissions in the County** | **568.08** | **535.16** | **-32.92** | **-12,015** | **-0.001** |

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

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

| Boustead GHG emissions | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 154.40 | 158.32 | 3.92 | 1,431 | 0.00013 |
| Emissions in the cities (metric tons) | 739.47 | 758.24 | 18.78 | 6,853 | 0.00065 |
| **Total Emissions in the County** | **893.87** | **916.56** | **22.70** | **8,284** | **0.00078** |

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

| Greenhouse Gas Emissions due to Mobile Sources | | | |
|---|---|---|---|
| | $CO_2$ Emissions (Pounds/Day)* | $CO_2$ Emissions (Metric Tons/Year) | $CO_2$ Emissions per Capita (metric tons/Year) |
| 17 Delivery Truck Trips in the Unincorporated Territory of Los Angeles | 278.44 | 46.10 | 0.000004 |
| 79 Delivery Truck Trips in the Incorporated Cities of Los Angeles | 1293.91 | 214.22 | 0.000020 |
| **Total Emissions** | **1,572.35** | **260.32** | **0.000025** |

*Numbers from URBEMIS 2007

| Ecobilan Plastic Bag LCA - Just end-of-life | | Adjusted for 2007 Recycle Rates | | |
|---|---|---|---|---|
| Emissions Sources | CO2e | CO2e | Annual CO2e | Per Capita |
| Emissions in the unincorp territory (metric tons) | **1** | **1** | 278 | 0.0000 |
| Emissions in the cities (metric tons) | **4** | **4** | 1331 | 0.0001 |

| Ecobilan Paper Bag LCA - Just end-of-life | | Adjusted for 2007 Recycle Rates | | |
|---|---|---|---|---|
| **Emissions Sources** | **CO2e** | **CO2e** | **Annual CO2e** | **Per Capita** |
| Emissions in the unincorp territory (metric tons) | **108** | **68** | 24825 | 0.0023 |
| Emissions in the cities (metric tons) | **515** | **326** | 118892 | 0.0112 |

| Ecobilan Emission differences caused by a 50% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates | |
|---|---|---|---|---|
| Unincorporated territory | | | **12,134** | **0.00114** |
| Cities | | | **58,115** | **0.00547** |

| Ecobilan Emission differences caused by a 100% conversion from plastic to paper | | | Adjusted for 2007 Recycle Rates | |
|---|---|---|---|---|
| Unincorporated territory | | | **24,547** | **0.00231** |
| Cities | | | **117,561** | **0.01107** |

| Boustead GHG emissions - Just end of life | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase Caused by 100 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 11.58 | 197.90 | 186.32 | 68,007 | 0.00641 |
| Emissions in the cities (metric tons) | 55.46 | 947.80 | 892.34 | 325,705 | 0.03068 |
| **Total Emissions in the County** | **67.04** | **1145.70** | **1078.66** | **393,712** | **0.03709** |

| Boustead GHG emissions - Just end of life | $CO_{2e}$ Emissions from Plastic Bags | $CO_{2e}$ Emissions from Paper Bags | $CO_{2e}$ Emission Increase with 50 Percent Conversion from Plastic to Paper | per year | per year per capita |
|---|---|---|---|---|---|
| Emissions in the unincorp territory (metric tons) | 11.58 | 98.95 | 87.37 | 31,890 | 0.00300 |
| Emissions in the cities (metric tons) | 55.46 | 473.90 | 418.44 | 152,731 | 0.01439 |
| **Total Emissions in the County** | **67.04** | **572.85** | **505.81** | **184,621** | **0.01739** |

| Emission Sources | Air Pollutants (Pounds/Day) | | | | | |
|---|---|---|---|---|---|---|
| | VOCs | $NO_x$ | CO | $SO_x$ | $PM_{2.5}$ | $PM_{10}$ |
| 17 delivery truck trips in the unincorporated territory of the County | 0.15 | 0.34 | 2.13 | 0 | 0.08 | 0.4 |
| 79 delivery truck trips in the incorporated cities of the County | 0.65 | 1.56 | 9.89 | 0.01 | 0.38 | 1.84 |
| **Total Emissions** | **0.8** | **1.9** | **12.02** | **0.01** | **0.46** | **2.24** |
| **SCAQMD Threshold** | **55** | **55** | **550** | **150** | **55** | **150** |
| **AVAQMD Threshold** | **137** | **137** | **548** | **137** | **-** | **82** |
| **Exceedance of Significance?** | **No** | **No** | **No** | **No** | **No** | **No** |

## APPENDIX D: INITIAL STUDY AND COMMENT LETTERS

A letter of comment received from the American Chemistry Council on the Initial Study has been added in Appendix D.

A letter of comment received from the County of Los Angeles Fire Department on the Initial Study has been added in Appendix D.


January 4, 2010

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

*Via email: CSkye@dpw.lacounty.gov*

Re: Comments of the Progressive Bag Affiliates of the American Chemistry Council on Initial Study on Ordinances to Ban Plastic Carryout Bags in Los Angeles County

Dear Mr. Skye:

I write on behalf of the American Chemistry Council ("ACC")'s Progressive Bag Affiliates (PBA) to provide the attached comments on the Initial Study on Ordinances to Ban Plastic Carryout Bags in Los Angeles County prepared by Sapphos Environmental and dated December 1, 2009 (referred to as "Initial Study").

We are pleased to have the opportunity to submit comments, as we recognize that the correct and complete definition of all reasonably foreseeable elements of a proposed project is the single most important element of the California Environmental Quality Act (CEQA) compliance process. Our comments focus on the adequacy and accuracy of the information contained in the Initial Study under CEQA. While we recognize that the initial study does not need to include the level of detail included in the Environmental Impact Report (EIR) it should nevertheless be supported by "facts, technical studies or other substantial evidence to document its findings," CEQA Guidelines § 15063, and we have conducted our review and submit these comments accordingly. Given that the Initial Study also defines the scope of the EIR to be conducted, we provide further comments on the scope and content of the EIR.

While we are encouraged to see that the study recommends preparation of an EIR, it grossly over-represents the adverse environmental impact of plastic bags and grossly under-represents those of paper bags. This review is at the very heart of the EIR and must be conducted thoroughly and comprehensively. Importantly, the study makes a number of assumptions about consumer behavior that are not substantiated. Contrary to the conclusions set out in the report, there is no data to suggest that a consumer switch from plastic to paper would be temporary. To the contrary, data suggests that most consumers will continue to select free carryout bags at checkout. Selection of paper bags instead of plastic bags would have the effect of significantly increasing the use of natural resources, fossil fuels, and water; and will have other significant adverse impacts, particularly on the emission of more greenhouse gases and further burdening the County's landfills.

We support the preparation of a complete EIR that addresses the broadest range of potential impacts. This is particularly the case given the controversial nature of the proposed ordinances. We also encourage the lead agency to exercise its authority to request the County to collect and submit additional information needed for environmental evaluation of the proposed ordinances.

Please feel free to contact me if I can assist you further with respect to these comments.

Very truly yours,

Shari Jackson

Shari M. Jackson
Director, Progressive Bag Affiliates

COMMENTS OF
THE PROGRESSIVE BAG AFFILIATES OF THE AMERICAN CHEMISTRY COUNCIL
ON INITIAL STUDY -- ORDINANCES TO BAN PLASTIC CARRYOUT BAGS
IN LOS ANGELES COUNTY

## Introduction

Various localities in California have explored the viability of imposing product bans as a mechanism to prevent particular products from being littered. The theory is seemingly elegant, and on first glance, attractive: if there is a perceived litter problem with a product and there appear to be viable alternatives to that product, then just ban it and force consumers to switch to the substitute.

This theory, however, is flawed. Littering behavior has been extensively studied, and much littering is deliberate (intentional). Simply removing one potential source of litter does not solve the underlying behavior; the litterer simply litters with another product.

Litter aside, the forced substitution of one product with another can create significant unintended consequences, and is not necessarily a net advantage for the environment or human health. In the case of plastic bags, data show that widespread adoption of paper – the most likely substitute – would have adverse impacts on the environment, while doing little or nothing to prevent litter.

This is why it is so important that the County accurately and fully characterize the environmental benefits and impacts of plastic bags, and in exploring the environmental consequences of a plastic bag ban, accurately and fully characterize the environmental benefits and impacts of the replacement product, paper bags. It is also important to understand that a policy that results in a slight shift to reusable bags but a significant shift to paper bags will nevertheless have significant adverse environmental consequences.

We continue to believe that a comprehensive approach based on the three pillars of sustainable consumption (reduce, reuse and recycle) is the best method to reduce bag waste and promote litter prevention. And, our experience has been that working cooperatively in partnership with other organizations is an effective way to leverage scarce resources and achieve results more quickly. We have supported a number of programs using this approach and promoting bag recycling including Keep California Beautiful's new "Got Your Bags" program. This initiative encourages consumers to bring their bags back to the grocery store whether they are reusable bags or recyclable plastic bags. Recycling and reusing plastic bags is one of the simplest things consumers can do to contribute to a better environment. Surveys show that 92 percent of consumers already reuse their plastic shopping bags (*Source: National Plastic Shopping Bag Recycling Signage Testing March 2007, see attached*).

## GENERAL COMMENTS

### General Comment #1: The Key Findings of the Initial Study Fail to Thoroughly and Properly Evaluate the Potential Environmental Impacts of the Proposed Ordinances.

The statutory responsibility of the lead agency in preparing the Initial Study includes evaluating the significance of the environmental effect of the ordinances. The CEQA Guidelines 15064 require consideration of both "direct physical changes in the environment which may be caused by the project" and (2) "reasonably foreseeable indirect physical changes in the environment which may be caused by the project." An indirect physical change in the environment is "a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project." The stated example in the Guidelines is an increase in air pollution caused by increased population growth resulting from the construction of a new sewage plant. 1

The key findings are deficient on their face, because while the Initial Study devotes significant effort to examining the purported environmental "benefits" of the ordinances, it devotes virtually no effort to evaluating indirect effects. Without adequately examining the indirect effects of the ordinances, the review severely under-represents the significance of adverse environmental effects from the ordinances (e.g., a consumer switch to paper bags).

There are two areas of local concern that are particularly glaring in their deficiencies. The first is the anticipated additional burden to already overtaxed landfills in the County as consumers shift from plastic bags to paper bags. This shift will result in additional greenhouse gas generation from trucks moving solid waste, and additional greenhouse gas generation as methane is generated in the landfill by paper bags. The shift will also accelerate landfill capacity and closure. The second area is again related to greenhouse gas generation, as additional trucks carrying additional paper bags generates additional greenhouse gases over those needed to transport plastic bags.

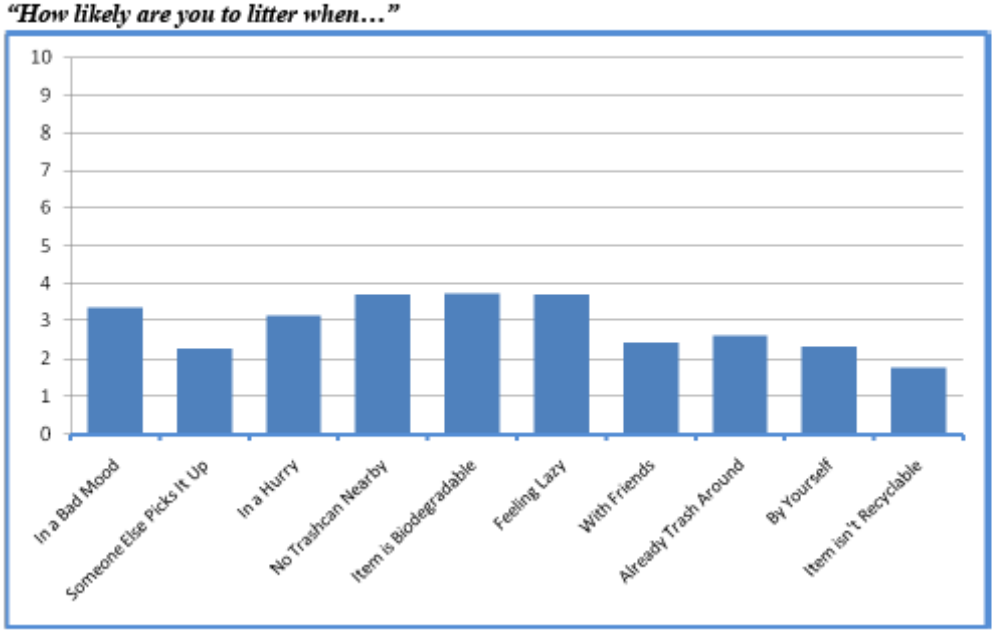
Recommendation: The County should devote at least equivalent time and focus to examining the adverse environmental impacts of switching from plastic bags to one or more substitute products. Evaluation of the environmental benefits/adverse impacts of various products should use reliable Life Cycle Analysis (LCA) (see Appendix A, Life Cycle Assessments of Paper and Plastic Bags). It should explore the various scenarios that motivate consumer behavior so the consumer shift to substitute products can be reasonably projected and the associated environmental impacts calculated. The evaluation should not be based on speculation about what consumer behavior might be, but should be based on empirical data of consumer behavior following plastic bag bans in other jurisdictions such as San Francisco where an overwhelming switch to paper bags has been observed. *A Qualitative Study of Grocery Bag Use in San Francisco*, http://use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf. 1 cont.

**General Comment #2: The Initial Study Fails To Adequately Address the Additional Litter and Human Health Impacts that May be Introduced by the Use of Biodegradable Bags or Reusable Bags.**

While a key finding of the Initial Study is that biodegradable carryout bags are not a practical solution to "this issue" in Los Angeles County, and while we agree with this conclusion, we believe that the Initial Study fails to adequately address the many evidentiary reasons that support this conclusion. First, as noted above, litter behavioral studies suggest that people may litter more if they believe the products they are using are organic or can biodegrade *(Source: Littering in the I-Generation, Keep Los Angeles Beautiful, 2009, see attached*). For example, a study of littering conducted by Keep Los Angeles Beautiful reported that perception of biodegradability is one of the strongest contributors to littering (figure #3 below).

**Figure 3. Mean Scores for Barriers and Motivators to Proper Disposal**

*"How likely are you to litter when…"*




2

If a prohibition of plastic carryout bags leads to the use of more "biodegradable" bags including paper the potential impact on a net increase in litter must be considered. Additionally, many such bags in fact are not biodegradable within the layman's understanding at all; rather, the bags degrade very slowly in the natural environment.

To the extent that the proposed ordinances may result in a shift from plastic carryout bags to bags that are used repeatedly without regular washings, the substitute bags may present new health risks that should be evaluated. The Initial Study fails to adequately address this public health risk. The first North American microbiological study on reusable bags, issued earlier this year, found high levels of bacterial, yeast, mold and coliform counts in many reusable bags. Sixty-four (64) percent of the bags tested were contaminated with some level of bacteria.

Dr. Richard Summerbell, research director at Toronto-based Sporometrics and former chief of medical mycology for the Ontario Ministry of Health, reviewed the study and stated that "the main risk is food poisoning … but other significant risks include skin infections such as bacterial boils, allergic reactions, triggering of asthma attacks, and ear infections." The study conclusions included the observation that there is a potential for cross-contamination of food if the same reusable bags are used on successive trips; that check-out staff in stores may be transferring these microbes from reusable bag to reusable bag as the contaminants get on their hands; and that in cases of food poisoning, experts will have to test reusable bags in addition to food products as the possible sources of contamination. http://www.cpia.ca/files/files/A_Microbiological_Study_of_Reusable_Grocery_Bags_May20_09.pdf. Health Canada issued guidance as a result of this study. See, Health Canada guidance, at http://www.hc-sc.gc.ca/fn-an/securit/kitchen-cuisine/reusable-bags-sacs-reutilisable-eng.php. 2 cont.

> Recommendation: The County should study the potential environmental impacts and public health impacts of reusable bags and include these calculations in the EIR.

**General Comment #3: The Initial Study Fails to Adequately Address Potential Adverse Impacts From Reduced Recycling of Plastic Film and Impacts on the Recycling Infrastructure.**

Over 830 million pounds of plastic bags and film are recycled every year in the U.S., predominantly through the nationwide grocery and retail system where they are consolidated with stores' stretch film (pallet wrap) and recycled through a well established recycling infrastructure.

A prohibition of plastic carryout bags may result in an overall decrease in the recycling of plastics, or damage the recycling infrastructure for polyethylene bags, wraps, and film. Currently, stores that accept plastic bags for recycling, as mandated by California law, also accept other polyethylene wraps and films, including dry cleaning bags, toilet paper wraps, paper towel wraps, and other wraps and bags. But if commercial retailers and grocers may no longer offer plastic bags under the proposed ordinance, it is reasonable to assume that a significant majority of such businesses will also stop offering to accept plastic bags for recycling at their stores, since they will no longer be required to do so. In fact, empirical evidence bearing this out has already emerged in a study conducted by *Use Less Stuff* following the San Francisco plastic bag ban. See, http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf. The study, following the City's plastic bag ban, reported that several stores had already removed, or had moved to obscured areas, plastic bag recycling bins from their stores within a fairly short period following the ban. 3

The clear impact is that the proposed ordinances are likely to significantly reduce recycling of other plastic bags, films, and wraps, and perhaps completely eliminate the ability for County residents to recycle any of these items. If recycling facilities are no longer readily available to accept these products, very few if any of these products will be recycled. Existing behavioral evidence is clear that if readily available recycling centers are not available, people will stop recycling. See, e.g., http://www.articlesbase.com/home-improvement-articles/why-is-recycling-important-697194.html. (readily available recycling centers are essential to promote recycling behavior); Sidique et al., *The Effects of Behavior and Attitudes on Drop-off Recycling Activities (2009),* available at www.sciencedirect.com (recyclers use the drop-off sites more when they feel that recycling is a convenient

activity and when they are more familiar with the sites). This outcome is a potentially serious environmental consequence, and one that could result in a net increase in litter or landfill impacts.

It should also be noted that the reduced availability of plastic grocery bags could have other detrimental effects on recycling programs in the Los Angeles Basin, further reducing recycling and imposing additional burdens on landfills. 3 cont.

> Recommendation: The County should determine the current recycling rate and volume for non-plastic bag films and the intake origin for such material (e.g., grocery stores currently offering bag and film recycling). The study should examine existing alternate avenues, if any, for collection of plastic films for recycling. The net adverse environmental impact should be calculated, including landfill burden, as this additional avenue for film, bag, and wrap recycling of polyethylene is lost.

**General Comment #4: The Initial Study Does Not Present Sufficient Evidence to Support its Key Finding that "accelerating the use of reusable bags will diminish plastic bag litter."**

The study here makes several flawed assumptions. The first is that a ban on plastic bags will drive consumers to use reusable bags. Available data suggest that this is not the case; where paper bags are freely available at checkout, consumers will select paper bags. This has been documented by a recent study conducted by *Use Less Stuff* (ULS), which surveyed the effect of the plastic bag ban in San Francisco on paper bag usage. ULS found that paper bag use increased significantly.
http://www.use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf.

The second flawed assumption is that removing a source of litter will diminish littering behavior. Substituting one packaging material, or carryout bag for another, does not address littering behavior. The Initial Study assumes that reducing the total number of plastic carryout bags used in the jurisdiction will necessarily reduce the number of plastic bags that are littered. There is, however, no substantiated basis for such an assumption, and significant evidence that without actions that directly address the behavioral issue, litter will continue unabated, or worsen. See generally, A Review of Litter Studies, Attitude Surveys and Other Litter-Related Literature, Keep America Beautiful, July 2007 (http://www.kab.org/site/DocServer/Litter_Literature_Review.pdf?docID=481 (referred to as "KAB Report"). 4

The psychological behaviors that lead to littering have been well studied. A number of influences have been noted, such as:

- An already clean environment. One study from California State University, Sacramento, concludes that littering is less likely to occur in an environmental area that is already clean or maintained clean. This principle is sometimes called the "litter begets litter" principle. See, Reiter, S.M., and Samuel, W., Littering as a Function of Prior Litter and the Presence or Absence of Prohibitive Signs, Journal of Applied Social Psychology, 1980 (concluding that the littering rate was lowest in an already clean environment); Curnow, R.; Strecker, P.; Williams, E.; Understanding Littering Behaviour; a Review of the Literature. Beverage Industry Environmental Council, Pyrmont, Australia, 1997 (p. 31).
- The ready availability, design and convenience of trash receptacles. Curnow, R.; Strecker, P.; Williams, E.; Understanding Littering Behaviour; a Review of the Literature. Beverage Industry Environmental Council, Pyrmont, Australia, 1997.
- Effective communication and education. Stern, P.C.; Oskamp, S.; Managing Scarce Environmental Resources, In: Stokols, D.; Altman, I. *Handbook of Environmental Psychology, Vol. 2.* Krieger Publishing Company, Malabar, Florida, 1991 (pp. 1055-1057); see also Hansmann, R.; Scholz, R.W. *Environment and Behavior*, 2003, Vol. 35 No. 6, 752-762 (literature review of research concerning the effective design of explicit anti-littering messages noting evidence that prompts phrased as requests are more effective than those phrased as orders; and prompts are more effective if they contain a more specific description of the desired behavior).

One of the more significant findings in the literature reviews is that there are certain littering behaviors that may continue, or worsen, if the litterer believes that the litter will biodegrade. See, e.g., KAB Report at 6-3 (an acceptable reason provided for littering is the belief that the waste is organic). In fact, Keep Los Angeles Beautiful has conducted a study of factors that contribute to littering and concluded that the perception of biodegradability is one of the major contributors. *(Source: Littering in the I-Generation, Keep Los Angeles Beautiful, 2009, see attached*). This is particularly relevant here because the Initial Study fails to take into consideration that a shift from plastic carryout bags to paper or fabric may result in a net increase in litter since certain litterers believe the bags will degrade in the environment.

4 cont.

The third flawed assumption is that if there is reduced access to plastic bags, plastic bag litter will necessarily diminish. This assumption is unfounded. To reach such a conclusion, it would be necessary for the County to conduct a targeted litter audit focused on plastic bags, and then to restrict access to the specific plastic bags that are actually in the litter stream.

> Recommendation: To inform the EIR, the County should conduct a detailed litter audit focused on sourcing plastic bag litter. The study should also contain an observational behavioral component that seeks to better understand the impact that demographic factors such as age have on littering behavior.

**General Comment #5: The Initial Study Fails to Identify Significant Irreversible Environmental Effects of the Proposed Ordinances.**

Under CEQA, an EIR must analyze the extent to which a plan's primary and secondary effects would commit resources to uses that future generations will probably be unable to reverse. CEQA Guidelines Section 15126(f). Implementation of the proposed ordinances would result in the irreversible commitment of certain natural resources. The most notable significant irreversible impacts are expenditure of energy resources in the form of natural gas, electricity, and gasoline; increased generation of pollutants; and the short-term commitment of non-renewable and/or slowly renewable natural and energy resources such as lumber and other forest products, landfill capacity, and water resources.

5

A shift from plastic bags to paper bags will result in substantial additional depletion of natural resources. Fossil fuels will be needed to support lumbering operations. During manufacture, fossil fuels and electricity would be consumed. During transportation – bags to store and also bags from the store to consumers' homes - fossil fuels would be consumed.

**General Comment #6: The Initial Study Fails to Identify Cumulative Effects, Including Air Quality, Greenhouse Gas and Global Warming Impacts, of the Proposed Ordinance.**

Implementation of the proposed ordinances would result in cumulative impacts related to air quality and greenhouse gases from increased landfill emissions (methane), truck traffic (CO, VOCs, NOx, PM10, and PM2.5), and air pollution impacts from paper bag manufacture and lumbering. Methane gases from landfills are a serious greenhouse gas and global warming concern. See, e.g., http://cdm.unfccc.int/UserManagement/FileStorage/WT2UQTYRGORYSPUBWL923QLJX31KFQ. At the federal level (under NEPA), greenhouse gas emissions resulting from a proposed project "are either direct or indirect effects, and therefore the resulting global climate change impacts are classic examples of cumulative effects." 40 C.F.R. § 1502.16. Climate change impacts are, by definition, inherently cumulative and significant. See 40 C.F.R. § 1508.27[b] [7], and at the federal level, the U.S. Supreme Court has ruled that such impacts are reasonably foreseeable. Massachusetts et al. v. Environmental Protection Agency, 549 U.S. 497 (2007). The EIR must address these issues fully in its review with respect to the impacts of a consumer shift from plastic to paper bags.

6

**General Comment #7: The Initial Study Fails to Identify Significant Environmental Impacts Outside Los Angeles County that Will Occur If the Proposed Ordinances are Implemented.**

7

The California Supreme Court has held that consideration of environmental impacts extends outside the jurisdiction in which the statutory project is located:

> [N]o statute (in CEQA or elsewhere) imposes any per se geographical limit on otherwise appropriate CEQA evaluation of a project's environmental impacts. To the contrary, CEQA broadly defines the relevant geographical environment as "the area which will be affected by a proposed project." (Pub. Resources Code, § 21060.5.) Consequently, "the project area does not define the relevant environment for purposes of CEQA when a project's environmental effects will be felt outside the project area." (*County Sanitation Dist. No. 2 of Los Angeles County v. County of Kern* (2005) 127 Cal.App.4th 1544, 1582-1583.) Indeed, "the purpose of CEQA would be undermined if the appropriate governmental agencies went forward without an awareness of the effects a project will have on areas outside of the boundaries of the project area." (*Napa Citizens for Honest Government v. Napa County Bd. of Supervisors* (2001).

7 cont.

*Muzzy Ranch Co. v. Solano County Airport Land Use Com'n, 41 Cal.4th 372, 384-385, 389, 60 Cal.Rptr.3d 247, 160 P.3d 116 (2007).*

Given the nature of the proposed ordinances, many of the environmental impacts that will occur from a shift from paper to plastic bags will occur within the County, but many others will occur outside the County. The County is therefore obliged under CEQA to consider geographically distant environmental impacts of their activities. This includes environmental impacts of lumbering (fossil fuel use; land degradation, habitat impacts); paper bag manufacturing (water use, fossil fuel use, air and water pollution); landfill burden outside the county; transportation of paper bags into and out of the County. The EIR should address all these issues fully.

Specific Comments

Page 1-3

Study: The study estimates that litter from plastic carryout bags that are designed for single use account for as much as 25 percent of the litter stream. As support for this estimate, the study cites a 2004 study and a more recent 2008 study by the County of Los Angeles Department of Public Works.

Comment: The estimate presented is speculative and does not meet criteria for inclusion in the Initial Study or EIR. The estimate is also inconsistent with hard data drawn from litter audits. Data from the most recent, comprehensive national litter literature study indicates that litter composition from 9 states using IAR methodology for the category "napkins, bags, and tissues" was on average 6.3%. See A Review of Litter Studies, Attitude Surveys and Other Litter Related Literature, R.W. Beck (July, 2007), available at http://www.kab.org/site/DocServer/Litter_Literature_Review.pdf?docID=481; Table 3.4, Composition of Litter, IAR-Based Surveys (1993-2006) (p.3-7). Notably, the category does not distinguish among the three constituents (napkins, bags, and tissues) nor does it distinguish between paper and plastics, so the actual composition of plastic bags in the litter stream would be expected to be significantly lower. The average is also inflated by a higher number from older data (1993) from the State of Hawaii; notably, the most recent data collected from Tennessee and Georgia from 2006 for this entire category indicates litter stream concentrations at 1.8% and 4.6%, respectively. Again, the plastic bag component of this category would be a subset, and perhaps significantly smaller.

8

The report's estimate is also inconsistent with the City of San Francisco's recent litter audit data. San Francisco's Department of Environment Litter Survey Report (July 2008) (Table 5, p. 30), shows that non-retail plastic bags composed only 3.4% of the large litter portion of the litter stream from 2008 data. http://www.sfenvironment.org/downloads/library/2008_litter_audit.pdf.

Actual litter stream audit data therefore suggests that plastic bags in fact represent a very small percentage of the litter stream, and the "estimates" presented in the Initial Study grossly over-represent plastic bags. 8 cont.

Page 1-3

Study: The study presents data on the number of plastic bags consumed annually in the County as 6 million.

Comment: No evidence is presented to connect the amount of plastic bag litter with the number of bags consumed annually. No evidence is presented on the number of paper bags annually consumed within the County. No evidence is presented with respect to the equivalent number of paper bags that this figure represents, so that the environmental impacts of product substitution can be adequately evaluated. 9

Page 1-3

Study: The study claims that the County of Los Angeles Flood Control District spent more than $18 million annually for prevention, clean up, and enforcement efforts to reduce litter, of which "plastic bags are a component."

Comment: The reported figure is for a variety of programs, including litter prevention and education efforts. The study does not report which fraction of monies are spent on which activity, so there is no documentation presented regarding how much money is actually expended annually on cleanup versus outreach and education. In addition, the study does not quantify how much is spent on plastic bag litter, nor the size of the component of the waste stream that plastic bag litter constitutes. 10

Page 1-5

Study: The study claims a key finding that "Plastic carryout bags have been found to significantly contribute to litter and have other negative impacts on marine wildlife and the environment."

Comment: This "key finding" is actually <u>three</u> "findings": one with respect to litter, and one with respect to impacts on marine wildlife, and one with respect to impacts on the environment. All three "findings" are anecdotal and speculative in nature, and are not supported by "facts, technical studies or other substantial evidence," CEQA Guidelines § 15063.

Litter: It is anecdotally true, and documented through litter audits, that plastic bag litter is a part of the litter stream. Mere presence of a material or product as litter, however, does not mean that its contribution to the litter stream is significant. A proper and complete evaluation of the potential environmental benefits, as well as adverse environmental impacts, of the proposed project (ordinance) demand a careful, up to date, and accurate analysis of the contribution of plastic bags to the litter stream. If this discussion is not based on accurate data and it overstates or overestimates the presence of plastic bags in the litter stream, subsequent environmental study will fail to accurately characterize the environmental benefits of the project, and this will undermine the ability of decision makers and the public to compare anticipated environmental benefits with anticipated adverse environmental impacts. See also, supra, specific comments on page 1-3 with respect to the low contribution of plastic bags to measured litter streams in multi-state litter audits. 11

Marine wildlife: The study does not present credible or properly developed evidence that plastic bags "have other negative impacts on marine wildlife." CEQA considers impacts to be significant if they occur at the population level. This is well understood in the context of wind farms, where it is accepted that some bird mortality may occur without necessarily constituting a significant impact that would trigger EIR preparation. See also CEQA Guidelines § 15065 (mandatory findings of significance include whether the project "has the potential to …substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten

to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species…"). Speculative evidence has no place in either an Initial Study or an EIR and should be deleted. The presented anecdotal evidence that certain marine mammals have chewed on a plastic bag, however unfortunate, does not provide adequate substantiation of the scope and degree of environmental impact needed to support appropriate analysis under CEQA. It is also important to note that bans have not been demonstrated to reduce litter and thus impacts on animals. In fact, San Francisco's litter audit does not show a significant impact on bag litter despite the ban.

Environment: Like any other consumer product, plastic bags consume resources and have potential environmental impacts. The relevant exercise for the Initial Study is to identify the significant environmental impacts of the project: "If the agency determines that there is substantial evidence that any aspect of the project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the Lead Agency shall [prepare an EIR]." CEQA Guidelines §15063. That said, we are concerned that the claimed environmental impacts from plastic bags are overstated, and that the finding is not based on adequate "facts, technical studies or other substantial evidence," CEQA Guidelines § 15063; likewise, we are concerned that the study lacks an adequate exploration of the many adverse environmental impacts of paper bags. 11cont.

Page 1-5 Study: The study claims a key finding that "Biodegradable carryout bags are not a practical solution to this issue in Los Angeles because there are no local commercial composting facilities able to process the biodegradable carryout bags at this time."

Comment: While we agree that "biodegradable" carryout bags are not a solution, it is for different reasons than those stated in the study. This finding is completely disconnected with and unsupported by the claimed environmental finding that plastic carryout bags result in litter. Litter is a behavioral problem, and no amount of landfills nor of commercial composting facilities will address a litter behavioral problem. 12

Page 1-5 Study: The study claims a key finding that "Reusable bags contribute toward environmental sustainability over plastic and paper carryout bags."

Comment: We are puzzled by the use of the term "sustainability" in this context, as it has multiple and potentially complex meanings. However, if the term is meant to mean environmental impacts across all categories that can be measured using appropriate life cycle analysis, this finding is not adequately supported. The report over- represents the alleged environmental detriment of plastic bags, and fails to adequately gauge the adverse environmental impacts of substitute products, including reusable bags and paper bags. 13

Page 1-5 Study: The study claims a key finding that "Accelerating the widespread use of reusable bags will diminish plastic bag litter and redirect environmental preservation efforts and resources towards "greener" practices."

Comment: This finding is actually several separate compounded findings related to (1) a claim of diminished plastic bag litter, and (2) redirected environmental preservation efforts and resources towards (3) "greener" practices. 14

Litter: We question whether "accelerating the widespread use of reusable bags" will in fact diminish plastic bag litter. This appears to be an entirely unsupported assumption, rather than a documented finding. Both behavioral and litter audit data suggest that such an action will not itself decrease the overall amount of litter, since such an action does

not address littering behavior. Current literature does not suggest that persons toting their weekly groceries from the grocery store – the targets of the proposed ordinances – are those most likely to litter their grocery bags, or even likely to litter at all; rather, those aged 19 and under are more likely to litter. See generally, Littering Behavior in America, Results of a National Study (2009) (p. 5) http://www.kab.org/site/DocServer/KAB_Report_Final_2.pdf?docID=4581 (principal investigator, Wesley Schultz, Professor of Psychology, California State University).

In addition, we note that the proposed ordinances would not require the use of reusable bags; rather, paper carryout bags would continue to be available at checkout. This key "finding" is actually an assumption that banning plastic bags will, by itself, lead consumers to select and consistently use reusable bags over free paper bags at checkout. No data has been presented nor do we believe exists to support this assumption. Available observations suggest that consumers at checkout will select the most convenient, highest performing, and least expensive checkout bags, and thus if consumers are denied the choice of a free plastic bag at checkout, they will default next to selecting a free paper bag as they appear to have done in San Francisco. 14cont.

"Redirected environmental preservation efforts and resources": This finding is not sufficiently developed to be articulated in the report. We are unclear as to what this finding is supposed to mean. If it is intended to mean that the County of Los Angeles will be able to redirect litter clean up costs, there is no evidence to suggest such an outcome. Indeed, available behavioral and litter audit data suggest that the proposed ordinances will either have no net effect on the total amount of litter – or will actually increase the total amount of litter. Behavioral data suggests that some of the motivating factors to littering include the belief that the product is biodegradable or not recyclable. See, supra, Littering Behavior in America (2009) at page 4: "Littering was reported more frequently in instances when the person was in a hurry, no trash can was nearby, the item was biodegradable, there was a sense that someone else would pick it up, and when the item was not recyclable."

Page 1-6

Study: The study states that "Plastic carryout bags have been found to contribute substantially to the litter stream and to have other adverse effects on marine wildlife."

Comment: Available litter audit data in fact do not suggest that plastic bags contribute substantially to the litter stream; to the contrary, available data shows their contribution to be in the low single digits. The specific contribution of plastic carryout bags from grocery stores, the subject of the proposed ordinance, is likely to be significantly lower still, since it is a smaller subset of plastic carryout bags. Each of the documents used to support this statement fail to provide sufficient factual basis to support the stated finding. The first document, a 2009 UNEP report on marine debris, does not make any findings nor reach any conclusions about plastic bags having adverse effects on marine wildlife; the executive summary actually concludes at page 9 that "Further research and documentation on the impacts of marine litter is needed to assess this issue effectively." The second cited document is a resolution from a board meeting of the California Integrated Waste Management Board, which is itself not a finding of fact but a political resolution from an agenda. The third document, a staff report to the Los Angeles County Board of Supervisors, cites a number of sources for its claims of harm to marine mammals. Further review of the underlying sources reveals that the sources do not provide evidentiary support for the claimed finding. For example, among the citations is a NOAA report on marine debris. The report is very careful to debunk widespread claims about the severity of environmental impact on marine life from plastic bags: 15

Origin of plastic bag statement: We were able to find no information to support this statement [claims that plastic bags are injuring marine animals]. An erroneous statement attributing these figures to plastic bags was published in a 2002 report published by the Australian Government; it was corrected in 2006. See the 2002 report published by Environment Australia entitled, "Plastic Shopping Bags – Analysis of Levies and Environmental Impacts" or click here.

In 2006, Environment Canada recanted the statement "A figure of 100,000 marine animals killed annually has been widely quoted by environmental groups; this was from a study in Newfoundland which estimated the number of animals entrapped by plastic bags in that area from a four-year period from 1981-1984" and replaced it with "A figure of 100,000 marine animals killed annually has been widely quoted by environmental groups; this was from a study in Newfoundland which estimated the number of animals entrapped by plastic debris in that area from a four-year period from 1981-1984." 15cont.

See NOAA's Marine Debris webpage, http://marinedebris.noaa.gov/info/plastic.html#2. Another source cited as support is a Seaworld website, which does little more than repackage concern that a sea turtle could eat a plastic bag – merely a speculative exercise and quite a reach from presenting actual evidence that they do ("Pollution, such as plastic bags resembling jellyfish, can also cause sea turtle deaths.").

Page 1-6

Study: The study states that "The prevalence of litter from plastic bags in the urban environment also compromises the efficiency of systems designed to channel storm water runoff."

Comment: No citation or support is provided for this claim. No data is presented to quantify the specific inefficiency claimed to be introduced by plastic bags. No data is presented to review the potential impacts of paper bag litter on storm water systems. 16

Page 1-7

Study: "Furthermore, plastic bag litter leads to increased clean-up costs for the County, the California Department of Transportation (Caltrans), and other public agencies."

Comment: Clearly, litter cleanup has an inherent cost to the County, and to the extent that plastic bags are a small component of the litter stream, they have an impact on cleanup costs. We have presented data in these comments, however, to show that the Project (plastic bag ban) may result in a net increase to the County in the amount of litter. Increased litter, or a shift in the composition of the litter stream to more paper, may actually increase litter cleanup costs to the County if wet paper litter is more difficult to remove. 17

Page 1-7

Study: "In particular, the prevalence of plastic bag litter in the storm water system and coastal waterways hampers the ability of and exacerbates the cost to local agencies to comply with the National Pollutant Discharge Elimination System, and total maximum daily loads (TMDL) limits for trash as specified pursuant to the federal Clean Water Act."

Comment: The only cited source for this claim is the Department of Public Works' Report on Plastic Carryout Bags. The cited document provides no support for the specific claim that plastic bag litter hampers compliance or raises costs to local agencies. And to the contrary, a fair argument can be made that replacing plastic bag litter with paper bag litter may in fact increase costs, if the wet paper is more difficult to remove and more likely to clog systems, screens, grinders, or intakes. For that matter, a fair argument can also be made that an increase of paper bag waste in waterways may adversely affect water quality (as the organic matter degrades, it will impact the availability of dissolved oxygen in the water), which itself could impact compliance with TMDLs for water quality. See, e.g., http://web.cecs.pdx.edu/~fishw/FT_L13-BOD25.pdf 18

(impact of degrading organic matter on dissolved oxygen levels of water and discussion of depletion levels at which fish suffocate). 18cont.

Page 1-7

Study: The study claims that "Plastic bag litter is also a major economic operational issue for landfills and other solid waste processing facilities."

Comment: We suspect that this statement was made in error, and that the authors intended to refer to plastic bags in the solid waste stream rather than the litter stream. That said, the County's own reports note that 12 million tons of trash were disposed of in 2006, with about 80% being landfilled in the County. It is further reported that "…approximately 45,000 tons of plastic carryout bags are disposed by residents countywide each year, comprising approximately 0.4 percent of the 12 million tons of solid waste disposed each year." See http://ladpw.org/epd/pdf/PlasticBagReport.pdf. 19

We find it curious that the study would claim that less than one half of one percent of the solid waste stream presents a "major" economic operational issue for "landfills" and "other solid waste processing facilities." We fail to find any support for this claim in the supporting documentation.

It is well known that landfill operators need to implement best practices to prevent trash from leaving the landfill site and becoming litter. These practices are already in place, not just to address plastic bags, but other film, paper, fibers, and lighter weight wastes of all kinds. There is no basis for the implied claim here that these best management practices are used only due to the presence of plastic bags in solid municipal waste, nor that these best management costs would be reduced or go away with a corresponding reduction in landfilled plastic bag waste. Without such data, the claim is merely speculative.

Page 1-9

Study: The study claims that, "based on the available evidence, paper carryout bags are less likely to become litter than are plastic carryout bags."

Comment: No such evidence has been presented to support such a claim. In these comments, we have presented behavioral evidence that suggests the opposite is likely: that people predisposed to intentionally litter will be more likely to litter paper bags than plastic. This likelihood is borne out by existing litter audit data, which shows a significant amount of the existing litter stream to be paper, including paper bags, paper fast food bags, and napkins. See, http://www.kab.org/site/DocServer/Litter_Literature_Review.pdf?docID=481 and Keep Los Angeles Beautiful "Littering in the I-generation" 2009. 20

Page 1-9

Study: The study claims that, "…life-cycle studies have also indicted that reusable bags are the preferable option to both paper and plastic bags."

Comment: The Project is predicated on the notion that consumers will, when faced with a ban of plastic carryout bags, switch to free paper carryout bags and reusable bags. A careful analysis therefore must occur of the potential adverse environmental impacts of such a switch. This analysis is wholly lacking from the study, and should be conducted. In addition to accurately anticipating product switches so that informed calculations about environmental consequences can be made, additional review of the potential adverse environmental consequences of reusable bags (including potential human health impacts) needs to be conducted. 21

Page 1-13

Study: The study claims that, "The County anticipates that a measurable percentage of affected consumers would subsequently use reusable bags (this percentage includes consumers currently using reusable bags) once the proposed ordinances take effect." 22

Comment: Testing this assumption with behavioral and other available information is absolutely essential to this exercise. First, we note that the anticipated environmental benefits, and adverse

environmental consequences, cannot "count" the existing use of reusable bags, since the ordinances would not impact this pre-existing behavior. Second, given that paper bags will be readily available as free substitutes to plastic bags, it can be fairly argued that a large majority of consumers will continue to request free bags at checkout, and will therefore switch to paper similar to results in San Francisco. 22cont.

Page 2-2

Study: The study concludes, on the basis of the initial evaluation, that the proposed project may have a significant effect on the environment, and that an Environmental Impact Report is required.

Comment: We agree with this conclusion and support the preparation of an Environmental Impact Report. We urge the preparation of a complete report with the broadest scope possible. 23

Page 2-4

Study: For section 2.3, Air Quality, items (b) and (c) are checked as "potentially significant unless mitigation incorporated." 24

Page 2-7

Study: For section 2.7, Greenhouse Gas Emissions, (a) and (b) are checked as "potentially significant unless mitigation incorporated."

Comment: Both of these items, in both sections, should be redesignated as "potentially significant impact." As we have noted, reduced availability of plastic carryout bags will increase use of paper carryout bags. This substitution will carry with it significant adverse environmental impacts because the environmental footprint of paper bags, over their lifecycle, is more damaging than plastic.

The proposed CEQA Guidelines, Section 15064.4 (Determining the Significance of Impacts from Greenhouse Gas Emissions) call for "a careful judgment by the lead agency consistent with the provisions in section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." The lead agency should use either a model or methodology to quantify greenhouse gas emissions resulting from a project or a qualitative analysis or performance based standards. Importantly, the lead agency has authority "to consider the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." 25

Energy consumption during manufacture: Plastic grocery bags require 70 percent less energy to manufacture than paper bags. Boustead Consulting & Associates Ltd. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper* (2007) at http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212 The more efficient manufacturing process for plastic bags translates into fewer greenhouse gas emissions.

Transportation (greenhouse gas emissions from trucking): Plastic bags are much lighter than paper bags: 2,000 plastic bags weigh 30 lbs; 2,000 paper bags weigh 280 lbs. This weight differential is extremely important when calculating transportation costs, and in particular, truck emissions for trucks delivering plastic bags. At end of life, these same plastic bags are lighter to transport than paper to the recycling facility, or lighter to transport to landfill. Each time an equivalent number of plastic bags is trucked versus paper bags, it takes only one truck for the plastic and seven trucks for the paper. U.S. Environmental Protection Agency. *Questions about Your Community Shopping Bags: Paper or Plastic* at http://web.archive.org/web/20060426235724/http://www.epa.gov/region1/communities/shopbags.html

In terms of actual figures, 2 million plastic bags can be carried on one truck, so all 6 million plastic bags the study estimates are used annually in Los Angeles can arrive on only 3 trucks. On the other hand, it takes 7 times as many trucks to haul an equivalent number of paper bags – 21 trucks. This multiplier applies every time the products are transported, whether to be transported to recycling or to landfill.

25cont.

Energy consumption during recycling: It takes 91% less energy to recycle a pound of plastic than it takes to recycle a pound of paper. U.S. Environmental Protection Agency. *Questions about Your Community Shopping Bags: Paper or Plastic* at http://web.archive.org/web/20060426235724/http://www.epa.gov/region1/communities/shopbags.html

Page 2-8

Study: The study indicates that the impact of the proposed ordinances would be "potentially significant unless mitigation incorporated" for subsection (a) of Section 2.9, Hydrology and Water Quality. For subsection (f), "no impact" is noted.

Comment: Subsections (a) and (f) should be recategorized to "potentially significant impact." As noted in these comments, a shift to additional paper litter entering waterways could significantly impact dissolved oxygen in waters, which could have a detrimental impact on fish or other water organisms.

In addition, we note a significant omission from the checklist. Although Section 2.9 does address the potential to adversely impact groundwater supplies, it does not include a category for water usage, or depletion of water resources, and it should, as this is highly relevant to a complete analysis of environmental impacts under CEQA. The production of plastic bags consumes less than 6 percent of the water needed to make paper bags, so any shift from utilization of plastic bags to paper bags will necessitate a significant additional burden on water use. Boustead Consulting & Associates Ltd. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper* (2007), http://www.americanchemistry.com/s_plastics/doc.asp?CID=1106&DID=7212 Likewise, any shift from plastic bags to reusable bags will need to include calculated water use (washings) and detergent use for the needed care and maintenance of reusable bags.

26

Page 2-14

Study: The study categories the potential impact for 2.17(f), which relates to landfill capacity impacts, as "potentially significant unless mitigation incorporated."

Comment: The County's own reviews, and indeed this study, insist that landfill capacity is a significant environmental issue for the county. Paper bags are much bulkier and heavier than plastic bags, and substitution of plastic bags with paper bags will generate five times as much waste. U.S. Environmental Protection Agency. *Questions about Your Community Shopping Bags: Paper or Plastic*. See: http://web.archive.org/web/20060426235724/http://www.epa.gov/region1/communities/shopbags.html.

27

The consequences of this additional waste burden on the County's landfills must be evaluated. In addition, as the County is forced to close landfills and truck waste out of the county for landfilling, heavier paper bags in the waste stream will have a significant environmental impact due to the greenhouse gas emissions generated during the transportation process. See, e.g., memo from Carrier Bag Consortium reporting on failure of plastic bag taxes:

In fact one retailer in one country where a plastic bag tax was introduced now has to transport four 40 foot containers of paper sacks (protected from moisture by plastic) where previously it shipped only 3 pallets of plastic carriers to do the same the job. This unpredicted result of a misguided tax is doing far more environmental damage because it results in increased exhaust

emissions, more congestion on the roads and much more waste going to landfill. www.carrierbagtax.com/downloads/7035FactorFiction.doc.

Another item completely unaddressed in the study is the substitution dilemma facing consumers who currently reuse the free plastic bags obtained at the grocery store. Nationwide, a large majority of consumers report reusing these bags for trash bags, lunch bags, pet pick up, extra containment of items that might leak in the refrigerator, wet bathing suits or gym clothes, and toting or disposing items that could leak or spill. If free plastic bags are no longer available at checkout, consumers will need to buy plastic bags for these functions. Very few, if any, commercially available plastic bags are designed and made to be as thin as grocery bags, which means that substitution will likely occur with a thicker plastic product, using more energy to manufacture and transport, and more space in a landfill for disposal. The Ireland experiment with a plastic bag tax bears this out. The Ireland tax in fact resulted in more plastic bags being used in Ireland after the tax than before it – the total amount of bags used in Ireland actually rose by 10%. Why? The sales of substitute plastic bags, such as garbage bags, increased by 400%. PIFA, 2004 (also validated by the Scottish Parliament ERDC Committee – Economic and Rural Development Committee) PIFA/Mike Kidwell Associates 2006. 27cont.

**Section 2.18, Mandatory Findings of Significance**

Study: The study concludes "no impact" for subsection (a), which addresses "potential to degrade the quality of the environment" and affect habitat. Comment: The categorization should be changed to "potentially significant impact." As discussed in these comments, the proposed ordinances present numerous significant environmental impacts as a result of substituted product usage for plastic bags.

One key area overlooked by the analysis is water consumption. Water conservation is one of the most significant environmental concerns of our time. Almost uniformly, life cycle studies by independent and government groups have shown that paper grocery bags made at least in part from recycled material have far greater impacts in terms of global warming and use of valuable water resources. See Appendix A. Water conservation and consumption are going to become increasingly more important.

The paper industry is the largest single water consumer of any sector in the national economy. American Forest & Paper Association, Biennial Report, December, 2006. About one gallon of water is used to make each paper grocery bag – significantly more water than is needed to make a plastic bag (it takes less than 6% of the water needed to make a plastic bag than a paper bag). Therefore, if 6 billion plastic bags (as estimated by the County) are converted to the use of paper bags, 6 billion gallons of water are consumed. 28

Pulp and papermaking processes also contribute additional environmental contaminants to waterways and the air. These impacts need to be carefully studied and understood before the ordinances are prepared.

Study: The study concludes "less than significant impact" for cumulative impacts.

Comment: The categorization should be changed to "potentially significant impact." Data has been presented that indicates that the greenhouse gas consequences of moving from plastic bags to paper bags are significant. Greenhouse gas impacts must be analyzed for cumulative impacts, and must be analyzed to understand impacts on other requirements of state law.

**Section 3.3, Air Quality**

Study: The study concludes that further analysis is not required. 29

Comment: The study makes a number of unsupported and flawed assumptions that require correction. First, the study correctly notes that the impacts of the ordinances on air quality as a result of decreased

vehicle emissions related to the distribution of bags, transport of bag waste, and litter collection, should be considered. These impacts, however, need to be evaluated with respect to both plastic bags and the anticipated substitute product, paper bags.

The study incorrectly assumes that "any increases would be offset to some extent due to the fact that paper bags can contain a larger volume of groceries than plastic." This statement is not only untrue and unsubstantiated but ignores the fact that most paper and plastic bags are "double bagged" at checkout, and that very few consumers ask for a fully packed paper bag, which is then too heavy for many people to comfortably handle. 29cont.

**Section 3.7, Greenhouse Gas Emissions**

Study: The study assumes consumers will select reusable bags and there will be minimal greenhouse gas impacts.

Comment: This entire section is severely flawed. The entire discussion is premised on the notion that consumers will switch from plastic bags to reusable bags, but as we have noted in these comments, there is no data to suggest that this behavioral change will occur as long as free paper bags are offered, and data from a 2008 San Francisco litter audit suggests the opposite – that consumers will in fact select free paper bags. This assumption is absolutely critical, since a shift to paper bags will have significant greenhouse gas impacts.

It is widely noted the single biggest environmental issues of our time is "global warming". A careful discussion of greenhouse gas impacts and global warming is essential for consistency with California's environmental goals. The very purposes of CEQA are undermined if these significant environmental impacts are not assessed and presented to the public. As we noted in our general comments, these important cumulative impacts must be properly identified and fully evaluated. The public deserves to know the consequences of the ordinances under consideration.

> Recommendation: Given the importance of this issue, the lead agency should request clarification with respect to the order of importance of program goals, and that the results of the order be understood before ordinances are prepared. There are many scientific techniques available to deal with trade-offs related to environmental goals, therefore the appropriate studies should be conducted first. 30

Almost uniformly, life-cycle studies by independent and government groups have shown that paper grocery bags made at least in part from recycled material have far greater impacts than plastic bags in terms of global warming. See Appendix A. More than 60% of paper grocery bags end up in landfills. American Forest & Paper Association Biennial Report, December 2006. Paper grocery bags in landfill decompose and release methane gas, which contributes significantly to global warming (23 times more than carbon dioxide over a 100 year horizon). Methane emissions from landfills were estimated at 8.0 million metric tons in 2001. In addition, 2.5 million tons were recovered for energy use and 2.4 million tons were recovered and flared. Therefore, more than 60% of the methane is not recovered. Plastic bags in landfills, on the other hand, contribute insignificantly to the global warming problem.

To further appreciate the significance of the impact of a conversion to paper bags, an examination is needed of how many trees would potentially be cut down each year if plastic bags are replaced by paper bags. The Technical Association of the Pulp and Paper Industry (TAPPI) provided a discussion in its "Earth Answers: How Much Paper Can Be Made From a Tree." Although somewhat simplified, some experts suggests 17 trees per ton of paper." The Technical Association of the Pulp and Paper Industry (TAPPI), www.TAPPI.org. Therefore, if 6 million plastic bags (as estimated by the County) are converted to the use of paper bags, ***about 4 million more trees will be cut down each year***.

Paper bags are made from a renewable resource and plastic bags are currently made from fossil fuels (i.e., natural gas). However, the fossil fuel energy required to manufacture and transport paper bags is greater than that required for plastic bags. Even paper bags made from 100% recycled fiber use more fossil fuels than plastic bags. Since global warming has become a worldwide concern and global warming emissions are significantly greater with the use of paper bags and compostable plastic bags than using plastic bags, a closer examination of some consequences of global warming is warranted. 30cont.

For more extensive reviews, one EPA website lists a multitude of climate news releases.
The website is: www.epa.gov/climatechange/newsroom.html.

## Appendix A: Life Cycle Assessments of Paper and Plastic Bags

### What is Life Cycle Assessment?

LCA is a method that provides a systems approach to examining environmental factors. The system is cradle to grave. Which means taking things from the environment such as fuels, water and raw materials; processing them; using them; and then disposing of them. At each of these levels the activities required to complete these steps lead to potential environmental impacts from emissions to the air, water and ground as emissions and solid waste. The purpose of the system studied is the way for consumers to carry their purchases using either paper, plastic or compostable plastic bags.

The concept of LCA has been practiced since the early 1970s, and in the 1990s standardized through several organizations including SETAC (Society of Environmental Toxicology and Chemistry) and ISO (International Standards Organization). Using LCA, one examines all aspects of the system used to produce a product from cradle (the extraction of raw materials necessary for producing a product) all the way through to the grave (final disposal of the product). LCA studies provide results on resource and energy use, and emissions to air, water (effluents), and land (solid wastes) for local, regional, and global effects.

All products are produced using a system, and as such, have environmental characteristics that are multifaceted and result in global, regional, and local environmental impacts. This is important to recognize as it is at the core of understanding how to make choices that actually provide for an overall benefit to the environment rather than simply trade off one environmental consequence for another or simply push environmental impacts to other jurisdictions. All materials, products, and packaging use resources, require energy for manufacturing and transport, and produce wastes either in the form of air emissions, water effluents, or solid wastes. Choosing an environmentally preferable product system requires that one or more environmental characteristics of the product are better than the product it is replacing – where better is defined as reducing impacts across the entire system which does not include decreases in some areas while allowing increases in other areas.

Based on this basic introduction of why LCAs are critical to our environmental understanding, one can see that it is necessary fully understand how one system compares to another system when trying to make a determination between the use of different products such as grocery bags (paper bags, compostable plastic bags and plastic bags). As a result, it is instructive to determine if previous LCAs have been conducted on the products in question, and if so, if the results from previous studies are similar or different, and if different what is the cause of the underlying differences.

### Life Cycle Assessments of Paper and Plastic Bags

The following is a brief review of four selected Life Cycle studies conducted in the past twenty years; starting with the most recent study.

1. “Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper” was prepared for the Progressive Bag Alliance by Boustead Consulting & Associates Ltd., Sep 2007.

To ensure that the results of this study are reliable, repeatable, and robust, the findings of this study were peer reviewed by an independent third party - Professor Michael Overcash of North Carolina State University - with significant experience in life cycle assessments. The following are quotes from the review of Professor Overcash.

“This report provides both a sound technical descriptions of the grocery bag products and the processes of life cycle use.”

"The conclusions regarding the relative environmental impact when using a life cycle view are consistent with previous studies and need to be reinforced in the policy arena. The policies to discourage plastic bags may have more to do with litter than the overall environment. Whatever the goals of the policy makers, these need to be far more explicit than general environmental improvement, since the life cycle story is consistent in favor of recyclable plastic bags. It is possible that the emphasis of another report might be that the full benefit of plastic bags is even higher when large recycling is in place."

The LCA study conducted by BCAL shows that when compared to 30% recycled fiber paper bags, polyethylene grocery bags use less energy in terms of fuels for manufacturing, less oil, and less potable water. In addition, polyethylene plastic grocery bags emit fewer global warming gases, less acid rain emissions, and less solid wastes.

The same trend exists when comparing the typical polyethylene grocery bag to grocery bags made with compostable plastic resins - traditional plastic grocery bags use less energy in terms of fuels for manufacturing, less oil, and less potable water and emit fewer global warming gases, less acid rain emissions, and less solid wastes.

The results support the conclusion that any decision to ban traditional polyethylene plastic grocery bags in favor of bags made from alternative materials (compostable plastic or recycled paper) will result in an increase in environmental impacts across a number of categories from global warming effects to the use of precious potable water resources. So no matter what benefits consumers and legislators believe may come from banning traditional plastic grocery bags, such as a reduction in litter, the unintended
consequences are real and long lasting. The significance of the increased impacts will depend largely on the level of and type of replacement that may be invoked as a result of any specifically imposed industrial or legislative requirements (this is addressed later in this document).

2. "Evaluation des impacts environnementaux des sacs de caisse Carrefours…Analyse du cycle de vie de sacs de caisse en plastique, papier et materiau biodegradable" prepared for CARREFOUR by Ecobilian a division of PriceWaterhouseCooper, France, 2004.

Carrefour is a very large French retailer that has an extensive presence in many parts of Europe and indeed the world. Carrefours also conducted a life cycle analysis of the carry out sacks utilized by its chain, and the following table summarizes the results of the study.

| | |
|---|---|
| Consumption of nonrenewable energy | Paper 10% more than plastic |
| Consumption of water | Paper 4 times as much as plastic |
| Emissions of greenhouse gases | Paper 3.3 times as much as plastic |
| Emission of acid rain gases | Paper 1.9 times as much as plastic |
| Eutrophication* | Paper 14 times as much as plastic |

* Eutrophication is the process of introducing excess nutrients such as phosphorous and nitrogen into water bodies thereby promoting the growth of plants and algae which lower the available dissolved oxygen.

The report, conducted by Ecobilan for Carrefours, concludes that plastic bags are more environmentally friendly than paper bags.

3. "Resource and Environmental Profile Analysis of Polyethylene and Unbleached Paper Grocery Sacks" prepared for The Council for Solid Waste Solutions by Franklin Associates, Ltd., 1990.

The following are key quotes from the Franklin Associates report:

Even paper bags made from 100% recycled fiber use more fossil fuels than plastic bags.

The manufacture of paper bags impacts significantly more than plastic bags on the global warming issue and on the acid rain issue.

For all environmental impacts related to air emissions, water emissions and solid waste ---paper bags are significantly greater than plastic bags.

The solid waste from paper bags disposed of in landfills, as compared to plastic bags, is more significant in both weight and volume.

The Franklin Associates report, like the other reports noted above, illustrates that plastic bags in many environmental reporting categories have fewer impacts than paper bags made from either virgin or recycled fibers.

4. "Life Cycle Inventory of Packaging Options For Shipment of Retail Mail-order Soft Goods", Prepared For Oregon Dept. of Environmental Quality (DEQ) and U.S. EPA Environmentally Preferable Purchasing Program, by Franklin Associates, Ltd., 2004.

Although this study is not a grocery bag LCA, this LCA is instructional as it does compare plastic bag packaging with kraft paper bag packaging of packaging configurations that are of similar size to grocery bags. The following are key quotes from the Franklin Associates report:

The most critical factor influencing environmental burdens is the weight of packaging---more weight; more environmental burdens or impacts.

Compared to all types of packaging the unpadded LLDPE plastic bag had the lowest environments impacts---lowest energy used; lowest greenhouse gases; lowest solid waste.

Compared to the unpadded kraft bag, the unpadded LLDPE plastic bag had the lower environments impacts---lower energy used; lower greenhouse gases; lower solid waste.

Again, the study conducted by Franklin Associates illustrates that that plastic bag packaging has fewer environmental impacts across a number of environmental reporting categories than paper bag packaging.

It is clear that if plastic bags are replaced with either plastic bags made from compostable materials or paper bags made from various amounts of recycled fibers, there will be significant increases in environmental impacts on a per bag basis. The use of plastic and paper in the packaging industry has been studied for more than 20 years – and the results are consistent. The scientific data regarding the environmental impacts of paper bags show that paper has significant adverse environmental consequences in a number of impact categories when compared to plastic bags. The following are a few examples of environmental impacts that are worse when using paper instead of plastic in retail bags.

Global warming: Paper bags result in significantly higher greenhouse gas emissions than plastic bags, even though they are recyclable and often contain as much as 40% recycled materials. Compostable plastic bags result in significantly higher greenhouse gas emissions than plastic bags.

Use of fossil fuels: Although paper bags are made from a renewable resource and currently, plastic bags are made from fossil fuels (primarily natural gas), the amount of energy required to manufacture and transport paper bags is great enough to offset the differences based on resource use and cause an overall increase in fossil fuel use associated with paper bags. The energy required to manufacture and transport compostable plastic bags is also greater than that required for single-use recyclable plastic bags.

It should also be noted that the raw feedstock needed to make polyethylene is ethylene, a simple hydrocarbon molecule made up of carbon and hydrogen. Ethylene can be readily obtained by cracking hydrocarbons, but it can also be synthesized, or even obtained from biomass (plant matter). Because ethylene occurs naturally in plants, fruits and vegetables, work is currently underway to develop a commercially viable source for ethylene from plant

products such as sugar cane. See, e.g., http://www.chalmers.se/chem/EN/centres/plus/research6483/ethylene-from-renewable;http://www.dow.com/commitments/studies/sugar.htm; http://www.ethanolproducer.com/article.jsp?article_id=4535.

Use of potable water: Themanufacturing of paper uses significant amounts of water, a critical resource which is fast becoming limited by a number of factors including climate change and population increases. The paper bag and compostable plastic bag consumption of water are significantly greater than that required for plastic bags. Water pollution Paper bag manufacturing releases far more water pollutants than plastic bags and are known to have significant local and regional impacts to waterways. Solid waste Paper bags and compostable plastic bags require more materials than do plastic bags and therefore will increase solid wastes.

Acid rain: The production of acid rain is recognized as a regional problem. It can affect streams, lakes, soils and the growth of trees. Paper bags and compostable bags generate more acid rain emissions than plastic bags. The level of impact associated with these emissions will vary depending on the location of manufacture.

Use of natural resources: Paper bags require the use of wood fiber that comes from a variety of sources including forests. Given the uncertainty of the effects from poor forest management and maintenance practices in different regions of the world, making more paper bags is counter to an
objective of reducing the use of natural resources.

This review of a number of life cycle studies have examined the environmental impacts of paper and plastic grocery bags, and these studies all show that paper bags have considerably more environmental impacts than plastic bags. Global warming and water conservation are two of the most significant environmental concerns of our time. Life cycle studies by independent and government groups have shown that paper grocery bags and compostable plastic grocery bags have far greater impacts in terms of global warming and use of valuable water resources than plastic grocery bags.

# COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(323) 890-4330

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN


August 19, 2010

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

Dear Mr. Skye:

**NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR), ORDINANCES TO BAN PLASTIC CARRYOUT BAGS IN LOS ANGELES COUNTY (FFER #201000109)**

The Notice of Availability has been reviewed by the Planning Division, Land Development Unit, Forestry Division, and Health Hazardous Materials Division of the County of Los Angeles Fire Department. The following are their comments:

**PLANNING DIVISION:**

1. We have no comments at this time.

**LAND DEVELOPMENT UNIT:**

1. We have no comments at this time.

**FORESTRY DIVISION – OTHER ENVIRONMENTAL CONCERNS:**

1. The statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division includes erosion control, watershed management, rare and endangered species, vegetation, fuel modification for Very High Fire Hazard Severity Zones or Fire Zone 4, archeological and cultural resources, and the County Oak Tree Ordinance.

2. The areas germane to the statutory responsibilities of the County of Los Angeles Fire Department, Forestry Division have been addressed.

**HEALTH HAZARDOUS MATERIALS DIVISION:**

1. We have no comments at this time.

If you have any additional questions, please contact this office at (323) 890-4330.

Very truly yours,

JOHN R. TODD, CHIEF, FORESTRY DIVISION
PREVENTION SERVICES BUREAU

JRT:ss