

ORDINANCES TO BAN PLASTIC CARRYOUT BAGS IN
LOS ANGELES COUNTY
DRAFT ENVIRONMENTAL IMPACT REPORT

(SCH # 200911104)

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APPENDICES

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C	Calculation Data
D	Initial Study and Comment Letters
E	Key Personnel Resumes

SECTION ES

EXECUTIVE SUMMARY

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.

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	
<p>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.</p>	<p>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.</p>
Biological Resources	
<p>The proposed ordinances would be expected to result in beneficial impacts to biological resources.</p>	<p>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.</p>
Greenhouse Gas Emissions	
<p>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.</p>	<p>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.</p>

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

Hydrology and Water Quality	
<p>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.</p>	<p>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.</p>
Utilities and Service Systems	
<p>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.</p>	<p>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.</p>

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.

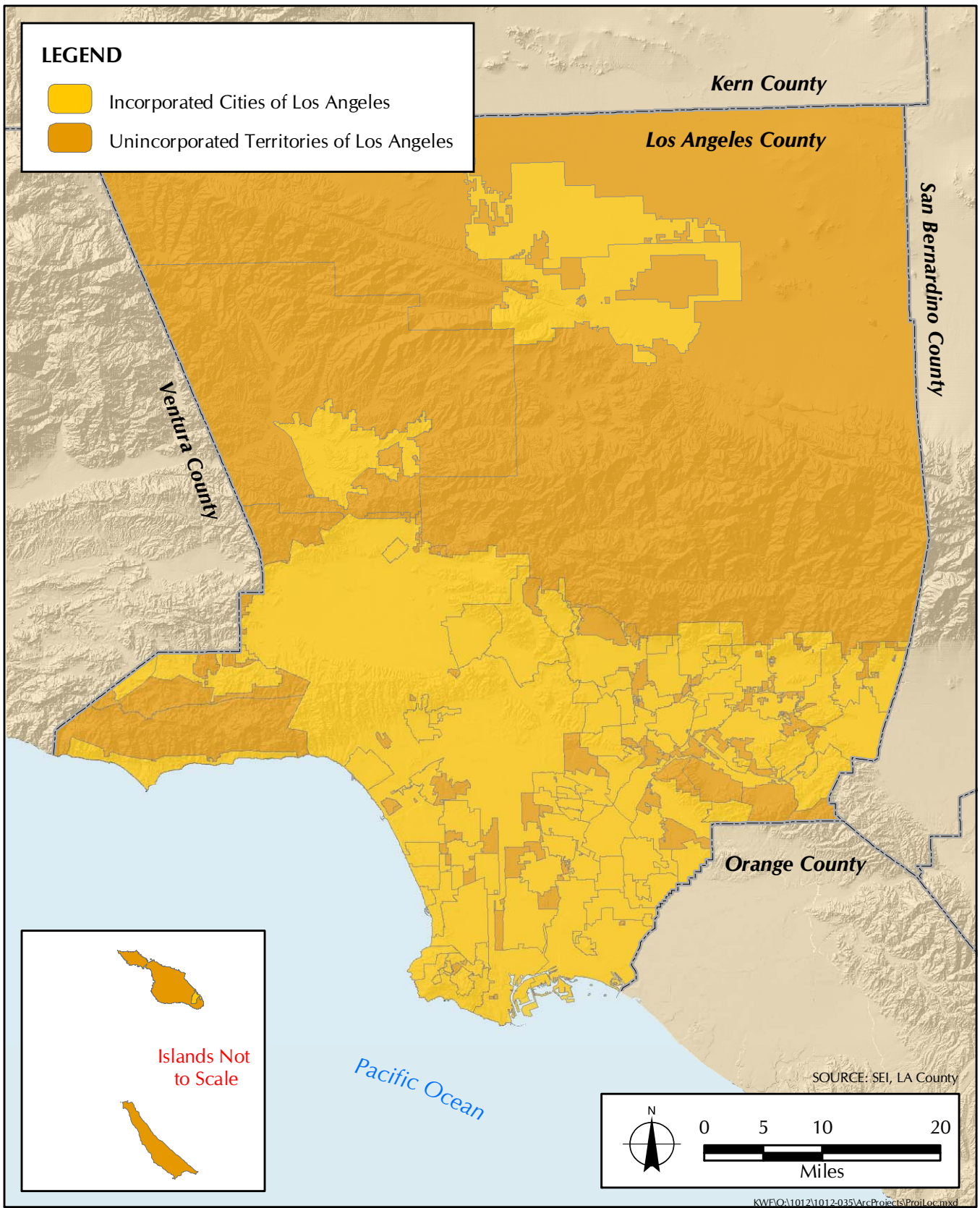


FIGURE 2.1-1
Project Location Map

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}

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.dontrashcalifornia.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

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

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

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 trial 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.

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

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

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.green Seal.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 bags⁹² 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.

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.

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

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 (O₃, NO_x, SO_x, CO, PM₁₀, 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 (PM₁₀) standard in 2006 due to a lack of evidence linking health problems to long-term exposure to PM₁₀ emissions. The 1-hour standard for ozone (O₃) 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](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>

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

Air Pollutant	National		State
	Primary	Secondary	Standard
Ozone (O ₃) ¹	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.08 ppm, 8-hr avg. (1997) 0.075 ppm, 8-hr avg. (2008)	0.09 ppm, 1-hr avg. 0.07 ppm, 8-hr avg.
Carbon monoxide (CO)	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None	9 ppm, 8-hr avg. 20 ppm, 1-hr avg.
Nitrogen dioxide (NO ₂)	0.053 ppm, annual avg.	0.053 ppm, annual avg.	0.03 ppm, annual avg. 0.18 ppm, 1-hr avg.
Sulfur dioxide (SO ₂)	0.03 ppm, annual avg. 0.14 ppm, 24-hr avg.	0.5 ppm, 3-hr avg.	0.25 ppm, 1-hr 0.04 ppm, 24-hr avg.
Suspended particulate matter (PM ₁₀)	150 µg/m ³ , 24-hr avg.	150 µg/m ³ , 24-hr avg.	50 µg/m ³ , 24-hr avg. 20 µg/m ³ , annual avg.
Fine particulate matter (PM _{2.5})	35 µg/m ³ , 24-hr avg. 15 µg/m ³ , annual avg.	35 µg/m ³ , 24-hr avg. 15 µg/m ³ , annual avg.	12 µg/m ³ , annual avg.
Sulfates (SO ₄)	---	---	25 µg/m ³ , 24-hr avg.
Lead (Pb)	1.5 µg/m ³ , calendar quarter 0.15 µg/m ³ , rolling 3-month avg.	1.5 µg/m ³ , calendar quarter 0.15 µg/m ³ , rolling 3-month avg.	1.5 µg/m ³ , 30-day avg.
Hydrogen sulfide (H ₂ S)	---	---	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. µg/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 O₃, and Antelope Valley is a severe-17 non-attainment area for O₃. The County is currently designated as a severe-17 non-attainment area for O₃, a non-attainment area for fine particulate matter (PM_{2.5}), and a serious non-attainment area for

PM₁₀,¹³ 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 (NO₂) since 1992.¹⁴ Although the SCAB as a whole is designated as a non-attainment area for PM₁₀, the County is currently in compliance of federal PM₁₀ standards at all monitoring stations.¹⁵ The Antelope Valley is unclassified for the federal PM₁₀ standards.

Areas designated as severe-17 for non-attainment of the federal 8-hour O₃ 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 PM₁₀ air quality standard have a maximum of 10 years to reduce PM₁₀ 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 O₃ 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 O₃, CO, and NO₂ 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 PM₁₀ standard. The CARB, which became part of Cal/EPA in 1991, is responsible for meeting State requirements of the federal CAA, administering 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 PM₁₀ and PM_{2.5} air quality standards and the federal 8-hour O₃ 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 O₃ 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 O₃ standards. At a public hearing held on June 26, 2008, CARB approved an SIP revision for attainment of the 8-hour O₃ NAAQS in Antelope Valley. The AVAQMD Federal 8-Hour Ozone Attainment Plan provides planning strategies for attainment of the 8-hour NAAQS for O₃ 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 coastal 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 year¹⁹ 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 O₃. Peak O₃ 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 O₃ 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. NO₂ 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 O₃ 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) Exceed 0.09 ppm (State 1-hr standard)?	0.18 Yes	0.158 Yes	0.160 Yes
	Maximum 8-hr concentration (ppm) Exceed 0.07 ppm (State 8-hr standard)?	0.128 Yes	0.116 Yes	0.131 Yes
Carbon monoxide	Maximum 1-hr concentration (ppm) Days > 20 ppm (State 1-hour standard)	8 0	8 0	6 0
	Maximum 8-hr concentration (ppm) Days > 9.0 ppm (State 8-hr standard)	6.4 0	5.1 0	4.3 0
Nitrogen dioxide	Maximum 1-hr Concentration (ppm) Days > 0.18 ppm (State 1-hr standard)	0.14 0	0.12 0	0.13 0
PM ₁₀	Maximum 24-hr concentration (µg/m ³) Exceed 50 µg/m ³ (State 24-hr standard)?	117 Yes	131+ Yes	98 Yes
PM _{2.5}	Maximum Annual Average (µg/m ³) Exceed State standard (12 µg/m ³ annual arithmetic mean)?	16.7 Yes	16.8 Yes	15.7 Yes
Sulfur dioxide	Maximum 24-hr concentration (ppm) Days > 0.25 ppm (State 24-hr standard)	0.010 0	0.011 0	0.012 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 (PM₁₀), O₃, CO, and NO₂. 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 O₃ and suspended particulate matter (PM₁₀) (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) Days > 0.09 ppm (State 1-hr standard)	0.118 16	0.116 18	0.122 22
	Maximum 8-hr concentration (ppm) Days > 0.07 ppm (State 8-hr standard)	0.101 > 1*	0.103 59	0.102 70
Carbon monoxide	Maximum 1-hr concentration (ppm) Days > 20 ppm (State 1-hour standard)	2.5 0	2.2 0	1.8 0
	Maximum 8-hr concentration (ppm) Days > 9.0 ppm (State 8-hr standard)	1.2 0	1.0 0	1.1 0
PM ₁₀	Maximum 24-hr concentration (µg/m ³) Days > 50 µg/m ³ (State 24-hr standard)	86 8	153 16	199 5
	Nitrogen dioxide	Maximum 1-hr concentration (ppm) Days > 0.18 ppm (State 1-hr standard)	0.064 0	0.062 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 O₃ 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 PM₁₀ (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, SO₂, PM₁₀, PM_{2.5}, and CO₂ 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 (O₃, NO_x, SO₂, CO, PM₁₀, 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 County⁴⁰ 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.

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

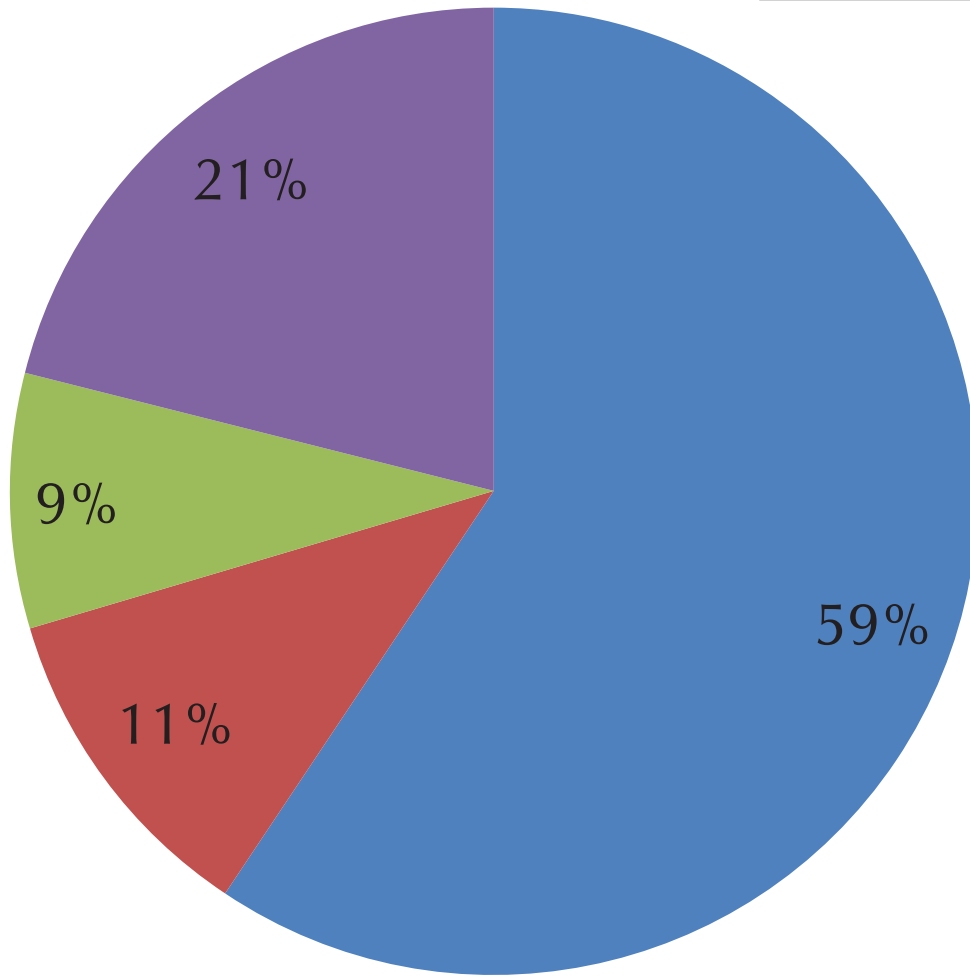
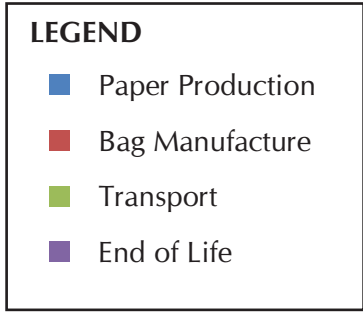
SOURCE:

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 5,811 paper carryout bags per day [$0.85 * 10,000 * (14/20.48) = 5,811$].
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

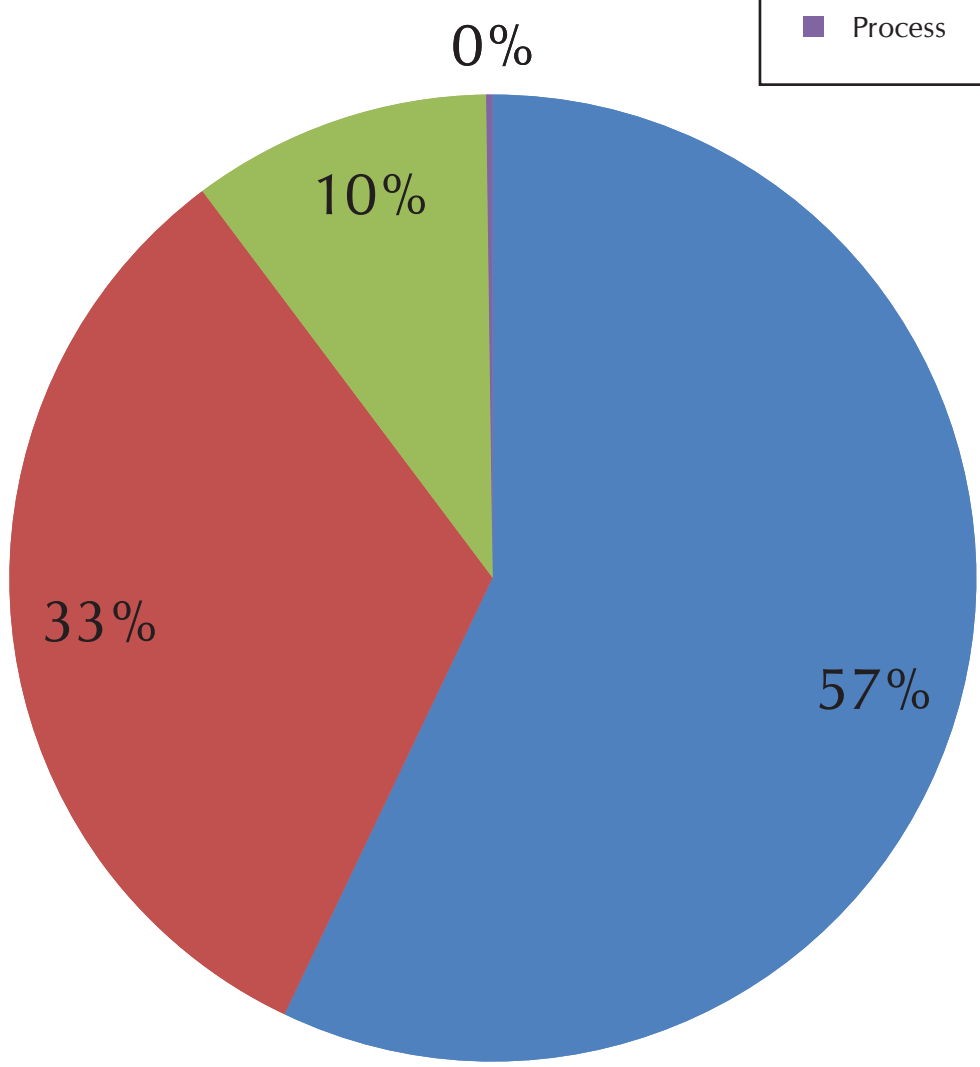
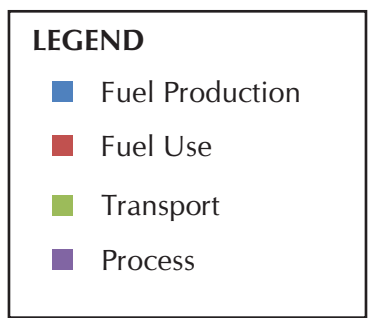
SOURCE: Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Prepared for: Progressive Bag Affiliates.

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 SO_x, 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 NO_x EMISSION INCREASES DUE TO END OF LIFE
BASED ON ECOBILAN DATA**

Emission Sources	Air Pollutant NO _x (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 [$10,000 \times (14/20.48) = 6,836$]. 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

$$\begin{aligned} \text{Number of plastic carryout bags per truck} &= \\ 24 \text{ pallets} \times 48 \text{ cases} \times 2,000 \text{ plastic carryout bags per case} &= \\ 2,304,000 \text{ plastic carryout bags per truck} & \end{aligned}$$

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

$$\begin{aligned} \text{Number of paper carryout bags per truck} &= \\ 24 \text{ pallets} \times 18 \text{ cases} \times 500 \text{ paper carryout bags per case} &= \\ 216,000 \text{ paper carryout bags per truck} & \end{aligned}$$

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 $(0.85 \times 2,304,000 \text{ plastic carryout bags per truck}) / 216,000 \text{ paper carryout bags per truck} = 9$

⁶⁷ $2,304,000 \text{ plastic carryout bags per truck} / 216,000 \text{ paper carryout bags per truck} = 11$

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 $0.85 \times (2,304,000 \text{ plastic carryout bags per truck} / 216,000 \text{ paper carryout bags per truck}) \times (1 \text{ paper carryout bag} / 1.5 \text{ plastic carryout bags}) = \text{approximately 6 times the number of truck trips required}$

⁷² $(2,304,000 \text{ plastic carryout bags per truck} / 216,000 \text{ paper carryout bags per truck}) \times (1 \text{ paper carryout bag} / 1.5 \text{ plastic carryout bags}) = \text{approximately 7 times the number of truck trips required}$

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 $(0.85 \times 10,368 \text{ square inches} / 720 \text{ square inches}) \times (12\text{-inch} \times 7\text{-inch} \times 15\text{-inch plastic carryout bag} / 12\text{-inch} \times 7\text{-inch} \times 17\text{-inch paper carryout bag}) = \text{approximately 11 times the number of truck trips required}$

⁷⁶ $(10,368 \text{ square inches} / 720 \text{ square inches}) \times (12\text{-inch} \times 7\text{-inch} \times 15\text{-inch plastic carryout bag} / 12\text{-inch} \times 7\text{-inch} \times 17\text{-inch paper carryout bag}) = \text{approximately 13 times the number of truck trips required}$

⁷⁷ $67 \text{ stores} \times 10,000 \text{ plastic carryout bags per day} / 2,304,000 \text{ plastic carryout bags per truck} \times 13 = \text{approximately 4 daily truck trips}$

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 (CNDDDB) 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

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

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.

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 CNDDDB 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

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 from 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 CNDDDB 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	<i>Anaxyrus californicus</i>	Endangered	None
California red-legged frog	<i>Rana draytonii</i>	Threatened	None
Sierra Madre yellow-legged frog	<i>Rana muscosa</i>	Endangered	None
Birds			
American peregrine falcon	<i>Falco peregrinus anatum</i>	Delisted	Endangered
bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted	Endangered
Belding's savannah sparrow	<i>Passerculus sandwichensis beldingi</i>	None	Endangered
California black rail	<i>Laterallus jamaicensis coturniculus</i>	None	Threatened
California condor	<i>Gymnogyps californianus</i>	Endangered	Endangered
California least tern	<i>Stern antillarum browni</i>	Endangered	Endangered
coastal California gnatcatcher	<i>Polioptila californica californica</i>	Threatened	None
least Bell's vireo	<i>Vireo bellii pusillus</i>	Endangered	Endangered
San Clemente loggerhead shrike	<i>Lanius ludovicianus mearnsi</i>	Endangered	None
San Clemente sage sparrow	<i>Amphispiza belli clementeae</i>	Threatened	None
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	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	<i>Buteo swainsoni</i>	None	Threatened
western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Threatened	None
western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Candidate	Endangered
Xantus's murrelet	<i>Synthliboramphus hypoleucus</i>	Candidate	Threatened
Fish			
Mohave tui chub	<i>Gila bicolor mohavensis</i>	Endangered	Endangered
Santa Ana sucker	<i>Catostomus santaanae</i>	Threatened	None
southern steelhead - Southern California ESU	<i>Oncorhynchus mykiss irideus</i>	Endangered	None
tidewater goby	<i>Eucyclogobius newberryi</i>	Endangered	None
unarmored threespine stickleback	<i>Gasterosteus aculeatus williamsoni</i>	Endangered	Endangered
Invertebrates			
El Segundo blue butterfly	<i>Euphilotes battoides allyni</i>	Endangered	None
Palos Verdes blue butterfly	<i>Glaucopsyche lygdamus palosverdesensis</i>	Endangered	None
Mammals			
Mohave ground squirrel	<i>Xerospermophilus mohavensis</i>	None	Threatened
Nelson's antelope squirrel	<i>Ammospermophilus nelsoni</i>	None	Threatened
Pacific pocket mouse	<i>Perognathus longimembris pacificus</i>	Endangered	None
San Clemente Island fox	<i>Urocyon littoralis clementae</i>	None	Threatened
Santa Catalina Island fox	<i>Urocyon littoralis catalinae</i>	Endangered	Threatened
Plants			
Agoura Hills dudleya	<i>Dudleya cymosa</i> ssp. <i>agouensis</i>	Threatened	None
beach spectaclepod	<i>Dithyrea maritima</i>	None	Threatened
Brand's star phacelia	<i>Phacelia stellaris</i>	Candidate	None
Braunton's milk-vetch	<i>Astragalus brauntonii</i>	Endangered	None
California orcutt grass	<i>Orcuttia californica</i>	Endangered	Endangered
Catalina Island mountain-mahogany	<i>Cercocarpus traskiae</i>	Endangered	Endangered
coastal dunes milk-vetch	<i>Astragalus tener</i> var. <i>titi</i>	Endangered	Endangered
Gambel's water cress	<i>Nasturtium gambelii</i>	Endangered	Threatened
island rush-rose	<i>Helianthemum greenei</i>	Threatened	None
Lyon's pentachaeta	<i>Pentachaeta lyonii</i>	Endangered	Endangered
marcescent dudleya	<i>Dudleya cymosa</i> ssp. <i>marcescens</i>	Threatened	Rare
marsh sandwort	<i>Arenaria paludicola</i>	Endangered	Endangered
Mt. Gleason paintbrush	<i>Castilleja gleasonii</i>	None	Rare
Nevin's barberry	<i>Berberis nevinii</i>	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	<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i>	Endangered	Endangered
San Clemente Island bedstraw	<i>Galium catalinense</i> ssp. <i>acrispum</i>	None	Endangered
San Clemente Island bird's-foot trefoil	<i>Lotus argophyllus</i> var. <i>adsurgens</i>	None	Endangered
San Clemente Island bush-mallow	<i>Malacothamnus clementinus</i>	Endangered	Endangered
San Clemente Island larkspur	<i>Delphinium variegatum</i> ssp. <i>kinkiense</i>	Endangered	Endangered
San Clemente Island lotus	<i>Lotus dendroideus</i> var. <i>traskiae</i>	Endangered	Endangered
San Clemente Island paintbrush	<i>Castilleja grisea</i>	Endangered	Endangered
San Clemente Island woodland star	<i>Lithophragma maximum</i>	Endangered	Endangered
San Fernando Valley spineflower	<i>Chorizanthe parryi</i> var. <i>fernandina</i>	Candidate	Endangered
Santa Cruz Island rock cress	<i>Sibara filifolia</i>	Endangered	None
Santa Monica dudleya	<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Threatened	None
Santa Susana tarplant	<i>Deinandra minthornii</i>	None	Rare
slender-horned spineflower	<i>Dodecahema leptoceras</i>	Endangered	Endangered
spreading navarretia	<i>Navarretia fossalis</i>	Threatened	None
thread-leaved brodiaea	<i>Brodiaea filifolia</i>	Threatened	Endangered
Ventura Marsh milk-vetch	<i>Astragalus pycnostachyus</i> var. <i>lanosissimus</i>	Endangered	Endangered
Reptiles			
desert tortoise	<i>Gopherus agassizii</i>	Threatened	Threatened
island night lizard	<i>Xantusia riversiana</i>	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 (<i>Balaenoptera musculus</i>)	1970	E	Northern Pacific; California/Mexico population
fin whale (<i>Balaenoptera physalus</i>)	1970	E	Northern Pacific; California/Oregon/Washington population
humpback whale (<i>Megaptera novaeangliae</i>)	1970	E	Northern Pacific; California/Oregon/Washington population
killer whale (<i>Orcinus orca</i>)	2005	E	Northern Pacific; California/Oregon/Washington population ³
North Pacific right whale (<i>Eubalaena japonica</i>)	1970 ⁴ (2008)	E	Northern Pacific; includes animals in California
Sei whale (<i>Balaenoptera borealis</i>)	1970	E	Northern Pacific; includes animals in California
sperm whale (<i>Physeter macrocephalus</i>)	1970	E	Northern Pacific; California/Oregon/Washington population
Pinnipeds (seals, sea lions, and walruses)			
Guadalupe fur seal (<i>Arctocephalus townsendi</i>)	1985	T	Northern Pacific; includes San Miguel Island, California population
Marine Turtles			
green turtle (<i>Chelonia mydas</i>)	1978	T	Northern Pacific; includes animals in California
leatherback turtle (<i>Dermochelys coriacea</i>)	1970	E	Northern Pacific; includes animals in California
loggerhead turtle (<i>Caretta caretta</i>)	1978	T	Northern Pacific; includes animals in California
olive ridley turtle (<i>Lepidochelys olivacea</i>)	1978	T	Northern Pacific; includes animals in California
Marine and Anadromous Fish			
steelhead trout (<i>Oncorhynchus mykiss</i>)	1997	E	Northern Pacific; Southern California population
Marine Invertebrates			
black abalone (<i>Haliotis cracherodii</i>)	2009	E	Northern Pacific; includes animals in California
white abalone (<i>Haliotis sorenseni</i>)	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 (<i>Sebastes paucispinis</i>)	Species of concern	Northern Pacific; Pacific-Southern DPS (Northern California to Mexico)
cowcod (<i>Sebastes levis</i>)	Species of concern	Entire Range: Central Oregon to Central Baja California
dusky shark (<i>Carcharhinus obscurus</i>)	Species of concern	Northern Pacific; includes Southern California
Pacific hake (<i>Merluccius productus</i>)	Species of concern	Northern Pacific; Georgia Basin DPS; includes Southern California
Marine Invertebrates		
green abalone (<i>Haliotis fulgens</i>)	Species of concern	Entire Range: Point Conception, California to Bahia de Magdalena, Gulf of California, Mexico
pink abalone (<i>Haliotis corrugata</i>)	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 (<i>Phoebastria albatrus</i>)	2000	FE	Formerly included Southern California (offshore) in the 19th Century; few records since; ² does not breed
bald eagle (<i>Haliaeetus leucocephalus</i>)	1971	SE	Includes Southern California, where it breeds
Western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	1993	FT	Includes Southern California, where it breeds
California least tern (<i>Sterna antillarum browni</i>)	1970 (F); 1971 (S)	FE, SE	Includes Southern California, where it breeds
marbled murrelet (<i>Brachyramphus marmoratus</i>)	1992	FT, SE	Includes Southern California, where it does not breed; generally scarce in winter
Xantus's murrelet (<i>Synthliboramphus hypoleucus</i>)	2004	ST	Includes Southern California, where it breeds in the Channel Islands
Mammals			
Southern sea otter (<i>Enhydra lutris nereis</i>)	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 (<i>Pelecanus erythrorhynchos</i>)	Special concern	1	Includes Southern California, where it does not breed
tufted puffin (<i>Fratercula cirrhata</i>)	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 (<i>Branta bernicla</i>)	Special concern	2	Includes Southern California; does not breed
ashy storm-petrel (<i>Oceanodroma homochroa</i>)	Special concern	2	Includes Southern California; breeds in the Channel Islands
black tern (<i>Chlidonias niger</i>)	Special concern	2	Includes Southern California, where it does not breed
fork-tailed storm-petrel (<i>Oceanodroma furcata</i>)	Special concern	3	Includes Southern California (offshore), where it does not breed
black storm-petrel (<i>Oceanodroma melania</i>)	Special concern	3	Southern California (offshore); breeds at Sutil and Santa Barbara Islands
snowy plover (<i>Charadrius alexandrinus</i>) (Interior Population)	Special concern	3	Includes Southern California, where the interior population does not breed
gull-billed tern (<i>Gelochelidon nilotica</i>)	Special concern	3	Southern California; along the coast, has bred in San Diego County since 1986
black skimmer (<i>Rynchops niger</i>)	Special concern	3	Includes Southern California; along the coast, breeds in Los Angeles, Orange and San Diego Counties
Cassin's auklet (<i>Ptychoramphus aleuticus</i>)	Special concern	3	Includes Southern California; breeds in the Channel Islands

Wetlands and Watersheds

As a result of the literature review, including the CNDDDB 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 Creek 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 CNDDDB,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 or 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 microplastics⁴⁷ 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

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 be 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

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.

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

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 (CO₂), methane (CH₄), nitrous oxide (N₂O), sulphur hexafluoride (SF₆), 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 CO₂ and CH₄ 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

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 SF₆, HFCs, and PFCs, are described to set the context for the analysis.

Carbon Dioxide (CO₂)

CO₂ is a colorless, odorless, and nonflammable gas that is the most abundant GHG in the Earth's atmosphere after water vapor. CO₂ 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. CO₂ absorbs terrestrial infrared radiation that would otherwise escape to space, and therefore plays an important role in warming the atmosphere. CO₂ 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. CO₂ provides the reference point for the global warming potential (GWP) of other gases; thus, the GWP of CO₂ is equal to 1.

Methane (CH₄)

CH₄ 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. CH₄ is also emitted during the production and transport of coal, natural gas, and oil. CH₄ is about 21 times more powerful at warming the atmosphere than CO₂ (a GWP of 21). Its chemical lifetime in the atmosphere is approximately 12 years. The relatively short atmospheric lifetime of CH₄, coupled with its potency as a GHG, makes it a candidate for mitigating global warming over the near-term. CH₄ 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.

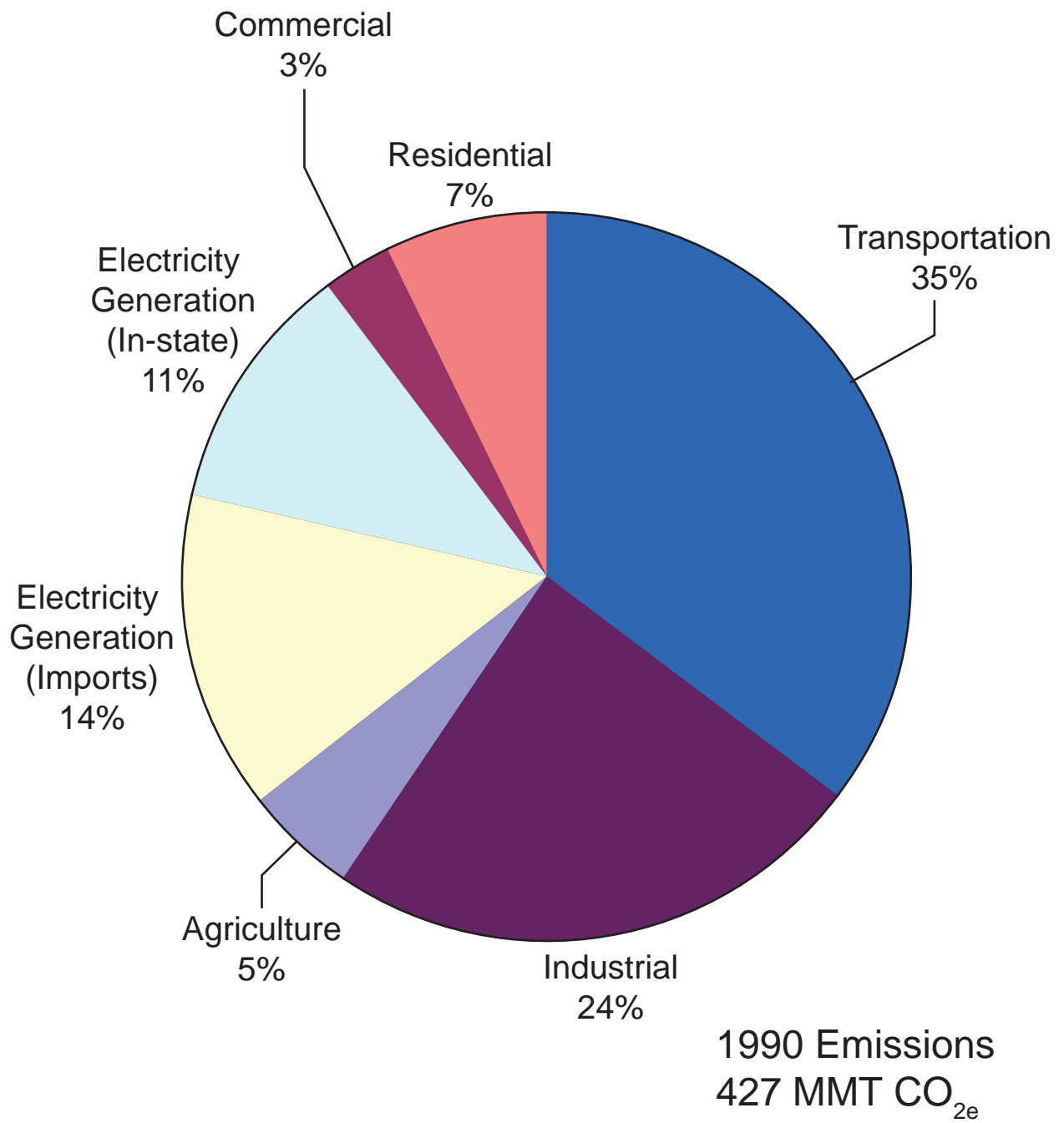
Nitrous Oxide (N₂O)

N₂O is a clear and colorless gas with a slightly sweet odor. N₂O 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). N₂O is produced by both natural and human-related sources. The primary anthropogenic sources of N₂O are agricultural soil management such as soil

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.

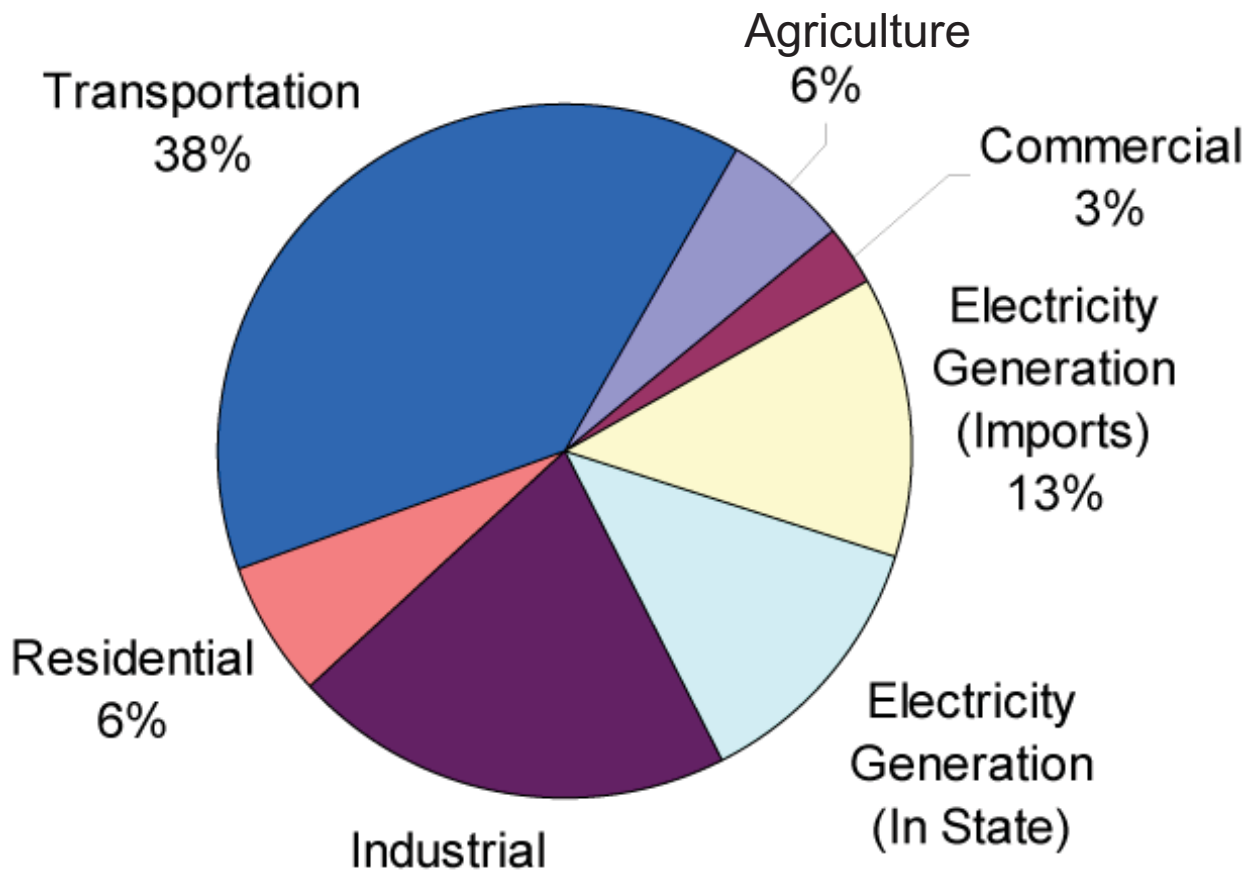
¹⁵ California Air Resources Board. 16 November 2007. *California 1990 Greenhouse Gas Emissions Level and 2020 Limit*. Sacramento, CA.



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



2004 Emissions
480 MMT CO_{2e}

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 N₂O ranges from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests.

Fluorinated Gases

HFCs, PFCs, and SF₆ 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 PM₁₀ standard in 2006 due to a lack of evidence linking health problems to long-term exposure to PM₁₀ emissions. The 1-hour standard for O₃ 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 O₃ 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 PM₁₀ air quality standard have a maximum of 10 years to reduce PM₁₀ 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 O₃ 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 CO₂, CH₄, N₂O, and fluorinated gases, such as HFCs, PFCs, and SF₆,²¹ thereby legitimizing GHGs as air pollutants under the CAA.

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

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 CO₂equivalent (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 ₂ Equivalent)					
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 PM₁₀ and PM_{2.5} air quality standards and the federal 8-hour O₃ 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 O₃ 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 CH₄.

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 O₃ standards. At a public hearing held on June 26, 2008, the CARB approved an SIP revision for attainment of the 8-hour O₃ NAAQS in the Antelope Valley.

The AVAQMD Federal 8-Hour Ozone Attainment Plan provides planning strategies for attainment of the 8-hour NAAQS for O₃ 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 CH₄.

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 year³⁶ 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.

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>

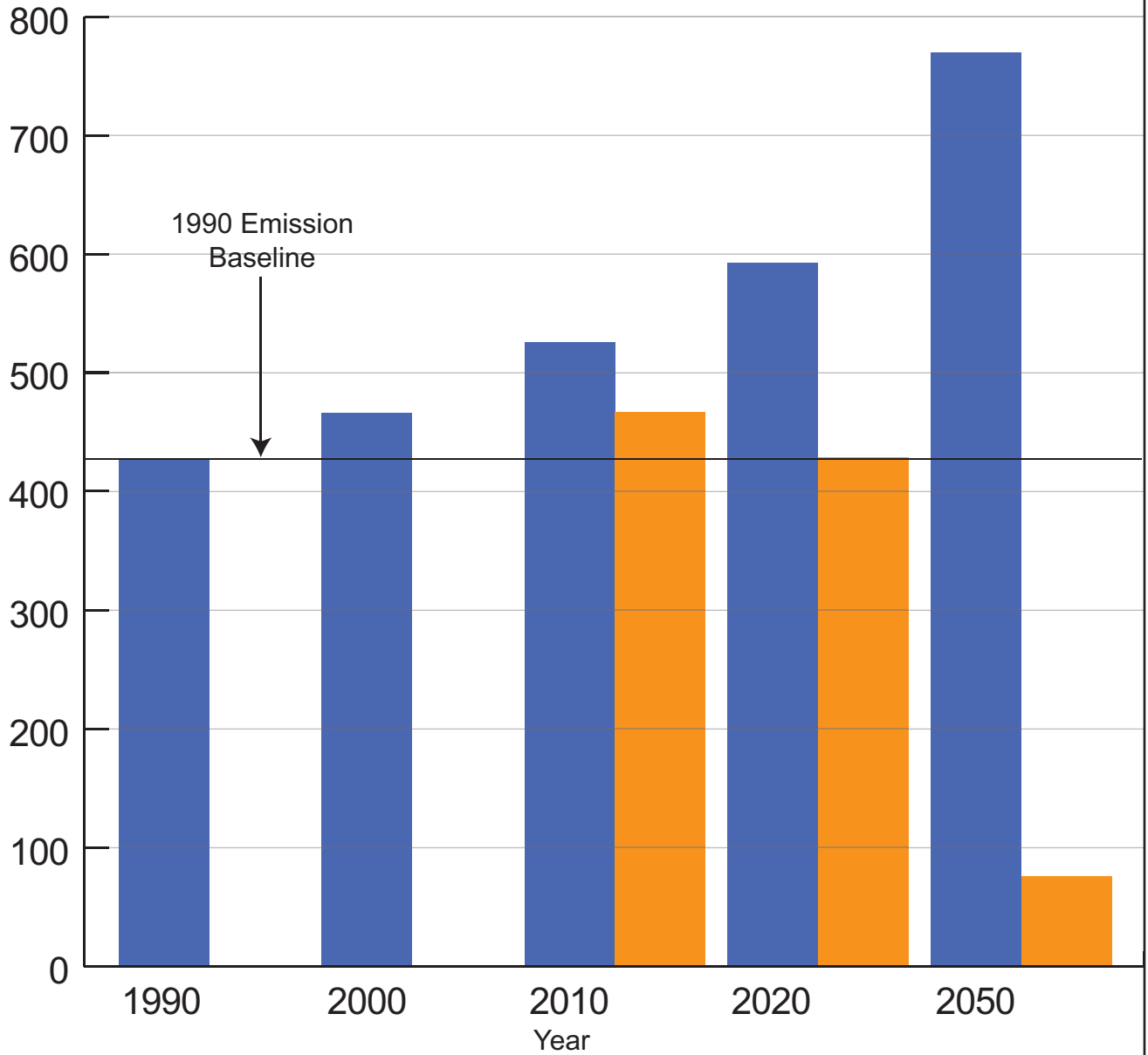
³⁷ Antelope Valley Air Quality Management District. May 2005. *Antelope Valley AQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Available at: <http://www.mdaqmd.ca.gov/Modules/ShowDocument.aspx?documentid=916>

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>

Million Metric Tons
(CO₂ Equivalent)



■ Baseline Emissions
■ Emission Targets



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 General⁴¹ 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 CO₂, CH₄, N₂O, SF₆, HFCs, and PFCs. SF₆ 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 SF₆ 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 CO₂, CH₄, and N₂O emissions, which may occur as a result of the manufacture, distribution, and disposal of paper, plastic, or reusable bags. The emissions of CO₂, CH₄, and N₂O 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.

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 CO₂ emissions. URBEMIS does not currently estimate CH₄ and N₂O emissions from combustion sources. However, CO₂ emissions reported from URBEMIS in this EIR are essentially the same as CO_{2e} emissions because CH₄ and N₂O emissions from mobile sources are negligible in comparison to CO₂ 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 CO₂. 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 CH₄ 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 LCA⁵⁸ 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 County¹	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 [$0.85 \times 10,000 \times (14/20.48) = 5,811$].

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 County¹	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 × (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 Year Per Capita ³
	Metric Tons Per Day	Metric Tons Per Day	Metric Tons Per Year	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 County¹	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 [$0.85 \times 10,000 \times (14/20.48) = 5,811$].
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 uncertainty 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 ₂ e Emission Sources				2020 CO ₂ e 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 County¹	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 × (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 County¹	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**

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	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 County¹	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 CO₂ 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 (CO₂), thousand metric tons of CO₂ (collected by Carbon Dioxide Information Analysis Center). Available at: <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crd=>

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 CO₂ 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 (CO₂), thousand metric tons of CO₂ (collected by Carbon Dioxide Information Analysis Center). Available at: <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crd=>

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 CO₂ equivalents,⁷⁸ which means that CH₄ is considered to have 62 times the global warming potential of CO₂. It is standard practice to use 100 year CO₂ equivalents when calculating CO_{2e}, which means that CH₄ emissions are considered to have 23 times the global warming potential compared to CO₂.⁷⁹ 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:

$$24 \text{ pallets} \times 48 \text{ cases} \times 2,000 \text{ plastic carryout bags per case} = \\ 2,304,000 \text{ plastic carryout bags per truck}$$

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:

$$24 \text{ pallets} \times 18 \text{ cases} \times 500 \text{ paper carryout bags per case} = \\ 216,000 \text{ paper carryout bags per truck}$$

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}

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 $(0.85 \times 2,304,000 \text{ plastic bags per truck}) / 216,000 \text{ paper carryout per truck} \approx 9$

⁸⁷ $2,304,000 \text{ plastic bags per truck} / 216,000 \text{ paper carryout bags per truck} \approx 11$

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 $0.85 \times (2,304,000 \text{ plastic carryout bags per truck} / 216,000 \text{ paper carryout bags per truck}) \times (1 \text{ paper carryout bag} / 1.5 \text{ plastic carryout bags}) \approx 6$ times the number of truck trips required

⁹² $(2,304,000 \text{ plastic bags per truck} / 216,000 \text{ paper carryout bags per truck}) \times (1 \text{ paper carryout bag} / 1.5 \text{ plastic carryout bags}) \approx 7$ 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:

$$12 \text{ inches} \times 12 \text{ inches} \times 5 \text{ inches} = 720 \text{ cubic inches}$$

Whereas the combined volume of 1,000 of these particular paper carryout bags is equal to approximately 10,368 cubic inches:

$$\begin{aligned} \text{For packaging 500 paper carryout bags: } & 24 \text{ inches} \times 18 \text{ inches} \times 12 \text{ inches} = 5,184 \text{ cubic inches} \\ \text{For packaging 1,000 paper carryout bags: } & 5,184 \text{ cubic inches} \times 2 = 10,368 \text{ cubic inches} \end{aligned}$$

According to this calculation, paper carryout bags occupy approximately 14.4 times more volume than plastic carryout bags occupy.

$$10,368 \text{ cubic inches} / 720 \text{ cubic inches} = 14.4$$

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}

$$\begin{aligned} 14.4 / 1.13 &= 12.7 \times 85 \text{ percent} = 10.8 \sim 11 \\ 14.4 / 1.13 &= 12.7 \times 100 \text{ percent} = 12.7 \sim 13 \end{aligned}$$

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 $(0.85 \times 10,368 \text{ square inches} / 720 \text{ square inches}) \times (12\text{-inch} \times 7\text{-inch} \times 15\text{-inch plastic carryout bag} / 12\text{-inch} \times 7\text{-inch} \times 17\text{-inch paper carryout bag}) \approx 11$ times the number of truck trips required

⁹⁶ $(10,368 \text{ square inches} / 720 \text{ square inches}) \times (12\text{-inch} \times 7\text{-inch} \times 15\text{-inch plastic carryout bag} / 12\text{-inch} \times 7\text{-inch} \times 17\text{-inch paper carryout bag}) \approx 13$ 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 CO₂ 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 CO₂ 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	CO₂ Emissions (Pounds/Day)	CO₂ Emissions (Metric Tons/Year)	CO₂ 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 (CO₂), thousand metric tons of CO₂ (collected by Carbon Dioxide Information Analysis Center). Available at: <http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=749&crd=>

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 worse 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 Angeles Department of Public Works Water Quality Compliance Master Plan for Urban Runoff (WQCMUR),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 Region⁹

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.

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.

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

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,

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.

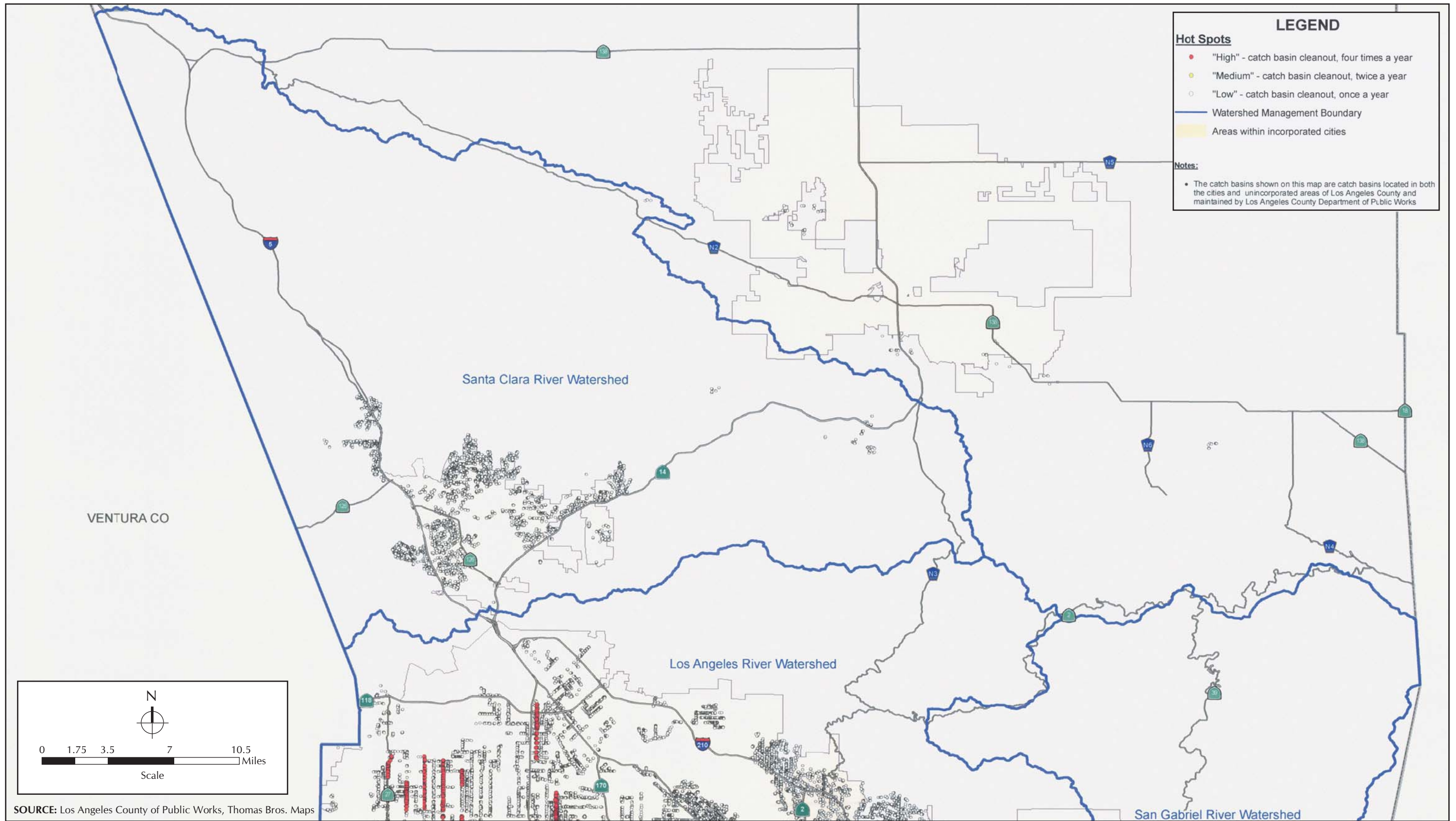


FIGURE 3.4.2-1
Northern Portion of the County Storm Drain System

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 Plan.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

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_reqtmlds.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 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 Canada⁷² 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.

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) 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.

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 × (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 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 [$10,000 \times (14/20.48) = 6,836$]. 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 × (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 ($10,000 \times (14/20.48) = 6,683$). 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 CO₂. 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 CO₂ 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.

⁴⁵Data 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**

Emissions 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 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 worse 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 CO₂ equivalents,⁶⁹ which means that CH₄ is considered to have 62 times the global warming potential of CO₂. It is standard practice to use 100 year CO₂ equivalents when calculating CO_{2e}, which means that CH₄ emissions are considered to have 23 times the global warming potential compared to CO₂.⁷⁰ 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 CO₂ 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 $(1,024 \text{ stores} \times 5,000 \text{ plastic carryout bags per day} / 2,304,000 \text{ plastic carryout bags per truck}) \times (67 \text{ stores} \times 10,000 \text{ plastic carryout bags per day} / 2,304,000 \text{ plastic carryout bags per truck}) \times 13 \approx 33 \text{ daily truck trips}$

⁷⁵ $(4,622 \text{ stores} \times 5,000 \text{ plastic carryout bags per day} / 2,304,000 \text{ plastic carryout bags per truck}) \times (462 \text{ stores} \times 10,000 \text{ plastic carryout bags per day} / 2,304,000 \text{ plastic carryout bags per truck}) \times 13 \approx 156.5 \text{ daily truck trips}$

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 0.00005 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	CO₂ Emissions (Pounds/Day)	CO₂ Emissions (Metric Tons/Year)	CO₂ 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 CO₂ 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 Sources	Eutrophication (kilograms phosphate equivalent)		
	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.

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.

¹⁰⁴Data 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**

Emissions Areas	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}			
	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

**SIGNIFICANT 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:

- 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

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

Southern California Association of Governments Javier Minjares

South Coast Air Quality Management District
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Antelope Valley Air Quality Management District
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Regional Water Quality Control Board, Los Angeles Region Eric Wu

San Francisco Department of the Environment Jack Macy

San Francisco Public Utilities Commission Karen Hurst

8.1.4 County of Los Angeles

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8.1.5 Cities

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City of San Jose
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City of Malibu
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City of Malibu
 Department of Public Works Rebecca Nelson

City of Manhattan Beach
 Community Development Department..... Eric Haaland

City of Palo Alto, Department of Public Works
 Environmental Compliance Manager Phil Bobel

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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 Ocean Gate, 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
43301 Division 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 *Supervisory 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.