

Sonoma County Waste Management Agency

Waste Reduction Program for Carryout Bags

Draft **Environmental Impact Report**

SCH #2012102039

January 2013



E n v i r o n m e n t a l S c i e n t i s t s P l a n n e r s E n g i n e e r s

Waste Reduction Program for Carryout Bags

Draft **Environmental Impact Report** SCH #2012102039

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Waste Reduction Program for Carryout Bags EIR

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EXECUTIVE SUMMARY

This section summarizes the characteristics of the proposed ordinance and the significant environmental impacts, mitigation measures, and residual impacts associated with the proposed Waste Reduction Program for Carryout Bags.

PROJECT SYNOPSIS

Project Sponsor

Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403
Contact: Henry Mikus, Executive Director
(707) 565-3579

Project Characteristics

The proposed Waste Reduction Program for Carryout Bags ("Proposed Ordinance") would regulate the use of paper and plastic single-use carryout bags within Sonoma County, including the nine incorporated cities within the County. For the purposes of this EIR, the geographical limits of Sonoma County including the nine incorporated cities are referred to as the "Study Area." The Proposed Ordinance would apply to all retail establishments located within the limits of the Study Area, including those selling clothing, food, and personal items directly to the customer. It would not apply to restaurants. The Proposed Ordinance would (1) prohibit the free distribution of single-use carryout paper and plastic bags starting July 1, 2013, and (2) allow retail establishments to make recycled paper bags available for a minimum charge of ten cents (\$0.10) beginning July 1, 2013.

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

Single-use carryout bags are defined in the Proposed Ordinance as bags, other than a reusable bags, that are less than 2.25 millimeters thick provided by a Retail Establishment to a customer for the purpose of transporting food or merchandise out of the establishment. Regulated bags would not include bags without handles provided to the customer (1) to transport produce, bulk food or meat within a store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bag. The Proposed Ordinance would not apply to restaurants and other food service providers, allowing them to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises. Recycled paper bags are defined in the Proposed Ordinance as bags that contain no old growth fiber and a minimum of 40% post-consumer recycled material, is 100% recyclable, and has printed in a highly visible manner



on the outside of the bag the words “reusable” and “recycleable,” the name and location of the manufacturer, and the percentage of post-consumer recycled content.

As noted above, the Proposed Ordinance would require regulated retailers to impose a mandatory charge for each recycled paper carryout bag provided. Retail establishments would be required to keep a monthly report of the total number of Recycled Paper Bags purchased and the total number sold, for a minimum of three years from the date of purchase and sale.

PROJECT OBJECTIVES

The Sonoma County Waste Management Agency’s objectives for the Proposed Ordinance include:

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

ALTERNATIVES

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

- ***Alternative 1: No Project*** - *The no project alternative assumes that the Carryout Bag Waste Reduction Ordinance would not occur. The existing retail establishments would continue to provide single-use bags free of charge to the customers.*
- ***Alternative 2: Ban on Single-Use Plastic Bags at all Retail Establishments*** - *This alternative would prohibit all retail establishments in the Study Area from providing single-use plastic bags to customers at the point of sale, including restaurants and other retailers not covered by the Proposed Ordinance.*
- ***Alternative 3: Mandatory Charge of \$0.25 for Paper Bags*** - *This alternative would continue to prohibit retail establishments (except restaurants) in the Study Area from providing single-use plastic bags to customers at the point of sale, but would increase the mandatory charge for single-use paper bags from \$0.10 to \$0.25.*

- **Alternative 4: Ban on Both Single-use Plastic and Paper Carryout Bags** – This alternative would prohibit all retail establishments (except restaurants) in the Study Area from providing single-use plastic and paper carryout bags to customers at the point of sale.
- **Alternative 5: Mandatory Charge of \$0.10 for Plastic and Paper Carryout Bags** – This alternative would continue to allow Study Area retail establishments to provide single-use carryout plastic and paper bags to customers at the point of sale, but would create a mandatory charge for a single-use plastic and paper bags of \$0.10.

SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

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

Table ES-1 Summary of Significant Environmental Impacts, Mitigation Measures, and Residual Impacts		
Impact	Mitigation Measures	Significance After Mitigation
AIR QUALITY		
Impact AQ-1 With a shift toward reusable bags, the Proposed Ordinance is expected to substantially reduce the number of single-use carryout bags, thereby reducing the total number of bags manufactured and the overall air pollutant emissions associated with bag manufacture, transportation and use. Therefore, air quality impacts related to alteration of processing activities would be Class IV, <i>beneficial</i> .	Mitigation is not required.	The impact would be beneficial without mitigation.
Impact AQ-2 With an expected increase in the use of recyclable paper bags, the Proposed Ordinance would generate air pollutant emissions associated with an incremental increase in truck trips to deliver recycled paper and reusable carryout bags to local retailers. However, emissions would not exceed BAAQMD operational significance thresholds. Therefore, operational air quality impacts would be Class III, <i>less than significant</i> .	Mitigation is not required.	Impacts would be less than significant without mitigation.



Table ES-1 Summary of Significant Environmental Impacts, Mitigation Measures, and Residual Impacts		
Impact	Mitigation Measures	Significance After Mitigation
BIOLOGICAL RESOURCES		
Impact BIO-1 Although the Proposed Ordinance would incrementally increase the number of recycled paper and reusable bags within the Study Area, the reduction in the amount of single-use plastic bags would be expected to reduce the overall amount of litter entering the coastal and bay habitat, thus reducing litter-related impacts to sensitive wildlife species and sensitive habitats. This is a Class IV, <i>beneficial</i> , effect.	Mitigation is not required.	The impact would be beneficial without mitigation.
GREENHOUSE GAS EMISSIONS		
Impact GHG-1 The Proposed Ordinance would increase the number of recyclable paper bags used in the Study Area and would therefore incrementally increase GHG emissions compared to existing conditions. However, emissions would not exceed thresholds of significance. Impacts would be Class III, <i>less than significant</i> .	Mitigation is not required.	The impact would be less than significant without mitigation.
Impact GHG-2 The Proposed Ordinance would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs. Impacts would be Class III, <i>less than significant</i> .	Mitigation is not required.	The impact would be less than significant without mitigation.
HYDROLOGY/WATER QUALITY		
Impact HWQ-1 The Proposed Ordinance would incrementally increase the number of recycled paper and reusable bags used in the Study Area, but the reduction in the overall number of single-use plastic bags used in the Study Area would reduce the amount of litter and waste entering storm drains. This would improve local surface water quality, a Class IV, <i>beneficial</i> , effect.	Mitigation is not required.	The impact would be beneficial without mitigation.

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

Impact	Mitigation Measures	Significance After Mitigation
Impact HWQ-2 A shift toward reusable bags and potential increase in the use of recyclable paper bags could increase the use of chemicals associated with their production, which could degrade water quality in some instances and locations. However, bag manufacturers would be required to adhere to existing regulations, including NPDES Permit requirements, AB 258, and the California Health and Safety Code. Therefore, impacts to water quality from altering bag processing activities would be Class III, <i>less than significant</i> .	Mitigation is not required.	Impacts would be less than significant without mitigation.
UTILITIES AND SERVICE SYSTEMS		
Impact U-1 The increase in reusable bags within the Study Area as a result of the Proposed Ordinance would incrementally increase water demand due to washing of reusable bags. However, sufficient water supplies are available to meet the demand created by reusable bags. Therefore, water supply impacts would be Class III, <i>less than significant</i> .	Mitigation is not required.	Impacts would be less than significant without mitigation.
Impact U-2 Water use associated with washing reusable bags would increase in the Study Area resulting in a corresponding increase in wastewater generation. However, projected wastewater flows would remain within the capacity of the wastewater collection and treatment system of the Study Area, and would not exceed applicable wastewater treatment requirements of the RWQCB. Impacts would be Class III, <i>less than significant</i> .	Mitigation is not required.	Impacts would be less than significant without mitigation.
Impact U-3 The Proposed Ordinance would alter the solid waste generation associated with increased paper bag use in the Study Area. However, projected future solid waste generation would remain within the capacity of regional landfills. Impacts would therefore be Class III, <i>less than significant</i> .	Mitigation is not required.	Impacts would be less than significant without mitigation.



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1.0 INTRODUCTION

This document is a Draft Environmental Impact Report (Draft EIR) for the proposed Waste Reduction Program for Carryout Bags (the Proposed Ordinance). The Proposed Ordinance would prohibit retail establishments (excluding restaurants) in the County of Sonoma and the nine incorporated jurisdictions within the County from distributing single-use plastic carryout bags. It would also create a mandatory charge for each recycled paper bag provided to a customer for the purpose of transporting food or merchandise. The minimum charge would be ten cents (\$0.10) on and after July 1, 2013. The intent of the ordinance is to reduce waste by decreasing the use of single use carryout bags.

The Waste Reduction Program for Carryout Bags would apply to any retail establishment including, but not limited to, clothing, food, and personal items directly to the customer; and is located within or doing business within the geographical limits of unincorporated Sonoma County or any of the following incorporated jurisdictions: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor.

For the purposes of this EIR, the geographical limits of Sonoma County and the incorporated jurisdictions listed above shall be known as the “Study Area.” The Ordinance is described in greater detail in Section 2.0, *Project Description*. This section discusses:

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

1.1 PROJECT BACKGROUND

In response to concerns regarding carryout bag waste, the Sonoma County Waste Management Agency Board of Directors directed staff to prepare a waste reduction program for carryout bags using the San Jose carryout bag ordinance as a template. The Sonoma County Waste Management Agency has prepared a draft Carryout Bag Waste Reduction Ordinance consistent with the Board’s direction (see Draft Ordinance in Appendix D).

Adoption of the Proposed Ordinance would be a discretionary action subject to the environmental review requirements of the California Environmental Quality Act (CEQA). Therefore, Sonoma County Waste Management Agency staff determined that an EIR should be prepared examining the Ordinance’s potential environmental impacts.

The analysis of the Proposed Ordinance in this Draft EIR considers a bag ordinance adopted within Sonoma County including the nine incorporated cities within the County. As described above, for this Draft EIR, the geographical limits of Sonoma County and all of the participating municipalities shall be known as the “Study Area.”



Several cities and counties in California have previously considered or passed similar ordinances within their respective jurisdictions. These include, but are not limited to: the City of San Francisco, the County of Los Angeles, the City of Berkeley, the City of San Jose, the City of Manhattan Beach, the City of Palo Alto, Marin County, the City of Malibu, the City of Santa Monica, San Mateo County, the City of Sunnyvale, Alameda County, the City of Calabasas, the City of Fairfax, the City of Huntington Beach, the City of Dana Point, the City of Laguna Beach, and the City of Long Beach.

The Sonoma County Waste Management Agency prepared a Notice of Preparation (NOP) of a Draft EIR for the Proposed Ordinance and distributed the NOP for agency and public review on October 17, 2012 for a 30-day review period. The Sonoma County Waste Management Agency received 4 letters in response to the NOP. The Sonoma County Waste Management Agency also conducted four public scoping meetings during the NOP comment period, which took place in Santa Rosa (October 30), Sonoma (November 1), Petaluma (November 2), and Windsor (November 7). To be as concise as possible and as allowed by CEQA, the Draft EIR identifies common environmental topics of concern expressed in the scoping comments. Table 1-1 below summarizes these environmental topics of concern, beginning with the most common comments received. Not all comments received are summarized below, just the ones pertinent to CEQA. Comments related to the merit of the proposed project are outside the purview of CEQA analysis, and are therefore excluded from this list. The NOP and Initial Study prepared for the project as well as the comment letters received are presented in Appendix A.

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

Topic of Concern Index	Comment Received	Response, including Reference to Where Comment is Addressed in the Draft EIR
Topic No. 1	Multiple commenters suggested that there are sanitation issues related to reusable bags.	While the proposed ordinance would promote a shift toward the use of reusable bags, periodic washing of reusable bags for hygienic purposes would be the responsibility of the individual customers. As required by the proposed Ordinance (see Appendix D), reusable bags are required to be made from a material that can be cleaned or disinfected.
Topic No. 2	Multiple commenters noted that this ordinance would place a burden on them or would create unacceptable shopping conditions.	This opinion is noted and will be considered by Agency decision makers as they review the project. However, the comment expresses concern about the merits of the proposed project, which is not CEQA's purview. The purpose of the EIR is to address the project's environmental effects. CEQA Guidelines Section 15064(e) specifically states that "economic and social changes resulting from a project shall not be treated as significant effects on the environment."
Topic No. 3	A commenter suggested that the litter of plastic bags impacts wildlife and plastic bags create impacts to biological resources if ingested.	Project impacts to wildlife and other biological resources are discussed in Section 4.2, <i>Biological Resources</i> .



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

Topic of Concern Index	Comment Received	Response, including Reference to Where Comment is Addressed in the Draft EIR
Topic No. 4	A commenter noted that plastic bag waste creates visual impacts along roadways and waterways.	Project impacts to aesthetics are addressed in the Initial Study (Appendix A).
Topic No. 5	A commenter noted that plastic bags degrade and release hazardous chemicals such as PCBs, PCS, dioxins, etc., that affect wildlife.	Project impacts related to plastics on aquatic habitats and species is discussed in Section 4.2, <i>Biological Resources</i> .
Topic No. 6	A commenter noted that the charge of \$0.10 seems arbitrary and asks what the money will be used for.	This opinion is noted and will be considered by Agency decision makers as they review the project. However, the comment expresses concern about a potential economic impact of the proposed project, which is not CEQA's purview. The purpose of the EIR is to address the project's environmental effects, not its economic effects. CEQA Guidelines Section 15064(e) specifically states that "economic and social changes resulting from a project shall not be treated as significant effects on the environment" unless a physical change is caused by economic or social effects of a project. As stated in Section 2.0, <i>Project Description</i> , by requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of reusable bags by retail customers. The environmental impacts of this \$0.10 charge are analyzed throughout this EIR.
Topic No. 7	An alternative was suggested by a commenter that instead of banning plastic bags, the Agency should consider additional education about recycling plastic bags and a plastic bag deposit program.	As noted in Section 6.0, <i>Alternatives</i> , this alternative was considered, but it would not achieve all of the project objectives. As noted in Section 2.0, <i>Project Description</i> , one of the project objectives is to reduce the number of single-use plastic bags distributed by retailers.
Topic No. 8	A commenter noted that plastic and paper carryout bags are not exclusively "single-use," stating that they reuse bags and recycle bags.	This opinion is noted and will be considered by Agency decision makers as they review the project. As noted in Section 2.0, <i>Project Description</i> , single-use carry-out bags (plastic or paper) are narrowly defined in the Proposed Ordinance. It is noted that these bags can be reused by customers and are recyclable. Data shows that only 5% of single carry out plastic bags are recycled in California. ¹
Topic No.9	A commenter requested that negative and positive environmental issues be considered in the EIR.	Environmental impacts were considered in all sections of the EIR and in the Initial Study (Appendix A).

¹ US EPA, 2005; Green Cities California MEA, 2010; and Boustead, 2007).



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

Topic of Concern Index	Comment Received	Response, including Reference to Where Comment is Addressed in the Draft EIR
Topic No. 10	A commenter suggested that the EIR include impacts related to wood use for paper bags.	Impacts related to air quality, biological resources, greenhouse gas emissions, hydrology and water quality from the production and manufacturing of paper bags are described in sections 4.1, <i>Air Quality</i> , 4.2, <i>Biological Resources</i> , 4.3, <i>Greenhouse Gas Emissions</i> , and 4.4, <i>Hydrology and Water Quality</i> .
Topic No. 11	A commenter requested that the EIR study the impacts of prohibiting free carryout bags.	All sections of the EIR and Initial Study consider the impacts of the Proposed Ordinance which would prohibit the free distribution of single-use carryout paper and plastic bags versus existing conditions.
Topic No. 12	A commenter requested that the EIR compare pollution from carryout bags not banned in the Proposed Ordinance (bags for prescription medication, at restaurants, and bags to transport produce, bulk foods or meat) with single-use carryout bags that are banned by the Proposed Ordinance.	As discussed in Section 6.0, <i>Alternatives</i> , Alternative #3 considers the impacts associated with an ordinance that would ban all single-use plastic bags at all retailers, including restaurants.

1.2 PURPOSE AND LEGAL AUTHORITY

The proposed Waste Reduction Program for Carryout Bags requires the discretionary approval of the Sonoma County Waste Management Agency. Therefore, it is subject to the requirements of CEQA. In accordance with Section 15121 of the *CEQA Guidelines*, the purpose of this EIR is to serve as an informational document that:

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

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

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

This EIR is to serve as an informational document for the public and the decision-makers of the Sonoma County Waste Management Agency. The Sonoma County Waste Management Agency will review and consider the information in the EIR, along with any other relevant information, in making final decisions regarding the Proposed Ordinance (Section 15121 of the *CEQA Guidelines*). The environmental review process will culminate with a Sonoma County Waste



Management Agency Board of Directors hearing to consider certification of a Final EIR and approval of the Proposed Ordinance.

1.3 LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES

The *CEQA Guidelines* define lead, responsible and trustee agencies. The Sonoma County Waste Management Agency is the lead agency for the Proposed Ordinance as it holds principal responsibility for approving the Proposed Ordinance.

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

1.4 EIR SCOPE AND CONTENT

This EIR addresses the potentially significant effects that the Sonoma County Waste Management Agency determined could result from adoption of the Proposed Ordinance. The issues addressed in this EIR include:

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

The EIR references pertinent policies and guidelines of Sonoma County, certified EIRs and other adopted CEQA documents, and background documents prepared by the Sonoma County Waste Management Agency in preparing the Proposed Ordinance. A full reference list is contained in Section 7.0, *References and Report Preparers*.

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

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

An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of the proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the

experts. The courts have looked not for perfection, but for adequacy, completeness, and a good faith effort at full disclosure. (Section 15151)

1.5 ENVIRONMENTAL REVIEW PROCESS

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

1. **Notice of Preparation (NOP).** After deciding that an EIR is required, the lead agency must file an NOP soliciting input on the EIR scope to the State Clearinghouse, other concerned agencies, and parties previously requesting notice in writing (*CEQA Guidelines* Section 15082; Public Resources Code Section 21092.2). The NOP must be posted in the County Clerk's office for 30 days. The NOP may be accompanied by an Initial Study that identifies the issue areas for which the proposed project could create significant environmental impacts (in this case, the Initial Study accompanies the Draft EIR).
2. **Draft Environmental Impact Report (DEIR).** The DEIR must contain:
 - a) Table of contents or index;
 - b) Summary;
 - c) Project description;
 - d) Environmental setting;
 - e) Discussion of significant impacts (direct, indirect, cumulative, growth-inducing and unavoidable impacts);
 - f) Discussion of alternatives;
 - g) Mitigation measures; and
 - h) Discussion of irreversible changes.
3. **Notice of Completion/Notice of Availability of Draft EIR.** A lead agency must file a Notice of Completion with the State Clearinghouse when it completes a Draft EIR and prepare a Public Notice of Availability for the Draft EIR. The lead agency must place the Notice in the County Clerk's office for 45 days (Public Resources Code Section 21092) and send a copy of the Notice to anyone requesting it (*CEQA Guidelines* Section 15087). Additionally, public notice of DEIR availability must be given through at least one of the following procedures:
 - a) publication in a newspaper of general circulation;
 - b) posting on and off the project site; and
 - c) direct mailing to owners and occupants of contiguous properties.The lead agency must solicit input from other agencies and the public, and respond in writing to all comments received (Public Resources Code Sections 21104 and 21253). The minimum public review period for a DEIR is 30 days. When a Draft EIR is sent to the State Clearinghouse for review, the public review period must be 45 days unless the Clearinghouse (Public Resources Code 21091) approves a shorter period.
4. **Final EIR.** A Final EIR must include: a) the Draft EIR; b) copies of comments received during public review; c) list of persons and entities commenting; and d) responses to comments.
5. **Certification of FEIR.** Prior to making a decision on a proposed project, the lead agency must certify that: a) the FEIR has been completed in compliance with CEQA; b) the Final EIR was presented to the decision-making body of the lead agency; and c) the



decision-making body reviewed and considered the information in the Final EIR prior to approving a project (*CEQA Guidelines* Section 15090).

6. **Lead Agency Project Decision.** A lead agency may: a) disapprove a project because of its significant environmental effects; b) require changes to a project to reduce or avoid significant environmental effects; or c) approve a project despite its significant environmental effects, if the proper findings and statement of overriding considerations are adopted (*CEQA Guidelines* Sections 15042 and 15043).
7. **Findings/Statement of Overriding Considerations.** For each significant impact of the project identified in the EIR, the lead or responsible agency must find, based on substantial evidence, that either: a) the project has been changed to avoid or substantially reduce the magnitude of the impact; b) changes to the project are within another agency's jurisdiction and such changes have or should be adopted; or c) specific economic, social, or other considerations make the mitigation measures or project alternatives infeasible (*CEQA Guidelines* Section 15091). If an agency approves a project with unavoidable significant environmental effects, it must prepare a written Statement of Overriding Considerations that sets forth the specific social, economic, or other reasons supporting the agency's decision.
8. **Mitigation Monitoring Reporting Program.** When an agency makes findings on significant effects identified in the EIR, it must adopt a reporting or monitoring program for mitigation measures that were adopted or made conditions of project approval to mitigate significant effects.
9. **Notice of Determination.** An agency must file a Notice of Determination after deciding to approve a project for which an EIR is prepared (*CEQA Guidelines* Section 15094). A local agency must file the Notice with the County Clerk. The Notice must be posted for 30 days and sent to anyone previously requesting notice. Posting of the Notice starts a 30-day statute of limitations on CEQA legal challenges (Public Resources Code Section 21167[c]).



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2.0 PROJECT DESCRIPTION

This section describes the Proposed Waste Reduction Program for Carryout Bags (“Proposed Ordinance”), including information about the project proponent, the project location, major project characteristics, project objectives, and discretionary approvals needed for project approval.

2.1 PROJECT SPONSOR

Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403
Contact: Patrick Carter, Department Analyst
(707) 565-3687

2.2 PROJECT LOCATION

For the purposes of this analysis, it is assumed that the Proposed Ordinance would apply to any retail establishment that sells perishable or nonperishable goods, including, but not limited to, clothing, food, and personal items directly to the customer; and is located within or doing business within the geographical limits of unincorporated Sonoma County or any of the following incorporated jurisdictions within Sonoma County: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor.

The area within the geographical limits of Sonoma County, including the nine incorporated jurisdictions listed above, are referred to as the “Study Area” in this EIR. Figure 2-1 illustrates the Study Area in its regional context.

2.3 EXISTING CHARACTERISTICS

2.3.1 Carryout Bags in the Study Area

In response to concerns regarding carryout bag waste, the Sonoma County Waste Management Agency Board of Directors directed staff to prepare a carryout bag waste reduction ordinance using the San Jose carryout bag ordinance as a template.

Types of Carryout Bags.

Single-use disposable plastic grocery bags are typically made of thin, lightweight high density polyethylene (HDPE) (Hyder Consulting, 2007). For consumers, they offer a hygienic, odorless, waterproof and sturdy carrying sack, but are intended for one use before disposal. Currently, almost 20 billion of these plastic grocery bags are consumed annually in California (San Mateo County Final EIR, October 2012; Green Cities California MEA, 2010; and CIWMB, 2007). Conventional single-use plastic bags are a product of the petrochemical industry. It is also claimed that conventional single-use plastic bags are manufactured by independent manufacturers who purchase virgin resin from petrochemical companies or obtain non-virgin

resin from recyclers or other sources and that 85% of plastic bags used in the United States are made in the United States (Stephen L. Joseph, July 22, 2010). Their life cycle begins with the conversion of crude oil or natural gas into hydrocarbon monomers, which are then further processed into polymers (Herrera et al, 2008; County of Los Angeles, 2009). These polymers are connected with heat to form plastic resins, which are then blown through tubes to create the air pocket of the bag. Once cooled, the plastic film is stretched to the desired size of the bag and cut into individual bags. Typical single-use plastic bags are approximately five to nine grams in weight, and can be purchased in bulk for approximately two to five cents per bag (AEA Technology, 2009). Single-use plastic bags can be reused by customers and are recyclable. Approximately 5% of single-use plastic bags in California are recycled (US EPA, 2005; Green Cities California MEA, 2010; and Boustead, 2007).

Like plastic grocery shopping bags, single-use paper bags are usually distributed free of charge to customers at grocery stores, and are intended for one use before disposal. Paper bags are recyclable and can be reused by customers. Approximately 21% of paper bags nationwide are recycled (CIWMB, 2009). It is also claimed that consumers nationally recycle paper products at a rate of 50 percent (International Paper, 2012). Paper grocery bags are typically produced from kraft paper and weigh between 50 and 100 grams, depending on whether or not the bag includes handles (AEA Technology, 2009). These bags can be purchased in bulk for approximately 15 to 25 cents per bag (City of Pasadena, 2008). Kraft paper bags are manufactured from a pulp that is produced by digesting a material into its fibrous constituents via chemical and/or mechanical means (FRIDGE, 2002). Kraft pulp is produced by chemical separation of cellulose from lignin (Environmental Paper Network, 2007). Chemicals used in this process include caustic sodas, sodium hydroxide, sodium sulfide, and chlorine compounds (Environmental Paper Network, 2007). The paper bags are typically made from trees (paper) and corn (glue) which are both re-planted and re-grown (International Paper, 2012). Processed and then dried and shaped into large rolls, the paper is then formed into bags, baled, and then distributed to grocery stores. It is also claimed that paper bags have many other uses outside of the grocery store including use as recycling, and composting containers, school book covers, gift wrap, and other craft projects, and use for picnics or sporting events (International Paper, 2012).

Multiple types of single-use biodegradable bags are currently available, distinguished by their material components. Biodegradable bags are composed of thermoplastic starch-based polymers, which are made with at least 90% starch from renewable resources such as corn, potato, tapioca, or wheat, or from polyesters, manufactured from hydrocarbons, or starch-polyester blends (James and Grant, 2005). These bags are approximately the same size and weight as HDPE plastic bags, but are more expensive. They can be purchased in bulk for approximately 12 to 30 cents per bag (www.ecoproducts.com, 2009).

Reusable bags can be made from plastic or a variety of cloths such as vinyl or cotton. These bags differ from the single-use bags in their weight and longevity. Built to withstand many uses, they typically cost approximately three dollars wholesale, weigh at least ten times what an HDPE plastic bag weighs and two times what a paper bag weighs, and require greater material consumption on a per bag basis than HDPE plastic bags (ExcelPlas Australia, 2004; City of Pasadena, 2008). Many types of reusable bags are available today. These include: (1) non-



Map of County of Sonoma
 and Incorporated Cities

Figure 2-1

woven polypropylene (100% recyclable) ranging from \$1-\$2.50 per bag; (2) cotton canvas bags, which are approximately \$5.00 per bag; (3) bags made from recycled water/soda bottles, which are approximately \$6.00 per bag; (4) polyester and vinyl, which are approximately \$10.00 per bag; and (5) 100% cotton, which are approximately \$5.00 to 10.00 per bag.

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

Carryout Bag Use in the Study Area. As shown in Table 2-1, based on the current statewide data which estimates that almost 20 billion plastic grocery bags (or approximately 531 bags per person) are consumed annually in California (San Mateo County Final EIR, October 2012; Green Cities California MEA, 2010; and CIWMB, 2007), retail customers within the Study Area currently use about 259 million plastic bags per year.

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

Area	Population*	Number of Plastic Bags Used per Person**	Total Bags Used Annually
Unincorporated Areas	146,739	531	77,918,409
Cloverdale	8,629	531	4,581,999
Cotati	7,276	531	3,863,556
Healdsburg	11,442	531	6,075,702
Petaluma	58,165	531	30,885,615
Rohnert Park	40,846	531	21,689,226
Santa Rosa	168,841	531	89,654,571
Sebastopol	7,405	531	3,932,055
Sonoma	10,665	531	5,663,115
Windsor	27,003	531	14,338,593
Total	487,011	Total	258,602,841

* California Department of Finance, "City/County Population and Housing Estimates" (May 2012).

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



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

2.3.2 Regulatory Setting

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

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

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

Unless expressly authorized by this chapter, a city, county, or other public agency shall not adopt, implement, or enforce an ordinance, resolution, regulation, or rule to do any of the following:

- (1) Require a store that is in compliance with this chapter to collect, transport, or recycle plastic carryout bags.*
- (2) Impose a plastic carryout bag fee upon a store that is in compliance with this chapter.*
- (3) Require auditing or reporting requirements that are in addition to what is required by subdivision (d) of Section 42252, upon a store that is in compliance with this chapter.*

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

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



2.4 PROPOSED ORDINANCE CHARACTERISTICS

For the purposes of this EIR, it is assumed that the Proposed Ordinance would apply to all retail establishments located within the limits of the Study Area, including those selling clothing, food, and personal items directly to the customer. It would not apply to restaurants. The Proposed Ordinance would (1) prohibit the free distribution of single-use carryout paper and plastic bags starting July 1, 2013, and (2) allow retail establishments to make recycled paper bags available for sale. The minimum charge would be ten cents (\$0.10) per recycled paper bag.

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

Single-use carryout bags are defined in the Proposed Ordinance as bags, other than reusable bags, that are less than 2.25 mils¹ thick (0.00225 inches) provided by a Retail Establishment to a customer for the purpose of transporting food or merchandise out of the establishment. Regulated bags would not include bags without handles provided to the customer (1) to transport produce, bulk food or meat within a store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bag. The Proposed Ordinance would not apply to restaurants and other food service providers as defined in the Proposed Ordinance, allowing them to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises. Recycled paper bags are defined in the Proposed Ordinance as bags that contain no old growth fiber and a minimum of 40% post-consumer recycled material, is 100% recyclable, and has printed in a highly visible manner on the outside of the bag the words "reusable" and "recyclable," the name and location of the manufacturer, and the percentage of post-consumer recycled content.

As noted above, the Proposed Ordinance would require regulated retailers to impose a mandatory charge for each recycled paper carryout bag provided. Retail establishments would be required to keep a monthly report of the total number of Recycled Paper Bags purchased and the total number sold, for a minimum period of three years from the date of purchase and sale.

The complete Draft Ordinance is contained in Appendix D.

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

The analysis in this EIR assumes that as a result of the Proposed Ordinance 95% of the volume of plastic bags currently used in the Study Area (258,602,841 plastic bags per year) would be replaced by recycled paper bags (approximately 30%) and reusable bags (approximately 65%), as shown in Table 2-2. It is assumed that 5% of the existing single-use bags used in the Study

¹ A mil is a unit of length equal to one thousandth (10^{-3}) of an inch (0.0254 millimeter), often used to specify the diameter of wire or the thickness of materials sold in sheets.



Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute plastic bags (e.g., restaurants) and these retailers would continue to distribute single-use plastic bags after the Proposed Ordinance is implemented.² Thus, for this analysis, it is assumed that 12,930,142 plastic bags would continue to be used annually within the Study Area after implementation of the Proposed Ordinance. It is also assumed that approximately 77,580,852 paper bags would replace approximately 30% of the plastic bags currently used in Study Area. This 1:1 replacement ratio is considered conservative, because the volume of a single-use paper carryout bag (20.48 liters) is generally equal to approximately 150% of the volume of a single-use plastic bag (14 liters), such that fewer paper bags would ultimately be needed to carry the same number of items.

In order to estimate the number of reusable carryout bags that would replace 168,091,872 plastic bags (65% of the existing number of plastic bags used annually in the Study Area), it is assumed that a reusable carryout bag would be used by a customer once per week for one year (52 times). Fifty-two uses per year is a reasonable assumption as most people are assumed to grocery shop an average of approximately once per week and thus reusable bags are used roughly once per week (Santa Monica Single-Use Carryout Bag Ordinance Final EIR, 2011). According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more, therefore the estimate of 52 uses per year for reusable bags is conservative. Based on the estimate of 52 uses, 168,091,872 single-use plastic bags that would not be used as a result of the Proposed Ordinance would be replaced by 3,232,536 reusable bags. This amounts to about seven reusable bags per person per year based on a Study Area population of 487,011. This analysis assumes that as a result of the Proposed Ordinance the approximately 259 million single-use plastic carryout bags currently used in the Study Area annually would be reduced to approximately 94 million total bags as a result of the Proposed Ordinance.

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

Type of Bag	Replacement Assumption	Bags used Post-Ordinance	Explanation
Single-use Plastic	5% (remaining) ¹	12,930,142	Because the Proposed Ordinance does not apply to all retailers (e.g. restaurants), some single-use plastic bags would remain in circulation.
Single-use Paper	30% ²	77,580,852	Although the volume of a single-use paper carryout bag is generally 150% of the volume of a single-use plastic bag, such that fewer paper bags would be needed to carry the same number of items, it is conservatively assumed that paper would replace plastic at a 1:1 ratio.
Reusable	65% ²	3,232,536	Although a reusable bag is designed to be used up to hundreds of times (Green Cities California MEA, 2010; Santa Monica Single-Use Carryout Bag Ordinance Final EIR, 2011), it is conservatively assumed that a reusable bag would be used by a customer once per week for one year, or 52 times.
Total		93,743,530	

¹ Rate utilized in the City of Sunnyvale Final EIR, SCH # 2011062032, November 2011.

² Rates utilized in the City of San Jose Final EIR, SCH # 2009102095, October 2010.

See Appendix F for full Bag Reductions for each individual municipality.

² This rate is also used in the City of Sunnyvale Final EIR (SCH # 2011062032, Nov. 2011) and the City of Huntington Beach Draft EIR (SCH #2011111053, Feb. 2012). The Herrera fiscal report prepared for the City of San Jose estimated that 5.5% of the total single-use carryout bags are used in facilities that will be exempt from the ordinance (restaurants and charitable reuse stores) (Page 52, City of San Jose Final EIR, SCH # 2009102095, Oct. 2010).



2.6 PROJECT OBJECTIVES

The Sonoma County Waste Management Agency's objectives for the Proposed Ordinance include:

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

2.7 REQUIRED APPROVALS and PERMITS

The Proposed Ordinance would require the following approvals by the Sonoma County Waste Management Agency Board of Directors:

- *Certification of the Final EIR*
- *Adoption of an Ordinance*



3.0 ENVIRONMENTAL SETTING

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

3.1 REGIONAL SETTING

The proposed Waste Reduction Program for Carryout Bags (Proposed Ordinance) would regulate the use of paper and plastic single-use bags within the Study Area. The Study Area includes unincorporated County of Sonoma and the nine incorporated jurisdictions within the County.

3.1.1 County of Sonoma

The County of Sonoma is the northernmost of the nine counties in the San Francisco Bay Region and has a population of 487,011 (California Department of Finance, 2012). The county is located along the Pacific coastline about forty miles north of San Francisco. At 1,500 square miles, Sonoma is the largest of the nine Bay Area counties. Sonoma County is bordered by the Pacific Ocean on the west, Marin County and San Pablo Bay to the south, Solano, Napa and Lake Counties to the east, and Mendocino County to the north. As described in the County's 2020 General Plan, Sonoma County includes a diverse mosaic of landforms, environments, and human settlements. The broad, flat Santa Rosa Plain, which lies between the Sonoma Mountains on the east and low coastal hills on the west, contains the cities of Santa Rosa, Rohnert Park, and Cotati. The sparsely settled western margin of the county, along the Pacific coastline, includes the redwood and mixed conifer forests of the Mendocino Highlands in the north and rolling oak studded hills, dairylands, and coastal prairies in the south. The Mayacamas Range forms the eastern boundary of the county. Along with the Sonoma Mountain range, it encloses the Sonoma Valley or "Valley of the Moon," a scenic valley which extends from near Santa Rosa southeastward to the City of Sonoma and the marshlands of San Pablo Bay. In the north, the Mayacamas Range and Mendocino Highlands enclose the farming regions of Alexander and Dry Creek Valleys. In the far northeast, the remote interior of the Mayacamas Range contains the Geysers geothermal steam field.

The climate of inland Sonoma County is of the semi-arid Mediterranean type, characterized by dry, mild summers and moderately moist, cool winters. Over 90% of the rainfall occurs between October and May. The climate on the coastal part of the County is typically cool, moist, and foggy throughout the summer. The southern part of Sonoma County is located within the San Francisco Bay Area Air Basin which is part of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD consists of Napa, Marin, San Francisco, Contra Costa, Alameda, San Mateo, and Santa Clara counties, the southern portion of Sonoma County, and the western portion of Solano County. The northern part of Sonoma County is located in the North Coast Air Basin and is within the jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD).

There are three main watersheds in the County, Russian River, Gualala River, and San Pablo Bay. Most of central Sonoma County is within the Russian River watershed, which drains to the



Pacific Ocean. The Russian River is the primary source of domestic water for the County's urban areas and most rural areas are served by groundwater (County of Sonoma 2020 General Plan).

The transportation system in Sonoma County consists of highways, streets, and parking areas for automobile travel, a countywide bus system, bikeways, pedestrian sidewalks, several airports and a railway. The system provides for the shipment of goods as well as the movement of people. The major regional transportation facilities include the U.S. Highway 101 and State Routes 1, 12, 37, 116, and 128. Transit service within the County of Sonoma is provided by Sonoma County Transit, Golden Gate Transit and Mendocino Transit Authority. Several cities within Sonoma County operate bus systems, including Santa Rosa, Healdsburg, and Petaluma. The Sonoma-Marin Rail Transit is a planned commuter rail service between Sonoma and Marin Counties.

3.2 CUMULATIVE PROJECTS SETTING

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

Although CEQA analysis typically lists development projects in the vicinity of a project site, this document analyzes the environmental impacts associated with a proposed ordinance and does not include development or construction activity. As such, the cumulative significance of the proposed Waste Reduction Program for Carryout Bags has been analyzed within the context of other bag ordinances that are approved or pending throughout California. Table 3-1 lists current adopted and pending ordinances in California. These ordinances are considered in the cumulative analyses in Section 4.0, *Environmental Impact Analysis*. As shown in Table 3-1, there are currently 35 adopted, proposed or pending bag ordinances (including the proposed Carryout Bag Waste Reduction Ordinance) located throughout California.

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

Ordinance Location	Proposed Action	Status
City of Calabasas	This ordinance bans the issuance of plastic carryout bags and imposes a ten (10) cent charge on the issuance of recyclable paper carryout bags at regulated stores.	Adopted February 2011 Effective July 2011
City of Carmel-by-the-Sea	This ordinance is a plastic bag ban in all retail stores.	Adopted July 2012 Effective February 2013



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

Ordinance Location	Proposed Action	Status
City of Carpinteria	This ordinance is the first double bag ban in the state. Starting in July 2012, large retailers as specified are prohibited from distributing single-use paper and plastic bags. Starting in April 2013, plastic bags are banned in all other retail stores including restaurants.	Adopted March 12, 2012 Carpinteria's 2012 bag ban was challenged by the Save The Plastic Bag Coalition (STPBC) March 20, 2012. They settled out of court with the agreement that the City would exempt restaurant carryout bags from the ordinance.
City of Dana Point	This ordinance places a ban on single-use plastic bags from all retail stores within city limits.	Adopted March 6, 2012 Effective in larger stores April 1, 2013, and all other stores October 1, 2013.
City of Fairfax	This ordinance allows all stores, shops, eating places, food vendors and retail food vendors, to provide only recyclable paper or reusable bags as checkout bags to customers.	Adopted August 2007 After legal challenge, adopted by voter initiative November 2008
City of Fort Bragg	This ordinance bans plastic bags and requires a 10 cent paper bag charge in all retail stores.	Adopted May 14, 2012 Effective in large stores December 10, 2012 and all other stores December 2013.
City of Huntington Beach	This ordinance would prohibit distribution of plastic carry-out bags in commercial point of sale purchases within Huntington Beach, and establish a ten (10) cent charge on the issuance of recyclable paper carry-out bags at all stores that meet at least one of the criteria listed below.	A Draft EIR has been prepared and circulated in February 2012. City Council review of the ordinance and certification of the Final EIR is pending.
City of Laguna Beach	This ordinance requires a plastic bag ban in all retail stores. Grocery stores, pharmacies, and convenience/liquor stores must include a 10 cent minimum price requirement on paper bags distributed.	Adopted February 2012 Effective January 1, 2013

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

Ordinance Location	Proposed Action	Status
City of Long Beach	This ordinance bans plastic carryout bags at all supermarkets and other grocery stores, pharmacies, drug stores, convenience stores, food marts, and farmers markets and would place a ten (10) cent charge on the issuance of recyclable paper carryout bags by an affected store, as defined. The ordinance would also require a store to provide or make available to a customer recyclable paper carryout bags or reusable bags.	Long Beach passed this ordinance in May 2011. But unlike LAC, Long Beach did not issue a statement of overriding consideration for the likelihood of passing the GHG emission threshold of significance. The suit was settled after Long Beach agreed to adopt the County's Statement of Overriding Consideration in October 2011. Addendum to the County of Los Angeles Final EIR certified May 2011. The ordinance was also effective in larger stores starting August 2011 and expanded to others stores in 2012.
City of Los Angeles	The ordinance would prohibit provision of single-use plastic bags at supermarkets. Large markets are allowed to phase out plastic bags over 6 months and then provide free paper bags for 6 months. Smaller markets have a year to phase out plastic bags. After a year, paper bags would be allowed for a charge of 10 cents.	Approved May 2012
City of Malibu	This ordinance bans the use of non-compostable and compostable plastic shopping bags for point-of-sale distribution.	Adopted May 2008 Effective November 2009
City of Manhattan Beach	This ordinance bans the distribution of plastic bags at the point-of-sale for all retail establishments in Manhattan Beach.	Adopted July 2008 The California Supreme Court overturned a legal challenge to the ordinance in July 2011, ruling in favor of an appeal by the City of Manhattan Beach affirming the right of small local governments to phase out plastic grocery bags without an EIR.

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

Ordinance Location	Proposed Action	Status
City of Millbrae	This ordinance bans single-use bags and free paper carryout bags and would apply to all retailers. Stores can charge a minimum of 10 cents per bag, should a customer need to purchase one. Those paper bags sold must be comprised of at least 40 percent post-consumer recycled materials. Thicker reusable plastic bags are allowed but would also need to be imprinted showing the bag is made of at least 40 percent post-consumer recycled materials.	Adopted February 2012. Certified a Negative Declaration. Effective September 1, 2012.
City of Monterey	This ordinance bans plastic bags and places an initial 10 cent minimum price requirement on paper bags for the first year, and 25 cents after.	Adopted December 6, 2011
City of Ojai	A proposed ordinance would ban plastic shopping bags and impose a 10-cent fee on paper bags at grocery stores, supermarkets, convenience stores, liquor stores and gasoline mini-marts.	Adopted April 2012. Effective July 1, 2012.
City of Palo Alto	<p>This ordinance bans large grocery stores in Palo Alto from distributing single-use plastic check out bags. Only reusable bags (preferred) or paper bags can be distributed. Single-use plastic bags can still be used in produce and meat departments.</p> <p>Pending expansion of the ordinance would apply the ban to all retailers including restaurants in the city. An EIR on the expanded ordinance is currently being prepared.</p>	<p>Adopted March 2009 Palo Alto's 2009 bag ban was challenged by the STPBC. They settled out of court with the agreement that the City would not expand its ban to other stores without an EIR.</p> <p>Effective September 2009</p> <p>An EIR for the expansion of the ordinance to all retailers including restaurants is currently being prepared.</p>
City of Pasadena	This ordinance bans plastic bags, and imposes a 10 cent minimum price on paper bags.	Adopted November 2011 Effective July 1, 2012 for large stores and supermarkets and December 2012 for convenience stores.
City of San Francisco	<p>Retail stores governed by the ordinance can only provide the following types of bags:</p> <ul style="list-style-type: none"> a. compostable plastic b. recyclable paper c. reusable bag of any material <p>In February 2012, the ordinance was expanded to all retail and food establishments within the City and requires a minimum ten cent charge for reusable bags.</p>	<p>Adopted April 2007</p> <p>In February 2012, San Francisco expanded its bag ban and was sued by the STPBC. The two causes of action are related to CEQA compliance and the bag ban for restaurants. A judge upheld the expansion in September 2012. The decision was appealed by STPBC on November 8, 2012.</p>



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

Ordinance Location	Proposed Action	Status
City of San Jose	This ordinance prohibits the distribution of single-use carryout paper and plastic bags at the point of sale (i.e., check-out) for all commercial retail businesses in San José except restaurants. An exception is made for “green” paper bags containing at least 40 percent recycled content, accompanied by a charge of 10 cents to the customer, with the charge retained by the retailer. For the first two years, paper bags will be sold under this ordinance at 10 cents each; after two years the minimum price per paper bag is 25 cents each.	Adopted January 2011 Effective January 2012
City of Santa Cruz	This ordinance bans plastic bags and places a 10 cent paper bag charge.	Adopted July 2012 Effective April 2013
City of Santa Monica	This ordinance: (1) prohibits retail establishments in Santa Monica from providing “single-use plastic carryout bags” to customers at the point of sale; (2) prohibits the free distribution of paper carryout bags by grocery stores, convenience stores, mini-marts, liquor stores and pharmacies; and (3) requires stores that make paper carryout bags available to sell recycled paper carryout bags to customers for not less than ten cents per bag.	Adopted January 2011 Effective September 2011
City of Solana Beach	This ordinance prohibits the provision of plastic bags (except at restaurants) and allows purchase of paper bags for 10 cents.	Adopted May 2012, amended July 2012
City of Sunnyvale	This ordinance prohibits specified retail establishments in Sunnyvale from providing single-use plastic carryout bags to customers at the point of sale, and creates a mandatory 10 cent (\$0.10) charge for each paper bag distributed by these stores.	Adopted December 2011 Effective June 20, 2012 (grocery stores, convenience stores and large retailers) Effective March 2013 (all retailers)
City of Ukiah	This ordinance prohibits retail establishments (except eating establishments) in Ukiah from providing single-use bags. Recycled-content paper bags or reusable bags could be provided at a minimum charge of 10 cents per bag.	Adopted May 2012 Effective in large stores 180 days after adoption and 545 days for all other stores.
City of Watsonville	This ordinance prohibits retail establishments from providing non-recycled paper or plastic bags and allows sale of recycled and recyclable paper bags for a 10 cent charge.	Adopted May 2012



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

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

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

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



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

Ordinance Location	Proposed Action	Status
County of Santa Cruz	The ordinance bans single-use plastic bags and places a 10 cent minimum price requirement on single-use paper bags throughout unincorporated county areas.	Adopted September 13, 2011 The STPBC filed a lawsuit in October 2011. The case was settled out of court and in February 2012 the City repealed the ban of plastic bags used at restaurants. However, in October 2012 the County reinstated the ban and STPBC filed another lawsuit.

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



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4.0 ENVIRONMENTAL IMPACT ANALYSIS

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

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

Class I, Significant and Unavoidable: An impact that cannot be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires a Statement of Overriding Considerations to be issued if the project is approved.

Class II, Significant but Mitigable: An impact that can be reduced to below the threshold level given reasonably available and feasible mitigation measures. Such an impact requires findings to be made.

Class III, Not Significant: An impact that may be adverse, but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that could further lessen the environmental effect may be suggested if readily available and easily achievable.

Class IV, Beneficial: An impact that would reduce existing environmental problems or hazards.

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

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



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4.1 AIR QUALITY

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

4.1.1 Setting

a. Characteristics of Air Pollutants. The southern part of Sonoma County is located within the San Francisco Bay Area Air Basin (SFBA Air Basin). The Bay Area Air Quality Management District (BAAQMD) is the regional government agency that monitors and regulates air pollution within the SFBA Air Basin. The northern part of Sonoma County is located in the North Coast Air Basin (NCAB). The northern part of Sonoma County is within the jurisdiction of the Northern Sonoma County Air Pollution Control District (NSCAPCD). Pollutants that are monitored within the County and compared to State and Federal Standards include ozone, carbon monoxide, nitrogen dioxide and suspended particulates. The general characteristics of these pollutants are described below.

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

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

Nitrogen Dioxide. Nitrogen dioxide (NO₂) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. NO₂ is an acute irritant. A relationship between NO₂ and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. NO₂ absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM₁₀ and acid rain.

Suspended Particulates. PM₁₀ is particulate matter measuring no more than 10 microns in diameter, while PM_{2.5} is fine particulate matter measuring no more than 2.5 microns in



diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM₁₀ and PM_{2.5} are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions.

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

b. Air Quality Standards. Federal and state standards have been established for six criteria pollutants: ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulates less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5} respectively), and lead (Pb). California has also set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Table 4.1-1 lists the current federal and state standards for criteria pollutants.

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

Pollutant	Federal Standard	California Standard
Ozone	0.075 ppm (8-hr avg)	0.09 ppm (1-hr avg) 0.07 ppm (8-hr avg)
Carbon Monoxide	9.0 ppm (8-hr avg) 35.0 ppm (1-hr avg)	9.0 ppm (8-hr avg) 20.0 ppm (1-hr avg)
Nitrogen Dioxide	53 ppb (annual avg) 100 ppb (1-hr avg)	0.030 ppm (annual avg) 0.18 ppm (1-hr avg)
Sulfur Dioxide	75 ppb (1-hr avg)	0.04 ppm (24-hr avg) 0.25 ppm (1-hr avg)
Lead	1.5 µg/m ³ (30 day avg)	1.5 µg/m ³ (calendar qtr) 0.15 µg/m ³ (rolling 3-month avg)
Particulate Matter (PM ₁₀)	150 µg/m ³ (24-hr avg)	20 µg/m ³ (annual avg) 50 µg/m ³ (24-hr avg)
Particulate Matter (PM _{2.5})	15 µg/m ³ (annual avg) 35 µg/m ³ (24-hr avg)	12 µg/m ³ (annual avg)

ppm= parts per million ppb= parts per billion µg/m³ = micrograms per cubic meter
Source: California Air Resources Board (2012), accessed online October 2012 at:
www.arb.ca.gov/research/aaqs/aaqs2.pdf



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

c. Current Air Quality. Several monitoring stations are located throughout Sonoma County. The following data was taken from the Santa Rosa – 5th Street monitoring station. No PM₁₀ data is available from the Santa Rosa monitoring station; therefore, PM₁₀ data was taken from the Healdsburg – 133 Matheson Street monitoring station. Table 4.1-2 indicates the number of days that each of the state and federal air quality standards has been exceeded at these stations. As shown, there were no exceedances of federal or state standards for ozone, PM_{2.5}, or PM₁₀ from 2009 through 2011.

**Table 4.1-2
Ambient Air Quality Data**

Pollutant	2009	2010	2011
Ozone, ppm - Worst Hour ^a	0.086	0.084	0.073
Number of days of State exceedances (>0.09 ppm) ^a	0	0	0
Ozone, ppm – Worst 8 Hours ^a	0.66	0.68	0.54
Number of days of State exceedances (>0.070 ppm) ^a	0	0	0
Number of days of Federal exceedances (>0.075 ppm) ^a	0	0	0
Particulate Matter <10 microns, µg/m ³ Worst 24 Hours ^b	22.0	34.0	46.0
Number of samples of State exceedances (>50 µg/m ³) ^b	*	0	0
Number of samples of Federal exceedances (>150 µg/m ³) ^b	0	0	0
Particulate Matter <2.5 microns, µg/m ³ Worst 24 Hours ^a	29.0	26.6	33.2
Number of samples of Federal exceedances (>35 µg/m ³) ^a	0	0	0

^a Data collected from the Santa Rosa- 5th Street Monitoring Station

^b Data collected from the Healdsburg – 133 Matheson Street monitoring station

Source: CARB, 2009, 2010, & 2011 Air Quality Data Statistics, Top Four Summary, available at <http://www.arb.ca.gov>

*Insufficient data available to determine a value

d. Air Quality Management. Under state law, air districts are required to prepare a plan for air quality improvement for pollutants for which the district is in non-compliance. NSCAPCD currently attains all of the federal and state ambient air quality standards. However, BAAQMD is in non-attainment for the state and federal ozone standards, the state and federal PM_{2.5} standards and the state PM₁₀ standards and is required to prepare a plan for improvement.

The Bay Area 2010 Clean Air Plan (CAP) provides a plan to improve Bay Area air quality and protect public health. The legal impetus for the CAP is to update the most recent ozone plan, the Bay Area 2005 Ozone Strategy, to comply with state air quality planning requirements as

codified in the California Health & Safety Code. Although steady progress in reducing ozone levels in the Bay Area has been made, the region continues to be designated as non-attainment for both the one-hour and eight-hour state ozone standards. In addition, emissions of ozone precursors in the Bay Area contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the CAP to include all feasible measures to reduce emissions of ozone precursors and reduce transport of ozone precursors to neighboring air basins (BAAQMD, September 2010).

The Bay Area was recently designated as a non-attainment area for the national 24-hour fine particulate matter (PM_{2.5}) standard, and the BAAQMD is required to prepare a PM_{2.5} State Implementation Plan (SIP) pursuant to federal air quality guidelines by December 2012. The 2010 CAP is not a SIP document and does not respond to federal requirements for PM_{2.5} or ozone planning. However, in anticipation of future PM_{2.5} planning requirements, the CAP control strategy also aims to reduce PM emissions and concentrations. In addition, the U.S. Environmental Protection Agency (EPA) is currently reevaluating national ozone standards, and is likely to tighten those standards in the near future. The control measures in the CAP will also help in the Bay Area's continuing effort to attain national ozone standards (BAAQMD, September 2010).

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

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

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

Truck Trips. Delivery trucks that transport carryout bags from manufacturers or distributors to the local retailers in the Study Area also contribute air emissions locally and regionally. As discussed in the *Transportation* section of the Initial Study (see Appendix A), based on a baseline population estimate in the Study Area of approximately 487,011 persons in 2012 and a statewide estimate of approximately 531 plastic bags used per person per year, retail customers in the Study Area currently use an estimated 258,602,841 plastic bags per year. Assuming 2,080,000 plastic bags per truck load (City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011; refer to Appendix A), approximately 125 annual truck trips (an average of about 0.34 trips per day) would be needed to deliver these carryout bags.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material (ARB “Health Effects of Diesel Exhaust”, 2012). The visible emissions in diesel exhaust are known as particulate matter or PM, which are small and readily respirable. The particles have hundreds of chemicals adsorbed onto their surfaces, including many known or suspected mutagens and carcinogens. Diesel PM emissions are estimated to be responsible for about 70% of the total ambient air toxics risk. In addition to these general risks, diesel PM can also be responsible for elevated localized or near-source exposures (“hot-spots”) (ARB, Health Effects of Diesel Exhaust”, 2012).

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

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

The above statistics use the LDPE carryout bag as a representation of reusable bags in evaluating air quality impacts. There is no known available Life Cycle Assessment that evaluates all types of reusable bags (canvas, cotton, calico, etc.) with respect to potential air pollutant emissions. However, the emissions from all types of reusable bags are lower than single-use plastic and paper carryout bags because reusable bags are usually used at least once per week, or 52¹ uses. Thus, the air pollutant emissions from these bags are expected to be comparable to the LPDE bag or lower.

Table 4.1-3 lists the emissions contributing to ground level ozone and atmospheric acidification using the per-bag impact rates discussed above and the estimated number of existing single-use paper and plastic bags used in the Study Area. As shown in Table 4.1-3, the manufacturing and transportation of single-use plastic bags currently used in the Study Area each year generates an estimated 5,948 kilograms (kg) of emissions associated with ground level ozone and 280,325 kg of emissions associated with atmospheric acidification.

¹ This represents a conservative estimate. According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more.



**Table 4.1-3
Current Emissions from Ground Level Ozone and
Atmospheric Acidification (AA) from Carryout Bags
In the Study Area**

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag*	Ozone Emissions (kg) per 1,000 bags**	Ozone Emissions per year (kg)	AA Emission Rate per Bag*	AA Emissions (kg) per 1,000 bags***	AA Emissions per year (kg)
Single-use Plastic	258,602,841	1.0	0.023	5,948	1.0	1.084	280,325
Total				5,948	Total		280,325

Sources:

* Impact rate per bag as stated in Stephen L. Joseph, 2010; Ecobilan, 2004; FRIDGE, 2002; and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

** Emissions per 1,000 bags from Ecobilan, 2004; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

*** Emissions per 1,000 bags from FRIDGE, 2002 and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

See Appendix B for listing of emissions by each participating municipality.

f. Regulations applicable to Manufacturing Facilities.

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

Local Air Quality Management District Equipment Permits. Manufacturing facilities may also be required to obtain permits from the local air quality management district. A local air quality management district permit is a written authorization to build, install, alter, replace, or operate equipment that emits or controls the emission of air contaminants, such as NO_x, CO, PM₁₀, oxides of sulfur (SO_x), or toxics. Permits ensure that emission controls meet the need for the local region to make steady progress toward achieving and maintaining federal and state air quality standards.



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

Regulations applicable to Delivery Trucks.

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

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

4.1.2 Impact Analysis

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

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

- *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 releasing emissions which exceed quantitative thresholds for ozone precursors)*
- *Expose sensitive receptors to substantial pollutant concentrations*
- *Create objectionable odors affecting a substantial number of people*

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

On March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds contained in the BAAQMD's 2010 CEQA Guidelines (BAAQMD Homepage, accessed May 2012). As such, lead agencies need to determine appropriate air quality thresholds of significance based on substantial evidence in the record. Lead agencies may rely on the BAAQMD's CEQA Guidelines (updated May 2011) for assistance in calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures. However, the BAAQMD has been ordered to set aside the thresholds and is no longer recommending that these thresholds be used as a general measure of a project's significant air quality impacts. Lead agencies may continue to rely on the Air District's 1999 Thresholds of Significance and to make determinations regarding the significance of an individual project's air quality impacts based on substantial evidence in the record for that project.

For this EIR, the Sonoma County Waste Management Agency has determined that the BAAQMD's significance thresholds in the updated May 2011 CEQA Guidelines for project operations within the San Francisco Bay Area Air Basin are the most appropriate thresholds for use to determine air quality impacts of the Proposed Ordinance. These thresholds are lower than the 1999 BAAQMD thresholds, and thus use of the thresholds in the May 2011 CEQA Guidelines is more conservative. Therefore, these thresholds are considered reasonable for use in this EIR. Further, though NSCAPCD has jurisdiction over part of the County, the NSCAPCD focuses on stationary pollution sources and CEQA thresholds are determined by the local agencies.

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

- 54 pounds per day of ROG
- 54 pounds per day of NO_x
- 82 pounds per day of PM₁₀
- 54 pounds per day of PM_{2.5}

b. Project Impacts and Mitigation Measures.

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

The intent of the Proposed Ordinance is to reduce single-use carryout bag waste. The Proposed Ordinance would reduce the number of single-use carryout bags that are manufactured and used in the Study Area and would increase the number of recycled paper and reusable bags manufactured and used in the Study Area compared to existing conditions.

As described in the *Setting*, on a per bag basis, emissions associated with single-use paper bag production and transportation is equivalent to 1.9 times the impact on atmospheric acidification as the production and transportation of a single-use plastic bag. On a per bag basis, the production and transportation of a reusable carryout bag that is made of LDPE plastic results in three times the atmospheric acidification of the production and transportation of a single-use plastic bag. Reusable bags may be made of various materials other than LDPE, including cloths such as cotton or canvas. However, because LDPE reusable bags are one of the most common types of reusable bags and are of similar durability and weight (approximately 50 to 200 grams) as other types of reusable bags, this EIR utilizes the best available information regarding specific metrics on a per bag basis to disclose environmental impacts associated with the Proposed Ordinance. However, the emissions from all types of reusable bags are lower than single-use plastic and paper carryout bags because reusable bags are usually used at least one year, or 52² uses. Thus, the air pollutant emissions from the production and transportation of these bags are expected to be comparable to the LPDE bag or lower (Santa Clara County Single-Use Carryout Bag Initial Study, October 2010). Similarly, on a per bag basis, the production and transportation of a single-use paper bag has 1.3 times the impact on ground level ozone formation compared to the production and transportation of a single-use plastic bag and the production and transportation of a reusable carryout bag that is made of LDPE plastic would result in 1.4 times the ground level ozone formation compared to the production and transportation of a single-use plastic bag (Stephen L. Joseph, 2010; FRIDGE, 2002; and Green Cities California MEA, 2010).

A reusable bag results in greater impacts to ground level ozone formation and atmospheric acidification than a single-use plastic bag on a per bag production and transportation basis; however, unlike single-use plastic bags, reusable carryout bags are intended to be used multiple

² This represents a conservative estimate. According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more.



times (estimated to be at least 52 uses).³ Therefore, fewer total carryout bags would need to be manufactured as a shift toward the use of reusable bags occurs. As described in Section 2.0, *Project Description*, retail establishments making paper carryout bags available would be required to sell recycled paper carryout bags that are made with a minimum 40% post-consumer recycled content to customers for \$0.10 per bag. This mandatory charge would create a disincentive to customers to request single-use paper bags when shopping at regulated stores and is intended to promote a shift toward the use of reusable bags by consumers in the Study Area.

This analysis assumes that as a result of the Proposed Ordinance 95% of the volume of plastic bags currently used in the Study Area (258,602,841 plastic bags per year) would be replaced by recycled paper bags (approximately 30%) and reusable bags (approximately 65%), as shown in Table 2.2 in Section 2.0, *Project Description*. It is assumed that 5% of the existing single-use plastic bags used in the Study Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute single-use plastic bags (e.g., restaurants) and these retailers would continue to distribute single-use plastic bags after the Proposed Ordinance is implemented. Thus, for this analysis, it is assumed that 12,930,142 plastic bags would continue to be used annually within the Study Area after implementation of the Proposed Ordinance. It is also assumed that approximately 77,580,852 paper bags would replace approximately 30% of the plastic bags currently used in Study Area. This 1:1 replacement ratio is considered conservative, because the volume of a single-use paper carryout bag (20.48 liters) is generally equal to approximately 150% of the volume of a single-use plastic bag (14 liters), such that fewer paper bags would ultimately be needed to carry the same number of items.

In order to estimate the number of reusable carryout bags that would replace 168,091,872 plastic bags (65% of the existing number of plastic bags used annually in the Study Area), it is assumed that a reusable carryout bag would be used by a customer once per week for one year (52 times). This is a conservative estimate, as according to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more. Based on the estimate of 52 uses, 168,091,872 single-use plastic bags that would be removed as a result of the Proposed Ordinance would be replaced by 3,232,536 reusable bags. This amounts to about seven reusable bags per person per year based on a Study Area population of 487,011. This analysis assumes that as a result of the Proposed Ordinance the approximately 259 million single-use plastic carryout bags currently used in the Study Area annually would be reduced to approximately 94 million total bags as a result of the Proposed Ordinance.

It should be noted that no known manufacturing facilities of carryout bags are located within the San Francisco Bay Area and North Coast Air Basins. Nevertheless, for a conservative estimate, emissions associated with both manufacturing and transportation of carryout bags to retailers within the Study Area is estimated in this EIR. Table 4.1-4 estimates post-ordinance air pollutant emissions from bag manufacturing and transportation that contribute to the development of ground level ozone and atmospheric acidification. As shown, the increased use of reusable carryout bags in the Study Area would reduce emissions that contribute to ground level ozone by approximately 3,220 kg per year (a 54% decrease) and would reduce emissions

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



that contribute to atmospheric acidification by approximately 95,980 kg per year (a 34% decrease).

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

Bag Type	# of Bags Used per Year*	Ozone Emission Rate per Bag**	Ozone Emissions (kg) per 1,000 bags***	Ozone Emissions per year (kg)	AA Emission Rate per Bag**	AA Emissions (kg) per 1,000 bags****	AA Emissions per year (kg)
Single-use Plastic	12,930,142	1.0	0.023	297	1.0	1.084	14,016
Single-use Paper	77,580,852	1.3	0.03	2,327	1.9	2.06	159,817
Reusable	3,232,536	1.4	0.032	103	3.0	3.252	10,512
Total				2,728	Total		184,345
Existing				5,948	Existing		280,325
Net Change (Total minus Existing)				(3,220)	Net Change		(95,980)

Sources:

* Refer to Table 2.2 in Section 2.0, Project Description.

**Impact rate per bag as stated in Stephen L. Joseph, 2009; Ecobilan, 2004; FRIDGE, 2002; and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

*** Emissions per 1,000 bags from Ecobilan, 2004; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

**** Emissions per 1,000 bags from FRIDGE, 2002 and Green Cities California MEA, 2010; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

See Appendix B for emissions for each individual municipality

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

As described above, the Proposed Ordinance would reduce emissions associated with ozone and atmospheric acidification. Therefore, the Proposed Ordinance would have a beneficial effect in this regard.

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

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

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

Post Ordinance emissions, long-term would include those emissions associated with truck trips to deliver carryout bags (recycled paper and reusable) from manufacturing facilities or distributors to the Study Area retailers. The URBEMIS computer program was used to calculate mobile emissions resulting from the number of trips generated by the Proposed Ordinance. Trip generation rates were taken from the traffic analysis contained in the *Transportation* section of the Initial Study (see Appendix A), which estimates that the change in truck traffic as a result of the Proposed Ordinance would be a net increase of 0.74 truck trips per day. Mobile emissions associated with such truck trips are summarized in Table 4.1-5.

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

Emission Source	Emissions (lbs/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Mobile Emissions (Truck Traffic)	0.01	0.09	0.01	<0.01
Total Emissions	0.01	0.09	0.01	<0.01
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>
<i>Threshold Exceeded?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Source: URBEMIS version 9.2.4 calculations for Truck Trips. See Appendix B for calculations

As indicated in Table 4.1-6, daily ROG emissions are estimated at 0.01 pounds, daily NO_x emissions are estimated at approximately 0.09 pounds, daily PM₁₀ emissions would be approximately 0.01 pounds, and daily PM_{2.5} emissions would be less than 0.01 pounds. The



incremental increases in ROG, NO_x, PM₁₀, and PM_{2.5} emissions associated with the truck deliveries would be substantially less than the BAAQMD thresholds of 54 pounds per day of ROG, NO_x, or PM_{2.5}, and 82 pounds per day of PM₁₀. Because long-term emissions would not exceed BAAQMD thresholds, impacts would not be significant.

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

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

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use carryout bags, and promote a shift toward reusable carryout bags. Similar to the Proposed Ordinance, such ordinances would be expected to generally reduce the overall number of bags manufactured and associated air pollutant emissions, while existing and future manufacturing facilities would continue to be subject to federal and state air pollution regulations (see the *Setting* for discussion of applicable regulations). Similar to the Proposed Ordinance, other adopted and pending ordinances would also be expected to incrementally change the number of truck trips associated with carryout bag delivery and associated emissions. Several other agencies in San Francisco Bay Air Basin (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County, and the City of Palo Alto) have either adopted or are considering such ordinances. Three agencies within the North Coast Air District (County of Mendocino, City of Fort Bragg, City of Ukiah) have adopted similar ordinances. However, based on the incremental increase in air pollutant emissions associated with the Proposed Ordinance (increase of one tenth of a pound per day or less of each criteria pollutant), the other ordinances are not expected to generate a cumulative increase in emissions that would exceed BAAQMD thresholds or adversely affect regional air quality. Moreover, the increase in truck trips to deliver reusable bags would be at least partially offset by a reduction in trips to deliver single use plastic bags. Therefore, cumulative air quality impacts would not be significant.

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4.2 BIOLOGICAL RESOURCES

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

4.2.1 Setting

a. Terrestrial Habitat. The Proposed Ordinance would apply to the geographical limits of unincorporated Sonoma County or any of the following incorporated jurisdictions within Sonoma County: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor (the "Study Area"). Sonoma County's varied natural landscapes range from the marine environments of the coastal zone, to the extensive forests, woodlands and grasslands of the Coast Range mountains and foothills, to the vernal pools and freshwater marshes of the Santa Rosa Plain and other valley floors, to the extensive marshlands along San Pablo Bay.

Urban development occupies much of the valley floors through the central portion of the county along US 101 and Highways 116 and 12, with cities separated and generally surrounded by grazing lands and agricultural uses, primarily vineyards, dryland crops, and irrigated pasture.

Sonoma County is bounded to the west by the Pacific Ocean. Approximately 513,000 acres (about 50% of the County's land area) in Sonoma County are devoted to forest and woodlands. There are approximately 232,000 acres of timberland in the County, predominantly in the northwest part of the County. As described in Section 4.4, *Hydrology and Water Quality*, there are a total of four watersheds and 16 sub-watersheds located in Sonoma County, several of which drain into local waterways such as the Russian River and ultimately to the Pacific Ocean.

Areas of natural vegetation support native plant and animal species and encompass habitat for special status species, wetlands and sensitive natural communities (County of Sonoma General Plan, Open Space and Resource Conservation Element, September 23, 2008). Wetland areas mapped as part of the National Wetlands Inventory and other sources include the Laguna de Santa Rosa, vernal pools, San Pablo Bay and Petaluma marshes, coastal and tidal marshes, and such freshwater marshes as the Pitkin, Kenwood, Cunningham, and Atascadero Marshes.

Sensitive natural communities identified in Sonoma County include coastal salt marsh, brackish water marsh, freshwater marsh, freshwater seeps, native grasslands, several types of forest and woodland (including riparian, valley oak, Oregon white oak, black oak, buckeye, Sargent cypress and pygmy cypress), old growth redwood and Douglas fir forest, mixed serpentine chaparral, and coastal scrub, prairie, bluff, and dunes. Many of these communities also support populations of special status species and are important to native wildlife.

b. Special Status Species. Fish and wildlife resources are numerous and diverse due to the wide variety of habitats contained in Sonoma County including wetlands and marshes, sensitive natural communities, and the Pacific Ocean. The diversity of plant and animal species in riparian areas is among the highest of Sonoma County's natural landscapes. The dense vegetation provides protective cover and shade and contributes woody debris to stream

channels, providing critically important habitat for salmon, steelhead, freshwater shrimp, and other protected freshwater fisheries and aquatic species. Several special status plant and animal species are known to occur within the marine and nearshore environment throughout Sonoma County and have the potential to occur if suitable habitat is present. These include western pond turtle (*Emys marmorata*), western snowy plover (*Charadrius alexandrinus nivosus*), salt marsh harvest mouse (*Reithrodontomys raviventris*), steelhead (*Oncorhynchus mykiss irideus*), Clara Hunt's milk-vetch (*Astragalus clarianus*), and Sonoma sunshine (*Blennosperma bakeri*). Furthermore, Northern Coastal Salt Marsh, a sensitive natural community, has been documented along the shore of San Francisco Bay.

While the coastal and marine habitats of the Pacific Ocean and San Francisco Bay have been altered due to human disturbance, a number of additional sensitive species have the potential to occur in these environments. Sensitive species as listed on the California Natural Diversity Database (CNDDDB) and the U.S. Fish and Wildlife Service (USFWS), which may inhabit the coastal and marine environment, are listed in Table 4.2-1 on the following page. Figure 4.2-1 shows the locations of special-status species and natural communities documented in the Study Area, as listed on the CNDDDB. Figure 4.2-2 shows the locations of critical habitat within the Study Area.

c. Carryout Bags and Biological Resources. Carryout bags can affect biological resources as a result of litter that enters the storm drain system and ultimately coastal and marine environments.

Single-use plastic carryout bags enter the biological environment primarily as litter. This can adversely affect terrestrial animal species, and marine species that ingest the plastic bags (or the residue of plastic bags) or become tangled in the bag (Green Cities California MEA, 2010). Based on the data collected for the Ocean Conservancy's Report from September 2009 Ocean Conservancy's International Coastal Cleanup Day, approximately 11% of total debris items collected were plastic bags (Ocean Conservancy, April 2010). Over 260 species of wildlife, including invertebrates, turtles, fish, seabirds and mammals, have been reported to ingest or become entangled in plastic debris. Ingestion or entanglement may result in impaired movement and feeding, reduced productivity, lacerations, ulcers, and death (Laist, 1997; Derraik and Gregory, 2009). Ingested plastic bags affect wildlife by clogging animal throats and causing choking, filling animal stomachs so that they cannot consume real food, and infecting animals with toxins from the plastic (Green Cities California MEA, 2010). In addition to affecting wildlife through physical entanglement and ingestion, plastic debris in the marine environment has been known to absorb and transport polychlorinated biphenyls (PCBs), phthalates, and certain classes of persistent organic pollutants (POPs) (Mato, Y., Isobe, T., Takada, H., et al., 2001; and, Moore, C.J.; Lattin, G.L., A.F. Zellers., 2005).

Single-use paper carryout bags are also released into the environment as litter. However, they generally have less impact on wildlife because they are not as resistant to breakdown as is plastic; therefore, they are less likely to cause entanglement. In addition, although not a healthy food source, if single-use paper bags are ingested, they can be chewed effectively and may be digested by many animals.

Reusable bags can also be released into the environment as litter. However, because of the weight and sturdiness of these bags, reusable bags are less likely to be littered or carried from



landfills by wind as litter compared to single-use plastic and paper bags (Green Cities California MEA, 2010). In addition, since reusable bags can be used up to 52 times, reusable bags would be disposed of less often than single-use carryout bags. As such, reusable bags are less likely to enter the marine environment as litter, when compared to single-use plastic or paper bags.

**Table 4.2-1
Coastal/Marine Special-Status Species**

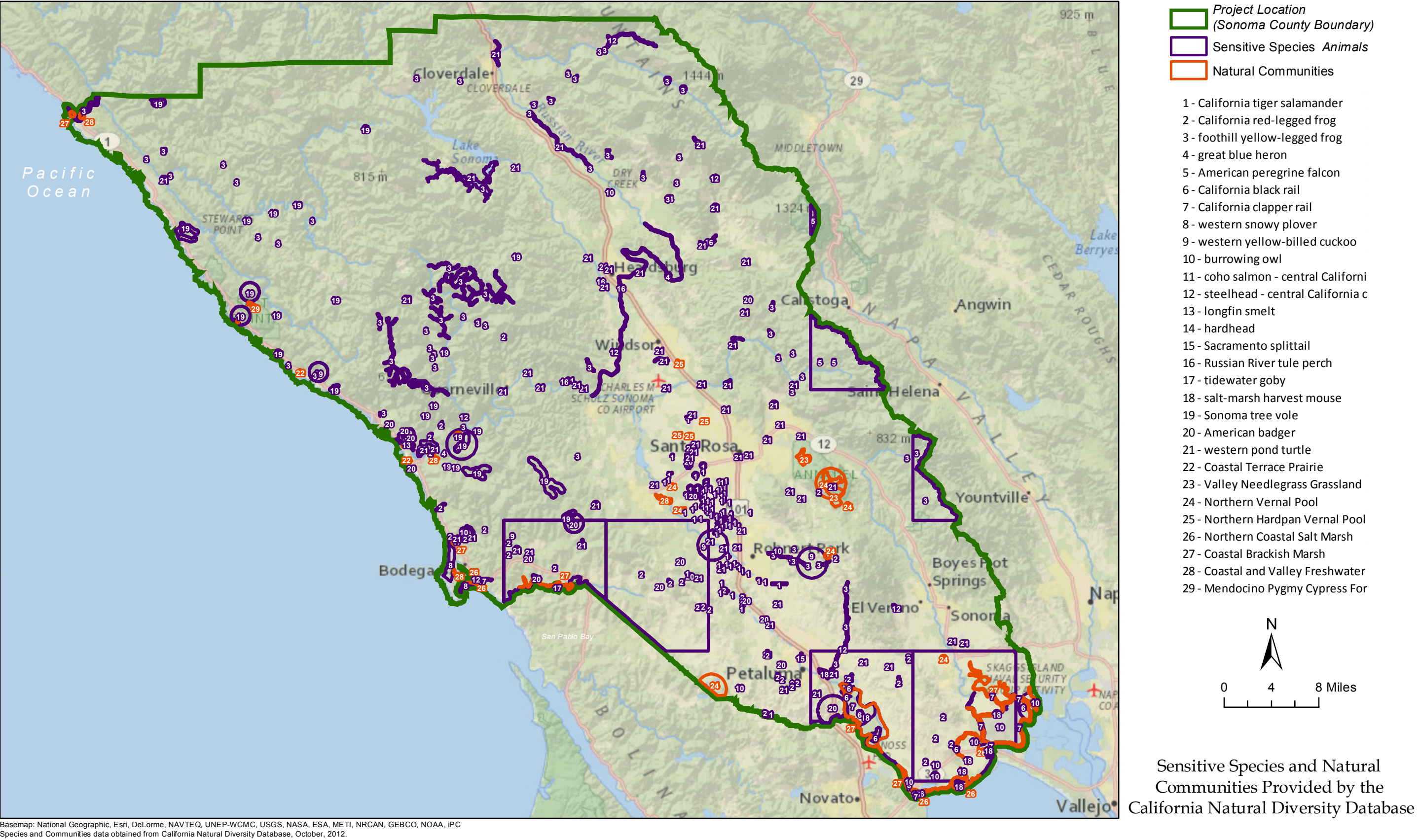
Scientific Name	Common Name	Current Federal/State Status
Reptiles		
<i>Masticophis lateralis euryxanthus</i>	Alameda whipsnake	FT/-
<i>Chelonia mydas</i>	Green sea turtle	FT
<i>Dermochelys coriacea</i>	Leatherback sea turtle	FE
<i>Lepidochelys olivacea</i>	Olive Ridley sea turtle	FT
<i>Emys marmorata</i>	Western pond turtle	-/SSC
Amphibians		
<i>Rana draytonii</i>	California red-legged frog	FT/SSC
<i>Ambystoma californiense</i>	California tiger salamander	FT/ST/SSC
<i>Rana boylei</i>	Foothill yellow-legged frog	-/SSC
Birds		
<i>Strix occidentalis caurina</i>	Northern spotted owl	FT/-
<i>Charadrius alexandrinus nivosus</i>	Western Snowy plover	FT/SSC
<i>Sternula antillarum browni</i>	California least tern	FE/-
<i>Athene cunicularia</i>	Burrowing owl	-/SSC
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FE/delisted
<i>Brachyramphus marmoratus</i>	Marbled murrelet	FT
<i>Rallus longirostris obsoletus</i>	California clapper rail	FE/SE
<i>Laterallus jamaicensis coturniculus</i>	California black rail	-/ST
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	FC/SE
<i>Diomedea albatrus</i>	Short-tailed albatross	FE/-

**Table 4.2-1
Coastal/Marine Special-Status Species**

Scientific Name	Common Name	Current Federal/State Status
<i>Fish</i>		
<i>Oncorhynchus kisutch</i>	Coho salmon	FE/SE
<i>Oncorhynchus mykiss irideus</i>	Steelhead	FT/-
<i>Acipenser medirostris</i>	Green sturgeon	FT/-
<i>Eucyclogobius newberryi</i>	Tidewater goby	FE/SSC
<i>Spirinchus thaleichthys</i>	Longfin smelt	-/SE/SSC
<i>Hypomesus transpacificus</i>	Delta smelt	FT/-
<i>Oncorhynchus clarki henshawi</i>	Lahontan cutthroat trout	FT/-
<i>Mammals</i>		
<i>Eumetopias jubatus</i>	Stellar sea-lion	FT/MMPA
<i>Arctocephalus townsendi</i>	Guadalupe fur seal	FT/MMPA
<i>Aplodontia rufa nigra</i>	Point Arena mountain beaver	FE/-
<i>Balaenoptera musculus</i>	Blue whale	FE/MMPA
<i>Balaenoptera physalus</i>	Finback whale	FE/MMPA
<i>Eubalaena glacialis</i>	Right whale	FE/MMPA
<i>Balaenoptera borealis</i>	Sei whale	FE/MMPA
<i>Physeter catodon</i>	Sperm whale	FE/MMPA
<i>Reithrodontomys raviventris</i>	Salt-marsh harvest mouse	FE/SE

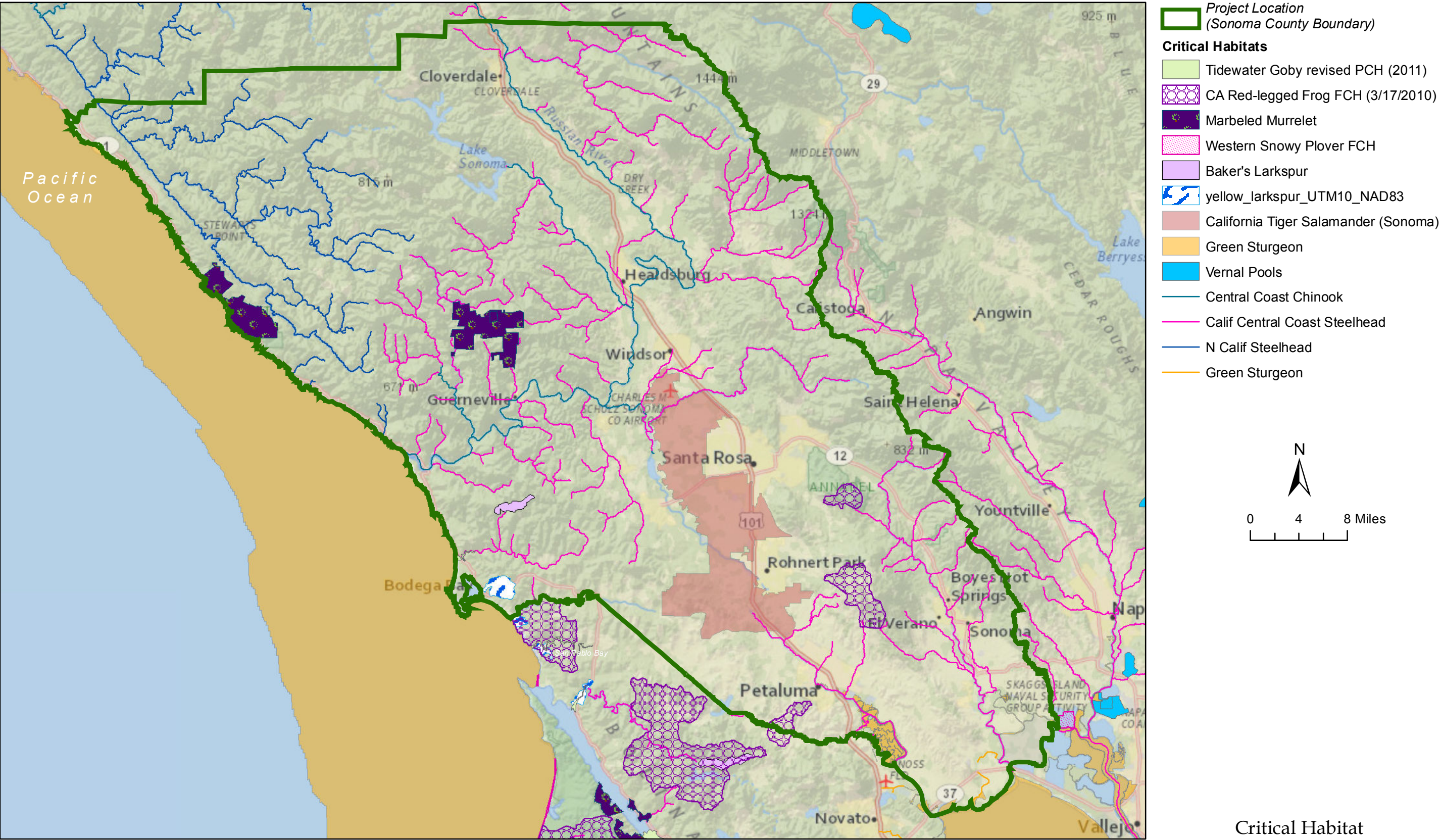
FT = Federally Threatened
 FC = Federally listed as Candidate species
 SSC = California Species of Special Concern
 FE = Federally Endangered
 SE = California Endangered
 ST = California Threatened
 MMPA = Protected by the Marine Mammal Protection Act
 - = no status but included in Rarefind database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





Sensitive Species and Natural
Communities Provided by the
California Natural Diversity Database

Figure 4.2-1



Basemap: National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC
Critical habitat shown is that most recently available from the U.S. Fish and Wildlife Service, October 2012 and NOAA. Check with
U.S. FWS or Federal Register to confirm. Steelhead Habitat covered entire area of interest and has been omitted from map.

Critical Habitat

Figure 4.2-2

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

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

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

4.2.2 Impact Analysis

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

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

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

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

b. Project Impacts and Mitigation Measures.

Impact BIO-1 **Although the Proposed Ordinance would incrementally increase the number of recycled paper and reusable bags within the Study Area, the reduction in the amount of single-use plastic bags would be expected to reduce the overall amount of litter entering the coastal and bay habitats, thus reducing litter-related impacts to sensitive wildlife species and sensitive habitats. This is a Class IV, beneficial, effect.**

The Proposed Ordinance would not include any physical activities that would result in direct biological impacts. The Proposed Ordinance would regulate the use of paper and plastic single-use carryout bags within the Study Area, which includes Sonoma County and the nine incorporated jurisdictions within the County (see the Project Location list in Section 2.0, *Project Description*). The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single-use plastic bags, and to promote a shift toward the use of reusable bags. It is anticipated that by prohibiting single-use plastic carryout bags and requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of reusable bags by retail customers, while reducing the number of single-use plastic and paper bags within the Study Area.

All carryout bags, including single-use plastic, paper, and reusable bags, have the potential to affect coastal habitats, such as the Pacific Ocean, when improper disposal of bags occurs. These bags can become litter that enters the storm drain system and ultimately enters into coastal and marine environments. As described above in the Setting, litter that enters coastal habitats can



adversely affect sensitive species that inhabit coastal and marine environments, including sea turtles, seals, whales, otters, or bird species as a result of ingestion or entanglement. However, each type of carryout bag's potential to become litter varies and is based on the number of bags disposed of as well as the bag's weight and material.

As described in Section 2.0, *Project Description*, typical single-use plastic carryout bags are made from petroleum or bio-based plastic (typically made of thin, lightweight high density polyethylene (HDPE)), are less than 2.25 mils (0.00225 inches) thick, and weigh approximately five to nine grams. Post-use from a retail store, a customer may reuse a single-use plastic bag at home, but eventually the bags are disposed of in the landfill, recycling facility, or discarded as litter. Although some recycling facilities handle plastic bags, most reject them because they can get caught in the machinery and cause malfunctioning, or are contaminated after use. Only about 5% of the plastic bags in California are currently recycled (US EPA, 2005; Green Cities California MEA, 2010; and Boustead, 2007). The majority of single-use plastic bags end in a landfill or as litter. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may blow away as litter due to their light weight (Green Cities California MEA, 2010). Single-use plastic bags that become litter can enter storm drains and watersheds from surface water runoff or may be blown directly into the ocean or bay by the wind.

As described above in the Setting, when single-use plastic bags enter coastal habitats marine species can ingest them (or the residue of plastic bags) or may become entangled in the bag (Green Cities California MEA, 2010). Ingestion or entanglement in single-use plastic bags can result in choking, reduced productivity, lacerations, ulcers, and death to sensitive species in the marine environment, including sea turtles, seals, whales, otters, or bird species.

Single-use paper carryout bags also have the potential to enter the marine environment as litter. Paper grocery bags are typically produced from kraft paper and weigh anywhere from 50 to 100 grams, depending on whether or not the bag includes handles (AEA Technology, 2009). A paper bag weighs substantially more (by approximately 40 to 90 grams) than single-use plastic bags. Because of their weight and recyclability, single-use paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because single-use paper bags are not as resistant to biodegradation, there would be less risk of entanglement if paper bags enter the marine environment compared to single-use plastic bags. In addition, although not a healthy food source, if ingested, a single-use paper bag can be chewed effectively and may be digested by many marine animals (Green Cities California MEA, 2010). Thus, although single-use paper bag litter may enter coastal habitats and affect sensitive species in the marine environment, the impacts would be less than those of single-use plastic bags.

Reusable bags may also become litter and enter the marine environment; however, these bags differ from the single-use bags in their weight and longevity. Reusable bags can be made from plastic or a variety of cloths such as vinyl or cotton. Built to withstand many uses, reusable bags weigh at least ten times what an HDPE plastic bag weighs and two times what a paper bag weighs, therefore restricting the movement by wind (ExcelPlas Australia, 2004; City of Pasadena, 2008). Reusable bags are typically reused until worn out through washing or multiple uses, and then typically disposed either in the landfill or recycling facility. Because of the weight and sturdiness of these bags, reusable bags are less likely to become litter or to be

carried from landfills by wind compared to single-use plastic and paper bags (Green Cities California MEA, 2010). In addition, since reusable bags can be used 100 times or more (Green Cities California MEA, 2010), they would be disposed of less often than single-use carryout bags. As such, reusable bags are less likely to enter the marine environment as litter and would generally be expected to result in fewer impacts to sensitive species than single-use plastic or paper carryout bags.

The Proposed Ordinance would reduce plastic bag usage by approximately 95% compared to existing conditions (from approximately 259 million to approximately 13 million bags annually), and would reduce total bag use by approximately 36% (to approximately 94 million plastic, single-use paper, and reusable bags). This reduction in bags would be expected to generally reduce litter-related impacts to sensitive species. Therefore sensitive species such as sea turtles, mammals, and bird species would benefit from the Proposed Ordinance, which would reduce the amount of litter which could enter the marine environment. Impacts would be beneficial.

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

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

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use carryout bags, and promote a shift toward reusable carryout bags. This shift would generally have beneficial effects with respect to sensitive biological resources. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. Similar to the Proposed Ordinance, these other adopted and pending ordinances could incrementally reduce the number of plastic bags entering the environment, including the Russian River, San Francisco Bay, and the Pacific Ocean, as litter. These other ordinances would be expected to have similar beneficial effects. Therefore, there would be no significant adverse cumulative impacts to biological resources.

4.3 GREENHOUSE GAS EMISSIONS

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

4.3.1 Setting

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

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases and sulfur hexafluoride (SF₆) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as "carbon dioxide equivalent" (CO₂E), and is the amount of a GHG emitted multiplied by its GWP. CO₂ has a GWP of one. By



contrast, CH₄ has a GWP of 21, meaning its global warming effect is 21 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 1997).

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

Carbon Dioxide. The global carbon cycle is made up of large carbon flows and reservoirs. Billions of tons of carbon in the form of CO₂ are absorbed by oceans and living biomass (i.e., sinks) and are emitted to the atmosphere annually through natural processes (i.e., sources). When in equilibrium, carbon fluxes among these various reservoirs are roughly balanced (United States Environmental Protection Agency [USEPA], April 2011). CO₂ was the first GHG demonstrated to be increasing in atmospheric concentration, with the first conclusive measurements being made in the last half of the 20th Century. Concentrations of CO₂ in the atmosphere have risen approximately 40% since the industrial revolution. The global atmospheric concentration of CO₂ has increased from a pre-industrial value of about 280 parts per million (ppm) to 391 ppm in 2011 (IPCC, 2007; Oceanic and Atmospheric Association [NOAA], 2010). The average annual CO₂ concentration growth rate was larger during the last 10 years (1995–2005 average: 1.9 ppm per year) than it has been since the beginning of continuous direct atmospheric measurements (1960–2005 average: 1.4 ppm per year), although there is year-to-year variability in growth rates (NOAA, 2010). Currently, CO₂ represents an estimated 82.8% of total GHG emissions based on Global Warming Potential (Department of Energy [DOE] Energy Information Administration [EIA], August 2010). The largest source of CO₂, and of overall GHG emissions, is fossil fuel combustion.

Methane. CH₄ is an effective absorber of radiation, though its atmospheric concentration is less than that of CO₂ and its lifetime in the atmosphere is limited to 10 to 12 years. It has a global warming potential (GWP) approximately 21 times that of CO₂. Over the last 250 years, the concentration of CH₄ in the atmosphere has increased by 148% (IPCC, 2007), although emissions have declined from 1990 levels. Anthropogenic sources of CH₄ include enteric fermentation associated with domestic livestock, landfills, natural gas and petroleum systems, agricultural activities, coal mining, wastewater treatment, stationary and mobile combustion, and certain industrial processes (USEPA, April 2011).

Nitrous Oxide. Concentrations of nitrous oxide (N₂O) began to rise at the beginning of the industrial revolution and continue to increase at a relatively uniform growth rate (NOAA, 2010). N₂O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes. Use of these fertilizers has increased over the last century. Agricultural soil management and mobile source fossil fuel combustion are the major sources of N₂O emissions. N₂O's GWP is approximately 310 times that of CO₂.

Fluorinated Gases (HFCS, PFCS and SF₆). Fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and SF₆, are powerful GHGs that are emitted from a variety of industrial processes. Fluorinated gases are used as substitutes for ozone-depleting substances such

as chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), and halons, which have been regulated since the mid-1980s because of their ozone-destroying potential and are phased out under the Montreal Protocol (1987) and Clean Air Act Amendments of 1990. Electrical transmission and distribution systems account for most SF₆ emissions, while PFC emissions result from semiconductor manufacturing and as a by-product of primary aluminum production. Fluorinated gases are typically emitted in smaller quantities than CO₂, CH₄, and N₂O, but these compounds have much higher GWPs. SF₆ is the most potent GHG the IPCC has evaluated.

State Greenhouse Gas Inventory. Worldwide anthropogenic emissions of GHG were approximately 40,000 million metric tons (MMT) CO₂E in 2004, including ongoing emissions from industrial and agricultural sources, but excluding emissions from land use changes (i.e., deforestation, biomass decay) (IPCC, 2007). CO₂ emissions from fossil fuel use accounts for 56.6% of the total emissions of 49,000 million metric tons CO₂E (includes land use changes) and all CO₂ emissions are 76.7% of the total. Methane emissions account for 14.3% of GHG and N₂O emissions account for 7.9% (IPCC, 2007).

Total U.S. GHG emissions were 6,633.2 million metric tons CO₂E in 2009 (USEPA, April 2011). While total U.S. emissions have increased by 7.3% from 1990 to 2009, emissions decreased from 2008 to 2009 by 427.9 million metric tons CO₂E, or 6.1% (DOE EIA, Table 12.1, August 2010). This decrease was primarily due to: (1) a decrease in economic output resulting in a decrease in energy consumption across all sectors; and (2) a decrease in the carbon intensity of fuels used to generate electricity due to fuel switching as the price of coal increased, and the price of natural gas decreased substantially. Since 1990, U.S. emissions have increased at an average annual rate of 0.4%. The transportation and industrial end-use sectors accounted for 33% and 26%, respectively, of CO₂ emissions from fossil fuel combustion in 2009. Meanwhile, the residential and commercial end-use sectors accounted for 22% and 19%, respectively, of CO₂ emissions from fossil fuel combustion in 2009 (USEPA, 2011).

Based upon the California Air Resources Board (ARB) *California Greenhouse Gas Inventory for 2000-2009* (ARB, 2011), California produced 453 MMT CO₂E in 2009. The major source of GHG in California is transportation, contributing 38% of the state's total GHG emissions. Electricity generation is the second largest source, contributing 23% of the state's GHG emissions (ARB, June 2011). California emissions are due in part to its large size and large population compared to other states. Another factor that reduces California's per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. ARB has projected statewide unregulated GHG emissions for the year 2020, which represent the emissions that would be expected to occur in the absence of any GHG reduction actions, will be 596 MMT CO₂E (ARB, 2007).

b. Effects of Climate Change. Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Scientists have projected that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and the increase may be as high as 2.2-10°F (1.4-5.8°C) in the next century. In addition to these projections, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic (IPCC, 2007).

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

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

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

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

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during our wet winters and releasing it slowly when we need it during our dry springs and summers. Based upon historical data and modeling DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR, 2008).

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

Agriculture. California has a \$30 billion agricultural industry that produces half of the country's fruits and vegetables. Higher CO₂ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC, 2006).

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

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

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

Manufacturing Process. The manufacturing process to make carryout bags requires fuel and energy consumption. This creates GHG emissions, including CO₂, CH₄, N₂O_x, fluorinated gases, and ozone. In addition, fertilizers that are used on crops for resources such as cotton or pulp, which are then utilized in the manufacture of carryout bags, also have the potential to emit N₂O_x. The amount of GHG emissions varies depending on the type and quantity of carryout bags produced. Compared to truck trips and disposal, the manufacturing process is

the largest emitter of GHGs due to the high volume of fuel and energy consumption that is used during the process.

Truck Trips. Delivery trucks that transport carryout bags from manufacturers or distributors to Study Area local retailers also create GHG emissions. GHG emissions from truck trips result primarily from the combustion of fossil fuels and include CO₂, CH₄, and N₂O. As discussed in the *Transportation* section of the Initial Study (see Appendix A), based on a baseline Study Area population of 487,011 persons in 2012 and a statewide estimate of approximately 531 plastic bags used per person per year, retail customers in the Study Area currently use an estimated 258,602,841 plastic bags per year. Assuming 2,080,000 plastic bags per truck load (City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011; refer to Appendix A), this number of plastic bags would require approximately 125 truck trips per year (an average of about 0.3 trips per day) to deliver these single-use plastic bags in the Study Area.

Disposal/Degradation. Once disposed of by customers, carryout bags that are not recycled are deposited to a landfill where they are left to decompose and degrade. Depending on the type and materials used, a carryout bag will degrade at various rates. When carryout bag materials degrade in anaerobic conditions at a landfill, CH₄ is emitted. This contributes to climate change (Green Cities California MEA, 2010).

GHG Emission Rates per Bag. Various studies have estimated GHG emissions for the different carryout bags (single-use plastic, paper or reusable bags) to determine a per bag GHG emissions rate. The Boustead Report (2007) compared single-use plastic and paper carryout bags and assumed that one paper bag could carry the same quantity of groceries as 1.5 plastic bags. Based on the Boustead Report (2007), 1,500 single-use plastic bags would generate 0.04 metric tons of Carbon Dioxide Equivalent (CO₂E) as a result of manufacturing, transport, and disposal. Based on the Scottish Report (AEA Technology, 2005), GHG emissions associated with the manufacture, use, and disposal of a single-use paper bag are 3.3 times greater than the emissions generated by the manufacture, use and disposal of a single-use plastic bag. Thus, based on the single-use plastic bag GHG emissions rate of 0.04 metric tons CO₂E per 1,500 bags from the Boustead Report, single-use paper bags would emit 0.132 metric tons CO₂E per 1,000 bags ($0.04 \times 3.3 = 0.132$). If only used once, the manufacture, use and disposal of a reusable LDPE carryout bag results in 2.6 times the GHG emissions of a single-use HDPE plastic bag (AEA Technology, 2005). Therefore, reusable LDPE carryout bags would emit 0.104 metric tons CO₂E per 1,000 bags (if used only once) (Stephen L. Joseph, 2010; AEA Technology, 2005; Ecobilan, 2004; Green Cities California MEA, 2010; and, City of Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011).

The 2005 AEA Technology report found that if used just 20 times, a reusable LDPE carryout bag will have had only 10% of the GHG emissions of a single-use HDPE plastic bag (AEA Technology, 2005). As noted in Section 2.0, *Project Description*, this EIR assumes that a reusable bag is typically used as many as 52 times. The analysis uses the above LDPE carryout bag as a representation of reusable bags in evaluating greenhouse gas impacts. There is no known available Life Cycle Assessment that evaluates all types of reusable bags (canvas, cotton, calico, etc.) with respect to potential GHG emissions. However, given the high rate of reuse by all

types of reusable bags (100 times or more¹), the GHG emissions associated with these bags, are expected to be comparable to an LPDE bag or lower.

Table 4.3-1 lists the current GHG emissions associated with the manufacture, transport, and disposal of single-use plastic bags in the Study Area using the per bag GHG emissions rates discussed above and the estimated number of carryout bags currently used. As discussed in Section 2.0, *Project Description*, based on a baseline population estimate of approximately 487,011 persons in 2012 and a statewide estimate of approximately 531 plastic bags used per person per year, retail customers in the Study Area currently use an estimated 258,602,841 single-use plastic bags per year. As shown in Table 4.3-1, overall GHG emissions associated with Study Area single-use plastic bag use are 6,896 metric tons CO₂E per year, or approximately 0.014 metric tons CO₂E per person.

**Table 4.3-1
Existing Greenhouse Gas Emissions
from Single-Use Plastic Bags in the Study Area**

Bag Type	Existing Number of Bags Used per Year	GHG Impact Rate per Bag	CO ₂ e (metric tons)	CO ₂ e per year (metric tons)	CO ₂ e per Person ²
Single-use Plastic	258,602,841	1.0	0.04 per 1,500 bags ¹	6,896	0.014
Total				6,896	0.014

CO₂E = Carbon Dioxide Equivalent units

Source:

¹ Based on Boustead Report, 2007; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

² Emissions per person are divided by the current Study Area population – 487,011 (California Department of Finance, May 2012)

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

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

¹ Green Cities California. March 2010. *Master Environmental Assessment on Single-use and Reusable Bags*. Prepared by ICF International.



enforcement mechanisms. Instead, the treaty provides for updates, called “protocols,” that would identify mandatory emissions limits.

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

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

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

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

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

California’s major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the “California Global Warming Solutions Act of 2006,” signed into law in 2006. AB 32 codifies the Statewide goal of reducing GHG emissions to 1990 levels by 2020 (essentially a 15% reduction below 2005 emission levels; the same requirement as under S-3-05), and requires ARB to

prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions.

After completing a comprehensive review and update process, the ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO₂E. The Scoping Plan was approved by ARB on December 11, 2008, and includes measures to address GHG emission reduction strategies related to energy efficiency, water use, and recycling and solid waste, among other measures. The Scoping Plan includes a range of GHG reduction actions that may include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms.

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

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

SB 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing ARB to develop regional GHG emission reduction targets to be achieved from vehicles for 2020 and 2035. SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPOs) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, ARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Bay Area's SCS is currently under development titled "Plan Bay Area", which is due for adoption in April 2013. Consistent with the ARB's regional targets, the Bay Area is required to reduce emissions by 7 percent by 2020 and by 15 percent by 2035.

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

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

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

Local Regulations and CEQA Requirements. Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *CEQA Guidelines* for the feasible mitigation of

GHG emissions or the effects of GHG emissions. The adopted *CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, they give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant. To date, the Bay Area Air Quality Management District (BAAQMD), the South Coast Air Quality Management District (SCAQMD), and the San Joaquin Air Pollution Control District (SJVAPCD) have adopted quantitative significance thresholds for GHGs. As noted in Section 4.1, *Air Quality*, on March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the air quality and greenhouse gas emissions thresholds contained in the BAAQMD's CEQA Guidelines (Updated May 2011). The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA and therefore determined that the BAAQMD was required to do CEQA analysis on the thresholds. In light of the court's order, lead agencies will need to determine appropriate air quality and GHG thresholds of significance based on substantial evidence in the record.

In 2005, Sonoma County and the nine incorporated cities established a greenhouse gas reduction target of 25% below 1990 levels by 2015. Working with a non-profit organization, Sonoma County and the nine incorporated cities developed a Community Climate Action Plan (CCAP). Published in 2008, the CCAP identifies strategies that the County and cities could pursue to meet the target (Climate Protection Campaign, 2008). In 2009, the Regional Climate Protection Authority (RCPA) was created to improve coordination on climate change issues and efforts to reduce GHG emissions (SCTA/RCPA, 2012). The RCPA is made up of the Board of Directors of the Sonoma County Transit Authority, which includes representatives from each of the nine cities and the Sonoma County Board of Supervisors.

Apart from efforts at the County level, cities in Sonoma County have also undertaken efforts to reduce GHG emissions. The City of Santa Rosa adopted a Climate Action Plan (CAP) in June 2012. The Santa Rosa CAP identifies strategies in nine topic areas to achieve the AB 32 state-recommended targets and the adopted target of 25% below 1990 levels. In May 2008, the City of Healdsburg published the *City of Healdsburg Greenhouse Gas Emissions Reduction Action Plan Analysis*, which identified five action plans the City could adopt ranging from a 21% to 68% reduction in GHG emissions. In October 2008, the City Council adopted Action Plan B, which is expected to result in a 22.9% reduction in GHG emissions per year (Healdsburg, 2009). In addition, the City of Petaluma released a GHG Emissions Reduction Action Plan Analysis in 2009 (Pierce, 2009).

Though the County and the incorporated cities have adopted an overall GHG emissions reduction target, neither the County nor the cities have adopted local GHG thresholds for individual projects or plans. In the absence of other local GHG thresholds of significance, for this analysis, the Proposed Ordinance is evaluated based on a project-based threshold of 4.6

metric tons CO₂e per service population (defined to include both residents and employees) per year. This is used for this analysis for the following reasons. First, this analysis examines impacts on a county-wide basis so a regional threshold may be more appropriate. Second, the 4.6 metric tons CO₂e per service population threshold was adopted by the BAAQMD as a quantitative GHG emissions threshold for project-level analysis (BAAQMD, “California Environmental Quality Act: Air Quality Guidelines” (June 2010)). This threshold has been utilized in certified CEQA documents for similar bag ordinances, including in the City of Sunnyvale (FEIR, SCH #2011062032, December 2011) and the County of San Mateo (FEIR, SCH #2012042013, October 2012) which are both located in the BAAQMD and the City of Huntington Beach (Draft EIR, SCH #2011111053, February 2012) located in the SCAQMD.

Third, the BAAQMD derived the recommended “efficiency” metric from statewide compliance with AB 32. Other air pollution control districts have also recommended a similar “Efficiency Threshold”. For example, the San Luis Obispo County Air Pollution Control District recommends a 4.8 metric tons per person per year Efficiency Threshold (SLO APCD, Greenhouse Gas Thresholds and Supporting Evidence, March 2012). Staff at the South Coast Air Quality Management District (SCAQMD) has proposed a project-level threshold of 4.8 metric tons CO₂e per service population (defined to include both residents and employees) per year for use in the South Coast region (SCAQMD, “Proposed Tier 4 Performance Standards: Option #3: SCAQMD Efficiency Target”, September 2010).

Based on the above, the 4.6 metric tons per person per year threshold was considered most reasonable for use in this EIR analysis.

4.3.2 Impact Analysis

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

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

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

The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan).



In 2005, Sonoma County and the nine incorporated cities all passed resolutions adopting communitywide target of reducing greenhouse gas emissions by 25 percent below 1990 levels by 2015, though the County and cities have not established quantitative thresholds for greenhouse gas emissions from individual projects. Therefore, for this EIR, the Proposed Ordinance is evaluated based on the project-level threshold of 4.6 metric tons CO₂e per service population (defined to include both residents and employees) per year (BAAQMD, “California Environmental Quality Act: Air Quality Guidelines” (June 2010)).

A significant impact related to climate change would occur if GHG emissions associated with implementation of the Proposed Ordinance would exceed 4.6 metric tons of CO₂e units per service population (residents and employees) per year. In addition, impacts would be significant if the Proposed Ordinance would be inconsistent with the applicable GHG emissions reductions strategies in the Sonoma County Climate Protection Action Plan.

b. Project Impacts and Mitigation Measures.

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

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

As described in the *Setting*, through the manufacture, transport, and disposal, each single-use paper bag generates 3.3 times more GHG emissions than the manufacture, transport, and disposal of a single-use plastic bag. If only used once, the manufacture, use, and disposal of a reusable LDPE carryout bag results in 2.6 times the GHG emissions of a single-use HDPE plastic bag (Stephen L. Joseph, 2009; AEA Technology, 2005; Ecobilan, 2004; and Green Cities California MEA, 2010). Thus, on a per bag basis, single-use plastic bags have less impact than single-use paper and reusable carryout bags. However, reusable carryout bags are intended to be used multiple times. With reuse of carryout bags, the total carryout bags that would be manufactured, transported and disposed of would be reduced. As described in Section 4.1, *Air Quality*, implementation of the Proposed Ordinance would result in replacement of single-use plastic bags currently used in the Study Area (estimated at 258,602,841 million annually) with an estimated 77.6 million recyclable paper bags and approximately 3.2 million reusable bags; an estimated 12.9 million single-use plastic bags would remain in circulation (refer to Table 4.1-4). This represents a 95% reduction in single-use plastic bags and a 64% reduction in all types of carryout bags (including plastic, single-use paper, and reusable).

Table 4.3-2 provides an estimate of GHG emissions that would result from the change in the makeup of carryout bags in the Study Area resulting from implementation of the Proposed

Ordinance. Although the total number of carryout bags would be reduced by approximately 165 million bags per year, the projected increase in the use of recyclable paper bags is expected to increase overall GHG emissions associated with the manufacture, transport, and disposal of carryout bags by approximately 0.006 CO₂E per person per year compared to current conditions.

Table 4.3-2
Estimated Greenhouse Gas Emissions from Carryout Bags in Study Area
with Implementation of the Proposed Ordinance

Bag Type	Estimated Number of Bags Used per Year ¹	GHG Impact Rate per Bag	CO ₂ E (metric tons)	CO ₂ E per year (metric tons)	CO ₂ E per Person ⁵
Single-use Plastic	12,930,142	1.0	0.04 per 1,500 bags ²	345	0.0007
Single-use Paper	77,580,852	2.97 ³	0.1188 per 1,000 bags ³	9,217	0.019
Reusable	3,232,536	2.6	0.104 per 1,000 bags ⁴	336	0.00069
Total				9,898	0.020
Existing				6,896	0.014
Net Change (Total minus Existing)				3,002	0.006

CO₂E = Carbon Dioxide Equivalent units

See Appendix B for emissions for each individual municipality

¹ Refer to Table 2.2 in Section 2.0, Project Description.

² Based on Boustead Report, 2007; Santa Monica Single-use Carryout Bag Ordinance Final EIR, January 2011.

³ 10% reduction (from a rate of 3.3) based on Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

⁴ Based on AEA Technology "Scottish Report, 2005; Santa Monica Single-use Carryout Bag Ordinance Final EIR, Jan 2011.

⁵ Emissions per person are divided by the existing population in the Study Area – 487,011 (Department of Finance May 2012)

Implementation of the Proposed Ordinance would result in a net increase of approximately 0.006 metric tons CO₂E per person per year within the Study Area. However, both the increase in GHG emissions compared to existing conditions and the total emissions after implementation of the Proposed Ordinance would be less than 4.6 metric tons CO₂E per person per year. Impacts related to the GHG emissions would be less than significant.

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

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

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

The Proposed Ordinance would be generally consistent with applicable regulations or plans addressing GHG reductions. The Sonoma Community Climate Action Plan (CCAP), released in 2008, was developed by Sonoma County and the nine incorporated cities in coordination with a non-profit organization. The CCAP includes strategies to reduce emissions in four sectors: electricity and natural gas, transportation and land use, agriculture and forests, and solid waste. Table 4.3-3 illustrates that the Proposed Ordinance would be consistent with the applicable GHG reduction strategies set forth by the CCAP.

**Table 4.3-3
Proposed Ordinance Consistency with
Sonoma County Climate Protection Action Plan**

Strategy	Project Consistency
Transportation and Land Use	
Strategy #8: Strengthen all Environmental Impact Reports on proposed projects to promote GHG emissions reductions.	Consistent This EIR evaluates GHG emissions from carryout bag manufacturing, transport, and disposal.
Solid Waste	
Strategy #1: Reduce the amount of waste generated	Consistent The Proposed Ordinance would promote reusable carryout bags, thus reducing the amount of solid waste generated in the form of single-use carryout bags.
Strategy #2: Reuse products and packaging	Consistent The Proposed Ordinance would also shift single-use bag consumption to reusable bags.
Strategy #3: Recycle discards including products, packaging, and organics	Consistent The Proposed Ordinance would also shift single-use bag consumption from plastic to recyclable paper bags. This would increase recycling of single-use bags because paper bags are recycled by services provided to each residence and workplace in the Study Area. Consumer access to plastic bag recycling opportunities is limited.

As indicated in the *Setting*, the CAT published the Climate Action Team Report (the “2006 CAT Report”) in March 2006. The CAT Report identifies a recommended list of strategies that the State could pursue to reduce climate change greenhouse gas emissions. The CAT strategies are recommended to reduce GHG emissions at a statewide level to meet the goals of the Executive Order S-3-05. These are strategies that could be implemented by various State agencies to ensure that the Governor’s targets are met and can be met with existing authority of the State agencies.

In addition, in 2008 the California Attorney General published *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level* (Office of the California Attorney General, Global Warming Measures Updated May 21, 2008). This document provides



information that may be helpful to local agencies in carrying out their duties under CEQA as they relate to global warming. Included in this document are various measures that may reduce the global warming related impacts of a project. Tables 4.3-4 and 4.3-5 illustrate that the Proposed Ordinance would be consistent with both the GHG reduction strategies set forth by the 2006 CAT Report and the 2008 Attorney General's Greenhouse Gas Reduction Measures.

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

Strategy	Project Consistency
California Air Resources Board	
Vehicle Climate Change Standards AB 1493 (Pavley) required the state to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of climate change emissions emitted by passenger vehicles and light duty trucks. Regulations were adopted by the ARB in September 2004.	Consistent The trucks that deliver carryout bags to and from the Study Area retailers on public roadways would be in compliance with ARB vehicle standards that are in effect at the time of vehicle purchase.
Diesel Anti-Idling The ARB adopted a measure to limit diesel-fueled commercial motor vehicle idling in July 2004.	Consistent Current State law restricts diesel truck idling to five minutes or less. Diesel trucks operating from and making deliveries to Study Area retailers are subject to this state-wide law.
Alternative Fuels: Biodiesel Blends ARB would develop regulations to require the use of 1 to 4% biodiesel displacement of California diesel fuel.	Consistent The diesel vehicles that deliver carryout bags to and from the Study Area on public roadways could utilize this fuel once it is commercially available.
Alternative Fuels: Ethanol Increased use of E-85 fuel.	Consistent Truck drivers delivering carryout bags could choose to purchase flex-fuel vehicles and utilize this fuel once it is commercially available regionally and locally.
Heavy-Duty Vehicle Emission Reduction Measures Increased efficiency in the design of heavy duty vehicles and an education program for the heavy duty vehicle sector.	Consistent The heavy-duty trucks that deliver carryout bags to and from Study Area retailers on public roadways would be subject to all applicable ARB efficiency standards that are in effect at the time of vehicle manufacture.
Achieve 50% Statewide Diversion Goal Achieving the State's 50% waste diversion mandate as established by the Integrated Waste Management Act of 1989, (AB 939, Sher, Chapter 1095, Statutes of 1989), will reduce climate change emissions associated with energy intensive material extraction and production as well as methane emission from landfills. A diversion rate of 48% has been achieved on a statewide basis. Therefore, a 2% additional reduction is needed.	Consistent As of 2006, the Sonoma County Waste Management Agency was diverting 64% of solid waste (CalRecycle, Jurisdiction Diversion/Disposal Rate Summary, Accessed October 2012), thereby complying with the standards established by AB 939. Any disposal of carryout bags would be required to adhere to the existing standards. The Proposed Ordinance would also assist by promoting reusable carryout bags, thus reducing the amount of solid waste generated in the form of single-use carryout bags.
Zero Waste – High Recycling Efforts to exceed the 50% mandate would allow for additional reductions in climate change emissions.	Consistent As described above, the SCWMA currently exceeds the 50% goal. The Proposed Ordinance would assist by promoting reusable carryout bags, thus reducing the amount of solid waste generated in the form of single-use carryout bags. The ordinance would also shift single-use bag consumption from plastic to paper. This would increase recycling of single-use bags because paper bags are recycled by services provided to each residence and workplace in the Study Area. Consumer access to plastic bag recycling opportunities is limited.



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

Strategy	Project Consistency
Energy Commission (CEC)	
Fuel-Efficient Replacement Tires & Inflation Programs State legislation established a statewide program to encourage the production and use of more efficient tires.	Consistent Carryout bag delivery drivers could purchase tires for their vehicles that comply with state programs for increased fuel efficiency.
Alternative Fuels: Non-Petroleum Fuels Increasing the use of non-petroleum fuels in California's transportation sector, as recommended as recommended in the CEC's 2003 and 2005 Integrated Energy Policy Reports.	Consistent Carryout bag delivery drivers could purchase alternative fuel vehicles and utilize these fuels once they are commercially available regionally and locally.

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

Strategy	Project Consistency
Transportation-Related Emissions	
Diesel Anti-Idling Set specific limits on idling time for commercial vehicles, including delivery vehicles.	Consistent Currently, the ARB's Airborne Toxic Control Measure (ATCM) to Limit Diesel-Fueled Commercial Motor Vehicle Idling restricts diesel truck idling to five minutes or less. Diesel trucks delivering carryout bags to Study Area retailers are subject to this state-wide law.
Solid Waste and Energy Emissions	
Solid Waste Reduction Strategy Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.	Consistent As described above, the Sonoma County Waste Management Agency exceeds the 50% mandate and diverts 64% of waste. An objective of the proposed ordinance is to reduce single-use plastic and paper bag waste in landfills. The Proposed Ordinance would require reusable bags to be available for sale at retail establishments and would require paper bags to be made from recyclable material.
Recycling Education Provide education and publicity about reducing waste and available recycling services.	Consistent An objective of the Proposed Ordinance is to reduce single use carryout bag waste and to encourage the use of reusable bags. The proposed ordinance would require reusable and recyclable paper bags to be available at retail establishments and to be labeled as "reusable" or "recyclable" with the percentage of post-consumer recycled content. In addition, the proposed ordinance was introduced to the community in a series of stakeholder meetings intended to inform the public and retailers about the goals of the program as well as soliciting community input. In essence, the Proposed Ordinance provides education about reducing waste and what materials are able to be reused or recycled.

The Proposed Ordinance would be consistent with the applicable strategies suggested the CCAP as discussed in Table 4.3-3. In addition, the Proposed Ordinance would be consistent with the CAT strategies and measures suggested in the Attorney General's Greenhouse Gas Reduction Report as discussed in tables 4.3-4 and 4.3-5. Therefore, the Proposed Ordinance would be consistent with the objectives of AB 32, SB 97, and SB 375 and would be consistent with applicable plans, policies



and regulation adopted for the purpose of reducing the emissions of greenhouse gases. Impacts would be less than significant.

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

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

c. Cumulative Impacts. Adopted and pending carryout bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use carryout bags, and promote a shift toward reusable carryout bags. Similar to the Proposed Ordinance, such ordinances would be expected to generally reduce the overall number of bags manufactured and associated GHG emissions. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally change the GHG emissions associated with bag manufacturing, transportation and disposal. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. However, based on the incremental increase in per capita emissions, the other ordinances are not expected to generate a cumulative increase in GHG emissions. For these reasons, cumulative significant impacts associated with implementation of carryout bag ordinances throughout the state are not anticipated.

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4.4 HYDROLOGY and WATER QUALITY

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

4.4.1 Setting

Single-use bags are manufactured at various facilities, which may or may not be located in Sonoma County. Therefore, impacts to hydrology and water quality are not limited to the local watershed. However, for this analysis the local watershed and hydrologic conditions are discussed and used as an example of the types of effects that may occur as a result of the manufacturing and disposal of bags.

a. Surface Water Drainage and Single-use Bags.

Existing Hydrological Systems. Hydrologically, most land in Sonoma County falls within the three main watersheds: Russian River, Gualala River and San Pablo Bay. In general, watersheds in the northern areas of the county (Gualala River, Austin Creek, Dry Creek, Big Sulphur Creek, and Maacama Creek) consist of mountainous, rugged terrain with little urban development (County of Sonoma 2030 General Plan Water Resources Element, September 23, 2008). Land use in these upper watersheds is predominantly rural, with timber production and grazing being the primary uses. The Coastal and San Pablo Bay watersheds are tidally influenced. The San Pablo Bay watershed, including the Petaluma River and Sonoma Creek, have their headwaters on the steep grass and oak foothills of the Sonoma Mountains and coast range, pass through small valleys where the Petaluma and Sonoma urban areas are located, and open up to wide marshlands that interact with the San Pablo Bay. Land use in these sub-basins is varied and includes agriculture and rural and urban residential use.

Most of central Sonoma County is part of the Russian River watershed and ultimately drains west to the Pacific Ocean. Therefore, trash in Study Area creeks and rivers can ultimately end up in the Pacific Ocean. Central Sonoma County has moderate topography and lies in the ancient alluvial floodplain of the Russian River. Much of the suburban and urban development of Sonoma County is located within these central sub-watersheds, including Healdsburg, Windsor, Santa Rosa, Sebastopol, Rohnert Park and Cotati (County of Sonoma Water Resources Element, September 23, 2008).

Table 4.4-1 lists the watersheds and sub-watersheds in Sonoma County.

Table 4.4-1 Watersheds in Sonoma County

Watershed	Sub-watershed	Size (square miles)
Gualala River		269
	Watershed Total	269
Russian River	Big Sulphur Creek	80
	Maacama Creek	69
	Dry Creek	175
	Mark West Creek	83
	Laguna de Santa Rosa	89
	Green Valley and Atascadero Creeks	37
	Austin Creek	70
	Santa Rosa Creek	81
	Other sub-watersheds	237
	Watershed Total	921
Coastal	North Coast	49
	South Coast	9
	Salmon Creek	37
	Estero Americano	50
	Stemple Creek	22
	Watershed Total	167
San Pablo Bay	Sonoma Creek	170
	Petaluma River	112
	Watershed Total	282

Source: Sonoma County General Plan. Water Resources Element. Adopted September 23, 2008. Retrieved from: <http://www.sonoma-county.org/prmd/gp2020/wre.pdf>.

As shown in Table 4.4-1, there are a total of four watersheds and 16 sub-watersheds located in Sonoma County. Water bodies in Sonoma County that have been identified as impaired are the Russian River, Gualala River, Lake Sonoma, Santa Rosa Creek, Laguna de Santa Rosa, Estero Americano, Stemple Creek, Sonoma Creek, Petaluma River, and San Pablo Bay. Pollutants of concern typically are sediment/siltation, nutrients, pathogens, and temperature but also include low dissolved oxygen, mercury, other metals, herbicides and exotic species.

Single-use Bags. Single-use bags that enter the storm drain system as litter may affect storm water flow by clogging drains and redirecting flow. As described in Section 4.2, *Biological Resources*, typical single-use plastic bags weigh approximately five to nine grams and are made of thin (less than 2.25 mils or 0.00225 inches thick) high density polyethylene (HDPE) (Hyder Consulting, 2007). Post-use from a retail establishment, a customer may reuse a single-use plastic bag at home, but eventually the bags are disposed of in a landfill or recycling facility or discarded as litter. Although some recycling facilities handle plastic bags, most reject them



because they get caught in the machinery and cause malfunctioning, or are contaminated after use. Only about 5% of the plastic bags in California are currently recycled (Green Cities California MEA, 2010; and Boustead, 2007). The majority of single-use plastic bags end up as litter or in the landfill. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may blow away as litter due to their light weight (Green Cities California MEA, 2010). Single-use plastic bags that become litter can enter storm drains and may clog catch basins or be transported to the local watershed, the County's river systems, or the Pacific Ocean.

Single-use paper grocery bags also have the potential to enter the storm drains as litter. However, as described in Section 4.2, *Biological Resources*, because of their weight and recyclability, single-use paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because single-use paper bags are not as resistant to biodegradation, there is less potential to clog catch basins compared to single-use plastic bags. Thus, although single-use paper bag litter may enter storm drains and temporarily affect hydrologic flow of surface water runoff, the potential to enter storm drains and cause long-term hydrologic effects is less than with single-use plastic bags.

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

b. Water Quality and Single-use Bags. The quality of storm water draining into the County's river systems, the San Francisco Bay, and the Pacific Ocean remains a concern for the region. Over time, development and management of natural resources has resulted in erosion, sedimentation and degradation of surface water quality in the Russian River watershed and the other watersheds. Surface water quality concerns in some watersheds include low levels of dissolved oxygen, high temperatures, and high levels of coliform bacteria, ammonia, nutrients, pathogens, metals, herbicides, pharmaceuticals and exotic species. The most effective way to reduce the level of contamination from surface runoff is through the control of pollutants prior to their discharge to the drainage system. Implementation of point source controls has led to substantial increases in the level of treatment and quality of discharges.

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

manufacturing process utilizes “pre-production plastic,” which may also degrade water quality if released either directly to a surface water body or indirectly through storm water runoff.

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

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

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

The U.S. Environmental Protection Agency (EPA) is the primary Federal agency responsible for implementing the CWA. The Regional Water Quality Control Board (RWQCB) is the state agency with primary responsibility for implementing the CWA and the state’s Porter-Cologne Water Quality Act. The RWQCB is also responsible for water quality regulation through its work in preparing and adopting the California Ocean Plan. Local agencies also have responsibility for managing wastewater discharges. All are required to meet criteria set forth in their NPDES permits, monitor their discharges, and submit monthly reports to the RWQCB and the EPA. In Sonoma County, the Sonoma Creek and Petaluma River watersheds are in the Bay Area RWQCB jurisdiction, and the remainder of the county is governed by the North Coast RWQCB.

Assembly Bill (AB) 258 was enacted in 2008 to address problems associated with releasing “preproduction plastic” (including plastic resin pellets and powdered coloring for plastics) into the environment. The bill enacted Water Code Section 13367, requiring the State Water Resource Control Board and RWQCBs to implement a program to control discharges of preproduction plastic from point and nonpoint sources (Green Cities California MEA, 2010). Program control measures must, at a minimum, include waste discharge, monitoring, and reporting requirements that target plastic manufacturing, handling, and transportation facilities. The program must, at a minimum, require plastic manufacturing, handling, and transportation facilities to implement best management practices to control discharges of preproduction

plastics. This includes containment systems, careful storage of pre-production plastics, and the use of capture devices to collect any spills.

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

“State and Regional Water Board staff has conducted and are continuing to conduct compliance inspections of various types and scales of preproduction plastic manufacturing, handling, and transport facilities enrolled under California's Industrial General Permit (IGP) for storm water discharges...Collectively these inspections will help State and Regional Water Board staff to develop cost-effective regulatory approaches (including compliance-evaluation procedures and appropriate best management practices) for addressing this pollution problem.

“The State Water Board has issued an investigative order to all plastic-related facilities enrolled under the IGP to provide the State Water Board with critical information needed to satisfy the legislative mandates in AB 258 (Krekorian). Facilities subject to this order must complete an online evaluation and assess their points of potential preproduction plastics discharge and means of controlling these discharges. Data gathered as a result of this effort will be used to help the State Board understand the California plastics industry and ultimately develop appropriate regulation of these facilities to ensure compliance with the Clean Water Act.”

The cooperative NPDES permit with the City of Santa Rosa, County of Sonoma, and the Sonoma County Water Agency (SCWA) includes unincorporated areas near the cities of Santa Rosa, Healdsburg, Windsor, Sebastopol, Rohnert Park, and Cotati. Another NPDES municipal permit program has been established for the Petaluma and Sonoma areas in the south part of the County. Similar approaches to controlling stormwater pollution are being developed in the county's Coastal Zone in response to California Coastal Commission policies. The requirements for NPDES permits now include the “California Toxics Rule” and State and Federal criteria for metals, pesticides and other pollutants that could affect aquatic life and human health.

Municipalities are required to obtain Municipal Separate Storm Sewer Systems (MS4s) Permits which regulate storm water discharges. MS4 permits are issued by Regional Water Quality Control Boards (RWQCB) and are usually issued to a group of co-permittees encompassing an entire metropolitan area. Since Sonoma County has two major watersheds regulated by two RWQCBs, the County has two MS4 permits.

One municipal permit is a Phase I MS4 Permit for municipalities serving more than 100,000 people and is administered by the North Coast RWQCB. The County of Sonoma is a co-permittee with the City of Santa Rosa and the Sonoma County Water Agency for the Phase I boundary which includes the City of Santa Rosa and unincorporated areas near the cities of Healdsburg, Windsor, Santa Rosa, Rohnert Park, Cotati, and Sebastopol.

The other municipal permit is a Phase II General MS4 Permit for municipalities serving between 10,000 and 100,000 people and is administered by the San Francisco Bay RWQCB. The County of Sonoma is a co-permittee with the Sonoma County Water Agency for the Phase II boundary which includes the unincorporated areas near the cities of Petaluma and Sonoma.



The MS4 permits require the discharger to develop and implement a Storm Water Management Program with the goal of reducing the discharge of pollutants to the maximum extent practicable, which includes a trash load reduction requirement of 40%. The County has developed a Storm Water Management Plan for each of the two MS4 Permits which specifies what Best Management Practices (BMPs) will be used to address certain program areas. The program areas include public education and outreach, illicit discharge detection and elimination, construction activities, post-construction storm water management, and good housekeeping for municipal operations (County of Sonoma Permit and Resource Management Department, October 2012). To help protect and enhance the water quality of the County's watercourses, Sonoma County developed a Storm Water Ordinance (Ordinance No. 5819, § 6, 12-9-2008) which prohibits the release of polluted storm water to the County's storm drain system.

4.4.2 Impact Analysis

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

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

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



b. Project Impacts and Mitigation Measures.

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

As a result of the Proposed Ordinance, an estimated 95% of the single-use plastic bags currently used annually in the Study Area (258,602,841 plastic bags per year) would be replaced by an estimated 77.6 million recycled paper bags and approximately 3.2 million reusable bags. About 12.9 million single-use plastic bags are expected to remain in circulation (refer to Table 2-2 in Section 2.0, *Project Description*). This represents a 36% reduction in the overall number of carryout bags used annually within the Study Area.

Each type of single-use bag's potential to become litter is based on the bag's weight, material and quantity of bags used. As described in Impact BIO-1 in Section 4.2, *Biological Resources*, the majority of single-use plastic bags end up as litter or in the landfill. Even those collected by recycling and solid waste trucks and handled at transfer stations and landfills may blow away as litter due to their light weight (Green Cities California MEA, 2010). Single-use plastic bags that become litter may enter storm drains from surface water runoff or may be blown directly into local waterways by the wind. Single-use plastic bag litter that enters the storm drain system can block or clog drains resulting in contamination (Green Cities California MEA, 2010). Based on statewide data that currently almost 20 billion plastic grocery bags (or approximately 531 bags per person) are consumed annually in California (Green Cities California MEA, 2010), Study Area retail establishments currently use an estimated 258,602,841 single-use plastic carryout bags per year. The 36% reduction in the overall number of carryout bags used within the Study Area anticipated to result from implementation of the Proposed Ordinance is expected to have a commensurate reduction in the potential for carryout bags to enter and clog area storm drains.

Like single-use plastic bags, single-use paper grocery bags have the potential to enter storm drains and local waterways as litter. However, as described in Impact BIO-1 in Section 4.2, *Biological Resources*, due to their weight and recyclability, single-use paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because single-use paper bags are not as resistant to breakdown, they would be less likely to block or clog drains compared to single-use plastic bag. Therefore, paper bags would be less likely to result in storm drain blockage or contamination.

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

As described above and in Section 4.1, *Air Quality*, and Section 4.3, *Greenhouse Gas Emissions*, the Proposed Ordinance is anticipated to reduce the overall amount of single-use bags used in the Study Area by approximately 165 million bags annually. Therefore, the Proposed Ordinance would be expected to reduce the amount of litter that could enter storm drains and local waterways, thus improving water quality and reducing the potential for storm drain blockage.

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

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

Impact HWQ-2 A shift toward reusable bags and potential increase in the use of recyclable paper bags could increase the use of chemicals associated with their production, which could degrade water quality in some instances and locations. However, bag manufacturers would be required to adhere to existing regulations, including NPDES Permit requirements, AB 258, and the California Health and Safety Code. Therefore, impacts to water quality from altering bag processing activities would be Class III, *less than significant*.

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

The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single-use plastic carryout bags and promote a shift toward the use of reusable bags. The Proposed Ordinance is anticipated to reduce the overall number of single-use plastic bags used in the Study Area by 95% and reduce the use of all types of bags (including plastic, single-use paper, and reusable) by an estimated 36%. These shifts in the types and amounts of bags used could potentially alter processing activities related to bag production. The manufacturing impacts of each bag type and the anticipated changes in use are described below.

Single-use Plastic Bags. Conventional single-use plastic bags are a product of the petrochemical industry and are typically produced by independent manufacturers who purchase virgin resin from petrochemical companies or obtain non-virgin resin from recyclers



or other sources. Single-use plastic bags begin the manufacturing process with the conversion of crude oil or natural gas into hydrocarbon monomers, which are then further processed into polymers. These polymers are heated to form plastic resins, which are then blown through tubes to create the air pocket of the bag. Once cooled, the plastic film is stretched to the desired size of the bag and cut into individual bags (Green Cities California MEA, 2010). As described in Section 4.4.1 (d), *Regulatory Setting*, the plastic resin pellets are a concern when accidentally released (from spilling into storm drains during use or transport) into aquatic environments.

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

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

Single-use Paper Bags. The majority of single-use paper bags are made from kraft paper bags, which are manufactured from a pulp that is produced by digesting a material into its fibrous constituents via chemical and/or mechanical means. Kraft pulp is produced by chemical separation of cellulose from lignin. Chemicals used in this process include caustic sodas, sodium hydroxide, sodium sulfide, and chlorine compounds (Green Cities California MEA, 2010). Processed and then dried and shaped into large rolls, the paper is then printed, formed into bags, baled, and then distributed to grocery stores. Although it does not directly discharge pollutants, the paper bag manufacturing process may utilize fertilizers, pesticides and other chemicals in the production of resources such as pulp. These pollutants may increase the potential for higher concentrations of trace metals, biodegradable wastes (which affect dissolved oxygen levels), and excessive major nutrients such as nitrogen and phosphorus, causing eutrophication as a result of surface water runoff. A single-use paper bag has 14 times the impact of one single-use plastic bag on eutrophication, which is caused when nitrate and phosphate are emitted into water, stimulating excessive growth of algae and other aquatic life (Green Cities California MEA, 2010). Eutrophication reduces the water quality and causes a variety of problems such as a lack of oxygen in the water (Green Cities California MEA, 2010). However, direct discharges of pollutants into waters of the United States are not allowed, except in accordance with the National Pollutant Discharge Elimination System (NPDES) program established in Section 402 of the Clean Water Act (CWA).

Paper bag manufacturers are required to comply with the local plans and policies of the SWRCB and the RWQCB, which regulate discharges to surface and groundwater, regulate waste disposal sites, and require cleanup of discharges of hazardous materials and other pollutants. For example, in Sonoma County, paper bag manufacturers would be required to adhere to the

County's Storm Water Management Plan (developed for each of the two MS4 Permits) BMPs to reduce the presence of pollutants in stormwater discharges to the maximum extent practicable. Paper bag manufacturing facilities would be required to implement BMPs, reducing the likelihood that pollutants would enter storm drains and other aquatic environments. There are, however, no known bag manufacturers in Sonoma County.

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

As with other types of bags, reusable bag manufacturers would not be allowed to directly discharge pollutants into waters of the United States, except in accordance with the NPDES program established in Section 402 of the CWA. Reusable bag manufacturers may be required to obtain an "Individual" NPDES Permit and/or would need to adhere to an existing "General" NPDES Permit of the local area. An Individual NPDES permit regulates and limits the particular discharge at the manufacturing facility. The permit limits are based on the type of activity, nature of discharge and receiving water quality. Manufacturing facilities would need to apply for and obtain a permit prior to the start of manufacturing operations. In addition, as part of the Individual Permit, a manufacturing facility would be required to monitor and report its discharges to the local Regional Water Quality Control Board to demonstrate that the facility's discharges are not in violation of any water quality standards.

Manufacturing facilities would also be required to adhere to existing General Permits that specify local discharge requirements for municipal storm water and urban runoff discharges. For example, in the County of Sonoma, single-use paper bag manufacturers and reusable bag manufacturers would be required to adhere to the County's Stormwater Management Plan (developed for each of the two MS4 Permits) which specifies BMPs to reduce the presence of pollutants in stormwater discharges to the maximum extent practicable.

Although reusable bags may utilize various materials, reusable bag manufactures who utilize plastics in their production (for example, production of LPDE reusable bags) would also be required to adhere to pending requirements specified in AB 258, which addresses the release of

“preproduction plastics” as described in Section 4.4.1 (d), *Regulatory Setting*. In addition, the California Health and Safety Code (Section 25531-25543.3) establishes a program for the prevention of accidental releases of regulated substances. With adherence to Health and Safety Code Section 25531-25543.3, reusable bag manufacturing facilities would be required to prepare and update a Risk Management Plan (RMP). This would further reduce the potential for a release of substances that may be washed into and through the storm drainage systems, local waterways, the San Francisco Bay, and ultimately to the Pacific Ocean.

Anticipated Changes in Bag Use. Based on a cost requirement of at least \$0.10 per bag, as outlined in Section 2.0, *Project Description*, it is assumed in this analysis that the total volume of plastic bags currently used in the Study Area (approximately 258,602,841 plastic bags per year) would be replaced by recycled paper bags (or 77,580,852 paper bags or 30% of the total) and reusable bags (or 3,232,536 reusable bags or 65% of the total) as a result of the Proposed Ordinance (refer to Table 2-2 in Section 2.0, *Project Description*). It is assumed that 5% of the existing total of single-use plastic bags used in the Study Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute plastic bags (e.g. restaurants) and these retailers would continue to distribute single-use bags after the Proposed Ordinance is implemented.

Although the Proposed Ordinance would be expected to incrementally increase demand for the manufacturing of recycled paper bags and reusable bags, it would also reduce demand for single-use plastic carryout bags by approximately 165 million bags per year. With implementation of the Proposed Ordinance, approximately 94 million single-use bags (including single-use paper, single-use plastic, and reusable bags) would be manufactured for use in the Study Area – a decrease of 36% compared to existing conditions. Consequently, the Proposed Ordinance would reduce the overall impacts to water quality associated with bag manufacturing. Furthermore, as described above, manufacturing facilities would be required to adhere to existing federal, state and local regulations. Therefore, impacts to water quality related to the potential change of processing activities as a result of the Proposed Ordinance would not be significant.

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

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

c. Cumulative Impacts. Adopted and pending bag ordinances, as described in Table 3-1 in Section 3.0, *Environmental Setting*, would continue to reduce the amount of single-use bags, and promote a shift toward reusable bags. As discussed above, the hydrology and water quality impacts associated with the Proposed Ordinance are not considered significant and are generally considered beneficial. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. These ordinances would be expected to result in similar reductions in the amount of litter entering

storm drains, local creeks or watersheds, thereby improving water quality. In addition, the overall reduction in bag manufacturing expected to occur as a result of implementation of these ordinances would be expected to generally reduce water quality impacts associated with bag manufacturing. In addition, all recycled paper and reusable bag manufacturing facilities would be required to comply with applicable regulatory requirements pertaining to preservation of water quality, including AB 258 and the California Health and Safety Code, as discussed in Impact HWQ-2. For these reasons, cumulative significant impacts associated with implementation of bag ordinances throughout the state are not anticipated.

4.5 UTILITIES AND SERVICE SYSTEMS

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

4.5.1 Setting

a. Water Supply. Sonoma County's water supply comes from both groundwater and surface water sources. The Sonoma County Water Agency (SCWA) acts as a water wholesaler, providing drinking water to a majority of the County's population in both cities and unincorporated areas. Some water districts in unincorporated areas provide water exclusively from local groundwater sources. SCWA's Russian River Project provides the single largest source of water in Sonoma County. Other large water systems in the unincorporated areas of the county include those serving such communities as Bodega Bay, Sea Ranch, Occidental, Geyserville, Larkfield, Camp Meeker, Kenwood, and Guerneville.

The Russian River water supply system stores runoff, from rainfall in the Russian River watershed, in the Lake Mendocino and Lake Sonoma reservoirs, diverts it from large collector wells beside the Russian River, and transmits it primarily to the Cities of Santa Rosa, Petaluma, Rohnert Park, Cotati, and Sonoma, the Town of Windsor, Sonoma County Airport Industrial Area, the unincorporated Forestville and Valley of the Moon areas, and the North Marin Water District (County of Sonoma General Plan Water Resources Element, September 23, 2008). Local groundwater often supplements the allotment these cities and districts receive from the SCWA.

While the Russian River is the primary source of domestic water for the county's urban areas, most rural areas are served by groundwater. There are four main groundwater basins in Sonoma County: Sonoma Valley (a sub-basin of the Napa-Sonoma Valley Basin), Alexander Valley, Santa Rosa Valley, and Petaluma Valley (SCWA 2010 Urban Water Management Plan, June 2011). SCWA operates three groundwater supply wells located in the Santa Rosa Plain sub-basin of the Santa Rosa Valley Basin. The Santa Rosa Valley Basin has not been identified by the California Department of Water Resources as in a state of overdraft and none of the groundwater basins in the county are adjudicated (SCWA 2010 Urban Water Management Plan, June 2011).

It should be noted that individual cities in Sonoma County have local sources of groundwater that is used primarily to supplement supplies from the SCWA. Although cities in Sonoma County may have additional sources of groundwater not supplied by SCWA, the following discussion is based on SCWA water supplies as a conservative approach to water supply in the county. Table 4.5-1 shows the existing (2010) water supply along with the SCWA's supply projections.

**Table 4.5-1
Current and Projected SCWA Water Supplies (AFY)***

Water Supply Sources	2010	2015	2020	2025	2030	2035
SCWA produced groundwater	2,300	2,300	2,300	2,300	2,300	2,300
SCWA surface water diversions	75,000	75,000	75,000	75,000	80,000	80,000
Total	77,300	77,300	77,300	77,300	82,300	82,300

Source: SCWA 2010 Urban Water Management Plan, June 2011.

**AFY=acre-feet per year*

As shown in Table 4.5-1, the total existing water supply from SCWA is approximately 77,300 AFY through the year 2025 and is projected to be approximately 82,300 AFY in 2030 and 2035 (or approximately 5,000 AFY more than current conditions).

Water Use Associated with Single-Use Plastic Carryout Bags. Various studies have estimated water use related to manufacturing of the different carryout bags (single-use plastic, paper or reusable bags) to determine a per bag water use rate. In order to provide metrics to determine environmental impacts associated with the Proposed Ordinance, reasonable assumptions based upon the best available sources of information have been utilized. Specific metrics that compare impacts on a per bag basis are available for single-use plastic, single-use paper, and low density polyethylene (LDPE) reusable bags. However, water use for paper bags varies depending on which Life Cycle Assessment (LCA) data is utilized. The Ecobilan LCA study determined that per 9,000 liters of groceries, the manufacturing of plastic bags uses 52.5 liters of water, paper bags use 173 liters of water, and reusable bags (used 52 times) use 1.096 liters of water (Ecobilan, 2004; County of Los Angeles Final EIR, 2010). Similarly, though using slightly different assumptions and data, the Boustead LCA study determined that the manufacturing of carryout bags would require approximately 58 gallons of water for 1,500 plastic bags and approximately 1,004 gallons of water for 1,000 paper bags (assuming that one paper bag could carry the same quantity of groceries as 1.5 plastic bags). The Boustead data does not include estimates for reusable bags.

Utilizing the data from these two different studies, Tables 4.5-2 and 4.5-3 summarize the existing water use associated with the manufacture of single-use plastic bags used in the Study Area.

**Table 4.5-2
Current Water Consumption Associated with Single-Use Plastic Carryout Bags Based on Ecobilan Data**

Number of Single-Use Plastic Carryout Bags**	Water Consumption		
	Liters of Water per 9,000 liters of Groceries	Gallons of Water Per Day*	Millions of Gallons per Year
258,602,841	52.5	15,314	5.95

*Calculations are contained in the Utility Worksheets contained in Appendix C

** See Appendix C for the calculations.

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; Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010).

**Table 4.5-3
Current Water Consumption Associated with Single-Use Plastic Carryout Bags Based on Boustead Data**

Number of Single-Use Plastic Carryout Bags**	Water Consumption		
	Gallons of Water per 1,500 plastic bags	Gallons of Water Per Day*	Millions of Gallons per Year
258,602,841	58	27,395	9.99

*Calculations are contained in the Utility Worksheets contained in Appendix C

** See Appendix C for the calculations.

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; Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010).

Based on the Ecobilan LCA data, water demand associated with the manufacture of the approximately 259 million single-use plastic carryout bags currently used in the Study Area is approximately 5.95 million gallons per year or 15,314 gallons per day (0.015314 million gallons per day (MGD)). Based on the Boustead LCA data, water demand associated with the manufacture of the approximately 259 million single-use plastic carryout bags used in the Study Area is approximately 27,395 gallons per day (0.00999 MGD).

No known plastic bag manufacturing facilities are located within Sonoma County; therefore, water demand associated with plastic single-use carryout bag manufacturing does not directly affect the existing water supply in the County.

b. Wastewater Collection and Treatment. The SCWA manages and operates eight different sanitation districts and zones throughout the county (Sonoma County Water Agency, October 2012). The following is a list of the eight sanitation districts managed by the SCWA.

- 1) Occidental County Sanitation District
- 2) Russian River County Sanitation District
- 3) Sonoma Valley County Sanitation District
- 4) South Park County Sanitation District
- 5) Airport/Larkfield/Wikiup Sanitation Zone
- 6) Geyserville Sanitation Zone



- 7) Penngrove Sanitation Zone
- 8) Sea Ranch Sanitation Zone

Wastewater collection, treatment, and disposal within the Sonoma County Water Agency service area is the responsibility of six main wastewater treatment plants owned by: Forestville Water District, Novato Sanitary District, City of Petaluma (Ellis Creek Wastewater Treatment Plant), Santa Rosa Subregional Reclamation System (Subregional System), Sonoma Valley County Sanitation District, and the Town of Windsor Water Reclamation Division. The Subregional System and the Town of Windsor Water Reclamation Division both export some of their treated wastewater to the Geysers Recharge Project. The wastewater facilities owned by the Sonoma Valley County Sanitation District are operated and maintained under contract by the Sonoma County Water Agency. The Water Agency also operates other wastewater treatment facilities in the region including the Airport-Larkfield-Wikiup Sanitation Zone's Treatment Plant (ALWSZ) and the Occidental Sanitary Zone Treatment Plant.

Table 4.5-4 summarizes the various wastewater treatment plants, the cities they serve and the existing capacity at the plants.

Table 4.5-4
Current Treatment Plants, Flow and Remaining Capacity in the Study Area

Treatment Plant	Cities Served in Study Area	Existing Flow (mgd)	Existing Capacity (mgd)	Remaining Capacity (mgd)
Sonoma Valley Wastewater Treatment Plant	City of Sonoma and the unincorporated areas of Agua Caliente, Boyes Hot Springs, Eldridge, Fetters Hot Springs, Glen Ellen, Schellville, Temelec, and Vineburg.	2.7	3	0.3
Laguna Treatment Plant	Santa Rosa, Cotati, Sebastopol, and Rohnert Park	17.5	21	3.5
Healdsburg Wastewater Treatment Plant	Healdsburg	1.6	4	2.4
Ellis Creek Water Recycling Facility	Petaluma and unincorporated Penngrove	5	6.7	1.7
Russian River County Sanitation District Treatment Plant	Unincorporated areas of Rio Nido, Guerneville, Guernewood Park, and Vacation Beach	0.5	0.71	0.21
Windsor Water Reclamation Plant	Town of Windsor	1.6	7.2	5.6
Occidental Sanitary Zone Treatment Plant	Occidental	0.02	0.05	0.03
Airport/Larkfield/Wikiup Sanitation Zone Treatment Plant	Santa Rosa	0.6	0.9	0.3
Total		29.5	43.6	14.0

mgd = million gallons per day of wastewater

Source: SCWA, October 2012; City of Santa Rosa, October 2012; City of Healdsburg, October 2012; Town of Windsor, October 2000; City of Petaluma, May 2008; Personal Communication, Ken Ross, Town of Windsor Water Reclamation Plant, October 24, 2012; Personal Communication, Brad Sherwood, Sonoma County Water Agency, October 30, 2012.



As shown in Table 4.5-4, wastewater treatment plants in the Study Area have an existing capacity of approximately 43 million gallons per day and currently treat approximately 29 million gallons per day. Thus, for the Study Area, the existing remaining capacity for all treatment plants listed in Table 4.5-4 is approximately 14 million gallons per day.

Wastewater Generation Associated with Single-Use Plastic Carryout Bags. Various studies have estimated wastewater generation associated with the manufacture of different types of carryout bags (single-use plastic, paper or reusable bags) to determine a per bag wastewater use rate. The Ecobilan study determined that per 9,000 liters of groceries, the manufacture of plastic bags would generate 50 liters of wastewater, while the manufacture of paper bags would generate 130.7 liters of wastewater and the manufacture of reusable bags (used 52 times) would generate 2.63 liters of wastewater. Based on the Ecobilan data, Table 4.5-5 displays the existing wastewater generation associated with the manufacture of the approximately 259 million plastic bags currently used in the Study Area annually. As shown, the manufacturing of plastic bags currently generates approximately 14,557 gallons of wastewater per day (or 0.00531 MGD). Since no known manufacturing facilities are located in the Study Area, wastewater generation associated with single-use plastic carryout bag use does not directly affect any Study Area wastewater conveyance or treatment facilities.

Table 4.5-5
Current Wastewater Generation Associated with Single-Use Plastic
Carryout Bags Based on Ecobilan Data

Number of Plastic Bags**	Wastewater		
	Liters of Wastewater per 9,000 liters of Groceries	Gallons of Water Per Day*	Millions of Gallons per Year
258,602,841	50	14,557	5.31

*Calculations are contained in the Utility Worksheets contained in Appendix C

** See Appendix C for the calculations.

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; and Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010).

c. Solid Waste. The County of Sonoma owns and operates one landfill and owns and contracts the operation of five transfer stations that provide service to its residents. The Central Landfill and the Central Transfer Station are located within the Central Disposal Site. In 2001, the Central Landfill was expanded to provide sufficient capacity for solid waste disposal through 2015. There is, however, the possibility of expanding the facility and postponing its closure further into the future (City of Petaluma General Plan, May 2008).

The main solid waste disposal site for Sonoma County is the Central Landfill, located at 500 Meacham Road in Petaluma California (County of Sonoma General Plan, September 23, 2008). A number of other landfill disposal facilities throughout the County have been phased out or closed, and the majority of solid waste generated within Sonoma County is disposed of at the Central Landfill. Currently, the County has an agreement with Redwood Empire Disposal for operations of the five transfer stations and for out haul of the County's solid waste to Recology's Hay Road Landfill, located in Solano County (Personal Communication, Patrick



Carter, Sonoma County Waste Management Agency, October 25, 2012). As shown in Table 4.5-6 below, the Central Landfill has a permitted daily throughput of 1,000 tons per day¹, an estimated daily throughput of 600 tons per day, and an estimated remaining capacity of 400 tons per day (CalRecycle, October 18, 2012).

Solid waste generated in the nine incorporated jurisdictions is taken primarily to the Central Landfill or the Hay Road Landfill. However, solid waste generated within the City of Petaluma is also taken to the Redwood Landfill, located in Marin County.

Table 4.5-6 summarizes the permitted throughput, estimated capacity, and estimated closure date for facilities that serve the Study Area.

**Table 4.5-6
Solid Waste Disposal Facilities**

Facility	Permitted Daily Throughput (tons/day)	Estimated Daily Throughput (tons/day)	Estimated Remaining Capacity (tons/day)
Central Landfill	1,000	600	400
Redwood Landfill	1,200	498	702
Central Transfer Station	1,500	817	683
Annapolis Transfer Station	99	17	82
Guerneville Transfer Station	160	61	99
Healdsburg Transfer Station	720	214	506
Sonoma Transfer Station	760	133	627
Recology Hay Road Landfill	1,200	800	400
Total	6,639	3,140	3,499

Source: California Department of Resources Recycling and Recovery (CalRecycle), <http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx> accessed on October 18, 2012; Personal Communication County of Solano Department of Resource Management, October 30, 2012; Personal Communication County of Marin Environmental Health Services, October 24, 2012; County of Sonoma Department of Health Services, Personal Communication, November 2, 2012.

¹ The Central Disposal Site and the Central Transfer Station combined are permitted to receive up to 2,500 tons per day. The Central Transfer Station acts as a "tipping floor," in which trucks drive to the station and dump the waste on the floor, which is then put in piles, some is recycled and the remainder is compacted and disposed of at the Central Disposal Site. The amount of tonnage the Central Transfer Station was permitted to haul was expanded to 1,500 tons per day as the Central Disposal Site is being expanded. The Central Transfer Station is operating under a five year permit, once the Central Disposal Site is fully expanded the maximum permitted tonnage received at this transfer station will likely be much smaller. Therefore, the maximum of 2,500 tons per day permitted at the Central Disposal Site and the Central Transfer Station has been divided into the 1,500 tons per day permitted at the Central Transfer Station and the remaining 1,000 tons per day would be permitted at the Central Disposal Site.



As shown in Table 4.5-6, all the landfills and transfer stations in the Study Area have an estimates remaining capacity of approximately 3,499 tons per day. All cities in the Study Area are required to comply with State Law AB 939, which required every city in California to reduce the waste it sends to landfills by 50% by the year 2000. As of 2006, Sonoma County was diverting approximately 64% of their solid waste (Sonoma County Waste Management Agency, Waste Stream Profiles, Accessed October 2012), thereby complying with the standards established by AB 939.

Solid Waste Generation Associated with Single-use Plastic Carryout Bags. Various studies have estimated solid waste rates related to the different types of carryout bags (single-use plastic, paper or reusable bags) to determine a per bag solid waste rate. Using EPA recycling rates and the Ecobilan data, it was determined that a plastic bag would generate .0065 kilograms (kg) of solid waste per bag, while a paper bag would generate 0.0087 kg of waste per bag, and a reusable bag (used 52 times) would generate 0.001 kg of waste per bag. Similarly, using the Boustead data along with EPA recycling rates, it was determined that plastic bags would produce 0.004 kg of waste per bag, while a paper bag would result in 0.021 kg of waste per bag. The Boustead data does not estimate the solid waste from reusable bags. Tables 4.5-7 and 4.5-8 estimate the amount of solid waste associated with plastic bags currently used in the Study Area based on the Ecobilan and Boustead studies.

As shown in Table 4.5-7, based on current EPA recycling rates and the Ecobilan data, the use of single-use plastic carryout bags within the Study Area generates approximately 5.09 tons of solid waste per day, or 1,860 tons per year. Based on the Boustead data (Table 4.5-8), the use of single-use plastic carryout bags within the Study Area generates approximately 3.23 tons of solid waste per day, or 1,179 tons per year.

Table 4.5-7
Current Solid Waste Associated with Single-use Plastic Carryout Bags
Based on Ecobilan Data

Number of Single-Use Plastic Carryout Bags**	Solid Waste		
	Solid Waste per Bag (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
258,602,841	0.0065	5.09	1,860

*Calculations are contained in the Utility Worksheets contained in Appendix C

** See Appendix C for the calculations.

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; and Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010. .



**Table 4.5-8
Current Solid Waste Generation Associated with Single-use Plastic Carryout Bags
Based on Boustead Data**

Number of Single-Use Plastic Carryout Bags	Solid Waste		
	Solid Waste per Bag (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
258,602,841	0.004	3.23	1,179

*Calculations are contained in the Utility Worksheets contained in Appendix C

** See Appendix C for the calculations.

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; and Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010. .

4.5.2 Impact Analysis

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

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

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

The Initial Study (Appendix A) determined that all of the above criteria should be discussed in this EIR except for criteria three, which was determined to result in no impact as the Proposed Ordinance would incrementally improve the effectiveness of the stormwater drainage systems in the Study Area. Impacts related to water, wastewater, and solid waste are discussed below.



b. Project Impacts and Mitigation Measures

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

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

In addition to water use from manufacturing carryout bags, the Proposed Ordinance may result in increased water use as reusable bags would be machine washable or made from a material that can be cleaned or disinfected, as required by the Proposed Ordinance. Washing reusable bags used in the Study Area would utilize the water supplies of that municipality. It is anticipated that most bag users would simply include reusable bags in wash loads that would occur with or without the bags. Nevertheless, in order to provide a conservative estimate for project impacts to water usage, this analysis assumes that the demand for water in the Study Area would increase in order to maintain the hygiene of reusable bags, where bags are cleaned by washing machines or rinsing by hand. This analysis assumes that approximately half of the reusable bags would be cleaned by rinsing and sanitizing and the other half would be machine washed. Assuming that all new reusable carryout bags require monthly cleaning in either a washing machine or by rinsing, the total increase in Study Area water demand (as shown in Table 4.5-9) would be approximately 185 AFY.

**Table 4.5-9
Water Use From Reusable Bag Cleaning**

# of Additional Reusable Bags from Proposed Ordinance that Require Washing ¹	Number of times washed per year (monthly) ²	# bags per Wash Load ³	# of Loads per Year	Gallons of Water per Wash Load*	Total Gallons per Year	Acre Feet Year (AFY)
1,616,268	12	19	1,020,801	40	40,832,040	125.30
1,616,268	12	N/A	N/A	1	19,395,216	59.52
Total						184.82

¹ Assumes that 50% of reusable bags would be machine washed and 50% would be hand washed/sanitized.

² Assumes that each bag is washed once a month.

³ Assumes an average washer capacity of 8 pounds per load and 6.8 ounces per bag (as measured on 8/10/2010 by Rincon Consultants, Inc.)

*Source: California Energy Commission: Consumer Energy Center, 2010; City of Santa Monica Carryout Bag Final EIR, January 2011.



As stated above in the Setting, the total existing water supply of SCWA, which serves the entire Study Area, is approximately 77,300 AFY through the year 2025 and is projected to be approximately 82,300 AFY in 2030 and 2035 (or approximately 5,000 AFY more than current conditions). Based on the water supply estimates for the Study Area, the conservative estimate for additional water demand associated with reusable bag washing would represent approximately 0.24% of the current supply through 2025 and 0.22% of the anticipated supply in 2030 and 2035. Thus, the potential increase in water demand due to implementation of the Proposed Ordinance is within the capacity of the water supplies of the Study Area and would result in a less than significant impact. Furthermore, the estimated water demand associated with implementation of the Proposed Ordinance is very conservative, as it assumes that 50% of reusable bags would be washed in separate washing machine loads rather than included in existing wash loads.

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

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

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

Although the Proposed Ordinance would not result in additional sewer connections or an increase in the service population, it may incrementally increase water use associated with washing reusable bags and, therefore, may incrementally increase Study Area wastewater generation. As stated above in the Setting, the existing remaining capacity for all treatment plants listed in Table 4.5-4 is approximately 14 million gallons per day.

The manufacture of single-use carryout bags produces wastewater (as described above in the Setting); however, because there are no known manufacturing facilities located within Sonoma County, the use of single-use plastic carryout bags does not currently affect wastewater conveyance or treatment facilities serving the Study Area.

The use of reusable bags within the Study Area would, however, require periodic washing of bags for hygienic purposes. Assuming that 100% of the water used to wash reusable bags would become wastewater, approximately 185 AFY per year (60,227,256 gallons) or approximately 165,006 gallons per day would enter the sewer system and require treatment at the Study Area's treatment plants. 165,006 gallons per day represents approximately 1.2% of the available remaining capacity (approximately 14 MGD) at all Study Area treatment plants and would not exceed the remaining capacity at any of the treatment plants. Thus, there is adequate capacity to treat the additional wastewater that would result from the Proposed Ordinance and no new facilities would be necessary. Impacts would be less than significant.

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

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

Impact U-3 The Proposed Ordinance would alter the solid waste generation associated with increased paper bag use in the Study Area. However, projected future solid waste generation would remain within the capacity of regional landfills. Impacts would therefore be Class III, less than significant.

Solid waste generated within the Study Area is primarily taken to the Central Landfill. However, solid waste generated within the City of Petaluma is also taken to the Redwood Landfill, located in Marin County. Other landfills that have received solid waste generated in Sonoma County in the past include the Keller Canyon Landfill and the Potrero Landfill, located in Contra Costa County and Solano County, respectively (City of Santa Rosa General Plan, November 3, 2009).

The Proposed Ordinance does not involve any physical development. However, use of carryout bags would require disposal at the end of use and would incrementally increase existing solid waste generation. Tables 4.5-10 and 4.5-11 estimate the anticipated change in solid waste generation that would result from the Proposed Ordinance using the Ecobilan (Table 4.5-10) and the Boustead (Table 4.5-11) data.

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

Type of Bags	Number of Bags	Solid Waste		
		Solid Waste per Bag per day (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
Plastic	12,930,142	0.0065	0.25	92.97
Paper	77,580,852	0.0087	2.04	746.53
Reusable (used 52 times)	3,232,536	0.001	0.00008	0.02954
Total			2.29	839.53
Existing			5.09	1,860
Net Change (Total minus Existing)			(2.80)	(1,020.47)

*Calculations are contained in the Utility Worksheets contained in Appendix C

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; and Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#200911104, November 2010.

See Appendix C for Solid Waste for individual municipalities' bag use



**Table 4.5-11
Solid Waste Due to Carryout Bags Based on Boustead Data**

Type of Bags	Number of Bags	Solid Waste		
		Solid Waste per Bag per day (kg)	Solid Waste Per Day (tons)*	Solid Waste per Year (tons)
Plastic	12,930,142	0.004	0.161	58.93
Paper	77,580,852	0.021	5.02	1,832
Total			5.18	1,890.93
Existing			3.23	1,179
Net Change (Total minus Existing)			1.95	711.93

*Calculations are contained in the Utility Worksheets contained in Appendix C
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; and Ordinances to Ban Plastic Carryout Bags in Los Angeles County FEIR (SCH#2009111104, November 2010).

**Please note that the Boustead data does not estimate solid waste from reusable bags.
See Appendix C for Solid Waste for individual municipalities' bag use

As shown in Table 4.5-10, based on the Ecobilan data, the Proposed Ordinance would result in a reduction of approximately 1,020 tons per year of solid waste. However, based on the Boustead data, there would be an increase of approximately 712 tons per year of solid waste, primarily due to the projected increase in paper bag use.

Based on the “worst case” scenario (the Boustead data in Table 4.5-11), the increase of solid waste (1.95 tons per day) represents less than 0.06% of the estimated remaining daily capacity at all of the landfills and transfer stations that serve the Study Area. Therefore the increase in solid waste, based on the “worst case” scenario, would not exceed the estimated remaining daily capacity for any of the Study Area landfills or transfer stations, including the Central Disposal Site (estimated remaining daily capacity of 400 tons/day), Hay Road Landfill (estimated remaining daily capacity of 400 tons/day), the Central Transfer Station (estimated remaining daily capacity of 683 tons/day), or the Sonoma Transfer Station (estimated remaining daily capacity of 627 tons/day) . Therefore, the impact to solid waste facilities as a result of the Proposed Ordinance would be less than significant.

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

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

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

Water. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase water use associated with washing of reusable bags for hygienic purposes. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. However, based on the incremental water use associated with the Proposed Ordinance (increase of approximately 185 AFY per year), the other ordinances are not expected to generate an increase in water that would exceed water supplies in their respective regions. In addition, because other agencies (i.e., County of Santa Clara, City of San Francisco and San Mateo County), may have separate water supplies than those that serve the Study Area, the Proposed Ordinance's increase in water usage would not impact water supplies in those areas. Therefore, cumulative water impacts would not be significant.

Wastewater. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase wastewater associated with washing of reusable bags. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. However, based on the incremental increase in wastewater associated with the Proposed Ordinance (approximately 165,006 gallons per day), the other ordinances are not expected to generate an increase in wastewater that would exceed the capacity of a wastewater treatment plant or require new or expanded facilities within their respective regions. In addition, because other agencies (i.e., County of Santa Clara, City of San Francisco and San Mateo County) may have separate treatment plants than those that serve the Study Area, the Proposed Ordinance's increase in wastewater would not impact treatment plants in those areas. Therefore, cumulative wastewater impacts would not be significant.

Solid Waste. Similar to the Proposed Ordinance, other adopted and pending ordinances could incrementally increase solid waste associated with carryout bags. Several other agencies in the region (City of Millbrae, City of Fairfax, County of Santa Clara, City of San Jose, City of Sunnyvale, County of Santa Cruz, Marin County, City of San Francisco, Alameda County, San Mateo County (including 24 cities in San Mateo County and Santa Clara County), City of Palo Alto, County of Mendocino, City of Fort Bragg, and City of Ukiah) have either adopted or are considering such ordinances. As described in Impact U-3, these ordinances may actually result in a reduction of solid waste according to the Ecobilan study. However, using the more conservative Boustead data, based on the incremental increase in solid waste (approximately 1.95 tons per day) associated with the Proposed Ordinance, the other ordinances are not expected to generate an increase in solid waste that would exceed the capacity of a regional landfill or require new or expanded facilities within their respective regions. In addition, because other agencies (i.e., County of Santa Clara, City of San Francisco and San Mateo County), may utilize other landfills than those that serve the Study Area, the Proposed Ordinance's increase in solid waste would not impact landfill capacity in those areas. Therefore, cumulative solid waste impacts would not be significant.

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5.0 OTHER CEQA DISCUSSIONS

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

5.1 GROWTH INDUCING IMPACTS

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

5.1.1 Economic and Population Growth

The Proposed Ordinance would prohibit retail establishments (excluding restaurants) in the Study Area from distributing single-use carryout paper and plastic bags at no charge, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper bag distributed by these stores at the point of sale. The intent of the Proposed Ordinance is to reduce single-use carryout bag waste. The Proposed Ordinance would not facilitate new development, change land use controls or encourage population growth.

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

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

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

5.1.2 Removal of Obstacles to Growth

The Proposed Ordinance would prohibit retail establishments (excluding restaurants) in the Study Area from distributing single-use carryout paper and plastic bags at no charge, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper bag distributed by these stores at the point of sale. The intent of the Proposed Ordinance is to reduce carryout bag waste. No improvements to water, sewer, and drainage connection infrastructure would be necessary. No new roads would be required. Because implementation of the Proposed Ordinance would not involve or facilitate construction, land use changes or population growth, and would not involve the extension of infrastructure into areas that otherwise could not accommodate growth, it would not remove an obstacle to growth.

5.2 IRREVERSIBLE ENVIRONMENTAL EFFECTS

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

The Proposed Ordinance would prohibit retail establishments (excluding restaurants) in the Study Area, from distributing single-use carryout paper and plastic bags at no charge, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores at the point of sale. The intent of the Proposed Ordinance is to reduce single-use carryout bag waste. As an ordinance, the project would not include development of any physical structures or involve any construction activity. Therefore, the Proposed Ordinance would not alter existing land uses or cause irreversible physical alterations related to land development or resource use. To the contrary, the express purpose of the Ordinance is to reduce the wasteful use of resources and associated environmental impacts.

The manufacturing of carryout bags and the additional truck trips associated with delivering carryout bags (recyclable paper and reusable bags) to the Study Area would incrementally increase regional air pollutant emissions. As discussed in Section 4.1, *Air Quality*, air pollutant emissions would not be increased beyond existing thresholds and with anticipated reductions in the overall number of plastic bags used in the Study Area, emissions would be reduced compared to existing conditions. Similarly, as discussed in Section 4.3, *Greenhouse Gas Emissions*, although the proposed Ordinance would result in net increase of GHG emissions (approximately 0.006 CO₂e/person/year) compared to existing conditions, this increase would not exceed any thresholds of significance and the Proposed Ordinance would be consistent with applicable plans, policies and regulations related to reducing GHG emissions. Thus, the Proposed Ordinance would not result in any significant impacts related to air quality and GHG emissions.

6.0 ALTERNATIVES

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

- *Alternative 1: No Project*
- *Alternative 2: Ban on Single-Use Plastic Bags at all Retail Establishments*
- *Alternative 3: Mandatory Charge of \$0.25 for Paper Bags*
- *Alternative 4: Ban on Both Single-use Plastic and Paper Carryout Bags*
- *Alternative 5: Mandatory Charge of \$0.10 for Plastic and Paper Carryout Bags*

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

6.1 ALTERNATIVE 1: NO PROJECT ALTERNATIVE

6.1.1 Description

The no project alternative assumes that the Waste Reduction Program for Carryout Bags is not adopted or implemented. Single-use plastic and paper carryout bags would continue to be available free-of-charge to customers at most retail stores throughout the Study Area. In addition, reusable carryout bags would continue to be available for purchase by retailers. Thus, it is assumed that the use of carryout bags at Study Area retail stores would not change compared to current conditions.

6.1.2 Impact Analysis

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

6.2 ALTERNATIVE 2: BAN ON SINGLE-USE PLASTIC BAGS AT ALL RETAIL ESTABLISHMENTS

6.2.1 Description

Similar to the proposed Waste Reduction Program for Carryout Bags, this alternative would prohibit Study Area retailers from providing single-use plastic carryout bags to customers and create a mandatory \$0.10 charge per paper bag. However, under this alternative, the Ordinance would apply to all categories of retail establishments, including restaurants. As a result, under this alternative, no single-use plastic carry out bags would be distributed at the point of sale anywhere within the Study Area, a reduction of 258,602,841 plastic bags. In contrast, the Proposed Ordinance is expected to reduce the number of single-use plastic carryout bags distributed within the Study Area by 95%. It is conservatively assumed that the additional plastic bags that would be removed under this alternative would be replaced by recyclable paper bags, such that, in total, 35% of single-use plastic bags currently used within the Study Area would be replaced by recyclable paper bags, and 65% would be replaced by reusable bags.

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

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

Bag Type	Carryout Bags Used Annually	
	Proposed Ordinance*	Alternative 2**
Single-Use Plastic	12,930,142	0
Single-Use Paper	77,580,852	90,510,994
Reusable	3,232,536	3,232,536
Total	93,743,530	93,743,530

*Refer to Table 2.2 in Section 2.0, Project Description

** Based on assumptions of 35% conversion of the volume of existing plastic bag use in the Study Area to paper bags and 65% conversion to reusable bags (based on 52 uses per year).

6.2.2 Impact Analysis

a. Air Quality. As described in Section 4.1, *Air Quality*, it is anticipated that the Proposed Ordinance would replace the total volume of single-use plastic bags currently used in the Study Area with approximately 30% recyclable paper bags and 65% reusable bags, leaving 5% of the plastic bags in circulation (or approximately 12.9 million bags, as shown in Table 6-1 above). This alternative would prohibit all retail establishments including restaurants in the Study Area from providing single-use plastic carryout bags to customers at the point of sale and would therefore eliminate an additional 12.9 million single-use plastic bags as compared to the Proposed Ordinance. Consequently, this alternative would reduce emissions associated with plastic bag manufacturing, transportation, and disposal to a greater extent than the Proposed Ordinance.



However, because the additional 5% of single-use plastic bags captured by this alternative would be replaced by paper bags rather than reusable bags (refer to Table 6-1), the total number of paper bags would increase compared to the Proposed Ordinance. As described in Section 4.1, *Air Quality*, paper bags have an incrementally greater per-bag impact than single-use plastic bags. Because Alternative 2 would essentially trade 12.9 million single-use plastic bags for the same number of single-use paper bags, air pollutant emissions would incrementally increase as compared to what would occur under the Proposed Ordinance.

Table 6-2 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 2, as compared to the Proposed Ordinance.

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

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	AA Emissions per year (kg)
Single-use Plastic	0	1.0	0.023	0	1.0	1.084	0
Single-use Paper	90,510,994	1.3	0.03	2,715	1.9	2.06	186,453
Reusable	3,232,536	1.4	0.032	103	3.0	3.252	10,512
Alternative 2 Total				2,819	Alternative 2 Total		196,965
Proposed Ordinance Total				2,728	Proposed Ordinance Total		184,345
Difference				91	Difference		12,620
Existing Total (without an Ordinance)				5,948	Existing Total (without an Ordinance)		280,325
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)				(3,129)	Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)		(83,361)

Source: Refer to Table 4.1-5 in Section 4.1, *Air Quality*.

As compared to the Proposed Ordinance, the contribution to ground level ozone would increase by approximately 91 kg per year under this alternative (a 3% increase) and the contribution to atmospheric acidification would increase by approximately 12,620 kg per year (a 7% increase) when compared to the Proposed Ordinance. However, this alternative, like the

Proposed Ordinance, would reduce emissions of ozone and atmospheric acidification compared to existing conditions.

To estimate mobile emissions resulting from Alternative 2, the number of truck trips per day was calculated using the assumptions outlined in the Initial Study (Appendix A). As shown in Table 6-3, Alternative 2 would result in an estimated 446 truck trips per year, or 1.2 truck trips per day, which is slightly higher than the Proposed Ordinance rate of 1.08 truck trips per day.

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

Bag Type	Number of Bags per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	0	2,080,000	0	0
Single-use Paper	90,510,994	217,665	416	1.14
Reusable	3,232,536	108,862	30	0.08
Alternative 2 Total			446	1.2
Proposed Ordinance Total			392	1.08
Difference			54	0.12
Existing Total for Plastic Bags (without an Ordinance)			125	0.34
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)			321	0.86

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

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

Table 6-4
Operational Emissions Associated with Alternative 2

	Emissions (lbs/day)			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Mobile Emissions: Proposed Ordinance	0.01	0.9	0.01	<0.01
Mobile Emissions: Alternative 2	0.01	0.11	0.02	0.01
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>
Threshold Exceeded?	No	No	No	No

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

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

b. Biological Resources. Similar to the Proposed Ordinance, this alternative would ban single-use plastic carryout bags, thereby reducing the amount of single-use plastic bag litter that could enter the marine environment and affect sensitive species. Although this alternative may incrementally increase the use of paper bags in the Study Area as compared to the Proposed Ordinance, the impacts of paper bags on biological resources are less than those of single-use plastic bags. Because of their weight and recyclability, paper bags are less likely to become litter compared to single-use plastic bags (Green Cities California MEA, 2010). In addition, because paper bags are not as resistant to biodegradation, there would be less risk of entanglement if entering the marine environment compared to single-use plastic bags. Therefore, the impact to sensitive species as a result of litter entering the marine environment from Alternative 2 would be reduced compared to the Proposed Ordinance. Similar to the Proposed Ordinance, impacts would be Class IV, *beneficial*. Overall benefits would be somewhat greater than those of the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of single-use plastic bags by approximately 12.9 million bags and increase the number of paper bags by the same amount. The number of reusable bags would not change as compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases*, through the manufacturing, transportation, and disposal, each paper bag results in 3.3 times the emissions of a single-use plastic bag. Because this alternative would increase the number of paper bags and reduce the number of single-use plastic bags, it would result in a net increase of GHG emissions compared to the Proposed Ordinance.

Table 6-5 provides an estimate of GHG emissions associated with implementation of Alternative 2.



**Table 6-5
Estimated Greenhouse Gas Emissions
from Alternative 2**

Bag Type	Estimated Number of Bags Used per Year	GHG Impact Rate per Bag	CO₂e (metric tons)	CO₂e per year (metric tons)	CO₂e per Person²
Single-use Plastic	0	1.0	0.04 per 1,500 bags	0	0
Single-use Paper	90,510,994	2.97 ¹	0.1188 per 1,000 bags ¹	10,753	0.022
Reusable	2,232,536	2.6	0.104 per 1,000 bags	336	0.0007
Alternative 2 Total				11,089	0.022
Proposed Ordinance Total				9,898	0.020
Difference				1,191	0.002
Existing Total (without an Ordinance)				6,896	0.014
Net Change of Alternative 2 (Alternative 2 Total minus Existing Total)				4,193	0.009

CO₂e = Carbon Dioxide Equivalent units

Source: Refer to Table 4.3-4 in Section 4.3, Greenhouse Gas Emissions.

¹ 10% reduction (from a rate of 3.3) based on Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

² Emissions per person are divided by the existing population in the Study Area – 487,011 (Department of Finance May 2012)

Compared to the proposed Ordinance, GHG emissions under Alternative 2 would increase by approximately 0.009 CO₂e per person per year. Although Alternative 2 would result in slightly greater GHG impacts than the Proposed Ordinance, emissions as a result of this alternative would not exceed the 4.6 metric tons CDE per person per year threshold. Therefore, impacts would remain Class III, *less than significant*.

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of single-use plastic bags used within the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. Although this alternative would be expected to replace 12.9 million single-use plastic bags with the same number of paper bags, single-use paper bags are not as resistant to breakdown and would therefore be less likely to block or clog drains compared to single-use plastic bags (refer to Section 4.4, *Hydrology and Water Quality*). Because paper bags would be less likely to result in storm drain blockage or contamination, this alternative would reduce litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in generally Class IV, *beneficial*, effects to water quality, and overall benefits would be somewhat greater under this alternative.



This alternative would be expected to result in the use of more paper carryout bags in the Study Area than with implementation of the Proposed Ordinance. However, as with the Proposed Ordinance, paper bag manufacturing facilities would be required to adhere to NPDES Permit requirements, AB 258 and the California Health and Safety Code reducing impacts to water quality. Impacts to water quality from altering bag processing activities would be the same as under the Proposed Ordinance and would remain Class III, *less than significant*.

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of single-use plastic bags by approximately 12.9 million bags and increase the number of paper bags by same amount. The number of reusable bags would not change under this alternative. Because the same number of reusable bags would be used under this alternative as under the Proposed Ordinance, water demand and wastewater generation related to washing reusable bags would be roughly the same. This includes 185 AFY of water and approximately 165,006 gallons per day of wastewater. As discussed in Section 4.5, *Utilities and Service Systems*, there are sufficient water supplies available to meet this demand, as well as capacity within the existing wastewater distribution and treatment system. Therefore, impacts related to water and wastewater would be similar to the Proposed Ordinance and would continue to be Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-11 in Section 4.5, *Utilities and Service systems*), implementation of this alternative would generate a net increase of an estimated 2.63 tons/day of solid waste (calculations are contained in Appendix C). In comparison, implementation of the Proposed Ordinance would generate an increase of 1.95 tons/day. Therefore, Alternative 2 would generate 0.68 tons/day more solid waste than the Proposed Ordinance (a 35% increase). However, like the Proposed Ordinance, this increase would not exceed the available capacity at Study Area landfills. Therefore, solid waste impacts would be greater when compared to the Proposed Ordinance, but would remain Class III, *less than significant*.

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

6.3.1 Description

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

Based on a cost requirement of \$0.25 per bag, it is assumed that the total volume of plastic bags currently used in the Study Area (approximately 258,602,841 plastic bags per year) would be replaced by approximately 6% paper bags and 89% reusable bags¹ under Alternative 3 (compared to 30% paper and 65% reusable assumed for the Proposed Ordinance). It is assumed

¹ Rates from City of San Jose Final EIR, SCH # 2009102095, October 2010.



that 5% of existing single-use plastic bags would remain in use, similar to the Proposed Ordinance, since the alternative would not apply to some retailers who distribute single-use plastic carryout bags (e.g., restaurants). Table 6-6 summarizes the anticipated changes in bag distribution as a result of a \$0.25 mandatory charge under this alternative compared to the \$0.10 charge under the Proposed Ordinance.

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

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 3**
Single-Use Plastic	12,930,142	12,930,142
Single-Use Paper	77,580,852	15,516,170
Reusable	3,232,536	4,426,087
Total	93,743,530	32,872,400

* Refer to Table 2.2 in Section 2.0, *Project Description*.

** Based on an assumption of 5% existing plastic bag use in Study Area (approximately 258,602,841 plastic bags per year) to remain, 6% conversion of the volume of existing plastic bag use in Study Area to paper bags and 89% conversion to reusable bags (based on 52 uses per year).

6.3.2 Impact Analysis

a. Air Quality. As described in Section 4.1, *Air Quality*, it is anticipated that the Proposed Ordinance would replace the total volume of single-use plastic bags currently used in the Study Area with approximately 30% recyclable paper bags and 65% reusable bags, leaving 5% of the plastic bags in circulation (or approximately 12.9 million bags, as shown in Table 6-6 above). This alternative would increase the mandatory charge on paper bags by fifteen (\$0.15) cents and would therefore promote a greater shift toward reusable bags. Consequently, this alternative would reduce the number of paper bags and increase the number of reusable bags compared to the Proposed Ordinance. Because this alternative would apply to the same retailers as the Proposed Ordinance, the number of single-use plastic bags remaining in circulation would be the same. In total, Alternative 3 would result in approximately 61 million fewer bags (including single-use plastic, paper, and reusable) than the Proposed Ordinance. Air pollutant emissions associated with bag manufacturing, transportation, and disposal would therefore be reduced when compared to the Proposed Ordinance.

Table 6-7 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 3, as compared with the Proposed Ordinance. Because this alternative would reduce the number of paper bags in the Study Area, the contribution to ground level ozone would decrease by approximately 1,824 kg per year (a 67% decrease) and the contribution to atmospheric acidification would decrease by approximately 123,972 kg per year (a 67% decrease) when compared to the Proposed Ordinance.



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

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	AA Emissions per year (kg)
Single-use Plastic	12,930,142	1.0	0.023	297	1.0	1.084	14,016
Single-use Paper	15,516,170	1.3	0.03	465	1.9	2.06	31,963
Reusable	4,426,087	1.4	0.032	142	3.0	3.252	14,394
Alternative 3 Total				905	Alternative 3 Total		60,373
Proposed Ordinance Total				2,728	Proposed Ordinance Total		184,345
Difference				(1,824)	Difference		(123,972)
Existing Total (without an Ordinance)				5,948	Existing Total (without an Ordinance)		280,325
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)				(5,043)	Net Change		(219,952)

Source: Refer to Table 4.1-5 in Section 4.1, Air Quality.

To estimate mobile emissions resulting from Alternative 3, the number of truck trips per day was calculated using the assumptions outlined in the Initial Study (Appendix A). As shown in Table 6-8, Alternative 3 would result in an estimated 118 truck trips per year, or 0.32 truck trips per day, which is lower than the Proposed Ordinance and would also be slightly lower than the existing number of truck trips related to delivering single-use plastic bags.

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

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

Bag Type	Number of Bags per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	12,930,142	2,080,000	6	0.017
Single-use Paper	15,516,170	217,665	71	0.195
Reusable	4,426,087	108,862	41	0.111
Alternative 3 Total			118	0.32
Proposed Ordinance Total			392	1.08
Difference			(274)	(0.76)
Existing Total for Plastic Bags (without an Ordinance)			125	0.34
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)			(7)	(0.02)

*City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011.
Refer to Appendix A.

**Table 6-9
Operational Emissions Associated with Alternative 3**

	Emissions (lbs/day)			
	ROG	NO_x	PM₁₀	PM_{2.5}
Mobile Emissions: Proposed Ordinance	0.01	0.9	0.01	<0.01
Mobile Emissions: Alternative 3	(<0.01)	(<0.01)	(<0.01)	(<0.01)
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>
Threshold Exceeded?	No	No	No	No

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

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



b. Biological Resources. Similar to the Proposed Ordinance, this alternative would prohibit certain Study Area retailers from distributing single-use plastic carryout bags, thereby incrementally reducing the amount of single-use plastic bag litter that could enter the marine environment and affect sensitive species. Compared to the Proposed Ordinance, this alternative would also further reduce the amount of paper bag litter that could enter the marine environment. Although paper bags are less likely to become litter compared to single-use plastic bags (refer to Section 4.2, *Biological Resources*), the net reduction of all bag types associated with this alternative would result in overall less litter entering the marine environment. As a result, the Class IV, *beneficial*, effects to marine species from Alternative 3 would be increased as compared to the Proposed Ordinance.

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 62 million bags and increase the number of reusable bags by approximately 1.2 million. The number of single-use plastic bags would not change compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases*, the manufacturing, transportation, and disposal of each paper bag results in 3.3 times the emissions of a single-use plastic bag, while the manufacturing, transportation, and disposal of each reusable bag results in approximately 2.6 times the emissions of a single-use plastic bag. Although this alternative would increase the number of reusable bags by approximately 1.2 million, which would slightly increase GHG emissions, it would reduce number of paper bags to a greater extent (approximately 62 million bags). Table 6-10 provides an estimate of GHG emissions that would result from the reduction of carryout bags as a result of implementation of Alternative 3.

Compared to the Proposed Ordinance, GHG emissions under Alternative 3 would decrease by approximately 0.015 CO₂e per person per year. In addition, compared to existing conditions without an Ordinance, this alternative would reduce GHG emissions by approximately 4,248 metric tons per year or approximately 0.009 CO₂e per person per year. Therefore GHG impacts from Alternative 3 would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*, compared to existing conditions.

Table 6-10
Estimated Greenhouse Gas Emissions from Alternative 3

Bag Type	Estimated Number of Bags Used per Year	GHG Impact Rate per Bag	CO ₂ e (metric tons)	CO ₂ e per year (metric tons)	CO ₂ e per Person ²
Single-use Plastic	12,930,142	1.0	0.04 per 1,500 bags	345	0.0007
Single-use Paper	15,516,170	2.97 ¹	0.1188 per 1,000 bags ¹	1,843	0.0038
Reusable	4,426,087	2.6	0.104 per 1,000 bags	460	0.0009
Alternative 3 Total				2,648	0.0054
Proposed Ordinance Total				9,898	0.0203
Difference				(7,249)	(0.0149)
Existing Total (without an Ordinance)				6,896	0.0142
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)				(4,248)	(0.0087)

CO₂e = Carbon Dioxide Equivalent units

Source: Refer to Table 4.3-4 in Section 4.3, Greenhouse Gas Emissions.

¹ 10% reduction (from a rate of 3.3) based on Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

² Emissions per person are divided by the existing population in the Study Area – 487,011 (Department of Finance May 2012)

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of single-use plastic bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would further reduce the number of paper bags compared to the Proposed Ordinance (by approximately 62.1 million bags), replacing them instead with approximately 1.2 million reusable bags. As a result, overall, this alternative would reduce litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial*, effects to water quality. Overall benefits would be somewhat greater under this alternative since fewer paper bags would be used in the Study Area.

This alternative would be expected to result in the use of fewer single-use paper carryout bags in the Study Area as compared to the Proposed Ordinance. However, it would not completely eliminate paper bags. As with the Proposed Ordinance, paper bag manufacturing facilities would be required to adhere to NPDES Permit requirements, AB 258 and the California Health and Safety Code reducing impacts to water quality. Impacts to water quality from altering bag processing activities would be the same as the Proposed Ordinance and would continue to be Class III, *less than significant*.



e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 62.1 million and increase the number of reusable bags by approximately 1.2 million. The number of single-use plastic bags would not change under this alternative. Because 36% more reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation related to washing reusable bags would also increase by 36%. This equates to a net increase of an estimated 67 AFY of water and a net increase of 59,402 gallons per day of wastewater. However, as noted in Section 4.5, *Utilities and Service Systems*, there are sufficient water supplies and wastewater facility capacity to meet this demand. Therefore, impacts would be slightly greater than those of the Proposed Ordinance, but would remain Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-11 in Section 4.5, *Utilities and Service systems*), this alternative would generate a net decrease of 2.06 tons/day of solid waste (calculations are contained in Appendix C) compared to existing conditions. In comparison, the Proposed Ordinance would generate a net increase of 1.95 tons/day compared to existing conditions. Therefore, Alternative 3 would generate less solid waste than the Proposed Ordinance, would reduce solid waste compared to existing conditions, and would not exceed the existing capacity at area landfills. Solid waste impacts would be reduced when compared to the Proposed Ordinance, and would be a Class IV, *beneficial impact*.

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

6.4.1 Description

This alternative would prohibit all Study Area retail establishments (except restaurants and non-profit, charitable retailers) from providing single-use plastic and paper carryout bags to customers at the point of sale. It is anticipated that by also prohibiting paper carryout bags, this alternative ordinance would significantly reduce single-use paper carryout bags within the Study Area, and further promote the shift to the use of reusable bags by retail customers. By banning both single-use plastic and paper bags, customers would be forced to use reusable carryout bags. This may increase the number of reusable bags purchased within the Study Area.

By banning both single-use plastic and paper bags, it is assumed that the total volume of single-use plastic carryout bags currently used within the Study Area (approximately 258,602,841 plastic bags per year) would be replaced by approximately 4.7 million reusable bags under Alternative 4 (compared to 77.6 million paper and 3.2 million reusable bags assumed for the Proposed Ordinance). It is assumed that 5% of existing single-use plastic bags would remain in use, similar to the Proposed Ordinance, since the alternative would not apply to some retailers who distribute plastic bags (e.g., restaurants). Table 6-11 summarizes the changes in bag distribution as a result of banning both single-use plastic and paper under this alternative compared to the Proposed Ordinance.

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

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 4**
Single-Use Plastic	12,930,142	12,930,142
Single-Use Paper	77,580,852	0***
Reusable	3,232,536	4,724,475
Total	93,743,530	17,654,617

* Refer to Table 2.2 in Section 2.0, *Project Description*

** Based on an assumption of 5% existing plastic bag use in the Study Area (approximately 258,602,841 plastic bags per year) to remain, and 95% conversion to reusable bags (based on 52 uses per year).

***Please note that while there could be some paper bag use associated with exempt retailers (i.e., restaurants), because paper bags would be banned under this Alternative, there would not be any conversion from plastic to paper at those retailers that the ordinance does apply to. Therefore the net change of paper bag use compared to existing conditions is zero (0) and compared to the proposed Ordinance, paper bag use would be reduced by approximately 77.5 million bags (the number of bags used at retailers where the ordinance is applicable).

6.4.2 Impact Analysis

a. Air Quality. As described in Section 2.0, *Project Description*, it is anticipated that the Proposed Ordinance would replace the total volume of single-use plastic bags currently used in the Study Area with approximately 77.6 million paper and 3.2 million reusable bags assumed for the Proposed Ordinance (or 95% of the plastic bags), leaving 5% of the plastic bags in circulation (or approximately 12.9 million bags, as shown in Table 6-11 above). Alternative 4 would prohibit all retail establishments (except restaurants) from providing single-use plastic or paper carryout bags to customers at the point of sale. Consequently, this alternative would reduce the number of paper bags and increase the number of reusable bags compared to the Proposed Ordinance. Compared to existing conditions, the number of single-use plastic bags remaining in circulation would remain the same because this alternative would apply to the same retailers as the Proposed Ordinance. Because paper bags would also be banned in this alternative, plastic bags would not be replaced by paper bags and therefore, there would be no change in existing paper bag use. In total, Alternative 4 would result in approximately 76 million fewer bags (including single-use plastic, paper, and reusable) than the Proposed Ordinance. Air pollutant emissions associated with bag manufacture, transportation, and disposal would therefore be reduced when compared to the Proposed Ordinance. Table 6-12 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 4, as compared with the Proposed Ordinance.



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

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	AA Emissions per year (kg)
Single-use Plastic	12,930,142	1.0	0.023	297	1.0	1.084	14,016
Single-use Paper	0	1.3	0.03	0	1.9	2.06	0
Reusable	4,724,475	1.4	0.032	151	3.0	3.252	15,364
Alternative 4 Total				449	Alternative 4 Total		29,380
Proposed Ordinance Total				2,728	Proposed Ordinance Total		184,345
Difference				(2,280)	Difference		(154,965)
Existing Total (without an Ordinance)				5,948	Existing Total (without an Ordinance)		280,325
Net Change of Alternative 4 (Alternative 4 Total minus Existing Total)				(5,499)	Net Change of Alternative 4 (Alternative 4 Total minus Existing Total)		(250,945)

Source: Refer to Table 4.1-5 in Section 4.1, Air Quality.

As shown in Table 6-12, because this alternative would reduce the number of paper bags and the total number of bags used in the Study Area, the contribution to ground level ozone would decrease by approximately 2,280 kg per year (an 84% decrease) and the contribution to atmospheric acidification would decrease by approximately 154,965 kg per year (an 84% decrease) when compared to the Proposed Ordinance.

To estimate mobile emissions resulting from Alternative 4, the number of truck trips per day was calculated using the assumptions outlined in the Initial Study (Appendix A). As shown in Table 6-13, Alternative 4 would result in an estimated 49 truck trips per year, or 0.13 truck trips per day, which is lower than the Proposed Ordinance and would also be lower than the existing number of truck trips related to delivering single-use plastic bags.

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

Bag Type	Number of Bags per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	12,930,142	2,080,000	6	0.017
Single-use Paper	0	217,665	0	0
Reusable	4,724,475	108,862	43	0.119
Alternative 3 Total			49	0.13
Proposed Ordinance Total			392	1.08
Difference			(313)	(0.95)
Existing Total for Plastic Bags (without an Ordinance)			125	0.34
Net Change of Alternative 3 (Alternative 3 Total minus Existing Total)			(76)	(0.21)

*City of Santa Monica Single-Use Carryout Bag Ordinance EIR (SCH #2010041004), January 2011.
Refer to Appendix A.

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

Table 6-14
Operational Emissions Associated with Alternative 4

	Emissions (lbs/day)			
	ROG	NO_x	PM₁₀	PM_{2.5}
Mobile Emissions: Proposed Ordinance	0.01	0.9	0.01	<0.01
Mobile Emissions: Alternative 4	(<0.01)	(0.03)	(<0.01)	(<0.01)
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>
Threshold Exceeded?	No	No	No	No

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

Based on the above, Alternative 4 would reduce air quality impacts compared to the Proposed Ordinance. Impacts resulting from bag manufacturing and use (ground level ozone and



atmospheric acidification) would continue to be Class IV, *beneficial*, while impacts relating to a truck trips would be reduced to Class IV *beneficial*, since truck trips and the associated emissions would actually be reduced under this alternative compared to existing conditions.

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

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 77.6 million bags and increase the number of reusable bags by approximately 1.5 million. The number of single-use plastic bags would not change under this alternative. As noted in Section 4.3, *Greenhouse Gases*, the manufacture, transport, and disposal of each paper bag results in 3.3 times the emissions of a single-use plastic bag, while the manufacturing, transportation, and disposal of each reusable bag results in approximately 2.6 times the emissions of a single-use plastic bag. The increased use of reusable bags would slightly increase GHG emissions, while the significantly reduced use of paper bags would more than offset this impact.

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

Compared to the proposed Ordinance, GHG emissions under Alternative 4 would decrease by approximately 0.019 CO₂e per person per year. In addition, compared to existing conditions without an Ordinance, this alternative would reduce GHG emissions by approximately 6,060 metric tons per year or approximately 0.012 CO₂e per person per year. Therefore, GHG impacts associated with Alternative 4 would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*, compared to existing conditions.

**Table 6-15
Estimated Greenhouse Gas Emissions
from Alternative 4**

Bag Type	Estimated Number of Bags Used per Year	GHG Impact Rate per Bag	CO₂e (metric tons)	CO₂e per year (metric tons)	CO₂e per Person²
Single-use Plastic	12,930,142	1.0	0.04 per 1,500 bags	345	0.0007
Single-use Paper	0	2.97 ¹	0.1188 per 1,000 bags ¹	0	0
Reusable	4,724,475	2.6	0.104 per 1,000 bags	491	0.001
Alternative 4 Total				836	0.0017
Proposed Ordinance Total				9,898	0.0203
Difference				(9,061)	(0.0186)
Existing Total (without an Ordinance)				6,896	0.0142
Net Change of Alternative 4 (Alternative 4 Total minus Existing Total)				(6,060)	(0.0124)

CO₂e = Carbon Dioxide Equivalent units

Source: Refer to Table 4.3-4 in Section 4.3, Greenhouse Gas Emissions.

¹ 10% reduction (from a rate of 3.3) based on Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

² Emissions per person are divided by the existing population in the Study Area – 487,011 (Department of Finance May 2012)

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of single-use plastic bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would reduce the number of paper bags compared to the Proposed Ordinance (by approximately 77.6 million bags), replacing them instead with approximately 1.5 million reusable bags. As a result, this alternative would reduce overall litter compared to the Proposed Ordinance. As with the Proposed Ordinance, an incremental reduction in the amount of litter that could enter storm drains and local waterways would improve water quality and reduce the potential for storm drain blockage. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial*, effects to water quality. Overall benefits would be somewhat greater under this alternative since fewer paper bags would be used in the Study Area.

This alternative would prohibit retailers (except restaurants) from providing paper carryout bags within the Study Area. This alternative would actually reduce the number of paper bags manufactured for use in the region. Thus, impacts to water quality from altering bag processing activities would be reduced under this alternative compared to the Proposed Ordinance which would increase paper bag use. In addition, under this alternative, paper bag use would be reduced compared to existing conditions since single-use paper bags are currently used throughout the Study Area. Thus, this alternative would result in a Class IV, *beneficial impact*.



e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 77.6 million and increase the number of reusable bags by approximately 1.5 million. The number of single-use plastic bags would not change under this alternative. Because 46% more reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation associated with washing reusable bags would also increase by 46%. This equates to a net increase of an estimated 85.1 AFY of water and a net increase of an estimated 75,903 gallons per day of wastewater. However, as noted in Section 4.5, *Utilities and Service Systems*, there are sufficient water supplies and wastewater treatment capacity to meet this demand. Therefore, impacts would be slightly greater than those of the Proposed Ordinance, but would remain Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-11 in Section 4.5, *Utilities and Service systems*), this alternative would generate a reduction of 3.07 tons/day of solid waste compared to existing conditions (calculations are contained in Appendix C). In comparison, the Proposed Ordinance would generate 1.95 tons/day. Therefore, Alternative 4 would generate less solid waste than the Proposed Ordinance, would reduce solid waste compared to existing conditions, and would not exceed the existing capacity at area landfills. Therefore, solid waste impacts would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*.

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

6.5.1 Description

Under this alternative the Proposed Ordinance would continue to allow Study Area retail establishments to provide single-use carryout plastic and paper bags to customers at the point of sale, but would create a mandatory charge for a single-use plastic and paper bags of \$0.10. Though AB 2449 currently restricts the ability of cities and counties to regulate single-use plastic grocery bags through imposition of a fee, this restriction will expire on January 1, 2013, unless extended (see Section 2.0 for further discussion). As a result of the \$0.10 mandatory charge for plastic and paper bags, it is anticipated that this alternative would reduce the use of plastic and paper bags and promote the use of reusable bags since customers would be deterred from purchasing plastic and paper bags due to the additional cost.

With a cost requirement of \$0.10 per single-use carryout bag, it is assumed that total bag use would be 22% plastic bags, 14% paper bags, and 64% reusable bags.² Table 6-16 summarizes the anticipated changes in bag distribution as a result of a \$0.10 mandatory charge for carryout bags under this alternative compared to the ban on plastic bags and charge for paper bags under the Proposed Ordinance.

² Rates from Herrera Environmental Consultants, 2010. The Herrera report assumes that if there is a \$0.10 charge on plastic and paper bags, bags use would be 10% paper, 22% plastic, and 64% reusable. They also assume 4% would switch to no bag. For the purposes of this analysis, we conservatively assume that instead of no bag, the remaining 4% would convert to paper bags.



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

Bag Type	Bags Used Annually	
	Proposed Ordinance*	Alternative 5**
Single-Use Plastic	12,930,142	56,892,625
Single-Use Paper	77,580,852	36,204,398
Reusable	3,232,536	3,182,804
Total	93,743,530	96,279,827

* Refer to Table 2.2 in Section 2.0, *Project Description*

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

6.5.2 Impact Analysis

a. Air Quality. As described in Section 2.0, *Project Description*, it is anticipated that the Proposed Ordinance would replace the total volume of single-use plastic bags currently used in the Study Area with approximately 77.6 million paper and 3.2 million reusable bags assumed for the Proposed Ordinance (or 95% of the plastic bags), leaving 5% of the plastic bags in circulation (or approximately 12.9 million bags, as shown in Table 6-11 above). This alternative would allow all retail establishments to provide single-use plastic or paper carryout bags to customers at the point of sale for a charge of \$0.10. This alternative assumes that some plastic and paper bags would still be used, though fewer paper bags would be used than if plastic bags were banned. Also, because of a charge for paper and plastic bags, a shift towards reusable bags would occur. Alternative 5 would result in the use of approximately 2.5 million more bags (including single-use plastic, paper, and reusable) than the Proposed Ordinance. However, because Alternative 5 assumes fewer paper bags will be used compared with a ban on plastic bags, air pollutant emissions associated with bag manufacture, transportation, and disposal would be decreased when compared to the Proposed Ordinance. Table 6-17 estimates emissions that contribute to the development of ground level ozone and atmospheric acidification that would result from implementation of Alternative 5, as compared with the Proposed Ordinance.

As shown in Table 6-17, because this alternative would reduce the number of paper bags used in the Study Area, the contribution to ground level ozone would decrease by approximately 232 kg per year (an 9% decrease) and the contribution to atmospheric acidification would decrease by approximately 37,742 kg per year (an 26% decrease) when compared to the Proposed Ordinance.

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

Bag Type	# of Bags Used per Year	Ozone Emission Rate per Bag	Ozone Emissions (kg) per 1,000 bags	Ozone Emissions per year (kg)	AA Emission Rate per Bag	AA Emissions (kg) per 1,000 bags	AA Emissions per year (kg)
Single-use Plastic	56,892,625	1.0	0.023	1,309	1.0	1.084	61,672
Single-use Paper	36,204,398	1.3	0.03	1,086	1.9	2.06	74,581
Reusable	3,182,804	1.4	0.032	102	3.0	3.252	10,350
Alternative 5 Total				2,497	Alternative 5 Total		146,603
Proposed Ordinance Total				2,728	Proposed Ordinance Total		184,345
Difference				(232)	Difference		(37,742)
Existing Total (without an Ordinance)				5,948	Existing Total (without an Ordinance)		280,325
Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)				(3,451)	Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)		(133,722)

Source: Refer to Table 4.1-5 in Section 4.1, Air Quality.

To estimate mobile emissions resulting from Alternative 5, the number of truck trips per day was calculated using the assumptions outlined in the Initial Study (Appendix A). As shown in Table 6-18, Alternative 5 would result in an estimated 225 truck trips per year, or 0.66 truck trips per day, which is lower than the Proposed Ordinance but would be more than the existing number of truck trips related to delivering single-use plastic bags.

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

Bag Type	Number of Bags per Year	Number of Bags per Truck Load*	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	56,892,625	2,080,000	28	0.08
Single-use Paper	36,204,398	217,665	167	0.5
Reusable	3,182,804	108,862	30	0.08
Alternative 5 Total			225	0.66
Proposed Ordinance Total			392	1.08
Difference			(167)	(0.42)
Existing Total for Plastic Bags (without an Ordinance)			125	0.34
Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)			100	0.32

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

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

**Table 6-19
Operational Emissions Associated with Alternative 5**

	Emissions (lbs/day)			
	ROG	NO_x	PM₁₀	PM_{2.5}
Mobile Emissions: Proposed Ordinance	0.01	0.9	0.01	<0.01
Mobile Emissions: Alternative 5	0.01	0.09	0.01	<0.01
<i>BAAQMD Thresholds</i>	<i>54</i>	<i>54</i>	<i>82</i>	<i>54</i>
Threshold Exceeded?	No	No	No	No

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



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

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

c. Greenhouse Gas Emissions. Compared to the Proposed Ordinance, this alternative would be expected to reduce the paper bags by approximately 41.4 million bags and the number of reusable bags by approximately 50,000. The number of plastic bags would increase by approximately 51.7 million compared to the Proposed Ordinance. As noted in Section 4.3, *Greenhouse Gases*, the manufacture, transport, and disposal of each paper bag results in 3.3 times the emissions of a single-use plastic bag. The increased use of paper bags would increase GHG emissions. Table 6-20 provides an estimate of GHG emissions that would result from the reduction of carryout bags as a result of implementation of Alternative 5.

Compared to the proposed Ordinance, GHG emissions under Alternative 5 would decrease by approximately 3,748 metric tons CO₂e per year or 0.0077 metric tons CO₂e per person per year. In addition, compared to existing conditions without an Ordinance, this alternative would reduce GHG emissions by approximately 747 metric tons per year or approximately 0.0015 CO₂e per person per year. Therefore, GHG impacts associated with Alternative 4 would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*, compared to existing conditions.

**Table 6-20
Estimated Greenhouse Gas Emissions
from Alternative 5**

Bag Type	Estimated Number of Bags Used per Year	GHG Impact Rate per Bag	CO₂e (metric tons)	CO₂e per year (metric tons)	CO₂e per Person²
Single-use Plastic	56,892,625	1.0	0.04 per 1,500 bags	1,517	0.0031
Single-use Paper	36,204,398	2.97 ¹	0.1188 per 1,000 bags ¹	4,301	0.0088
Reusable	3,182,804	2.6	0.104 per 1,000 bags	331	0.0007
Alternative 5 Total				6,149	0.0126
Proposed Ordinance Total				9,898	0.0203
Difference				(3,748)	(0.0077)
Existing Total (without an Ordinance)				6,896	0.0142
Net Change of Alternative 5 (Alternative 5 Total minus Existing Total)				(747)	(0.0015)

CO₂e = Carbon Dioxide Equivalent units

Source: Refer to Table 4.3-4 in Section 4.3, Greenhouse Gas Emissions.

¹ 10% reduction (from a rate of 3.3) based on Santa Clara County Negative Declaration, October 2010 based on Environmental Defense Fund's Paper Calculator.

² Emissions per person are divided by the existing population in the Study Area – 487,011 (Department of Finance May 2012)

d. Hydrology and Water Quality. Similar to the Proposed Ordinance, this alternative would reduce the number of single-use plastic bags used in the Study Area, thereby incrementally reducing the amount of plastic litter and waste entering storm drains. In addition, this alternative would reduce the number of paper bags compared to the Proposed Ordinance (by approximately 41.3 million bags) and would incrementally reduce the number of reusable bags compared to the Proposed Ordinance (a reduction of approximately 49,732 reusable bags). However, the decrease in paper and reusable bag use is offset by an increase in plastic bag use as compared to the Proposed Ordinance (an increase of approximately 44 million single-use plastic bags. As a result of the increase in plastic bag use, this alternative would increase overall litter compared to the Proposed Ordinance. An incremental increase in the amount of plastic bag litter that could enter storm drains and local waterways would incrementally degrade water quality and incrementally increase the potential for storm drain blockage. However, like the Proposed Ordinance, Alternative 5 would result in an overall reduction in the quantity of single-use plastic bags used in the Study Area, compared to existing conditions. Therefore, like the Proposed Ordinance, this alternative would result in Class IV, *beneficial*, effects to water quality. However, overall benefits would be somewhat less under this alternative since more plastic bags would be used in the Study Area.



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

e. Utilities and Service Systems. Compared to the Proposed Ordinance, this alternative would be expected to reduce the number of paper bags by approximately 41.3 million and reduce the number of reusable bags by approximately 49,732. The number of single-use plastic bags would increase by approximately 44 million bags as compared to the Proposed Ordinance. Because 1% (49,732) less reusable bags would be used under this alternative as compared to the Proposed Ordinance, water demand and wastewater generation associated with washing reusable bags would also decrease by 1%. This equates to a net decrease of an estimated 1.85 AFY of water and a net decrease of an estimated 1,650 gallons per day of wastewater. As noted in Section 4.5, *Utilities and Service Systems*, there are sufficient water supplies and wastewater treatment capacity to meet this demand. Therefore, impacts would be slightly reduced than those of the Proposed Ordinance, but would remain Class III, *less than significant*.

Using the more conservative solid waste generation rates from Boustead (as shown in Table 4.5-11 in Section 4.5, *Utilities and Service systems*), this alternative would generate a reduction of 0.18 tons/day of solid waste compared to existing conditions (calculations are contained in Appendix C). In comparison, the Proposed Ordinance would generate 1.95 tons/day. Therefore, Alternative 5 would generate less solid waste than the Proposed Ordinance, would reduce solid waste compared to existing conditions, and would not exceed the existing capacity at area landfills. Therefore, solid waste impacts would be reduced when compared to the Proposed Ordinance, and would be Class IV, *beneficial*.

6.6 ALTERNATIVES CONSIDERED BUT REJECTED

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

No Charge for Paper Bags. The first alternative that was considered but rejected is to ban single-use plastic carryout bags, but not charge for paper bags at retailers in the Study Area. *CEQA Guidelines* § 15126.6 requires that an EIR consider a range of reasonable alternatives to a proposed project, which would feasibly obtain most of the basic objectives of the project but

would avoid or substantially lessen any of the significant effects of the project. This alternative was rejected because it would not deter customers from using paper bags, which have greater impacts related to air quality, GHG emissions, and water quality than plastic bags on a per bag basis. In addition, this alternative would not achieve the Proposed Ordinance's objective of promoting a shift toward the use of reusable carryout bags by retail customers to as great a degree as would occur with the Proposed Ordinance. Objectives of the Proposed Ordinance are outlined in Section 2.0, *Project Description*.

Additional Ban on Polysterene. The second alternative that was considered, but ultimately rejected, involved banning polystyrene (commonly referred to by the trade name Styrofoam) in addition to banning single use-plastic carryout bags. This alternative would not achieve the Proposed Ordinance's objectives of reducing the environmental impacts related to single-use plastic bags or reduce any of the Proposed Ordinance's environmental effects. Environmental impacts related to polystyrene use are outside the scope and objectives of the proposed action.

Exception for Biodegradable or Compostable Bags. The third alternative considered, but ultimately rejected, involved incorporating an exception into the Proposed Ordinance for plastic bags made with biodegradable or compostable additives. This alternative was rejected from consideration because the environmental impacts associated with using biodegradable and compostable additives are uncertain at this time. Researchers at California State University Chico Research Foundation tested the degradation of biodegradable bags in composting conditions, and found that they did not degrade (CIWMB 2007; Green Cities California MEA, 2010). Furthermore, these bags reduce the quality of recycled plastics when introduced into the recycling stream and so must be kept separate to avoid contaminating the recycling stream (CIWMB 2007; Green Cities California MEA, 2010). Therefore it is unclear what environmental impacts may be associated with switching to plastic bags made with biodegradable additives or water soluble bags. In addition, this alternative would not achieve the objectives of reducing the amount of single-use plastic bags in trash loads (e.g., landfills), in conformance with the trash load reduction requirements of the NPDES Municipal Regional Permit, promoting a shift toward the use of reusable carryout bags by retail customers, and avoiding litter and the associated adverse impacts to stormwater systems, aesthetics and the marine environment (San Francisco Bay and the Pacific Ocean).

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

Plastic Bag Deposit Program. The fifth alternative considered but rejected would involve establishing a deposit program for plastic bags instead of a ban. This deposit program would be similar to California's "Bottle Bill" that places a \$0.05 to \$0.10 charge on beverage containers that is returned to customers when they recycle their containers. This alternative was rejected because it would not achieve the Ordinance's objectives, including deterring the use of paper bags and promoting a shift toward the use of reusable bags. Though AB 2449 currently

requires applicable retail stores to provide a plastic bag collection bin, only about 5% of plastic bags are actually recycled. Further, although some recycling facilities handle plastic bags, most recycling facilities reject plastic bags because they get caught in the machinery and cause malfunctioning or are contaminated after use (Green Cities California MEA, 2010; Boustead, 2007).

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

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

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

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

Table 6-21 compares the impacts for each of the alternatives with the impacts associated with the Proposed Ordinance.

Table 6-21
Impact Comparison of Alternatives with the Proposed Ordinance

Issue	Proposed Ordinance	Alt 1: No Project	Alt 2: Ban on Plastic Bags at all Retail Establishments	Alt 3: Mandatory Charge of \$0.25 for Paper Bags	Alt 4: Ban on Both Single-use Plastic and Paper Carryout Bags	Alt 5: Mandatory Charge of \$0.10 for Plastic and Paper Bags
Air Quality	=	-	= / -	+	+	= / +
Biological Resources	=	-	= / +	= / +	= / +	= / -
Greenhouse Gas Emissions	=	= / +	= / -	+	+	+
Hydrology/Water Quality	=	-	= / +	= / +	+	= / -
Utilities and Service Systems	=	+	= / -	= / +	= / +	= / +

+ Superior to the proposed project (reduced level of impact)

- Inferior to the proposed project (increased level of impact)

= / + slightly superior to the proposed project in one or more aspects, but not significantly superior

= / - slightly inferior to the proposed project in one or more aspects, but not significantly inferior

= Similar level of impact to the proposed project



7.0 REFERENCES AND REPORT PREPARERS

7.1 REFERENCES

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Carter, Patrick. Sonoma County Waste Management Agency. Personal Communication. October 25, 2012.

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Ross, Ken. Interim Water Supervisor. Town of Windsor. Personal Communication. October 24, 2012.

Sherwood, Brad. Public Information Officer. Public Affairs Department of the Sonoma County Water Agency. Personal Communication October 30, 2012.

7.3 REPORT PREPARERS

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

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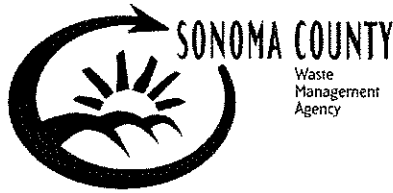
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Appendix A

Notice of Preparation, Initial Study, and NOP Comment Letters





**NOTICE OF PREPARATION
OF A DRAFT ENVIRONMENTAL IMPACT REPORT
COUNTY OF SONOMA WASTE REDUCTION PROGRAM FOR CARRYOUT BAGS**

DATE: October 17, 2012

TO: State Clearinghouse, Responsible Agencies, Organizations and Interested Parties

LEAD AGENCY: Sonoma County Waste Management Agency

The Sonoma County Waste Management Agency (SCWMA) intends to prepare an Environmental Impact Report (EIR) for a proposed regulation promoting a uniform program for reducing waste by decreasing the use of single use carryout bags. In accordance with Section 15082 of the State CEQA Guidelines, the SCWMA has prepared this Notice of Preparation to provide Responsible Agencies and other interested parties with information describing the proposal and its potential environmental effects. The environmental factors that the SCWMA has determined would potentially be affected by the project include:

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

PROJECT SPONSOR: Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403

PROJECT LOCATIONS: The Waste Reduction Program For Carryout Bags would apply to any retail establishment that sells perishable or nonperishable goods including, but not limited to, clothing, food, and personal items directly to the customer; and is located within or doing business within the geographical limits of the County of Sonoma, including the nine incorporated cities and town (County of Sonoma unincorporated areas; City of Cloverdale; City of Cotati; City of Healdsburg; City of Petaluma; City of Rohnert Park; City of Santa Rosa; City of Sebastopol; City of Sonoma; and Town of Windsor).

PROJECT DESCRIPTION: The proposed Waste Reduction Program for Carryout Bags (Proposed Ordinance) would regulate the use of paper and plastic single use carryout bags within the geographical limits of Sonoma County, including the nine incorporated cities and town, starting July 1, 2013. The intent of the ordinance is to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags. It is anticipated that by prohibiting single use plastic carryout bags and requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of reusable bags by retail customers, while reducing the number of single use plastic and paper bags within the participating municipalities.

The ordinance would (1) prohibit the free distribution of single use carryout paper and plastic bags and (2) require retail establishments to charge customers for recycled paper bags and reusable bags at the point of sale. The minimum charge would be ten cents (\$0.10). Single use plastic carryout bags are defined in the Proposed Ordinance as plastic bags that are less than 2.25 millimeters thick, other than a Reusable Bag, provided at the check stand, cash register, point of sale or other point of departure for the purpose of transporting food or merchandise out of the establishment. Regulated bags would not include bags without handles provided to the customer (1) to transport produce, bulk food or meat within a store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bag. The Proposed Ordinance would not apply to restaurants and other food service providers, allowing them to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises.

As noted above, the Proposed Ordinance would require regulated retailers to impose a mandatory charge for each paper carryout bag provided. Retail establishments would be required to keep complete and accurate records.

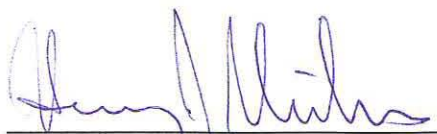
REVIEW PERIOD: As specified by the State CEQA Guidelines, the Notice of Preparation will be circulated for a 30-day review period. The Lead Agency welcomes agency and public input during this period regarding the scope and content of environmental information that must be included in the Draft EIR. **Responses to this Notice of Preparation may be submitted, in writing, by 5:00 p.m. on November 16, 2012, to:**

Patrick Carter, Department Analyst
Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403

email: patrick.carter@sonoma-county.org
fax: (707) 565-3701

PUBLIC SCOPING MEETINGS: Scoping meetings will be held during the comment period to take comments related to the scope of the environmental issues to be analyzed within the Draft EIR. The dates, times, and locations of the scoping meetings are listed below.

- **October 30, 2012, 6 pm, Santa Rosa Veterans Memorial, North Room, 1351 Maple Avenue, Santa Rosa**
- **November 1, 2012, 6 pm, Sonoma Veterans Memorial, Lounge Room, 126 First Street West, Sonoma**
- **November 2, 2012, 6 pm, Petaluma Veterans Memorial, Conference Room A, 1094 Petaluma Blvd S., Petaluma**
- **November 7, 2012, 6 pm, Windsor Community Center, Elsbree Hall, 901 Adele Drive, Windsor**



Henry Mikus, Executive Director
Sonoma County Waste Management Agency

10/12/2012

Date

WASTE REDUCTION PROGRAM FOR CARRYOUT BAGS

Initial Study

Prepared by:

Sonoma County Waste Management Agency

2300 County Center Drive, Suite B100

Santa Rosa, California 95403

Contact: Patrick Carter, Department Analyst

(707) 565-3687

With the Assistance of:

Rincon Consultants, Inc.

180 Grand Avenue

Oakland, California 94612

November 2012

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INITIAL STUDY

1. **Project title:** Waste Reduction Program for Carryout Bags
2. **Lead agency name and address:** Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, California 95403
3. **Contact person and phone number:** Patrick Carter, Department Analyst
(707) 565-3687
4. **Project location:** Sonoma County and incorporated cities and town within the county
5. **Project sponsor's name and address:** Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, California 95403
6. **General Plan designation:** All designations throughout Sonoma County and incorporated cities and town within the county
7. **Zoning:** All designations throughout Sonoma County and incorporated cities and town within the county
8. **Project Description:**

The proposed Waste Reduction Program for Carryout Bags (Proposed Ordinance) would apply to any retail establishment that sells perishable or nonperishable goods, including, but not limited to, clothing, food, and personal items directly to the customer; and is located within or doing business within the geographical limits of unincorporated Sonoma County or any of the following incorporated jurisdictions within Sonoma County: Cloverdale, Cotati, Healdsburg, Petaluma, Rohnert Park, Santa Rosa, Sebastopol, Sonoma, and Windsor. The geographical limits of Sonoma County, including the nine incorporated jurisdictions listed above, are referred to in this document as the "Study Area."

The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags within the geographical limits of Sonoma County, including the nine incorporated cities and town, starting July 1, 2013. The intent of the ordinance is to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags. It is anticipated that by prohibiting single use plastic carryout bags and requiring a mandatory charge for each paper bag distributed by retailers, the Proposed Ordinance would provide a disincentive to customers to request paper bags when shopping at regulated stores and promote a shift to the use of



reusable bags by retail customers, while reducing the number of single use plastic and paper bags within the participating municipalities.

The ordinance would (1) prohibit the free distribution of single use carryout paper and plastic bags and (2) require retail establishments to charge customers for recycled paper bags and reusable bags at the point of sale. The minimum charge would be ten cents (\$0.10). Single use plastic carryout bags are defined in the Proposed Ordinance as plastic bags that are less than 2.25 millimeters thick, other than a Reusable Bag, provided at the check stand, cash register, point of sale or other point of departure for the purpose of transporting food or merchandise out of the establishment. Regulated bags would not include bags without handles provided to the customer (1) to transport produce, bulk food or meat within a store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bag. The Proposed Ordinance would not apply to restaurants and other food service providers, allowing them to provide plastic bags to customers for prepared take-out food intended for consumption off of the food provider's premises.

As noted above, the Proposed Ordinance would require regulated retailers to impose a mandatory charge for each paper carryout bag provided. Retail establishments would be required to keep complete and accurate records.

Based on a list of businesses within the County and incorporated cities compiled by the Sonoma Count Waste Management Agency (Sonoma Count Waste Management Agency, October 2012), it is estimated that there are approximately 13,200 businesses, multifamily residents, and governmental entities in Sonoma County. The Proposed Ordinance would affect a subset of those establishments. In reality, far fewer would be directly affected, as a substantial portion of the businesses listed are service providers or otherwise do not conduct the kind of retail sales that require single-use carryout bags.

As shown in Table 1 on the following page, based on the current statewide data which estimates that almost 20 billion plastic grocery bags (or approximately 531 bags per person) are consumed annually in California (Green Cities California MEA, 2010; and CIWMB, 2007), retail customers within the Study Area are estimated to use about 259 million plastic bags per year. The customer base of retailers located within the Study Area may include residents of communities located within or outside of the Study Area (i.e., visitors who live outside the Study Area but travel to shop within the Study Area). However, for this analysis, in order to estimate the current number of plastic bags used per year in the Study Area, the Program EIR applies the rate discussed above (531 bags used per person/per year) to the number of residents in the Study Area. This estimate is considered reasonable and conservative for the purposes of this analysis.



Table 1
Estimated Single-Use Plastic Bag Use in the Study Area

Area	Population*	Number of Plastic Bags Used per Person**	Total Bags Used Annually
Unincorporated Sonoma County	146,739	531	77,918,409
Cloverdale	8,629	531	4,581,999
Cotati	7,276	531	3,863,556
Healdsburg	11,442	531	6,075,702
Petaluma	58,165	531	30,885,615
Rohnert Park	40,846	531	21,689,226
Santa Rosa	168,841	531	89,654,571
Sebastopol	7,405	531	3,932,055
Sonoma	10,665	531	5,663,115
Windsor	27,003	531	14,338,593
Total	487,011	Total	258,602,841

* California Department of Finance, "City/County Population and Housing Estimates" (May 2012).

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

The analysis in this Initial Study assumes that as a result of the Proposed Ordinance, approximately 95% of the volume of plastic bags currently used in the Study Area (258,602,841 plastic bags per year) would be replaced by recycled paper bags (approximately 30%) and reusable bags (approximately 65%), as shown in Table 2. It is further assumed that 5% of the existing single-use bags used in the Study Area would remain in use, as the Proposed Ordinance does not apply to some retailers who distribute plastic bags (e.g., restaurants). Thus, for this analysis, it is assumed that 12,930,142 plastic bags would continue to be used annually within the Study Area after implementation of the Proposed Ordinance. It is also assumed that approximately 77,580,852 paper bags would replace approximately 30% of the plastic bags currently used in the Study Area. This 1:1 replacement ratio is considered conservative, because the volume of a single-use paper carryout bag (20.48 liters) is generally equal to approximately 150% of the volume of a single-use plastic bag (14 liters), such that fewer paper bags would ultimately be needed to carry the same number of items.



In order to estimate the number of reusable carryout bags that would replace 168,091,872 plastic bags (65% of the existing number of plastic bags used annually in the Study Area), it is assumed that a reusable carryout bag would be used by a customer once per week for one year (52 times). According to the March 2010 *Master Environmental Assessment [MEA] on Single-use and Reusable Bags* (Green Cities California, March 2010), a reusable bag may be used 100 times or more; therefore the estimate of 52 uses per year for reusable bags is conservative. Based on the estimate of 52 uses, 168,091,872 single-use plastic bags that would be removed as a result of the Proposed Ordinance would be replaced by 3,232,536 reusable bags. This amounts to about seven reusable bags per person per year based on a Study Area population of 487,011. This analysis assumes that as a result of the Proposed Ordinance the approximately 259 million single-use plastic carryout bags currently used in the Study Area annually would be reduced to approximately 94 million total bags as a result of the Proposed Ordinance.

Table 2
Existing Plastic Bag Replacement Assumptions in the Study Area

Type of Bag	Replacement Assumption	Bags used Post-Ordinance	Explanation
Single-use Plastic	5% (remaining)	12,930,142	Because the Proposed Ordinance does not apply to all retailers (e.g. restaurants), some single-use plastic bags would remain in circulation.
Single-use Paper	30% ¹	77,580,852	Although the volume of a single-use paper carryout bag is generally 150% of the volume of a single-use plastic bag, such that fewer paper bags would be needed to carry the same number of items, it is conservatively assumed that paper would replace plastic at a 1:1 ratio.
Reusable	65% ¹	3,232,536	Although a reusable bag is designed to be used up to hundreds of times (Green Cities California MEA, 2010; Santa Monica Single-Use Carryout Bag Ordinance Final EIR, 2011), it is conservatively assumed that a reusable bag would be used by a customer once per week for one year, or 52 times.
Total		93,743,530	

¹ Rates utilized in the City of San Jose Final EIR, SCH # 2009102095, October 2010.

9. Surrounding land uses and setting:

The Proposed Ordinance would apply to the geographical limits of Sonoma County, including nine incorporated cities and town. Sonoma County is bordered by Mendocino County to the north, Marin County to the south, Lake and Napa Counties to the east, and the Pacific Ocean to the west.

10. Other public agencies whose approval is required:



No other public agencies besides the Sonoma County Waste Management Agency would have approval authority for the project. The Agency is a joint powers authority of the County and all of the affected cities and town.

ENVIRONMENTAL FACTORS AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that is “Potentially Significant” or “Potentially Significant Unless Mitigation Incorporated” as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forest Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input checked="" type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |



DETERMINATION:

On the basis of this initial evaluation:

- ☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☒ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed Project MAY have a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed Project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Signature

Date

Printed Name



Environmental Checklist	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
I. <u>AESTHETICS</u> – Would the Project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags.

The Proposed Ordinance would not include development of any physical structures or involve any construction activity. As such, the Proposed Ordinance would not adversely affect a scenic vista. Moreover, the Proposed Ordinance would not damage scenic resources such as trees, rock outcroppings, or historic buildings. In addition, since the Proposed Ordinance would not change any existing land uses or add any physical development or new structures within the Study Area, it would not degrade the existing visual character of the Study Area or the surrounding area. It is anticipated that implementation of the Proposed Ordinance may incrementally reduce litter in and around the Study Area by reducing the use of single use carryout bags, a potential beneficial effect. In summary, impacts would be *less than significant* and further analysis of these issues in an EIR is not warranted.

d) Existing sources of light at retail establishments within the Study Area include street lights, light structures in surface parking areas, and security lighting on buildings. The Proposed Ordinance would not add any physical development that would create additional sources of light and glare. Therefore, there would be *no impact* related to the creation of a new source of light or glare and further analysis in an EIR is not warranted.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
II. <u>AGRICULTURE AND FOREST RESOURCES</u> -- In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the Project:				
a) Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



a-e) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance would not include any physical development or change any existing land uses. As such, the Proposed Ordinance would not conflict with existing zoning for agricultural use, or a Williamson Act Contract. Moreover, the Proposed Ordinance would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. *No impacts* would occur and further discussion of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
III. <u>AIR QUALITY</u> -- Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Generally, a project would conflict with or potentially obstruct implementation of an air quality plan if the project would contribute to population growth in excess of that forecasted in the air quality management plan. The Proposed Ordinance would not involve the construction of residences or other physical structures, and would not otherwise induce population growth. Therefore, it would not conflict with or obstruct implementation of the Bay Area Air Quality Management District (BAAQMD) 2010 Clean Air Plan¹. There would be *no impact* and further analysis of this issue in an EIR is not warranted.

¹ Two air pollution control districts have jurisdiction in Sonoma County, the Northern Sonoma County Air Pollution Control District (NSCAPCD) and the Bay Area Air Quality Management District (BAAQMD). The NSCAPCD focuses on stationary pollution sources and does not maintain applicable air quality management plans for non-stationary emitters. Therefore, the BAAQMD's 2010 Clean Air Plan and significance thresholds are more appropriate for the proposed project.



b, c) The Proposed Ordinance does not include any new buildings or other physical development and therefore would not entail any construction activity. As such, the Proposed Ordinance would not generate construction emissions. However, although the Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags and to promote a shift toward the use of reusable bags in the Study Area, a potential change in the number of truck trips associated with delivering carryout bags to retailers and the additional use of reusable bags could increase long-term operational emissions. As discussed in Section XVI, Transportation/Traffic, the net increase in truck traffic resulting from the change in bag use would be less than one truck trip per day. In addition, although overall carryout bag use is anticipated to decline as a result of the Proposed Ordinance, the EIR will also analyze whether the shift toward reusable bags could potentially alter processing activities in the Study Area related to bag production which may increase air emissions. Impacts related to long-term emissions are *potentially significant* and will be further analyzed in an EIR.

d) Certain population groups are considered more sensitive to air pollution than others. Sensitive population groups include children, the elderly, the acutely ill and the chronically ill, especially those with cardio-respiratory diseases. Residential uses are also considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Sensitive receptors within the Study Area include children and the elderly.

As discussed above, implementation of the Proposed Ordinance could result in a change in the number of truck trips associated with deliveries of carryout bags to retailers in the Study Area. However, as discussed below in Section XVI, *Transportation/Traffic*, the total increase of truck trips associated with carryout bag delivery countywide compared to existing conditions would be less than one new trip per day as a result of the Proposed Ordinance. Further, truck trips would be expected to primarily utilize major regional transportation facilities (such as the U.S. 101, State Route 1 (Highway 1), State Route 12, State Route 116, and State Routes 121 and 37). Sensitive receptors such as children and the elderly are not typically located along these transportation facilities and major arterials and an increase of less than once new truck trip per day would not be anticipated to result in the exposure of sensitive receptors to substantial pollutants. Therefore, the Proposed Ordinance is not likely to expose sensitive receptors to substantial pollutant concentrations. The impact is *less than significant* and will not be further discussed in the EIR.

e) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance would not include development of any physical structures or involve any construction activity. As such, the Proposed Ordinance would not generate objectionable odors affecting a substantial number of people. There would be *no impact* and further analysis of this issue in an EIR is not warranted.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IV. <u>BIOLOGICAL RESOURCES</u> --				
Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. Although there is low potential for adverse effects to wildlife resources or their habitat



either directly or indirectly, by promoting a shift toward the use of reusable bags in the Study Area, the Proposed Ordinance could potentially affect sensitive species if reusable bags are improperly disposed of and become litter that enters the storm drain system and ultimately into coastal and marine environments. The proposed ordinance's impact related to sensitive species is *potentially significant* and will be further analyzed in an EIR.

b, c) The Proposed Ordinance would not include any physical development or construction activity and, therefore, would not alter or remove any existing riparian habitat or federal wetlands in the Study Area. As such, the Proposed Ordinance would not adversely affect any riparian habitat or any federally protected wetlands. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

d) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. Various trees, shrubs and bushes in the Study Area serve as roosting/nesting habitat for a variety of migratory and resident birds, such as raptors. However, the Proposed Ordinance would not include any physical development or construction activity and, therefore, would not alter or remove any existing vegetation in the Study Area. As such, the Proposed Ordinance 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. *No impact* would occur and further analysis of this issue in an EIR is not warranted.

e, f) The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance would not involve any physical development or construction activities that would conflict with local policies or ordinances protecting biological resources, including trees, nor would the Proposed Ordinance conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
V. <u>CULTURAL RESOURCES</u> --				
Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
V. <u>CULTURAL RESOURCES</u> --				
Would the Project:				
the significance of an archaeological resource as defined in §15064.5?				
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
a) The Proposed Ordinance would not involve construction activities or physical development that would cause a substantial adverse change in the significance of an historical resource. The Proposed Ordinance would have <i>no impact</i> in this regard, and further analysis of this issue in an EIR is not warranted.				
b-d) The Proposed Ordinance would not involve any ground-disturbing activities, such as excavation or construction activities. Therefore the Proposed Ordinance would not cause a substantial adverse change in the significance of an archaeological resource, directly or indirectly destroy a unique paleontological resource, or unique geologic feature, nor would it disturb any human remains. Therefore, there would be <i>no impact</i> and further analysis of these issues in an EIR is not warranted.				

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
VI. <u>GEOLOGY AND SOILS</u> –				
Would the Project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
VI. <u>GEOLOGY AND SOILS</u> –				
Would the Project:				
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance would not involve development or construction activity that would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking, seismic-related ground failure, or landslides. Therefore, *no impact* would occur and further analysis of these issues in an EIR is not warranted.

b-d) The Proposed Ordinance would not involve any physical development or construction activity; therefore, it would not result in substantial soil erosion or loss of topsoil. In addition, the Proposed Ordinance would not be located on a geologic unit or soil that is unstable and could increase the potential for landslide, lateral spreading, subsidence, liquefaction, or collapse, and would not place structures or people in areas that are located on expansive soil, as defined in Table 1-B of the Uniform Building Code, creating substantial risks to life or property. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

e) The Proposed Ordinance would not involve any physical development or construction activity. As such, the Proposed Ordinance would not have soils incapable of supporting the use



of septic tanks or alternative wastewater disposal systems. There would be *no impact* and further analysis of this issue in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
VII. <u>GREENHOUSE GAS EMISSIONS</u> - Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a-b) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance would not involve any physical development, construction activities, or land use changes that would contribute greenhouse gas emissions. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. Although overall carryout bag use is anticipated to decline as a result of the Proposed Ordinance, a temporary increase in single-use paper-bag use and a permanent increase in reusable bag use might lead to an increase in the frequency of truck trips needed to deliver a greater number of these bags to stores in the Study Area. As discussed in Section XVI, *Transportation/Traffic*, the net increase in truck traffic resulting from the change in bag use would be less than one truck trip per day.

The EIR will analyze whether a shift toward reusable bags in the Study Area would generate greenhouse gas emissions that may have a significant impact on the environment. In addition, the EIR will analyze whether the Proposed Ordinance would conflict with any applicable plan, policy or regulation adopted for the purpose of reducing greenhouse gas emissions. Impacts related to greenhouse gas emissions are *potentially significant* and will be further analyzed in an EIR.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
VIII. <u>HAZARDS AND HAZARDOUS MATERIALS</u> - Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent



(\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance would not involve development or construction activities that would use hazardous materials. Although hazardous materials may be used in the process to manufacture single use plastic and paper bags as well as reusable bags, there are no plastic, paper, or large-scale reusable bag manufacturing facilities within the Study Area and any existing or potential manufacturing facilities that manufacture bags would be required to continue to adhere to the requirements of the California Health and Safety Code (Section 25531-25543.3), which establishes a program for the prevention of accidental releases of regulated substances. With adherence to Health and Safety Code Section 25531-25543.3, carryout bag manufacturing facilities would be required to prepare and update a Risk Management Plan (RMP) that is designed to increase the protection of public health, the environment, and facility employees by ensuring proper emergency response and mitigation procedures when handling regulated substances and also assists the local government agencies in their communication and coordination efforts to improve facility safety while handling chemicals and hazardous materials. In addition, the completed product for each type of bag addressed by the ordinance would not be a hazardous material. As such, the Proposed Ordinance would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Moreover, the Proposed Ordinance would not handle or emit hazardous or acutely hazardous materials, substances, or waste within $\frac{1}{4}$ mile of an existing or proposed school. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

d, h) The Proposed Ordinance would not involve physical development or construction activities. Therefore, the Proposed Ordinance would not locate structures on a site that has been included on a list of hazardous material sites, nor would it expose people or structures to a significant risk of loss, injury, or death involving wildland fires. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

e, f) The Proposed Ordinance would not involve any physical development or construction activities and, therefore, would not place residents or employees within the vicinity of any airport or private air strip. As such, there would be *no impact* and further analysis in an EIR is not warranted.

g) The Proposed Ordinance would not involve any physical development or construction activities. The Proposed Ordinance does not involve any physical development or construction activities. However, the ordinance would result in less than one new truck trip per day. Nevertheless, this change in traffic associated with the Proposed Ordinance would not conflict with an adopted emergency response plan or emergency evacuation plan and would not interfere with traffic on existing streets or through existing neighborhoods. The impact would be *less than significant* and further analysis of this issue in an EIR is not warranted.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IX. <u>HYDROLOGY AND WATER QUALITY</u>				
– Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
IX. <u>HYDROLOGY AND WATER QUALITY</u>				
– Would the Project:				
i) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a, f) The Proposed Ordinance would not involve any physical development or construction activities, but rather is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. It is anticipated that the reduction of single-use carryout bags would incrementally reduce the amount of litter in the Study Area that enters storm drains, thereby improving water quality. However, the increased use of reusable bags could also potentially affect water quality if reusable bags are improperly disposed of and become litter that enters the storm drain system. In addition, although overall carryout bag use is anticipated to decline as a result of the Proposed Ordinance, the EIR will also analyze whether the shift toward reusable bags and paper bags could potentially affect water quality as a result of processing activities related to bag production. Consequently, impacts related to water quality standards and waste discharge requirements are considered *potentially significant* and will be further analyzed in an EIR.

b) The Proposed Ordinance would not substantially deplete groundwater supplies or significantly reduce groundwater recharge, as it would not involve any buildings or other physical development. However, as discussed above, the Proposed Ordinance would be expected to lead to an increase in the number of reusable bags consumed in the Study Area. Washing reusable bags for sanitary purposes (either in a washing machine or rinsing and wiping) by customers may incrementally increase water use in the Study Area. The impact to water supply and any impacts associated with groundwater supplies as a result of the increase in water use associated with the Proposed Ordinance are *potentially significant* and will be analyzed in an EIR.

c-d) The Proposed Ordinance would not involve any physical development or construction activities. As such, the ordinance would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The Proposed Ordinance would not alter the course of any stream or other drainage and would not increase the potential for flooding. Because the Proposed Ordinance does not involve any new buildings or other physical development, no stream or river would be altered and the rate or amount of surface runoff would not change compared to existing conditions. Therefore, there would be *no impact* and further analysis of these issues in an EIR is not warranted.



g, h) According to the County of Sonoma General Plan Public Safety Element, portions of the Study Area are located within the Federal Emergency Management Agency (FEMA) 100-year flood zone. The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance would not involve construction of any new buildings or other physical development and, therefore, would not increase exposure of people or structures to significant flood hazards or impede or redirect flood flows. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

i, j) According to the County of Sonoma General Plan Public Safety Element, there is potential for flooding in the Study Area in the event of failure of the Warm Springs Dam or the Coyote Dam. However, the Proposed Ordinance does not involve construction of any new buildings or other physical development and, therefore, would not subject people or structures to a significant risk of loss, injury or death involving flooding as a result of the failure of a levee or dam. As the Proposed Ordinance does not involve physical development or construction activities, the ordinance would not result in inundation by seiche, tsunami, or mudflow. There would be *no impact* and further analysis of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
X. <u>LAND USE AND PLANNING</u> -- Would the proposal:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with an applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c) The Proposed Ordinance would require adoption by the Sonoma County Waste Management Agency. However, it would not involve any new development or construction activities. No new through-streets are proposed and no through-streets would be abandoned. As a result, the Proposed Ordinance would not divide an established community. The Proposed Ordinance would not conflict with any land use plan or policy of the County or cities



within the Study Area, including general plans, specific plans, or zoning ordinances; rather, the program would further adopted policies calling for protection of the environment, improved public facilities and waste reduction. Moreover, the Proposed Ordinance does not involve any physical development or construction activities that would conflict with an applicable habitat conservation plan or natural community conservation plan. *No impact* would occur and further analysis of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XI. MINERAL RESOURCES -- Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-b) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance does not involve any physical development or construction or excavation activities. As such, the Proposed Ordinance would have *no impact* related to the loss of availability of a known mineral resource.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE – Would the Project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XII. NOISE – Would the Project result in:				
ambient noise levels above levels existing without the Project?				
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-d) The Proposed Ordinance would apply throughout the Study Area. However, the ordinance would not involve any physical development or construction activities. As such, the Proposed Ordinance would not create new noise sources that would expose persons to noise levels in excess of existing noise standards. The Proposed Ordinance would not expose persons to or generation of excessive groundborne vibration or groundborne noise levels, nor would the Proposed Ordinance create a substantial increase in permanent or temporary ambient noise levels. The ordinance could incrementally alter travel patterns associated with transport of single use and reusable bags; however, this incremental change would not create any audible change in the noise environment in any neighborhoods in or around the Study Area. Therefore, impacts related to noise levels would be *less than significant* and further analysis of these issues in the EIR is not warranted.

e, f) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance does not involve any physical development or construction activities that would be located within an airport land use plan or in the vicinity of a private airstrip. The Proposed Ordinance would therefore not expose people to excessive noise levels related to airports for people living or working in the Study Area and its vicinity, and the ordinance would have *no impact* in this regard.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XIII. <u>POPULATION AND HOUSING</u> —				
Would the Project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-c) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The ordinance would not involve any physical development, such as residential units, and would not alter any existing land uses. As such, the ordinance would not induce population growth, displace existing housing, or displace existing residents. There would be *no impact* related to population and housing and further analysis of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XIV. <u>PUBLIC SERVICES</u>				
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the				



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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XIV. PUBLIC SERVICES

public services:

i) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
v) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a(i, ii) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. Police and fire protection services are provided by multiple departments in the Study Area. The Proposed Ordinance would not involve any new development or land use changes, nor would the ordinance result in an increase in population or employment in the Study Area. Therefore, the ordinance would not place an additional burden on police and fire protection services in the Study Area. The Proposed Ordinance would not result in the need to construct new or altered fire protection or police facilities. There would be *no impact* and further analysis of these issues in an EIR is not warranted.

a(iii) The Proposed Ordinance would not involve any new development or land use changes within the Study Area. In addition, the Proposed Ordinance would not result in an increase in population or employment; therefore, the ordinance would not place an additional burden on existing schools in the Study Area. The Proposed Ordinance would not result in the need for new or altered public schools. There would be *no impact* and further analysis of this issue in an EIR is not warranted.

a(iv) The Proposed Ordinance would not involve the construction of residences or other facilities that would directly affect parks or increase demand for recreational services; therefore, the ordinance would not increase the demand for parks in the Study Area. The Proposed Ordinance would not result in the need for new or altered parks. There would be *no impact* and further analysis of this issue in an EIR is not warranted.

a(v) The Proposed Ordinance would not involve any new development or land use changes within the Study Area. In addition, it would not result in an increase in population or employment; therefore, the ordinance would not require the provision of new or physically altered government facilities. There would be *no impact* and further analysis of this issue in an EIR is not warranted.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XV. RECREATION --				
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a, b) The Proposed Ordinance would not involve the construction of residences. Therefore, the ordinance would not increase the demand for recreation facilities, nor would it alter existing recreation facilities or require the construction for any new facilities. There would be *no impact* and further analysis of these issues in an EIR is not warranted.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XVI. TRANSPORTATION / TRAFFIC --				
Would the Project:				
a) Conflict with an applicable plan, ordinance or policy establishing a measure of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways, and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XVI. <u>TRANSPORTATION / TRAFFIC</u> --				
Would the Project:				
including either an increase in traffic levels or a change in location that results in substantial safety risks?				
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bikeways, or pedestrian facilities, or otherwise substantially decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a, b) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The intent of the Proposed Ordinance is to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance would not involve any physical development or construction activities. However, the shift toward reusable bags could alter truck travel patterns associated with delivering bags from manufacturers to retailers.

Stores making available paper carryout bags would be required to sell recycled paper carryout bags made from 100% recycled material with a 40% post-consumer recycled content to customers for approximately \$0.10 per bag. This cost requirement would create a disincentive to customers to request paper bags when shopping at regulated stores and is intended to reduce the environmental impacts related to the use of single use carryout bags and to promote a major shift toward the use of reusable bags by consumers in the Study Area. The Proposed Ordinance may lead to a short term increase in single use paper bag use as consumers would be unable to get a free plastic bag while shopping and may not have a reusable bag, but may be willing to pay a fee to use paper bags. Based on a cost requirement of at least \$0.10 per bag, it is assumed in this analysis that the total volume of plastic bags currently used in the Study Area (approximately 258,602,841 plastic bags per year) would be replaced by approximately 30% paper bags and 65% reusable bags as a result of the Proposed Ordinance. It is assumed that 5% of the existing total of single-use plastic bags used in the Study Area would remain in use since the Proposed Ordinance does not apply to some retailers who distribute plastic bags (i.e., restaurants). Thus, for this analysis it is assumed that approximately 12,930,142 plastic bags would be used in the Study Area after the implementation of the Proposed Ordinance. Even



though the volume of a single paper carryout bag (20.48 liters) is generally equal to approximately 150% of the volume of a plastic bag (14 liters²) and thus could hold a larger volume, for this analysis it is conservatively assumed that approximately 77,580,852 paper bags would replace approximately 30% of the plastic bags currently used in the Study Area.

In order to estimate the number of reusable carryout bags that would replace 168,091,872 plastic bags (65% of the existing number of plastic bags used in the Study Area per year), it is assumed that a reusable carryout bag would be used by a customer once per week for one year (52 times)³. According to the March 2010 *MEA on Single-use and Reusable Bags*, reusable bags may be used 100 times or more, therefore the estimate of 52 uses per year for reusable bags is conservative (Green Cities California, March 2010). Based on the estimate of 52 uses, 168,091,872 single-use plastic bags that would be removed as a result of the Proposed Ordinance would be replaced by 3,232,536 reusable bags. Nevertheless, for this analysis, in order to replace the volume of groceries contained in the 80,813,388 single-use plastic bags that would be removed as a result of the Proposed Ordinance, an increase of approximately 3,232,536 reusable bags per year would be purchased by customers at retail stores⁴. It should be noted that approximately 3,232,536 reusable bags would mean that each person in the Study Area (487,011 in 2012) would purchase around seven reusable bags per year. This analysis assumes that as a result of the Proposed Ordinance the existing total volume of groceries currently carried in approximately 259 million single-use plastic carryout bags would be carried within approximately 94 million single-use plastic, reusable and single-use paper bags.

A temporary increase in single-use paper bag use and a permanent increase in reusable bag use might lead to an increase in the frequency of truck trips needed to deliver a greater number of these bags to stores in the Study Area. This is because paper and reusable bags take up more cargo space per unit than plastic bags. However, any increase in truck trips related to paper and reusable bag delivery would be partially offset by the reduction in truck trips related to single-use plastic carryout bag delivery since under the Proposed Ordinance, plastic bags would no longer be distributed at the vast majority of retail outlets and therefore truck delivery would be substantially reduced. Nevertheless, a temporary increase in single-use paper-bag use and a permanent increase in reusable bag use would result in a net increase in truck traffic. As shown in Table 3, the net increase in truck traffic resulting from the change in bag use would be less than one truck trip per day.

Truck trips would be expected to primarily utilize major regional transportation facilities (such as the U.S. 101, State Route 1 (Highway 1), State Route 12, State Route 116, and State Routes 121 and 37. Delivery trucks may periodically travel on residential streets, but an increase of less than one truck trip per day would not cause a significant traffic impact at any existing intersections or street segments in the Study Area. Therefore, impacts related to the existing

² The Ordinances to Ban Plastic Carryout Bags in Los Angeles County Final Environmental Impact Report (SCH #2009111104). Adopted by the County of Los Angeles Board of Supervisors on November 16, 2010.

³ Please note that this assumption (52 uses per year) was also utilized in the City of Santa Monica Single-Use Carryout Bag Ordinance Final Environmental Impact Report (SCH #2010041004), Adopted January 2011.

⁴ 723,377 reusable bags per year = 37,615,601 million single-use plastic bags / 52 uses per year.



traffic load and capacity of the local street system would be *less than significant* and further analysis in an EIR is not warranted.

Table 3
Estimated Truck Trips per Day
Following Implementation of the Proposed Ordinance

Bag Type	Number of Bags per Year	Number of Bags per Truck Load**	Truck Trips Per Year	Truck Trips per Day
Single-use Plastic	12,930,142*	2,080,000	6.22	0.017
Single-use Paper	77,580,852*	217,665	356.42	0.98
Reusable	3,232,536*	108,862	29.69	0.081
Total			392	1.08
Existing Truck Trips for Plastic Bags			(125)	(0.34)
Net New Truck Trips			267	0.74

*Based on worst case scenario estimate of 5% existing plastic bag use in Study Area (approximately 258,602,841 plastic bags per year) to remain, 30% conversion of the volume of existing plastic bag use in the Study Area to paper bags and 65% conversion to reusable bags (based on 52 uses per year).

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

c-f) The Proposed Ordinance would not affect air traffic patterns, nor would it include any design features that could present traffic hazards. The ordinance would not conflict with adopted policies, plans, or programs regarding public transit or nonmotorized transportation, nor would it affect the multi-modal performance of the highway and/or street and/or rail and/or off road nonmotorized trail transportation facilities. Implementation of the Proposed Ordinance would not reduce, sever, or eliminate pedestrian or bicycle circulation or access, or preclude future planned and approved bicycle or pedestrian circulation, nor would it cause a degradation of the performance or availability of all transit including buses, light or heavy rail for people or goods movement. There would be *no impact* and further analysis in an EIR is not warranted.

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
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XVII. UTILITIES AND SERVICE SYSTEMS --

Would the Project:

- | | | | | |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Require or result in the construction of | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS --				
Would the Project:				
new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a, b, e) The Study Area is served by multiple wastewater treatment plants. The Sonoma Valley County Sanitation District operates the Sonoma Valley Wastewater Treatment Plant. The cities of Cotati and Rohnert Park are served by the Santa Rosa Subregional Water Reclamation System. The Santa Rosa Subregional Water Reclamation System operates the Laguna Treatment Plant. The cities of Healdsburg and Petaluma operate their own wastewater treatment facilities. The City of Petaluma operates the Ellis Creek Water Recycling Facility and the City of Healdsburg operates the City of Healdsburg Wastewater Treatment Plant.

The Proposed Ordinance would prohibit specified retail establishments in the Study Area from providing single-use plastic carryout bags to customers at the point of sale and create a mandatory charge for each paper bag distributed by these stores. The Proposed Ordinance would not involve any new buildings or other physical development and therefore would not directly cause an increase in the amount of wastewater generated. However, increased washing of reusable bags (for sanitary purposes) by Study Area residents may incrementally increase wastewater generation. This increase of wastewater may exceed the County's and cities'



contractual entitlement for flows to the various wastewater treatment facilities. Therefore, the Proposed Ordinance could significantly affect the Study Area's wastewater conveyance systems. Impacts related to wastewater conveyance and treatment would be *potentially significant* and will be further analyzed in an EIR.

c) The Proposed Ordinance would not involve any physical development or construction activities. As such, it would not increase impervious surface area that would create or contribute runoff water exceeding the capacity of existing or planned stormwater drainage systems. Further, by eliminating the use of plastic bags in the Study Area, the Proposed Ordinance would incrementally reduce the amount of plastic bag litter that enters the storm drain systems. Plastic bags that enter the storm drain system may affect storm water flow by clogging drains and redirecting flow. By eliminating the potential for plastic bags to affect storm water flow, the Proposed Ordinance would incrementally improve the effectiveness of the stormwater drainage systems in the Study Area. Therefore, the Proposed Ordinance would not require any new storm water drainage facilities or the expansion of existing facilities. *No impact* would occur and further analysis of this issue in an EIR is not warranted.

d) Sources of water supply within the Study Area include local groundwater supplies and surface water sources from the county's three main watersheds (Russian River, Gualala River, and San Pablo Bay). The largest water supply system is operated by the Sonoma County Water Agency (SCWA) in the Russian River watershed. SCWA supplies water to the Town of Windsor, the City of Santa Rosa, the Valley of the Moon Water District, the City of Sonoma, the City of Rohnert Park, the City of Cotati, the City of Petaluma, and the North Marin Water District. While the Russian River is the primary source of domestic water for the county's urban areas, most rural areas are served by groundwater. It should be noted that individual cities in Sonoma County have local sources of groundwater that are used primarily to supplement supplies from the SCWA. The SCWA operates under a water supply permit issued by the State Department of Health Services. This permit requires the Water Agency to operate and maintain its water supply system in compliance with state water law. This permit includes water quality monitoring requirements and various other conditions and criteria. The Water Agency consistently meets state and national standards for drinking water quality.

The Proposed Ordinance would be expected to lead to an increase in the number of reusable bags used in the Study Area. Washing reusable bags for sanitary purposes (either in a washing machine or by rinsing and wiping) may incrementally increase water use in the Study Area. The impact to water supply would be *potentially significant* and the potential for the increase in water use to exceed available supplies will be analyzed in the EIR.

f, g) The County owns and operates one landfill and owns and contracts the operation of five transfer stations that provide service to its residents. The Central Landfill is located within the Central Disposal Site. The main solid waste disposal site for Sonoma County is the Central Landfill, located at 500 Meacham Road in Petaluma California. Solid waste generated in the nine incorporated jurisdictions is also taken primarily to the Central Landfill. However, solid waste generated within the City of Petaluma is also taken to the Redwood Landfill, located in Marin County. In addition to the Central Landfill, the County has an agreement with Redwood Empire Disposal for operations of the five transfer stations and for out haul of the County's solid waste to Recology's Hay Road Landfill, located in Solano County.



The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The shift toward reusable bags would reduce the amount of single-use plastic carryout bags sent to local landfills. However, the Proposed Ordinance may result in a temporary increase in the number of paper bags and a permanent increase in the number of reusable bags that are currently used in the Study Area. As such, the Proposed Ordinance may incrementally increase the amount of solid waste generated related to these types of bags. Impacts to the Study Area's solid waste collection and disposal system would be *potentially significant* and this issue will be further analyzed in an EIR.



	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE —				
a) Does the Project have the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>a) The Proposed Ordinance would regulate the use of paper and plastic single use carryout bags at specified retail establishments in the Study Area, and would create a mandatory 10 cent (\$0.10) charge for each recycled paper and reusable bag distributed by these stores. The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance does not involve any physical development or construction activities. As such, the Proposed Ordinance does not have the potential to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory. There would be no impact with respect to these issues and further analysis in an EIR is not warranted. However, as discussed under Section IV, <i>Biological Resources</i>, the Proposed Ordinance could potentially affect sensitive species if reusable bags are improperly disposed of and become litter that enters the storm drain system and ultimately into coastal and marine environments. The proposed ordinance's impact related to sensitive species is <i>potentially significant</i> and will be further analyzed in an EIR.</p>				
<p>b) All potential environmental impacts of the project have been determined in this Initial Study to have no impact or a less than significant impact, except for environmental impacts related to</p>				



air quality, biological resources, greenhouse gas emissions, hydrology and water quality, and utilities and service systems. Cumulative impacts related to air quality, biological resources, greenhouse gas emissions, hydrology and water quality, and utilities and service systems could be *potentially significant* and will be analyzed in an EIR.

c) The Proposed Ordinance is intended to reduce the environmental impacts related to the use of single use carryout bags, and to promote a shift toward the use of reusable bags in the Study Area. The Proposed Ordinance does not involve any physical development or construction activities. As such, impacts related 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, and transportation and traffic were determined to have no impacts related to the Proposed Ordinance or were determined to be less than significant and would therefore not cause substantial adverse effects on human beings, either directly or indirectly. As previously mentioned, impacts related to air quality, biological resources, greenhouse gas emission, hydrology and water quality, and utilities and service systems could be potentially significant. Therefore, effects on human beings, either directly or indirectly could also be *potentially significant* and will be analyzed further in an EIR.

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Comment Sheet

Please let us know your concerns related to the potential environmental impacts of the proposed program, or alternatives to the proposed program, so we can address them in the Environmental Impact Report.

Name: KEARY AND SALLY SORENSON

Affiliations: STEWARDS OF THE COAST AND REDWOODS
N.O.A.A.
(resident, businessperson, agency representative,
community group member)

Address: 16017 CHERRY RIDGE RD
SEBASTOPOL CA 95472

Phone: 415 806 8764

Email: keary.sally17@comcast.net

Comments: OUR CONCERNS ARE IF THE PROGRAM IS NOT IMPLEMENTED
THEN THE FOLLOWING 10 BIOLOGICAL IMPACTS WILL CONTINUE

- ① VISUAL: PLASTIC BAGS HANGING FROM FOLIAGE ALONG ROADS, CREEKS, RIVERS, AND BEACHES.
- ② U.V. DEGRADATION OF DISCARDED PLASTIC BAGS: U.V. DEGRADATION FORMS MICROPLASTICS WHICH RELEASE PH+ALATES, PCBS, PVC, TOULINE, DIOXINS, BENZINE, BUTADINE, AND SULPHER INTO THE SOIL OR WATER IN WHICH THE DEGRADATION OCCURS.
- ③ INJECTION OF PLASTIC BAGS BY CAETATIONS AND SEA TURTLES: PLASTIC BAGS IMITATE JELLATIONOUS MARINE LIFE FORMS. SEA TURTLES USE VISION CAETATIONS USE BOTH VISION AND SONAR TO HOME IN ON PLASTIC BAGS.
- ④ INJECTION OF PLASTIC BAGS BY SEA BIRDS: SEA BIRDS ARE VISUAL FEEDERS ANYTHING RED, WHITE, BLUE, GREEN, OR GREY THEY WILL CONSUME.
- ⑤ INJECTION OF PLASTIC BAGS BY FISH: AS PLASTIC BAGS BREAK UP THEY FORM MICRO PLASTIC. FISH BOTH SWALLOW AND INHALE THESE MICROPLASTICS
- ⑥ INJECTION OF PLASTIC BAGS BY INVERTEBRATES: INVERTEBRATES LIVING IN, ON, AND AROUND PLASTIC BAGS FLOATING IN THE OCEAN INGEST OR ABSORB THE PETROCHEMICLES EXUDEED AS THE BAGS BREAK UP AND DEGRADE

SEE ATTACHED PAGE

Please submit to:

Patrick Carter, Department Analyst
Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403

Or email:

patrick.carter@sonoma-county.org

Comment Sheet

Please let us know your concerns related to the potential environmental impacts of the proposed program, or alternatives to the proposed program, so we can address them in the Environmental Impact Report.

Name: KEARY AND SALLY SORENSON

VOLUNTEER COORDINATORS FOR
MARINE DEBRIS SONOMA COAST
Affiliation: STATE PARK
(resident, businessperson, agency representative,
community group member)

Address: 10017 CHERRY RIDGE RD
SEBASTOPOL CA 95472

Phone: 707 694 4897
Email: KEARYSALLY17@COMCAST.NET

Comments

- ⑦ EFFECTS OF PLASTIC BAGS ON TIDE POOL LIFE: PLASTIC BAGS LODGED IN TIDE POOLS SUFFOCATE OR COOK BOTH VERTEBRATES AND INVERTEBRATES TRAPPED UNDER THEM.
- ⑧ RELEASE OF PLASTIC PELLETS AND P.N.A.H. DURING THE MANUFACTURING OF PLASTIC BAGS: PLASTIC PELLETS (NERDELS) ARE MISTAKEN FOR FOOD BY BOTH BIRDS AND FISH. POLYNUCLEAR AROMATIC HYDROCARBONS ARE TOXIC TO ALL LIFE FORMS THAT INHALE THEM.
- ⑨ CLOGGING OF STORM DRAINS BY PLASTIC BAGS: PLASTIC BAGS SNARE OTHER DEBRIS IN STORM DRAINS HELPING TO FORM CLOGS WHICH CAUSE FLOODS WHICH CREATES FLOODING THAT CAUSES EROSION THAT SILTS OVERSTREAM BEDS AND TIDE POOLS.
- ⑩ INGESTION OF MICRO PLASTIC TAINTED FISH BY ZALOPHUS CALIFORNIANUS, PHOCA VITULINA, CANINES, FELINES, AND HOMO SAPIENS: PETROCHEMICALS WHEN INGESTED BY MAMMALS CAUSE ASTHMAS, CANCERS AND SEXUAL DISFUNCTION IN ADULTS AND IS TERATOGENIOUS

Please submit to:

Patrick Carter, Department Analyst
Sonoma County Waste Management Agency
2300 County Center Drive, Suite B100
Santa Rosa, CA 95403

Or email:

patrick.carter@sonoma-county.org

From: Mike Swartz [mailto:m_zebulon@yahoo.com]

Sent: Wednesday, November 14, 2012 4:51 PM

To: Patrick Carter

Subject: EIR per proposed prohibition of single-use carryout bags

Patrick Carter, Department Analyst
SCWMA
2300 County Ctr Dr, Ste B100
Santa Rosa 95403

Dear Mr Carter:

I understand that your agency intends to prepare an EIR for a proposed regulation concerning single-use carryout bags.

Here's my input:

--- the proposition stinks.

1. Have YOU ever tried *using* "reusable" bags?

If you *have*, sir, then you are well aware of how easily they become dirty, and how hard they are to keep clean --- and how rank they can become.

It's all well-and-good to try to reduce the amount of waste in the community

--- but it's most unwise to do so in a manner that ignores the "Law of Unintended Consequences". . . .

2. Why does the regulation propose a minimum charge of ten cents [0.10] per bag for recycled paper bags?

--- What's it to YOU (or your agency) how much *or* how little the grocer charges?

Or is it simply that this money is to be collected by some official body as yet another govt revenue-generating device?

That wasn't a rhetorical question, sir; I'd like an answer please.

Mike Swartz

From: David Woodworth [<mailto:dcwoodworth@yahoo.com>]
Sent: Thursday, November 15, 2012 2:48 PM
To: Patrick Carter
Subject: shopping bag ban

Hello Mr. Carter,

I understand that you are accepting public input on the EIR for the proposed shopping bag ban.

While I can understand some of the reasons why some people are for this ban, please realize that nobody "owns" environmental protection. Environmentalism is not a religion, and is not infallable.

This bag ban is too sweeping and may cause environmental backlash. To put it bluntly, the public is not ready for this "one size fits all" solution. Many people such as myself think the present situation recycles paper bags just fine. They are typically re-used before being recycled. I put a paper bag in each room where I might read a newspaper or drink a canned soda. When full, I simply put the bag in the blue bin.

Without a supply of paper bags, I may just decide to throw everything in the trash instead. I doubt that I would be the only one.

The Sierra Club and its like once focused on important issues. Saving San Francisco bay from being filled in was important. Stopping the nuclear reactor in Bodega Bay was important. Have so-called environmentalists been reduced to micro-managing whether we use paper bags? I am disgusted.

Please consider the possible negative environmental issues in your EIR as well as the positive ones.

Respectfully, David Woodworth, Santa Rosa

To: Patrick Carter
Department Analyst
Sonoma County Waste Management
2300 County Center Drive
Suite B100
Santa Rosa, CA
95403

November 17, 2012

From: Dana Zimmerman
16900 Neeley Rd.
Guerneville, CA
95446

Dear Mr. Carter,

Please find below my inquiries about the regulation of the use of paper and plastic single use carryout bags set to start July 1, 2013.

The Sonoma County Waste Management Agency (SCWMA) intends to prepare an Environmental Impact Report (EIR) for a proposed regulation promoting a uniform program for reducing waste by decreasing the use of single use carryout bags.

In my opinion, this ordinance would impose unacceptable shopping conditions by attempting to decrease the use of so-called single use carry out plastic bags. It would create an extensive bureaucracy to do so when our present system is capable of recycling those bags if the public was provided with adequate education in the recycling of not just the targeted bags but all plastic bags. The EIR should include a study evaluating the present knowledge of shoppers that plastic shopping bags can be recycled and of the process for recycling them. Stores have recently clearly marked plastic carry out bags as being recyclable.

This ordinance is aimed at decreasing the incentive of mainly grocery store shoppers to use plastic carry out bags and to use paper bags or their own reusable bags which they bring to the store on each shopping trip. For shoppers who shop once a week, that could mean bringing 10 to 20 shopping bags to the store whose cleanliness would always be questionable.

The EIR should include a study of the increased burden of the ordinance on shoppers to provide their own bags and the stores job to maintain a clean food environment.

The ordinance would prohibit the free distribution of single use carryout paper and plastic bags. The ordinance would not prohibit the use of store bags, but would only supply paper bags for a fee (minimum of ten cents). Recyclable plastic bags would not be available. The EIR should include a study showing what affects not allowing free bags would have on the customers and the environment.

The ordinance would require the retail establishments to charge customers for recycled paper bags and reusable bags at the point of sale for a minimum charge of ten cents. Plastic bags apparently would not be sold even though they are recyclable. The EIR should include a study evaluating the effect of charging for recycled paper bags and not supplying the sturdier recyclable plastic bags.

The EIR should include a study comparing the use of paper bags and plastic bags both in durability and costs and the environmental costs in supplying the wood for paper bags. Paper bags are not as strong as plastic bags and usually require more bags for safe transporting.

Regulated bags would not include bags without handles provided to the customer. So the stores could provide carryout bags without handles. The EIR should also include a study of the customer's ability to use carryout bags without handles. The handles on paper bags often break even with light loads.

The "no handle" distinguishes between the takeout bags and the tremendous amount of plastic used in the market place today. You don't take a chicken by the legs and throw it on the check stand conveyer belt. You don't do that with grapes either. Yet the chicken and grapes and much more can go in one plastic carry out bag. The EIR should include a study of the quantity of plastic that goes out the door in the carryout bag compared to the amount of plastic in the bag. The carryout bag is probably 1000 times less. Why the discrimination?

The regulated bags do not include bags used to transport produce, bulk food

or meat within a store to the point of sale. So all of the plastic in the store is not included in the ordinance. The elimination of plastic in the store would mean you would need to take a raw chicken up the register to check out. What a sanitation problem. The EIR should include a study comparing the pollution caused by the plastic carryout bags verses the bags to transport produce to the point of sale that then go out the door just like the carry out bags

The regulated bags do not include bags use to hold prescription medication dispensed from the pharmacy. The EIR should include a study comparing the pollution cause by the plastic carryout bags verses the pollution from the plastic bags used to dispense medications and the medication containers themselves.

The regulated bags also do not include bags to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bag. The EIR should provide a comprehensive list of items that are allowed to be separately bagged. Chicken could be bagged, but what about apples of sweet peas?

The reusable bags create a whole other problem not presented by using new bags. What if a shopper brings in a contaminated reusable bag? Can that bag be allowed in the store possibly exposing the store's food to the contamination? Should a reusable bag inspection station be established to insure that the reusable bags are sanitary enough to be in the store? The EIR should include a study to provide guidelines for use of reusable bags in stores and at the check out counter.

Are the store clerks required to handle the customers' reusable bag or are the customers required to load their own, possibly contaminated, bags at the check out counter? The EIR should include a study of the use of reusable bags and store employee safety. Employee unions should be involved.

The regulated bags also do not include plastic bags for transporting food home from a restaurant and other food service providers. The EIR should include a study of why these bags should be exempt while other stores (especially grocery stores) are not.

In conclusion, it appears that a whole new bureaucracy would need to be established to manage single use carry out bags. The present carry out bags should be manageable with the present recycling procedures and an adequate public educational program to ensure the public understands that plastic bags are recyclable and should go in the recycle bin and not the trash bin.

The container charge placed on aluminum cans and glass bottles did decrease the pollution caused by them being discarded. The discarding seemed to be decreased and the recycling was done by the needy-a great job for the poor. No reward has been proposed for recycling bags. The EIR should include research to determine if placing a return reward would improve the recycling.

Please confirm that you have received this letter.

Thanks,

Dana Zimmerman



Appendix B

*Air Quality URBEMIS Results, Air Quality and
Greenhouse Gas Estimates by Municipality*

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name:

Project Name: Sonoma County Bag Ordinance Project

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	21.73

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	21.73

Urbemis 2007 Version 9.2.4

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

File Name:

Project Name: Sonoma County Bag Ordinance Project

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Bag Ordinance Truck Trips	0.01	0.09	0.03	0.00	0.01	0.00	21.73
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	21.73

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Bag Ordinance Truck Trips		0.73	1000 sq ft	1.00	0.73	5.40
					0.73	5.40

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.4	99.2	0.4
Light Truck < 3750 lbs	0.0	1.1	93.9	5.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	0.0	0.5	99.0	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	51.1	48.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Bag Ordinance Truck Trips				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Sonoma County Bag Alt 2.urb924

Project Name: Sonoma County Bag Ordinance Alt 2

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.11	0.04	0.00	0.02	0.01	25.60

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.11	0.04	0.00	0.02	0.01	25.60

Urbemis 2007 Version 9.2.4

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

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Sonoma County Bag Alt 2.urb924

Project Name: Sonoma County Bag Ordinance Alt 2

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Bag Ordinance Truck Trips	0.01	0.11	0.04	0.00	0.02	0.01	25.60
TOTALS (lbs/day, unmitigated)	0.01	0.11	0.04	0.00	0.02	0.01	25.60

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Bag Ordinance Truck Trips		0.86	1000 sq ft	1.00	0.86	6.36
					0.86	6.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.4	99.2	0.4
Light Truck < 3750 lbs	0.0	1.1	93.9	5.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	0.0	0.5	99.0	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	51.1	48.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Bag Ordinance Truck Trips				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

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

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Sonoma County Bag Alt 3.urb924

Project Name: Sonoma County Bag Ordinance Alt 3

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Bag Ordinance Truck Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.60
TOTALS (lbs/day, unmitigated)	0.00	0.00	0.00	0.00	0.00	0.00	0.60

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Bag Ordinance Truck Trips		0.02	1000 sq ft	1.00	0.02	0.15
					0.02	0.15

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.4	99.2	0.4
Light Truck < 3750 lbs	0.0	1.1	93.9	5.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	0.0	0.5	99.0	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	51.1	48.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Bag Ordinance Truck Trips				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Sonoma County Bag Alt 4.urb924

Project Name: Sonoma County Bag Ordinance Alt 4

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.00	0.03	0.01	0.00	0.00	0.00	6.25

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.00	0.03	0.01	0.00	0.00	0.00	6.25

Urbemis 2007 Version 9.2.4

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

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Sonoma County Bag Alt 4.urb924

Project Name: Sonoma County Bag Ordinance Alt 4

Project Location: Sonoma County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Bag Ordinance Truck Trips	0.00	0.03	0.01	0.00	0.00	0.00	6.25
TOTALS (lbs/day, unmitigated)	0.00	0.03	0.01	0.00	0.00	0.00	6.25

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Bag Ordinance Truck Trips		0.21	1000 sq ft	1.00	0.21	1.55
					0.21	1.55

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.4	99.2	0.4
Light Truck < 3750 lbs	0.0	1.1	93.9	5.0

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	0.0	0.5	99.0	0.5
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	72.2	27.8
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	16.7	83.3
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	0.0
Motorcycle	0.0	51.1	48.9	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	90.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Bag Ordinance Truck Trips				2.0	1.0	97.0

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name:

Project Name: Sonoma County Bag EIR Alternative 5

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	19.64

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	19.64

Urbemis 2007 Version 9.2.4

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

File Name:

Project Name: Sonoma County Bag EIR Alternative 5

Project Location: Bay Area Air District

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Bag Ordinance	0.01	0.09	0.03	0.00	0.01	0.00	19.64
TOTALS (lbs/day, unmitigated)	0.01	0.09	0.03	0.00	0.01	0.00	19.64

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Bag Ordinance		0.66	1000 sq ft	1.00	0.66	4.88
					0.66	4.88

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.4	99.4	0.2
Light Truck < 3750 lbs	0.0	0.8	96.8	2.4

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	0.0	0.5	99.5	0.0
Med Truck 5751-8500 lbs	0.0	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.0	0.0	77.8	22.2
Lite-Heavy Truck 10,001-14,000 lbs	0.0	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	0.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	100.0	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	50.0	50.0	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Bag Ordinance				2.0	1.0	97.0



Appendix C

Utilities Calculations

Sonoma County Waste Management Agency-Carryout Bag Waste Reduction Ordinance Program EIR	
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37
Number of plastic bags used in participating jurisdictions per year	258,602,841
Number of plastic bags used in participating jurisdictions per day	708,501
Ordinance - Assume 95% switch to paper/reusable	
Number of Plastic bags still in (5% of existing)	35,425
Number of paper bags per day with 30% conversion	212,550
Number of reusable bags per day with 65% conversion	8,856

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

Water Use - Ecobilan		Existing Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
Liters water per 9000 liters groceries		52.6	52.6	173	2.634615
Liters water per bag per day		0.081822222	0.081822222	0.393671111	0.010831
Liters water in Study Area per day		57971.12089	2898.556044	83674.905	95.92391
Gallons per day		15314.34985	765.7174923	22104.57119	25.34042
Millions gallons per day (MGD) in Study Area		0.01531435	0.000765717	0.022104571	2.53E-05
MGD per year		5.589737694	0.279486885	8.068168484	0.009249
Increase in water use per year (MGD)					
Increase as a result of Ordinance - Million gallons per year	2.767166927				

Wastewater - Ecobilan		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
Liters water per 9000 liters groceries		50	50	130.7	2.634615
Liters water per bag per day		0.077777778	0.077777778	0.297415111	0.010831
Liters water in Study Area per day		55105.62822	2755.281411	63215.66522	95.92391
Gallons per day		14557.36677	727.8683387	16699.81187	25.34042
Millions gallons per day (MGD) in Study Area		0.014557367	0.000727868	0.016699812	2.53E-05
MGD per year		5.313438872	0.265671944	6.095431334	0.009249
Increase in water use per year (MGD)					
Increase per day (MGD)					
Increase as a result of Ordinance - per year Million gallons	1.056913658				

Solid Waste - Ecobilan		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
kg waste per 9000 liters groceries (w/EPA recycling)		4.19356	4.19356	3.83624	0.252115
kg waste per bag per day		0.006523316	0.006523316	0.008729577	0.001036
kg waste in City per day		4621.775165	231.0887583	1855.47409	9.179288
Tons per day (w/recycling)		5.094628983	0.254731449	2.045307644	8.09E-05
Tons per year		1859.539579	92.97697893	746.5372901	0.029546
Increase in solid waste per year (MGD)				-1113.002289	-1859.51
Increase as a result of Ordinance. Tons/year	-1019.995764				

Energy - Ecobilan		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
MJ per 9000 liters groceries		286		295	15.48077
MJ per bag per day		0.444888889		0.671288889	0.063643
MJ in Study Area per day		315204.1934		142682.6415	563.6405
kWh in Study Area per day		87556.72109		39634.06739	156.5668
million kWh in Study Area per day		0.087556721		0.039634067	0.000157
Increase in million kWh per day				-0.047922654	-0.0874
Increase as a result of Ordinance. Million kWh	-0.047766087				
Increase in kWh	-47766.08689				

2007 recycle rate

plastic bags	11.90%
paper bags	36.80%

Water Use - Boustead		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag
Gallons per 1000 paper bags (1500 plastic bags)		58	58	1004
Gallons per bag		0.038666667	0.038666667	1.004
Gallons water in Study Area per day		27395.36946	1369.768473	213400.4814
Millions gallons per day (MGD) in Study Area		0.027395369	0.001369768	0.213400481
MGD per year		9.999309852	0.499965493	77.89117571
Increase in water use per year (MGD)	68.39183135			
Increase in water per day	0.18737488			

Solid Waste -Boustead		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
kg waste per 1000 paper bags (1500 plastic bags)		6.20224	6.20224	21.4248	
kg waste per bag per day		0.004134827	0.004134827	0.0214248	
kg waste in Study Area per day		2929.528556	146.4764278	4553.847245	
Tons per day		3.229248623	0.161462431	5.019751356	
Tons per year		1178.675747	58.93378737	1832.209245	
Increase in solid waste per year (MGD)				653.5334977	
Increase as a result of Ordinance. Tons/day	1.951965165				
Increase as a result of Ordinance. Tons/year	712.4672851				

2007 recycle rate

plastic bags	11.90%
paper bags	36.80%

Energy - Boustead		Plastic bag	Proposed Plastic Bag Use (5%)	Paper bag	Reusable bag used 52 times
MJ per 1000 paper bags (1500 plastic)		763		2622	
MJ per bag per day		0.508666667		2.622	0
MJ in Study Area per day		360390.8086		557306.8349	0
kWh in Study Area per day		100108.5587		154807.4554	0
million kWh in Study Area per day		0.100108559		0.154807455	0
Increase in million kWh per day				0.054698897	
Increase as a result of Ordinance. Million kWh	0.054698897				
Increase in kWh	54698.89664				



Appendix D
Draft Ordinance

SONOMA COUNTY WASTE MANAGEMENT AGENCY

ORDINANCE NO. 2013- 1

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE SONOMA COUNTY WASTE MANAGEMENT AGENCY ESTABLISHING A WASTE REDUCTION PROGRAM FOR CARRYOUT BAGS

THE BOARD OF DIRECTORS OF THE SONOMA COUNTY WASTE MANAGEMENT AGENCY DOES ORDAIN AS FOLLOWS:

SECTION 1.

“GENERAL PROVISIONS

Title.

This Ordinance is known and may be cited as the Waste Reduction Program for Carryout Bags.

Purpose and Intent.

It is the intent of the Sonoma County Waste Management Agency (“Agency”), a ten member joint powers agency established pursuant to California Government Code Section 6500, in adopting this Ordinance to exercise the members’ common powers and pursuant to Section 14 of the Joint Powers Agreement, to adopt regulations promoting a uniform program for reducing waste by decreasing the use of single use carryout bags.

Defined Terms and Phrases.

For the purposes of this Ordinance, the words, terms and phrases as defined herein shall be construed as hereinafter set forth, unless it is apparent from the context that a different meaning is intended:

- A. “Customer” means any Person obtaining goods from a Retail Establishment.
- B. “Nonprofit Charitable Reuser” means a charitable organization, as defined in Section 501(c)(3) of the Internal Revenue Code, or a distinct operating unit or division of the charitable organization, that reuses and recycles donated goods or materials and receives more than fifty percent (50%) of its revenues from the handling and sale of those donated goods or materials.
- C. “Person” means any natural person, firm, corporation, partnership, or other organization or group however organized.
- D. “Prepared Food” means foods or beverages which are prepared on the premises by cooking, chopping, slicing, mixing, freezing, or squeezing, and which require no further preparation to be consumed. Prepared Food does not include any raw or uncooked meat product.
- E. “Recycled Paper Bag” means a paper bag provided at the check stand, cash register, point of sale, or other point of departure for the purpose of transporting

food or merchandise out of the establishment that contains no old growth fiber and a minimum of forty percent (40%) Post-consumer Recycled Material; is one hundred percent (100%) recyclable; and has printed in a highly visible manner on the outside of the bag the words "Reusable" and "Recyclable," the name and location of the manufacturer, and the percentage of Post-consumer Recycled content.

- F. "Post-consumer Recycled Material" means a material that would otherwise be destined for solid waste disposal, having completed its intended end use and product life cycle. Post-consumer Recycled Material does not include materials and byproducts generated from, and commonly reused within, an original manufacturing and fabrication process.
- G. "Public Eating Establishment" means a restaurant, take-out food establishment, or any other business that receives ninety percent (90%) or more of its revenue from the sale of Prepared Food to be eaten on or off its premises.
- H. "Retail Establishment" means any commercial establishment that sells perishable or nonperishable goods including, but not limited to, clothing, food, and personal items directly to the Customer; and is located within or doing business within the geographical limits of the County of Sonoma, including the nine incorporated cities and town. Retail Establishment does not include Public Eating Establishments or Nonprofit Charitable Reusers.
- I. "Reusable Bag" means either a bag made of cloth or other machine washable fabric that has handles, or a durable plastic bag with handles that is at least 2.25 mil thick and is specifically designed and manufactured for multiple reuse. A Reusable Bag provided by a Retail Establishment shall be designed and manufactured to withstand repeated uses over a period of time; made from a material that can be cleaned and disinfected; and shall not contain lead, cadmium, or any other heavy metal in toxic amounts.
- J. "Single-Use Carryout Bag" means a bag, other than a Reusable Bag, provided at the check stand, cash register, point of sale or other point of departure for the purpose of transporting food or merchandise out of the establishment. Single-Use Carryout Bags do not include bags without handles provided to the Customer (1) to transport produce, bulk food or meat from a produce, bulk food or meat department within a store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a Reusable Bag or Recycled Paper Bag.

Single-Use Carryout Bags.

- A. On and after July 1, 2013, no Retail Establishment shall provide a Single-Use Carryout Bag to a Customer for the purpose of transporting food or merchandise out of the establishment except as provided in this Ordinance.
- B. On and after July 1, 2013, a Retail Establishment may make available for sale to a Customer a Recycled Paper Bag for a minimum charge of ten cents (\$0.10).

- C. Notwithstanding this Section, no Retail Establishment may make available for sale a Recycled Paper Bag unless the amount of the sale of the Recycled Paper Bag is separately itemized on the sales receipt.

Recordkeeping and Inspection.

Every Retail Establishment shall keep a monthly report of the total number of Recycled Paper Bags purchased and the total number sold, for a minimum period of three (3) years from the date of purchase and sale, which record shall be available for inspection at no cost to the Agency during regular business hours by any Agency employee or contractor authorized to enforce this Ordinance. Unless an alternative location or method of review is mutually agreed upon, the records or documents shall be available at the Retail Establishment address. The provision of false information including incomplete records or documents to the Agency shall be a violation of this Ordinance.

Enforcement.

The Executive Director of the Agency, or his or her designee, shall have primary responsibility for enforcement of this Ordinance. The Executive Director is authorized to make all necessary and reasonable rules and regulations with respect to the enforcement of this Ordinance. All such rules and regulations shall be consistent with the provisions of this Ordinance.

Anyone violating or failing to comply with any provision of this Ordinance shall be guilty of an infraction. The Agency may seek legal, injunctive, administrative or other equitable relief to enforce this Ordinance. The remedies and penalties provided in this Section are cumulative and not exclusive and nothing in this Section shall preclude the Agency from pursuing any other remedies provided by law. In addition to any relief available to the Agency, the Agency shall be entitled to recover reasonable attorneys' fees and costs incurred in the enforcement of this Ordinance.

The authorized representative of any Retail Establishment may appeal a citation as provided in the Agency's Administrative Penalties Ordinance.

Violations of this Ordinance shall be punishable as provided in the Agency's Administrative Penalties Ordinance.

Each violation of this Ordinance or each day a violation exists shall be considered a separate offense.

Severance.

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or in any manner in conflict with the laws of the United States or the State of California, such decision shall not affect the validity of the remaining portions of this Ordinance. The Board of Directors of the Sonoma County Waste Management Agency hereby declares that it would have passed this Ordinance and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared unconstitutional or in any manner in conflict with the laws of the United States or the State of California.

SECTION 2. A summary of this Ordinance shall be printed and published twice in the Santa Rosa Press Democrat, a newspaper of general circulation, printed and published in the City of Santa Rosa, County of Sonoma.

SECTION 3. This Ordinance shall be effective on July 1, 2013. A summary of this Ordinance shall, within fifteen (15) days after passage, be published with the names of the Directors voting for and against it.

INTRODUCED at a regular meeting of the Board of Directors of the Sonoma County Waste Management Agency on the ____ day of _____, 2013, and

PASSED AND ADOPTED this ____ day of _____, 2013, by the following vote:

AYES: Directors: _____

NOES: Directors: _____

ABSENT: Directors: _____

ABSTAIN: Directors: _____

CHAIR

ATTEST:

AGENCY CLERK