

# Draft Environmental Impact Report

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## **Single-Use Carryout Bag Ordinance**

File No. PP09-193  
SCH # 2009102095

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Prepared by the:



July 2010

## PREFACE

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This document has been prepared by the City of San José as the Lead Agency in conformance with the California Environmental Quality Act (CEQA). The purpose of this Environmental Impact Report (EIR) is to inform decision makers and the general public of the environmental effects of a proposed project.

This document provides project level environmental review appropriate for adoption of an amendment to the City of San José Municipal Code. In conformance with Section 15063 of the CEQA Guidelines, the City first prepared an Initial Study which fulfilled two purposes: (1) to help the City determine if there was substantial evidence that the proposed project might have a significant environmental impact; and (2) if an EIR was required, to assist in its preparation by focusing the discussion on the effects that might be significant.

In accordance with CEQA, an EIR provides objective information regarding the environmental consequences of the proposed project, both to the decision makers who will be considering and reviewing the proposed project and to the general public.

The following guidelines are included in CEQA to clarify the role of an EIR:

§15121(a). Informational Document. An EIR is an informational document which 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. The public agency shall consider the information in the EIR, along with other information which may be presented to the agency.

§15145. Speculation. If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.

§15146. Degree of Specificity. The degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity which is described in the EIR.

(a) An EIR on a construction project will necessarily be more detailed in the specific effects of the project than will be an EIR on the adoption of a local general plan or comprehensive zoning ordinance because the effects of the construction can be predicted with greater accuracy.

(b) An EIR on a project such as the adoption or amendment of a comprehensive zoning ordinance or a local general plan should focus on the secondary effects that can be expected to follow from the adoption, or amendment, but the EIR need not be as detailed as an EIR on the specific construction projects that might follow.

§15151. Standards for Adequacy of an EIR. 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.

In accordance with Section 15082 of the CEQA Guidelines, a Notice of Preparation (NOP) was circulated to the public and responsible agencies for input regarding the analysis in this EIR. This EIR addresses those issues which were raised by the public and responsible agencies in response to the NOP. The NOP and the responses to the NOP are in Appendix C of this EIR.

The project that is the subject of this EIR is an ordinance of the City of San José, proposed to prohibit the distribution of single-use plastic bags at the point of sale in retail sales establishments within the City of San José. The proposed ordinance would exempt paper bags containing a minimum of 40 percent post-consumer recycled content, provided they are sold for a minimum price.

This EIR, and all documents referenced in it, are available for public review at the Planning Division in the Office of the Department of Planning, Building, and Code Enforcement, located at 200 E. Santa Clara Street, San José, California, on weekdays during normal business hours.

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## SUMMARY

The City of San José is proposing to adopt an ordinance regulating the distribution of single-use carryout bags at the point of sale. The proposed ordinance consists of revisions to Chapter 9.10 of Title 9 of the City's Municipal Code and prohibits the free 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 and nonprofit charitable reuse organizations. An exception is made for paper bags containing at least 40 percent recycled content, which can be provided to customers for a minimum store charge (to deter use of the paper bags and encourage consumers to switch to reusable bags). The business is required to charge for the exempt paper bags so that the cost of carryout bags is no longer hidden in the price of the merchandise, and the customer can *choose* whether to pay or not to pay the cost of the bag. (Stores operated by non-profit charitable reuse retailers such as Goodwill or the Salvation Army and public eating establishments would not be required to charge for the exempt paper bags.)

The ordinance would exclude plastic or paper bags that are used by customers or the store to protect or contain meat, fresh produce, food prepared at the establishment, or other goods that must be protected from moisture, damage, or contamination, and that are typically placed inside a carryout bag at the point of sale. Restaurants, take-out food establishments, or any other businesses that receive their revenue primarily from the sale of food cooked or otherwise prepared at the establishment would be exempt from the ordinance.

In addition to grocery stores, the ordinance as proposed would apply to all other businesses that put purchases into single-use carryout bags, either paper or plastic, at the point of sale. This includes department stores, clothing stores, liquor stores, book stores, specialty stores, drug stores, convenience stores, etc. This ordinance does not distinguish among types of plastic or types of plastic bags beyond their ability to be reused multiple times. Single-use plastic bags provided free to customers at the check-out stand for the purpose of holding the customer's purchases are prohibited by the ordinance. Plastic bags are allowed if the bags are intended and identified as reusable and meet the state's regulatory definition of reusable bags. The prohibition on paper bags would apply to all single-use paper bags provided free to customers at the check-out stand for the purpose of holding the customer's purchases and containing less than 40 percent post consumer recycled content. The fee on paper bags would be \$.25 but only \$.10 per bag would be required initially. To further discourage the use of 40 percent recycled content paper bags ("exempt" paper bags), the full \$.25 would be charged for exempt paper bags two years after the ordinance is first adopted.

Below is a summary of potentially significant environmental impacts and mitigation identified or proposed to reduce the impact. This section is only a summary. You must consult the text of the EIR (which immediately follows this summary) for a complete description of the project, the analysis, and all identified impacts and mitigation measures.

IMPACT	MITIGATION MEASURES
<b>Land Use</b>	
<p>The ordinance will result in an immediate net reduction of approximately 95 percent of the 500 million single-use carryout plastic bags given away annually in San José. The number of such bags that become litter is anticipated to be reduced accordingly (by 95 percent). This would be an immediate beneficial environmental impact. <b>(Beneficial Impact)</b></p>	<p>No mitigation is required</p>
<p>The ordinance may lead to a short term increase in single-use paper bag usage if consumers unable to use single-use plastic bags are willing to pay a fee for paper bags. A short term increase in demand for paper bags could result in a slightly higher percentage of the litter stream being comprised of paper bags for that period of time. Paper bags are less easily dispersed by wind and biodegrade under natural conditions at a faster rate than plastic bags. Most single-use paper carryout bags are also typically brown and are not as noticeable as white plastic bags. As the use of reusable bags increases, the number of single-use paper carryout bags purchased will decline, as will their presence in litter. The relatively minor aesthetic impacts of a short term increase in paper bags entering the litter stream, should the increase occur, would be offset by the substantial reduction in the much more visible and long-lived plastic bag litter. The result will be a net improvement. <b>(Less Than Significant Impact)</b></p>	<p>No mitigation is required.</p>



**Biology**

A substantial reduction in the number of single-use carryout plastic bags would produce a reduction in plastic litter entering waterways and flowing to San Francisco Bay and then into the ocean. A reduction of plastic litter entering natural water bodies would have a beneficial impact on wildlife dependent upon those ecological systems, as well as on the visual quality of the stream and Bay, and the visual quality of the streets, parks and both public and private properties currently subject to impacts from plastic bag litter. **(Beneficial Impact)**

No mitigation is required.

A significant increase in the number of single-use recycled content paper bags, even a short term increase, could result in an associated increase in paper bag litter. While the increased organics loading represented by the increased paper that enters waterways would be an adverse impact, it would not create substantial risks of injury or harm to wildlife and due to the ephemeral nature of paper, the litter exists for a considerably shorter length of time. The impact itself (creation of increased paper litter) would be short term, since experience in other locations and the survey of local residents indicates that even if there should be a significant increase in single-use paper bag use immediately after project implementation, the quantity of single-use carryout paper bags will return to existing levels within a brief period of time, or two years at most, when the full fee of \$.25 takes effect. The \$.25 fee for single-use paper carryout bags is anticipated to reduce the use of such bags to substantially fewer bags than are currently used in San José. **(Less Than Significant Impact)**

No mitigation is required.

<p>A short term increase in paper bag use, should it occur, may also result in a short term increase in trees cut down for virgin material to manufacture the paper bags. Since most of the trees are grown for paper manufacturing, a near term increase in paper bag demand in San José might cause trees to be harvested sooner than they would otherwise have been used (<i>i.e.</i>, trees would not be cut down for paper that would not otherwise have been cut down for paper). The estimated increase could range from approximately 15,000 to as many as 40,000 more trees cut down in a year; they would consist mostly of commercially grown “pulp trees”. This represents between four and eight one-thousandths of one percent of the wood processed each year for paper manufacturing (.004 to .008 percent). By the second year of the ordinance, the number will decrease, and the increase to a \$.25 fee on the single-use exempt paper bags is expected to further reduce the number of single-use paper bags used back to existing conditions or fewer. The tree plantations are replanted and new trees grown to replace them. While the short term loss of trees is a negative impact, this increase is a relatively minor temporary increase in wood used for commercial paper manufacturing, should the increased demand in San José occur. The habitat loss and any associated erosion resulting from this incremental addition to tree removal would be short term, relatively minor, and would not be a significant impact. <b>(Less Than Significant Impact)</b></p>	<p>No mitigation is required.</p>
<p>Washing reusable bags in mixed laundry loads will not result in a measurable increase in water pollution that could adversely impact wildlife. <b>(Less Than Significant Impact)</b></p>	<p>No mitigation is required.</p>

**Hydrology**

The proposed ordinance would reduce the proliferation of plastic bag litter into waterways, since an estimated 95 percent of the 1.4 million plastic bags currently given away daily (on average) to customers by local businesses would no longer be available. It is likely that 95 percent fewer plastic bags will enter the storm sewers in San José and the creeks in the area. Fewer plastic bags will clog catch basins in the public streets. San José will contribute less plastic to the pollution in San Francisco Bay and the Pacific Ocean, and fewer bags to endanger fish, turtles and birds in local creeks and the Bay and Ocean. **(Beneficial Impact)**

No mitigation is required.

The proposed ordinance will increase the use of reusable bags, which will sometimes be laundered. Surveys indicate that most bag users wash the bags infrequently, if at all, and would not dedicate entire laundry loads to shopping bag. Since any reusable bags that are washed would be part of a larger laundry load, the increase in water use and detergents resulting from bag laundering would be negligible. **(Less Than Significant Impact)**

No mitigation is required.

Paper manufacturing plants that require substantial quantities of water are typically located in areas that have appropriate water supplies. Modern plants reuse incoming water multiple times, according to representatives of the paper industry, and clean it up between uses and prior to discharge. A temporary incremental increase in water use at various paper plants, should the increase occur, would not be likely to result in a significant environmental impact. Incremental and temporary increases in water quality impacts, should they occur, would be not significant at a paper bag manufacturing plant that meets current national Clean Water Act standards for water discharged back into the environment. **(Less Than Significant Impact)**

No mitigation is required.

<b>Air Quality</b>	
If the City bans single-use plastic carryout bags and charges a fee for the use of a single-use paper carryout bag., there would not be a significant increase in air pollution from the manufacturing and delivery of additional single-use paper carryout bags, should an increase in demand occur. <b>(Less Than Significant Impact)</b>	No mitigation is required.
<b>Energy</b>	
Based on available information, even a short term increase in single-use paper carryout bags used in San José as a result of the ban on single-use plastic carryout bags would not result in a significant increase in energy use in the manufacture of single-use bags at various locations. <b>(Less Than Significant Impact)</b>	No mitigation is required.

Alternatives which were considered but rejected included:

- Education, Recycling and Litter Control
- Exemption for Degradable Plastic Bags
- Deposit/Rebate for the Use of Reusable Bags
- Fee on Single-Use Paper and Plastic Bags

Alternatives evaluated in this EIR include:

- No Project Alternative
- Landfill Ban Alternative
- Increased Recycled Content in Single-Use Paper Bags
- Ban on All Single-Use Carryout Bags

## **1.0 INTRODUCTION**

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### **1.1 WHAT'S IN THIS DOCUMENT?**

This is an Environmental Impact Report (EIR) about a proposed amendment to the City of San José Municipal Code. An EIR is prepared under the auspices of the California Environmental Quality Act (CEQA) for the sole purpose of evaluating impacts on the physical environment.

The purpose of the proposed amendment to the Municipal Code is to regulate the distribution of single-use carryout bags, both paper and plastic, at commercial retail establishments in the City of San José. This EIR document describes, as required by law, the following: (1) why the project is being proposed, (2) the existing environment that could be affected by the project, (3) possible environmental impacts from the proposed project, and (4) the methods proposed to minimize or avoid significant adverse impacts to the physical environment.

### **1.2 WHAT SHOULD YOU DO WITH IT?**

Please read the EIR. If you want to read an electronic copy, there is one on the City of San José's website at: <http://www.sanjoseca.gov/planning/eir/EIR/asp>

If you have comments on this EIR, or on any of the information in it, you can send comments to the City of San José by email or by U.S. Mail.

The email address for comments is: [John.Davidson@sanjoseca.gov](mailto:John.Davidson@sanjoseca.gov)

The mailing address is:           City of San José  
  Planning Division  
  200 East Santa Clara Street  
  City Hall Tower, 3<sup>rd</sup> floor  
  San José, CA 95113-1905

The deadline for sending comments on the Draft EIR is August 26, 2010, at 5:00 p.m. After the City has compiled comments on the EIR, there will be a hearing before the City Planning Commission on the EIR itself. The hearing is currently anticipated to occur on October 13, 2010, but may be postponed. You can learn the most current status of the EIR and the scheduled public hearing by checking the website for the City's Department of Planning, Building and Code Enforcement at: <http://www.sanjoseca.gov/planning/hearings/default.asp>

### **1.3 WHAT HAPPENS NEXT?**

After the City has compiled all of the comments on the EIR that were received in a timely fashion, responses will be prepared for those comments requiring responses, and copies will be sent to those agencies and individuals that comment on the EIR. The Planning Commission, at its scheduled public hearing on the EIR, will determine whether the EIR is complete or whether additional information is required. Once the Planning Commission determines (at that or at a subsequent public meeting) that the EIR is complete and in compliance with the requirements of the California

Environmental Quality Act (CEQA), they will certify the EIR and send it forward to the City Council. The Planning Commission is responsible only for acting on the EIR.

At a scheduled and noticed public hearing on the proposed Municipal Code amendments (the “project” discussed in this EIR), the City Council may take action on the proposed amendments. The action the Council takes may be any of the following: (1) the Council may approve the project as proposed; (2) they may approve an alternative identified in the EIR; (3) they may ask for additional information and/or analysis; or (4) they may choose not to approve the project. The City Council may act on the project at that first hearing, or they may ask for additional information and continue the hearing to a later date.

## **2.0 PROJECT DESCRIPTION**

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### **2.1 BACKGROUND**

As part of the development and implementation of the City's adopted Green Vision program, in combination with the need to meet the aggressive mandates of recent legislation and the City's own goals related to global climate change, the City of San José as a matter of policy continually re-evaluates all aspects of its planning and governance. Wasteful or unnecessary energy use, inefficient use of non-renewable resources, and the pollution of the natural environment (whether the effect is local, regional or global) are all activities or aspects of activities the City is committed to avoiding and reducing. Likewise, anything that places additional demands on strained infrastructure or increases City expenditures must be avoided, now and in the future, in order to save money and minimize severe reductions in critical City services.

San José's experience in implementing environmental programs, including programs requiring changes in behavior, has been developed over 25 years with a high rate of success. As discussed throughout this EIR, an emphasis on avoiding impacts rather than mitigating them has been a component of many of these programs – including source reduction to reduce the creation of unnecessary waste. Whatever the original justification for turning useful resources into something intended to be used only once and then become garbage, it is the City's position that wasting such resources unnecessarily should be avoided.

It has become increasingly apparent that plastic, especially single-use plastic packaging, is a substantial component of litter and solid waste in general. Because plastic takes a long time to break down or decompose (frequently estimated to be hundreds of years), plastic litter causes a cumulatively adverse impact on both the natural and manmade environments.

Litter is unsightly, contributes to urban blight, clogs storm sewers, and adds to increasing municipal costs. In addition, trash in urban creeks and water bodies is defined by the federal Clean Water Act as impairing beneficial uses such as recreation and wildlife habitat. As a result of their levels of trash, five creeks that flow through the City of San José, and the adjacent shoreline of San Francisco Bay, were recommended for listing as "trash-impaired" by the Regional Water Quality Control Board on February 11, 2009. A substantial component of the trash considered in the evaluation was the presence of floatable debris, which includes plastic (see §3.2. Biological Resources in this EIR).

In-depth studies, pilot programs, economic evaluations, and other information have been compiled and disseminated from a wide variety of sources on the effects of single-use plastic bags and other single-use bags on the environment, and there is substantial discussion and speculation about the possible effects of regulating those bags. Almost all of the studies known to the City of San José that compare the effects of using, manufacturing, regulating, or disposing of various types of bags were prepared by persons or organizations having economic affiliations with the plastic industry in general and/or manufacturers of plastic bags, or with the paper industry and/or manufacturers of paper bags. Many of the various studies are referred to in the analysis included in this EIR.

City of San José staff has reviewed many of these studies and other documents, and as directed by the City Council, is proposing an ordinance that best reflects the City's own goals and policies and also seeks to minimize the secondary impacts of regulating single-use bags dispensed at the point of sale in retail businesses.

The City of San José is, therefore, proposing to continue to implement specific programs that are consistent with the City's adopted Green Vision, and that adhere to the value hierarchy embodied in the state's landmark solid waste management legislation, "Reduce, Reuse, Recycle." This EIR evaluates the likely environmental impacts that could result from implementation of an ordinance that regulates the availability of single-use carryout bags.

In developing the proposed Ordinance, the following information was considered.

### **2.1.1 Current Carryout Bag Distribution and Use**

The website for the California Department of Resources, Recycling and Recovery (CalRecycle)<sup>1</sup> contains a 2007 estimate made by the Progressive Bag Alliance that retail establishments in California hand out approximately 19 billion single-use plastic bags at the point of sale annually, at a rate of 600 bags per second.<sup>2</sup> This equates to an average of 1.4 million single-use plastic bags given away in San José every day of the year. That is approximately *1.4 single-use plastic bags per day for every person living in San Jose.*

There is no single or definitive estimate about the number of single-use paper bags distributed to the public. The San Francisco Environment Department estimated that bags distributed at San Francisco supermarkets in 2004 consisted of 90 percent plastic bags and 10 percent paper bags.<sup>3</sup> A study produced more recently for the City of Seattle estimated that, based on statistics garnered from waste characterization studies, roughly 80 percent of single-use grocery bags distributed freely are plastic and 20 percent are paper.<sup>4</sup> A similar study done for the City of San José estimated that 88 percent of the single-use bags given away are plastic and 12 percent are paper.<sup>5</sup> Based on that estimate, it is possible that approximately 68 million paper single-use bags in addition to 500 million single-use plastic bags are distributed (*i.e.*, given away free) in San José annually.<sup>6</sup> The estimate for paper bags distributed in San José averages 186,000 single-use paper bags per day, or approximately one-sixth of a single-use paper bag per person per day.

The predominant type of single-use plastic bag distributed at point-of-sale in San José is the high density polyethylene (HDPE) bag shown in Photo 1. The one in the picture weighs approximately five grams. The most common type of single-use paper grocery bag is made of unbleached kraft paper. Photo 2 shows the most common size distributed for free in San José and a smaller size distributed at Safeway. The two bags in the picture weigh 45 grams and 65 grams.

State legislation (AB2449) defines "reusable" plastic bags as being "durable", with a minimum thickness of 2.25 mils and with handles.<sup>7</sup> Photo 3 illustrates a plastic bag that conforms to the state definition of reusable. The bag weighs 35 grams, and is made from low density polyethylene (LDPE).

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<sup>1</sup> This department includes parts of the former California Integrated Waste Management Board.

<sup>2</sup> [www.calrecycle.org/lgcentral/basics/plasticbag.htm](http://www.calrecycle.org/lgcentral/basics/plasticbag.htm)

<sup>3</sup> San Francisco Department of the Environment. *November 18, 2004 Bag Cost Analysis: Costs Associated with Paper and Plastic Bags*. November 18, 2004. Available at: [http://www.ci.sf.ca.us/site/sfenvironment\\_page.asp?id=28374](http://www.ci.sf.ca.us/site/sfenvironment_page.asp?id=28374).

<sup>4</sup> Herrera Environmental Consultants, Inc. *Alternatives to Disposable Shopping Bags and Food Service Items: Volume 1*. January 29, 2008.

<sup>5</sup> Herrera Environmental Consultants. *City of San José Single-Use Carryout Bag Fee Fiscal Analysis – Final Report*. June 22, 2010.

<sup>6</sup> Estimation based on 2009 population estimates for California and the City of San Jose

<sup>7</sup> A mil is equal to 1/1000 of an inch.





Photo 1 - Single-Use HDPE Plastic Bag



Photo 2 - Single-Use Kraft Paper Bags

PHOTOS 1 AND 2



Photo 3 - Reusable LDPE Plastic Bag



Photo 4 - Non-Grocery Single-Use Shopping Bags

PHOTOS 3 AND 4

Photo 4 pictures several typical single-use shopping bags, both paper and plastic, given away by retailers in San José other than grocery stores. It is not known if any of these bags meet the state criterion for “reusable”, but it is not uncommon for consumers to reuse some of them. Two of the plastic bags appear to be thicker plastic than the reusable LDPE bag for Lucky’s, which conforms to the state law’s definition of “reusable”.

Photos 5, 6, and 7 demonstrate a number of reusable bags currently sold by stores in San José and on the Internet. These bags illustrate a recent increase in the variety of bag types and sizes now widely available in response to information promulgated on the adverse impacts of single-use bags, proposals by various government agencies to regulate single-use bags, and the increased interest of consumers in reusable bags.

### **2.1.1.1 Paper versus Plastic**

Most discussions about single-use carryout bags involve the question of which is better for the environment, paper or plastic. In much of the world, plastic bags are made from oil and the demand for oil has become a substantial geopolitical factor. Because of this, and the visible persistence of plastic litter in the environment, there is a frequently expressed public belief that making and using single-use bags from plastic is more likely to damage the environment than making and using single-use paper bags. The debate typically has focused on the single-use plastic and paper bags illustrated in Photos 1 and 2. In response to this frequently expressed belief, representatives of the plastic bag industry contend that the paper bags are more damaging to the environment than plastic bags (see, for example, the response to Notice of Preparation from Stephen Joseph in Appendix B).

Most of the single-use paper shopping bags similar to those shown in Photo 2 are made in the United States and, according to a representative of the paper bag industry, most contain recycled content. A distinction is sometimes made between “post-consumer” recycled content, which is paper that is manufactured, used for its intended purpose, and then recycled back into new paper, and “mill ends” or scrap that never leaves the factory where it was made. As shown in Photos 8-11, single-use paper bags labeled 30 percent, 40 percent, and 100 percent recycled content are currently distributed in San José stores, and two of the bags state that they contain a minimum percentage of post-consumer fiber.

According to representatives of the plastic bag industry, most of the single-use HDPE plastic bags similar to that shown in Photo 1 are made in the United States and 85 percent are made from a byproduct of natural gas (response to Notice of Preparation from Stephen Joseph in Appendix B). The other 15 percent are assumed to have been made outside the United States from petroleum.

In any comparison of bags, account must be taken of their comparative usefulness. How many of each type of bag is required to do an equivalent amount of “work” (carry the same quantity of goods for the same number of times). This becomes a question of capacity and durability.

### **Capacity**

In evaluating any kind of carryout bags, capacity is a major factor. Plastic grocery bags are smaller than paper bags and people (store clerks and customers) typically do not fill them as full.<sup>8</sup> Paper bags are also not always filled to capacity. However, based entirely on observed behavior in grocery and other retail stores, it appears that store clerks will routinely fill a paper bag more than half full unless the items are unusually heavy (multiple large glass jars and/or cans, watermelons, etc.). Plastic bags,

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<sup>8</sup> This issue is raised and acknowledged in various contexts, including LCAs prepared by consultants to the plastics industry.



Photo 5 - Various Reusable Bags



Photo 6 - Various Reusable Bags

PHOTOS 5 AND 6



Photo 7 - Various Reusable Bags



Photo 8 - Single-Use Paper Bags with Recycled Content



Photo 9 - 34 Percent Recycled Content Single-Use Paper Bag

PHOTOS 8 AND 9





Photo 10 - 40 Percent Recycled Content Single-Use Paper Bag

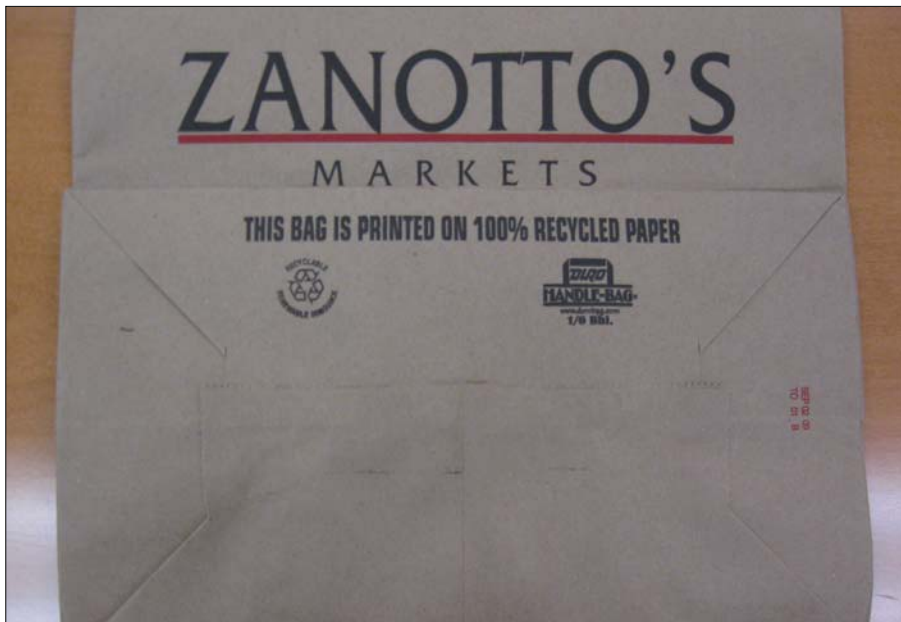


Photo 11 - 100 Percent Recycled Content Single-Use Paper Bag

PHOTOS 10 AND 11

on the other hand, were routinely left less than half full. Two life cycle analyses prepared by two different consultants under contracts with the plastic bag industry (Boustead and Franklin) assumed relative capacities of 1:1, 1.5:1, and 2:1 (with paper bags having capacity of one to two times that of plastic bags). Minimal explanation is provided as to how these ratios were identified. The capacity assumptions do not include any adjustment for the real-world behavior of how users and clerks fill the bags. In statements made in the LCAs and elsewhere, it has been suggested that “proper training” of store clerks would minimize differences in bag capacity.<sup>9</sup> It is not clear what kind of training is envisioned or who would supply it and/or pay for it, but since such training would have to occur and re-occur often to ensure that newly hired clerks in all grocery, drug and convenience stores have the same training in order to maintain standards based on that training, the use of training as a mechanism to achieve parity in bag capacity is not considered as a viable option in this EIR.

Representatives of the paper bag industry advised that the appropriate capacity ratio was 3:1 (plastic to paper). No explanation was provided on how that ratio was identified.

The actual physical capacity based on volume of different types of single-use and reusable bags was further evaluated in a comparison described in detail in Appendix D of this EIR, and shown in Photos 21-29. Based on the experiment described in Appendix D and illustrated in Photos 21 and 24, it was determined that the standard 17-inch-high single-use paper carryout bag will hold twice the capacity of the single-use HDPE carryout plastic bag. Various reusable bags were also evaluated and their capacities are described in Appendix D.

## **Durability**

Many single-use bags could be used more than once. Anecdotal information indicates that people may sometimes use either paper or plastic single-use bags to line wastebaskets and garbage bins, to hold smaller recyclables put out for collection, or for a similar purpose before discarding or recycling them. The single-use bags are not, however, made to last very long. State law (AB2449) refers to “durable” plastic bags that are “specifically designed and manufactured for multiple reuse” in its definition of a reusable plastic bag, to distinguish them from single-use bags. The number of times a reusable bag can actually be reused will vary, from perhaps a few dozen to hundreds of times. A reusable bag as defined by state law can also be made of “cloth or other machine washable fabric.” This EIR will rely on the State of California’s definition of “reusable bags” when using the term.

### **2.1.2.1        *Concerns Related to Single-Use Carryout Bags***

In evaluating possible components to be included in an ordinance to regulate single-use carryout bags, a number of factors were taken into consideration, including the materials used in their manufacture.

According to industry representatives,<sup>10</sup> roughly 85 percent of plastic bags used in the U.S. are produced domestically, most often using ethane, which is a byproduct of natural gas refining.<sup>11</sup> Approximately 15 percent of single-use plastic bags used in the United States are imported and often

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<sup>9</sup> Boustead Consulting & Associates. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper*. Peer Reviewed 2007. Page 7.

<sup>10</sup> Save the Plastic Bag. *An American Success Story Under Threat*. Accessed October 19, 2009. Available at: <http://www.savetheplasticbag.com/>.

<sup>11</sup> Some documents and studies refer to this source material as a “waste product”, which implies that it is superfluous or unwanted. Since it is a source of polyethylene, the most widely used plastic material, the term is considered inaccurate in this context.



originate as oil. The plastic that is made from the ethane is polyethylene. Polyethylene is the most common plastic, used in the manufacture of a wide variety of products including durable items such as irrigation pipes, shampoo bottles, and toys. Plastic bags are generally made from one or the other of two different types of polyethylene: low-density polyethylene (LDPE) or high density-polyethylene (HDPE). LDPE film is usually thicker and glossier than HDPE film, and requires more energy and resources per bag to manufacture. HDPE film used to make single-use carryout bags is thinner and lighter than LDPE film, and requires less energy and resources per bag to manufacture. Typically, single-use grocery bags are made from HDPE, while LDPE is used for bags distributed at retail establishments such as clothing stores. In general, HDPE bags, because they are lighter and thinner, do not withstand multiple uses and are described in this EIR as single-use bags. Since the City is proposing to prohibit all single-use plastic bags given away free at the point of sale, the numbers of bags of both types (LDPE and HDPE) that are distributed for free in San José would be reduced by the ordinance. Those LDPE bags that meet the state’s definition of reusable (2.25 mils thick with handles and made for “multiple reuse”) could be sold for a minimum store charge under the proposed ordinance.

Since the materials that single-use plastic bags are made from (oil and polyethylene) can both be used for multiple purposes, if the demand for single-use plastic bags were to decline, the polyethylene and the raw material from which it is made (oil or ethane) could be used for other purposes, including fuel and durable goods.<sup>12</sup>

Paper bags generally consist of both virgin and recycled materials. Virgin material used in the manufacture of kraft paper (brown paper grocery bags are usually made of kraft paper)<sup>13</sup> is typically pulp chips made from trees. According to statements made by representatives of the American Forest & Paper Association, most of the trees used to manufacture paper are grown for that purpose. Currently, there are paper bags on the market that contain 100 percent recycled content. Of that recycled content, a smaller percentage is usually post consumer (meaning, part of the recycled content is derived from a paper product after it was previously used for its intended purpose and then recycled – and some of the recycled content is left over from the manufacturing process – sometimes called “mill ends”). There have been studies that concluded that the pulping and bleaching processes involved in many types of paper making produce higher emissions of air pollutants and waterborne wastes than occurs from (at least) HDPE plastic bag production. Brown kraft paper, however, does not require bleaching, and making bags from factory waste and post-consumer paper waste does not require the pulping process that is part of manufacturing bags from virgin content. The City has not found a study prepared by a neutral third party that specifically compares the impacts of manufacturing HDPE grocery bags with the impacts of manufacturing kraft paper grocery bags made with a high percentage (over 30 percent) of post consumer recycled content.

There have been a large number of life cycle assessments (LCAs) prepared comparing plastic and paper bags. Some are old, dating back to a time when recycling was just beginning in the United States. Many were prepared in Europe and reflect assumptions that may not be accurate in the United States. Some are difficult to translate into realistic terms or measurements; for example, several are based on the total quantity of groceries taken home over a year’s time by an average household in another country. Two of the American LCAs (Boustead and Franklin) assumed that a

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<sup>12</sup> The phrase “durable goods” as used in this EIR means any manufactured item meant for multiple use (*i.e.*, is not typically considered disposable after a single-use).

<sup>13</sup> Kraft paper is paper produced by the kraft process from wood pulp. The kraft process (also known as kraft pulping or sulfate process) is a technology for conversion of wood into wood pulp consisting of almost pure cellulose fibers. The process entails treatment of wood chips with a mixture of sodium hydroxide and sodium sulfide. Kraft paper is usually a brown color but can be bleached to produce white paper.

substantial quantity of waste, both paper and plastic bags, would be incinerated (and included those impacts in their study totals).

An LCA that evaluates the impacts of paper bags versus plastic bags and is frequently cited at the current time was prepared for the Progressive Bag Alliance<sup>14</sup> by Boustead Consulting & Associates; the report is undated but the peer review was completed in 2007 so the report would have been prepared at an earlier date. The Boustead LCA compared what it calls a “recyclable paper bag”, a “recyclable plastic bag”,<sup>15</sup> and a “degradable” (or compostable) plastic bag. The report assumed 30 percent recycled material in the paper bags. Its conclusion was that the life cycle process (including disposal in a landfill) for paper bags consumes more energy and generates more pollution than plastic bags.

The one element of the LCAs that is fairly consistent, including European, Australian, and U.S. studies, is that they all conclude that reusable bags are environmentally superior and would result in fewer adverse impacts.

A reduction in the availability of free single-use carryout plastic bags might lead to an increase in the use of consumer products that meet the same purpose as reusing plastic bags, such as garbage bags (can liners). Following the introduction of the PlasTax program that implemented a fee on single-use plastic carryout bags, food retailers in the Republic of Ireland reported a roughly 75 to 77 percent increase in the purchase of plastic “bin liners” (i.e., garbage bags). Life cycle assessments (LCAs) completed for similar proposed carryout bag policies in Scotland and Australia accounted for this increase in bin liner use in their analyses and concluded that the environmental benefits of reducing single-use plastic carryout bags outweigh any detrimental impacts resulting from increased bin liner consumption. Because there are so many single-use plastic bags given away compared to the small number of plastic bags sold to line garbage bins, the LCA completed for the Scottish policy found that even with a 77 percent increase in bin liner consumption, the number of bags (and quantity of polyethylene) consumed would decrease overall as a result of a fee on plastic grocery bags.

An additional factor relevant to the City’s objectives for this project is that plastic bags sold in boxes for lining garbage cans in the home and paid for by the consumer are very unlikely to end up as litter.

### **2.1.2.2 Waste Management**

According to CalRecycle’s 2008 *Statewide Waste Characterization Study*, approximately 155,848 tons of paper bags and 123,405 tons of plastic grocery and merchandise bags were disposed of in 2008, comprising 0.4 percent and 0.3 percent of all landfilled waste in California, respectively. Once in a landfill, both types of bags will eventually break down, albeit very slowly. While there are statements in print that waste in a landfill doesn’t break down, those statements fail to account for the generation of methane from landfills, usually lasting for decades. The bags addressed in the waste characterization study would have included all types of plastic and paper bags, including the smaller plastic bags used to bag produce in a grocery store, and the very large heavy-duty paper bags used to contain sugar, flour, rice, beans, pet food, and other products.

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<sup>14</sup> This group is now called the Progressive Bag Affiliates and is part of the American Chemistry Council.

<sup>15</sup> It is not clear from the report whether the data provided is for HDPE or LDPE. At one point the report refers to taking into account all processes and operations in the “production of high and low density polyethylene resin”. The study also refers repeatedly to “typical” and “traditional” plastic grocery bags. In the U.S., that is usually HDPE. It is therefore assumed that the LCA applies to HDPE bags, which would probably mean that it is not relevant to LDPE plastic bags.

The tons disposed, however, demonstrate a critical difference between the two types of bags. In 2003, approximately 386,097 tons of paper bags and 147,038 tons of plastic grocery and merchandise bags were disposed in the state. In five years, the quantity of paper bags disposed was reduced by over 59 percent. The quantity of plastic grocery and merchandise bags was reduced by 16 percent. Since this time period also coincided with a significant increase in recycling programs and recycling statewide, it is likely that much of the reduction was due to recycling.

The City of San José has not identified any municipal recycling programs that divert substantial percentages of plastic bags from landfill and litter, particularly not any serving a major city. A representative of the plastic bag manufacturers is quoted in the *San José Mercury News* as saying that the best option for plastic bags was “a massive plastic-bag recycling program. But the environs [sic] stopped us. They didn’t want to recycle them, they wanted to ban them altogether.”<sup>16</sup>

In San José, the City’s Recycle Plus residential curbside recycling program accepted plastic bags for recycling from roll-out of the city-wide program in 1993 until early 2009, or for approximately 15 years. Despite extensive public education and outreach efforts, there was limited success with plastic bag recycling in the City of San José. Residents were willing to recycle plastic bags in large numbers, but most failed to understand that bags needed to be clean, have nothing adhering to them, and they needed to be bagged or packaged together so they would not be contaminated by all of the organic materials, dirt and other contaminants in the recycled materials stream. It was therefore neither convenient nor easy to recycle the bags, despite their being collected in a curbside program.

The City found that plastic bags increase labor and costs at recycling facilities due to interference with machinery, leading to frequent system shutdowns and the need for manual cleaning (see Photo 12). In addition, plastic bags often become mixed with other recyclables, reducing the market value of those materials. San José’s recycling facility operators reported that bales of recycled plastic bags had little or no value on the market. As a result, the City’s recycling contractors were, in recent years (prior to 2009), paying 180 dollars per ton to have those bales taken away. The tonnages of plastic bags handled in this way, in San José and elsewhere, would likely not have appeared in the state’s records of plastic bags disposed during this time period, and therefore might have contributed to the apparent reduction in plastic bags landfilled in the figures cited in the previous paragraph. Photo 13 shows a bale of residue from one of the City’s recycling facilities (photo taken in February 2008). The residue is hauled to a sanitary landfill and, as is apparent in the photograph, most of it is plastic bags.

In 2009, the City began promoting the practice of returning plastic bags to local grocery stores for their in-store recycling program, and discontinued promoting plastic bag recycling through the residential Recycle Plus program.

The City concluded that the nature of single-use plastic bags and lightweight plastic film makes recycling them difficult because they are lightweight, easily airborne, and difficult to handle efficiently. In addition, because they are so numerous (500 million single-use plastic bags distributed in San José every year), they migrate within the materials recovery facilities and contaminate virtually all other recycled materials streams.

According to a summary provided by CalRecycle of recycling activity in 2008 by local grocery stores, a quantity equivalent to approximately 7 percent of the single-use plastic carryout bags

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<sup>16</sup> San José Mercury News. “The environmentalist who wants to save the plastic bag”. April 15, 2010. [http://www.mercurynews.com/patty-fisher/ci\\_14893004?nclick\\_check=1](http://www.mercurynews.com/patty-fisher/ci_14893004?nclick_check=1)



Photo 12 - Plastic Bags and Film Removed from Equipment at the Davis Street Transfer Center in San Leandro



Photo 13 - Residue from Recycling Facility

purchased by the stores were recycled by them in the program mandated by AB2449. This takes into account only those stores reporting actual numbers of bags recycled (some declined to provide the information). Visual inspection of the barrels put out to collect plastic bags in grocery stores discovered a variety of plastic film, some not from grocery stores. This quantity of recycling is therefore considered conservatively large.

### **2.1.2.3            *Litter and Waterways***

Single-use carryout bags, especially plastic bags, contribute to a persistent litter problem that is of growing concern for the health of waterways locally and worldwide. Marine debris (i.e., ocean pollution) has been shown to have dramatic impacts on wildlife and habitat, and most marine debris is comprised of plastic materials. An estimated 60 to 80 percent of all marine debris (and 90 percent of floating debris) is plastic. Land-based sources, such as stormwater runoff from urbanized areas, are the dominant contributor.

The 2009 *International Coastal Cleanup* (ICC) report, produced by the Ocean Conservancy, found that plastic bags were the second most common debris item collected worldwide during the annual one-day coastal cleanup event. Cigarettes and cigarette filters were the most common item littered; paper bags were the sixth most common debris item collected.<sup>17</sup>

The preparers of the 2008 *Anacostia Watershed Trash Reduction Plan* completed by the District of Columbia Department of the Environment discovered that plastic bags made up 21 percent of the trash in the main river and 47 percent of the trash in tributaries to the river.

A 2004 Los Angeles waste characterization study found that plastic bags comprised approximately 25 percent of the waste found in storm drain catch basins by weight.

The exact quantities and proportions vary but the weight of evidence indicates that plastic bags are present in, and comprise a substantial component of, the litter in urban environments and local streams in the United States.

In the Bay Area, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), recently recommended changes to the list of water bodies in the state for which federal water quality standards are not attained. The RWQCB recommended listing 26 Bay Area waterways as “trash-impaired” under Section 303(d) of the federal Clean Water Act, including Silver Creek, San Tomas Aquino Creek, Saratoga Creek, Coyote Creek, and the Guadalupe River (all or segments of which flow through the City of San José), and the lower San Francisco Bay shoreline (which forms San José’s northerly boundary). If approved by the federal Environmental Protection Agency (EPA), this listing will require implementation of locally funded remediation programs for the affected waterways. Current litter abatement efforts in San José are diverse, costly, and have proven insufficient to adequately control the problem.

Even placed appropriately in garbage containers after use, single-use plastic bags can become a part of the urban litter problem. The bags are light-weight and so, during transfer (from residential garbage cart or from bin to collection vehicle or from collection vehicle to the working face of the landfill), can become airborne. Even the aggressive litter control programs in place at all landfills in the County cannot fully avoid plastic bag litter entering the environment (see Photo 14).

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<sup>17</sup> Ocean Conservancy. *International Coastal Cleanup 2009 Report: A Rising Tide of Ocean Debris (And What We Can Do About It)*. 2009.





Photo 14 - Plastic Bag Litter from Newby Island Sanitary Landfill Entering the Environment

In managing the litter discarded within the third largest city in California, the City of San José expends approximately \$4.9 million a year.<sup>18</sup> This includes the City's Anti-litter program, installing and maintaining screens in catch basins, deploying volunteer crews that collect trash, and maintaining the grounds of city owned facilities such as parks, city hall, libraries, fire stations, landscaped medians, community centers, etc. The effort also includes street sweeping, providing and maintaining public litter cans, and providing crews to clean up after illegal dumping occurs. The City also has a memorandum of understanding with the Santa Clara Valley Water District to coordinate and share in costs of creek trash clean-up efforts for areas where the jurisdictions overlap. This estimated cost includes only the portion of resources allocated for litter clean-up and (except for volunteer crews) generally does not include "overhead" costs such as supervisors and management. Despite the substantial investment of resources, litter continues to be a visible problem in the community.

A study completed for the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) documented items of trash collected during a study for various stretches of creeks and rivers in the San José area during 2005. Trash was collected from 19 different stretches of Coyote Creek, Silver Creek, and the Guadalupe River, among other waterways. The study found that plastic bags comprised approximately 10 percent of the total number of trash items collected. The study also completed a focused count at one storm drain outfall on Stevens Creek on three separate dates from October 2008 to February 2009. Of the 849 items of trash collected from this outfall, 198 were plastic bags, comprising roughly 23 percent of the overall sample. The City of San José estimates that, without control of litter at the sources, implementation of an expanded litter control program to protect creeks, as required in the new Stormwater Permit, could cost the City up to four million dollars annually.

On October 14, 2009, the RWQCB adopted the Municipal Regional Stormwater NPDES Permit (Stormwater Permit) for the San Francisco Bay Region. The Stormwater Permit became effective December 1, 2009, and remains in effect through November 30, 2014, when it will be reissued, likely including new, and more stringent requirements. The Stormwater Permit specifies actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable and effectively prohibits non-stormwater discharges into the municipal storm sewer system to protect local creeks and the Bay.

Intercepting trash in the storm sewer system will be an integral part of the City's short-term and long-term trash strategy to meet the bold reduction goals established in the Stormwater Permit. The City has over 30,000 storm drain inlets and 1,200 storm sewer outfalls. Approaching the trash and litter problem through only storm system controls will have significant capital and ongoing maintenance costs. In addition to capturing trash in the storm sewer system, the City is reviewing opportunities to remove trash through increased maintenance activities, such as enhancement of street sweeping and storm inlet cleaning activities, additional maintenance of public litter cans, increased public education and outreach, and increased enforcement of anti-littering laws. Furthermore, source reduction initiatives such as the potential actions on single-use bags, expanded polystyrene, or other highly littered items will also be important opportunities in the City's trash load reduction strategy.

Since most local waterways drain to San Francisco Bay, trash in Bay Area creeks and rivers often ends up in the Pacific Ocean. The California Ocean Protection Council (OPC) recently finalized its *Implementation Strategy for the OPC Resolution to Reduce and Prevent Ocean Litter*. The strategy

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<sup>18</sup> This cost estimate does not include costs to implement trash reduction efforts that will be needed to meet the trash reduction goals as required by the San Francisco Bay Region Municipal Stormwater NPDES Permit, adopted October 2009.



cites the elimination of packaging wastes that contribute to litter, including single-use carryout bags, as a priority, and recommends a fee on paper and plastic bags as an incentive for using reusable bags.

Over the last 25 years, the City of San José has implemented a series of environmental management programs that were intended to reduce waste, reduce litter, avoid pollution, and minimize adverse environmental consequences. Despite these efforts, there is substantial evidence that single-use plastic bags are present as litter throughout the urban environment of San José, are migrating into the various waterways in Santa Clara County, and are contributing to the problem of global ocean pollution.

### **2.1.3 Ordinance Development Process**

In February 2008, the Santa Clara County Recycling and Waste Reduction Commission (RWRC), along with the City of San José and various other Santa Clara County cities, began collaborating on an effort to develop model ordinance language for a regional approach to reducing the use of single-use carryout bags and encouraging the use of reusable bags. In June 2008, the Santa Clara County Cities Association (SCCCA) indicated its support for the RWRC's regional response to reducing the proliferation of single-use carryout bags. To achieve this goal, the RWRC developed a draft countywide model ordinance based on proposed State legislation AB 2769. The RWRC approach would provide a framework for a consistent program throughout the County. This regional approach would create a level playing field for retail businesses in all jurisdictions, reduce any possible customer confusion, allow cities to share implementation strategies, and create opportunities for regional collaboration for messaging, media, and public education.

The initial proposal of the RWRC was a ban on all single-use bags, plastic and paper. In response to grocers' concerns about their ability to offer choices to customers, the stakeholder group concluded that the best option for reducing single-use carryout bag usage and encouraging the transition to reusable bags would be the implementation of a fee system on both paper and plastic bags. A fee system has been utilized in several countries, including Ireland, where plastic bag usage was reduced up to 94 percent within the first few weeks of fee implementation. More recently, Washington D.C. also implemented a fee on both paper and plastic single-use carryout bags. The program resulted in a 50 to 80 percent reduction in single-use bags used during the first month.<sup>19</sup> A fee does not prohibit anything, but it does discourage actions that are seen to have undesirable impacts.

During the ordinance development process, the City of San José contacted and held meetings with stakeholders interested in and likely to be affected by the single-use bag issue. In October 2008, an online survey process was created to advise San José retailers of the actions being considered by the City to reduce single-use carryout bag use and to seek their input regarding this issue. City staff also visited neighborhood business associations to discuss the proposed action with retailers. The City also held 15 biweekly stakeholder meetings from May to December 2008. Interested parties in these meetings included representatives from neighboring cities and counties, the grocery and retail industry, the plastic and paper bag industry, and local and national environmental organizations. Two public hearings were held in January 2009 to solicit input from retailers and the public regarding the substantive impact of the regional plan for single-use carryout bag reduction. The input received from these outreach efforts contributed to the makeup of the RWRC's draft model ordinance.

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<sup>19</sup> Barry Weise, J.D., Legislative & Regulatory Analyst. District Department of the Environment.

After the idea of a fee-based program was raised in public meetings in San José, a substantial number of citizens voiced concerns. The potential fee of 25 cents per bag was frequently characterized as an undesirable method of regulation during an economic recession.

Subsequent to the public outreach, the City Council evaluated the alternatives and information on the outreach process, and directed staff to prepare an ordinance banning single-use plastic carryout bags and single-use paper carryout bags with less than 40 percent post-consumer recycled content, and requiring that stores charge for paper bags with at least 40 percent post consumer recycled content. The purposes of the fee are to discourage people from taking single-use bags, to encourage people to use reusable bags, to allow people to choose whether to pay the cost of the bag or not (instead of having it be a hidden cost), to protect the public health and welfare, and to allow the storeowner to recover the cost of the bags. Although stores do not presently charge directly for the single-use carryout bags currently used by customers to carry their purchases out of the store, the bags are not, of course, “free”. The stores pay for them and pass along that cost to their customers.

## **2.2 PROJECT LOCATION**

The proposed ordinance would apply to all commercial retail stores within the City of San José. It would not apply to restaurants selling prepared food for consumption either on or off premises, nor would the required store charge for paper bags apply to non-profit or “charity” stores operated by organizations with nonprofit status under Internal Revenue Code Section 501(c)(3).

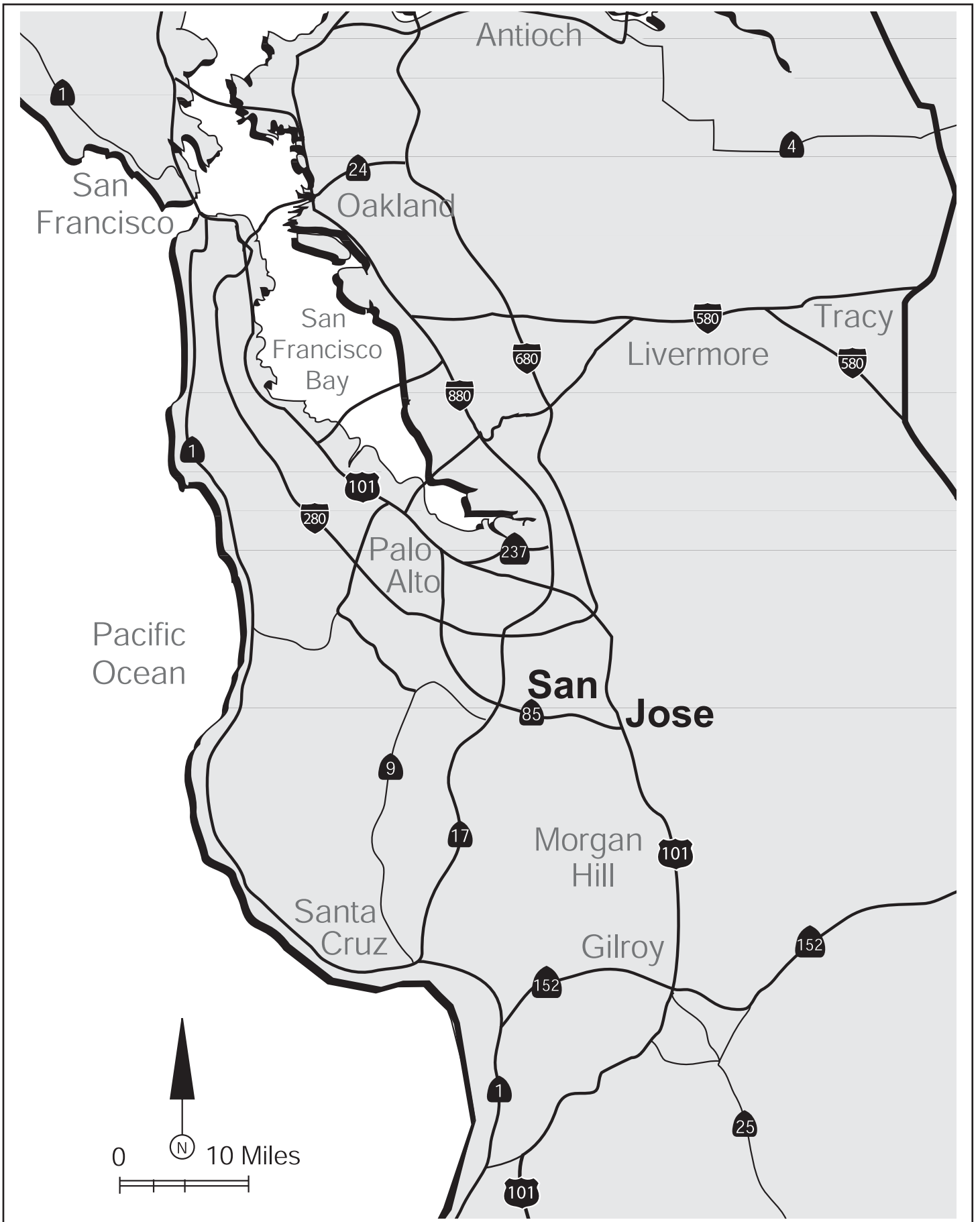
San José is the largest city in northern California, the third-largest city in the State, and is located at the southerly end of San Francisco Bay (see Figure 1 for the regional context and Figure 2 for the City boundaries).

## **2.3 PROJECT DESCRIPTION**

Pursuant to its adopted Green Vision and as part of the implementation of the City’s Zero Waste Strategy and the Municipal Regional Stormwater NPDES Permit (Stormwater Permit) for the San Francisco Bay Region, the City of San José is proposing to adopt an ordinance regulating the distribution of single-use carryout bags at the point of sale. The proposed ordinance consists of revisions to Chapter 9.10 of Title 9 of the City’s Municipal Code and prohibits the free 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 and nonprofit charitable reuse organizations. An exception is made for exempt paper bags containing at least 40 percent recycled content, which can be provided to customers for a minimum store charge (to discourage use of the paper bags and encourage the consumer to switch to reusable bags). The business is required to charge for the exempt paper bags so that the cost of carryout bags is no longer hidden in the price of the merchandise, and the customer can *choose* whether to pay or not to pay the cost of the bag.

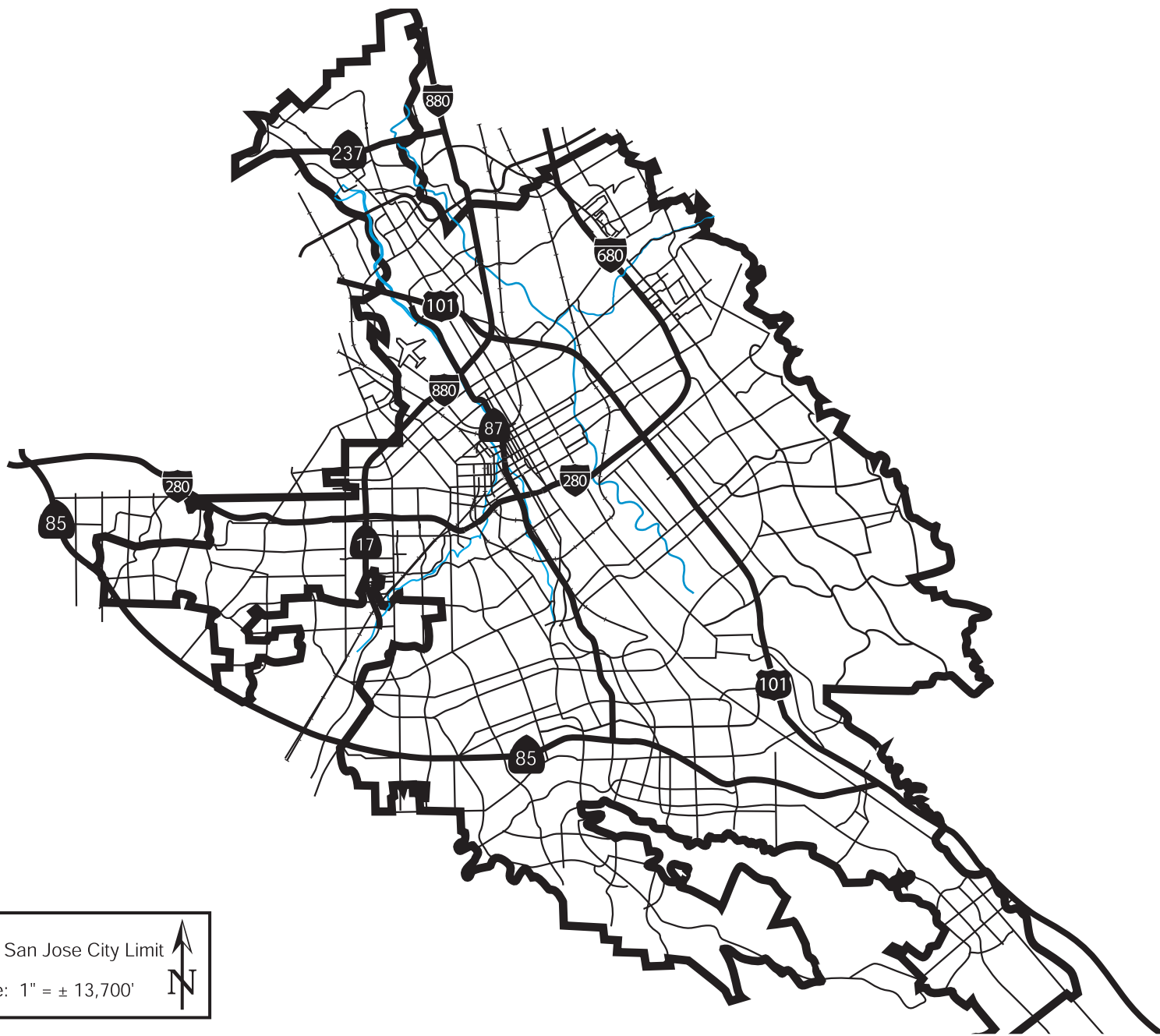
The fee for exempt paper bags will be set by the ordinance at \$.25 (twenty-five cents). Collection of that full fee will, however be deferred for two years and a reduced fee of \$.10 (ten cents) will initially be collected.

The ordinance would exclude plastic or paper bags that are used by customers or the store to protect or contain meat, fresh produce, food prepared at the establishment, or other goods that must be



REGIONAL MAP

FIGURE 1



VICINITY MAP

FIGURE 2

protected from moisture, damage, or contamination, and that are typically placed inside a carryout bag at the point of sale. Restaurants, take-out food establishments, or any other businesses that receive their revenue primarily from the sale of food cooked or otherwise prepared at the establishment would be exempt from the ordinance. In addition to grocery stores, the ordinance as proposed would apply to all other businesses that put purchases into single-use carryout bags, either paper or plastic, at the point of sale except stores operated by nonprofit charitable reuse organizations. This includes department stores, clothing stores, liquor stores, book stores, specialty stores, drug stores, convenience stores, etc. This ordinance does not distinguish among types of plastic or types of plastic bags beyond their ability to be reused multiple times. Single-use plastic bags provided free to customers at the check-out stand for the purpose of holding the customer's purchases are prohibited by the ordinance. Plastic carryout bags are allowed if the bags are intended and identified as reusable and meet the state's regulatory definition of reusable bags, as described in §2.1.1 above. The prohibition on paper bags would apply to all single-use paper bags provided free to customers at the check-out stand for the purpose of holding the customer's purchases and containing less than 40 percent post consumer recycled content.<sup>20</sup> The store will be required to charge for the bags in order to (1) discourage people from taking single-use bags, (2) encourage people to use reusable bags, (3) allow people to choose whether to pay the cost of the bag or not (instead of having it be a hidden cost), and (4) protect the public health and welfare. The ordinance will establish a fee of \$.25 per bag, but will defer part of the fee for two years, requiring a lower \$.10 charge for exempt paper bags initially, to phase in the full program.

A summary of the key elements of the draft ordinance is attached to this EIR as Appendix A.

### **2.3.1 Public Education and Outreach**

The City of San Jose has extensive experience in successfully managing public outreach to achieve City goals on solid waste, recycling, and other environmental issues. Past outreach efforts have included implementation of leading edge garbage and curbside recycling collection programs, pilot and city-wide programs for collecting and processing yard trimmings and organic waste, and marketing a variety of targeted environmental management programs for household hazardous waste, business recycling technical assistance, and construction and demolition recycling. In addition to these topics, the City also provides on-going outreach to developers, residents, and businesses related to stormwater and wastewater pollution prevention, appropriate pharmaceutical and e-waste disposal, water recycling, as well as climate change, green building, energy and water conservation, and renewable energy.

Parallel to efforts to adopt an ordinance regulating the distribution of single-use carryout bags, the City of San Jose has begun extensive public outreach to create awareness of the issues and to encourage a change in consumer behavior. In 2009, the City began the "Bring Your Own Bag" campaign on the subject of regulating single-use carryout bags. The goals of the Bring Your Own Bag campaign are to: 1) ensure that residents and businesses have had an opportunity to provide input to the development of the ordinance, and 2) promote the use of reusable bags over single-use carryout bags in San Jose. Over 250 interested parties were included in the initial outreach. Stakeholders included plastic and paper bag manufacturers, grocery and retail industry representatives, clean water and environmental advocates, representatives from neighboring cities, residents and business owners. The City also met with the community on this issue at over 50 neighborhood and business association meetings, senior centers, and festivals. These public

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<sup>20</sup> The City's Director of Environmental Services will ensure that there is a mechanism in place for verifying the minimum recycled content in paper bags used in the City prior to implementation of the ordinance. The mechanism may be certification done by a third party such as Green Seal.

meetings resulted in more businesses and residents becoming involved in discussions of the proposed ordinance.

The Bring Your Own Bag campaign is intended to substantially increase the use of reusable carryout bags before the ordinance takes effect. In this context, it can be noted that regional campaigns to encourage people to shop with reusable bags are already underway throughout the Bay Area. One is sponsored by the Bay Area Recycling Outreach Coalition (BayROC). Another is sponsored by BART and the City of Oakland. In Santa Clara County, RWRC's Public Education Committee is developing countywide outreach programs to promote reusable bags. The presence of reusable shopping bags offered for sale by local businesses is also becoming widespread.

Since September 2009, the outreach has expanded to targeted audiences including small and ethnic businesses, multi-cultural demographics, and youth groups. The outreach program includes campaign strategic planning, multi-lingual outreach, electronic media, and news media. In addition, the City participated in a regional media campaign that involved the production of television, radio, outdoor and print advertisements, video, and direct mail. Moreover, the City also included in its biennial Recycle Plus residential solid waste program survey questions about public response toward a potential ban or store charge on single-use carryout bags.

Pursuant to Council's direction, the Bring Your Own Bag campaign will continue after the ordinance is adopted to provide sufficient outreach to both businesses and consumers. Public support for the program will be developed and supported by visual emphasis on the extent of litter in the Bay Area, especially in the creeks and the Bay, with information on the damage to wildlife caused by litter, and reminders that not only is the ordinance intended to encourage people to stop using single-use carryout bags, it is specifically intended to stop environmental damage from litter. Supporting information on the global extent of litter and its presence in the ocean and other supposed "pristine" environments will be provided. Information will be distributed on the wide variety of reusable bags available, with emphasis on ease of care, convenience, affordability, strength, appearance, and other points of interest. Reusable bags will be for sale and/or distributed freely at street fairs and craft shows throughout the Bay Area. It is the City's expectation that these outreach efforts will broaden the awareness of the environmental issues involved with the proposed ordinance and encourage consumers to adopt the practice of bringing reusable bags to the store.











Because much of the discussion in this EIR will include references to different kinds of plastic and different kinds of plastic bags, Figure 3 summarizes the types of plastic most typically used to manufacture carryout bags and illustrates each of the more commonly used plastic carryout bag types. Figure 3 also describes the two types of paper frequently used in carryout bags and includes a photo of a carryout bag made with each type of paper.

### **2.3.2 Goals of the Program**



As described in §2.4, the proposed ordinance is designed to contribute to a number of specific objectives. The effectiveness of each element of the program will be evaluated as it is implemented, starting with the public education and outreach efforts to encourage use of reusable bags. Modifications can be made to the ordinance in the future, based on ongoing monitoring, in order to achieve a closer approximation of the City's goals – including increasing the store charge.

The City will promote and strongly encourage distribution of reusable bags during that time. There are presently reusable bags offered widely for sale for a minimal price (frequently \$.25 to \$1.99). Transactions involving food stamps or WIC coupons will not be charged for the exempt bags.

### TYPES OF PLASTIC COMMONLY USED IN BAGS

<b>HDPE</b> 	<p><b>High Density Polyethylene (HDPE)</b> is produced from ethylene. Ethylene is an organic compound that is extracted from natural gas and/or oil in a process called “cracking”, where heat and pressure are used to break down molecules into their desired form. HDPE is a strong plastic that is used in many products, including pipes, bottles, and grocery bags.</p>	 Single-Use	 Reusable
<b>LDPE</b> 	<p><b>Low Density Polyethylene (LDPE)</b> is produced from ethylene in a manner similar to HDPE. LDPE was developed prior to HDPE and contains longer molecular carbon-chains, resulting in reduced strength but increased flexibility. LDPE is used in products such as electrical cable coatings, dry-cleaning bags, and retail shopping bags.</p>	 Single-Use	 Reusable
<b>PET/ Polyester</b> 	<p><b>Polyethylene Terephthalate (PET)</b> is produced by reacting terephthalic acid and ethylene glycol (oxidized ethylene combined with water). PET is most commonly used in beverage bottles, but is also found in other forms of packaging. PET is also referred to as <b>Polyester</b>.</p>	 Reusable	
<b>PP</b> 	<p><b>Polypropylene (PP)</b> consists of bound units of propylene. Propylene is an organic compound that is extracted from oil and/or natural gas through cracking, similar to the process for extracting ethylene. PP is a versatile plastic that can be used in its woven form in rigid applications such as car bumpers, or, in its non-woven form, flexible applications such as fibers for carpets and reusable shopping bags.</p>	 Reusable	

### TYPES OF PAPER COMMONLY USED IN BAGS

<b>Unbleached Kraft</b>	<p><b>Unbleached Kraft</b> refers to brown paper produced using the kraft process, which mixes wood chips with a sodium-based alkaline pulping solution (sodium sulfide, Na<sub>2</sub>S, and sodium hydroxide, NaOH), to separate lignin, a compound that helps provide rigidity to plant cell walls, from the wood fibers (pulp). The pulp is then dried and pressed to become paper. The recycled content in kraft paper is achieved by mixing source fiber (e.g., used paper, mill waste, etc.) with water and pulping chemicals (NaOH) to produce pulp of a desired consistency, which is then mixed with pulp made from virgin wood.</p>	 Grocery Bag
<b>Bleached Kraft</b>	<p><b>Bleached Kraft</b> refers to kraft paper that has been bleached using a variety of available methods. The most common method is elemental chlorine free (ECF) bleaching, which uses chlorine dioxide (ClO<sub>2</sub>) to further remove residual lignin and brighten the color of the paper. ECF was developed recently as an alternative to the use of elemental chlorine (Cl<sub>2</sub>), which produces harmful dioxins when used for bleaching.</p>	 Retail Bag

TYPES OF PLASTIC & PAPER COMMONLY USED BAGS

FIGURE 3

Although programs to eliminate or reduce single-use disposable bags have been implemented all over the world, there are variations in the programs. Some of the variations are identified in this EIR, where comparisons are made. The most well known example is the country of Ireland, which imposed a fee on single-use plastic carryout bags in 2002. As a result of the fee, the use of single-use plastic bags was reduced by over 90 percent almost immediately. Additionally, surveys completed in 2003 indicated that approximately 90 percent of consumers were using reusable bags, so it does not appear that there was a dramatic shift to paper bag use. Individual stores in Australia and Canada that charge fees for single-use plastic bags have experienced reductions of 83 and 97 percent, respectively.

In recent follow-up to a fee on single-use carryout bags enacted in the District of Columbia, a \$0.05 charge for all single-use bags resulted in an immediate substantial reduction in their use during the first month. District staff estimates that the reduction is in the 50-80 percent range for both paper and plastic single-use carryout bags.<sup>21</sup>

The programmatic variations in combination with differences in physical conditions and cultures make it difficult to project the exact results of a program being implemented in San José. It is agreed that banning a type of bag will significantly reduce the use of that type of bag, but what will the public do instead? Behavior is influenced by a number of circumstances, including cost and convenience, but also by perceptions, values, and beliefs. Nevertheless, the City of San José has been managing and offering recycling and other environmental programs to its citizens and businesses since 1987 and has found that convenience is a critical element in the acceptance of a new program. The convenience of having paper bags available at the point of sale, even for a fee, might influence some consumers toward using paper bags. It is also true that the citizens of California and San José have strongly supported environmental programs, like recycling, that require a change in behavior. With sufficient information about the superiority of reusable bags and the adverse impacts of single-use bags, combined with a store charge for an item that has previously been free, residents of San José may change behaviors very quickly.

There have been anecdotal reports that paper bag use increased in San Francisco after a ban on single-use carryout plastic bags was approved there. Representatives of the plastic bag industry have alleged that there will be a substantial increase in single-use paper bag use right after the ban on single-use plastic bags becomes effective. But there is no quantified study illustrating such an increase and the amount of any such increase (should it actually occur) is not known.

A survey of residents of San José done in spring/summer 2010 did indeed verify that a higher fee on single-use paper bags would increase customers' use of reusable bags. But the survey also identified a very high level of initial participation even with a \$.10 fee. Of those responding to the survey, 81 percent indicated they would bring reusable bags for shopping if plastic bags were banned and recycled content paper bags cost \$.10. With a \$.25 fee on paper bags, 90 percent of the survey respondents would bring reusable bags. This supports the City's assumptions that the environmentally aware citizens of San José will respond positively to the purpose of the ordinance.

In 2010, the City of San José commissioned a fiscal analysis to assess potential costs and cost recovery to be borne by the City and affected retailers as a result of the proposed ordinance (Herrera report).<sup>22</sup> The analysis included estimates on consumer behavior changes at various store charge levels. These estimates assume a link between the amount of the fee and the level of bag uses. A

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<sup>21</sup> Barry Weise, J.D., Legislative & Regulatory Analyst, District Department of the Environment

<sup>22</sup> Herrera Environmental Consultants. *City of San José Single-Use Carryout Bag Fee Fiscal Analysis – Final Report*. June 22, 2010.



higher charge on paper bags under the proposed ordinance, it is assumed, would result in a greater reduction in the number of single-use paper carryout bags being used than would a lower fee. Taking into account the information derived from a wide variety of programs implemented around the world to encourage reusable bags and/or to discourage single-use carryout bags, and averaging their success rates with the survey results mentioned above, the Herrera report estimates that 65 percent of retail customers in San José will readily change to reusable bags (or no bag) if single-use plastic carryout bags are banned and a \$.10 fee is charged for exempt single-use paper carryout bags. Once the \$.25 bag charge is implemented in two years, the percentage of customers using reusable bags (or no bag) will increase to 89 percent. These numbers are probably low, based on the survey of San José residents mentioned above. The percentage of retail customers bringing reusable bags will likely range between the 65 percent and 81 percent shortly after the ordinance takes effect, and will increase from there.

The estimates of numbers of single-use carryout bags contained in the report were based on waste characterization studies and were not derived from the statewide total for single-use carryout plastic bag identified on CalRecycle's website. The discussion in this EIR is, however, based on the CalRecycle number.<sup>23</sup>

### **2.3.2.1 Zero Waste Strategy**

The ordinance proposed to regulate single-use carryout bags is only one of the various elements of the City's Green Vision and Zero Waste Strategy. In parallel with the ordinance implementation, the City is pursuing increased efficiencies in its Recycle Plus residential waste management program and is redesigning the commercial waste collection system to substantially increase recycling of commercial waste. The City has identified approximately 35,000 tons per year of wastepaper generated by businesses that is currently being landfilled but can be recycled. A Request for Proposals is currently circulating for service providers to recycle that wastepaper. While the specific methods for collecting and recycling the paper are not yet developed, recycling commercial paper will likely be the next major element incorporated into the City's waste diversion programs. The anticipated timeframe for the program may result in implementation over the next year.

## **2.4 STATEMENT OF PROJECT OBJECTIVES**

The objectives of the City of San José in proposing an ordinance prohibiting the free distribution of single-use paper and plastic carryout bags include the following:

1. Minimizing the dedication of non-renewable resources to single-use carryout bags.
2. Facilitating the change in consumer behavior toward the use of reusable bags in San Jose.
3. Eliminating the annual distribution of an estimated 568 million single-use carryout bags by 2013 through regulating their free distribution at retail establishments.
4. Minimizing to the greatest extent feasible the amount of single-use carryout bag litter contaminating public and private property in San Jose, polluting streets, parks, sidewalks, storm and sewer systems, creeks, and streams.

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<sup>23</sup> A conservative fiscal analysis in this circumstance assumes fewer bags generating less revenue. A conservative environmental analysis assumes more bags generating greater impact. The Herrera report therefore uses a lower base number and this EIR analysis uses a larger base number

5. Minimizing to the greatest extent feasible the quantity of single-use carryout bag litter polluting streams and other water bodies in Santa Clara County and the San Francisco Bay Area, and contaminating the world's oceans.
6. Minimizing to the greatest extent feasible the presence of plastic bags in the City's recycling program, where they contaminate recovered material streams and clog processing equipment.

These objectives are fundamental to the adopted Zero Waste Strategic Plan and Green Vision, and they reinforce the policies in the City's adopted General Plan, by emphasizing source reduction as the highest value in the waste reduction hierarchy.

## **2.5 USES OF THE ENVIRONMENTAL IMPACT REPORT**

The City of San José proposes to use this EIR to identify the impacts likely to result from adoption of an ordinance prohibiting the distribution of **free** single-use carryout bags at retail sales businesses in San José.

## **2.6 CONSISTENCY WITH APPLICABLE GENERAL PLANS**

The project's consistency with other local and regional plans is discussed in Section 3.0 of this EIR.

### **2.6.1 City's General Plan**

#### **Solid Waste**

The City's General Plan states that collection and disposal of solid waste is a fundamental community service regulated by the City for the benefit of the residents and businesses of San José. San José's rapid population growth in recent decades, radical change in social consumption patterns, recognition of the tremendous resource value of the waste stream, and heightened standards of environmental protection have challenged the utility of the traditional solid waste disposal system. Meeting these challenges and capitalizing on these opportunities requires the establishment of alternative use, disposal and production patterns of solid waste. A solid waste hierarchy, comprised of source reduction, recycling/composting, transformation and landfilling, governs all solid waste management goals and policies of the City. This hierarchy places primary emphasis on implementing all feasible source reduction and recycling/composting measures.

Specific goals and policies that relate to this project include the following:

#### **Solid Waste Goals:**

1. Recover the resource value of solid waste and foster the establishment of facilities in San José which constructively use and reinvest such resources in the local economy.
2. Extend the life span of existing landfills by promoting source reduction, recycling, composting and transformation of solid wastes.
5. Achieve a high level of public awareness of solid waste issues and alternatives to landfilling.

## **Solid Waste Policies:**

### *Solid Waste Capacity*

2. No new candidate landfill sites should be designated until the need for additional landfill capacity has been established. Source reduction and recycling/composting alternatives should be taken into account when evaluating the need for a landfill.

## **Hazardous Waste Management Goals:**

1. To protect public health, safety, and the environment, whenever feasible, by reducing or eliminating the generation of hazardous waste as expeditiously as possible through the adoption and implementation of a hierarchy of hazardous waste management priorities by hazardous waste generators. The hazardous waste management hierarchy emphasizes the importance of preventing pollution by giving primacy to reducing hazardous waste at the source of generation. The hierarchy requires source reduction and recycling particularly as alternatives to land disposal.

*Consistency:* The proposed project proposes to implement a source reduction program in the form of an ordinance that prohibits the **free** distribution of single-use carryout bags at the point of sale for retail businesses in San José, including a ban on distribution of single-use carryout plastic bags and a fee on single-use carryout paper bags. The only exception to the prohibition would be for paper bags that have at least 40 percent post-consumer recycled content. The proposed project is consistent with the relevant General Plan solid waste policies in that it utilizes a source reduction program to reduce waste generation.

### 3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

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#### A NOTE ABOUT METHODOLOGY

There is a great deal of information available about plastic bags, paper bags, and reusable bags. Most of the information is generated by people with a vested interest in one or another of the products being discussed. There is also a quantity of technical analysis that has been done in life cycle analyses (LCAs) on various elements of the single-use carryout bag universe. As stated elsewhere in this EIR, relying on LCAs for precise estimates of potential impacts that could result from the proposed ordinance is problematic for several reasons. The LCA process is complex and involves many variables that can differ from report to report. Each LCA assumes different parameters and system boundaries in its calculations, and utilizes a unique set of data to reach its conclusions. Often, LCAs are completed in different regions of the world that have unique environmental factors that do not apply elsewhere. For these reasons, the conclusions in LCAs consulted for this EIR do not accurately reflect conditions in San José.

It is possible, however, to use data contained in LCAs to derive a rough estimate of the range of impacts that may occur as a result of certain aspects of the proposed ordinance. Data contained in the Boustead LCA were used for some of the quantitative estimates in various subsections (air quality, water, energy, etc.) because the impacts it reports are broken down into detailed categories and are capable of being translated down to the level of a single bag. Also, the report was completed in the U.S., and may reflect some circumstances in San José more accurately than LCAs completed in other countries. There are reasons, however, that the analysis in this LCA should not be assumed to accurately reflect the situation in San José. These reasons are described in more detail in Appendix E. It must also be kept in mind that the Boustead LCA was commissioned by and paid for by plastic bag manufacturers.

To arrive at the estimates of potential impacts, three pieces of information are needed: the current number of single-use paper and plastic bags used in San José, the future number of single-use paper and plastic bags used in San José as a result of the ordinance, and the per-bag impacts as reported in the Boustead LCA. It is estimated that currently there are 500 million plastic bags and 68 million paper bags used in San José every year (the bases of those estimates are described in §2.1.1 of this EIR). Using the behavior change estimates described in the Herrera report and §2.3.2 of this EIR, it is estimated that with a ban on plastic bags and a \$.10 fee on paper bags, 65 percent of people will use reusable bags or no bag, and 35 percent of people will use paper bags. Using these percentages, it is possible to estimate numbers of bags that will be used in San José. Assuming 5.5 percent of plastic bags are distributed in exempt businesses, it can be assumed that 472.5 million plastic bags will not be used in San José as a result of the ban.

For paper bags, the size ratio compared to plastic bags is important to consider when estimating the effect of consumers switching from plastic bags to paper bags. There is a variety of bag sizes for both types of single-use carryout bag. The most commonly used of each type are shown in Photos 21 - 24 and are summarized in Table 3.0-1 as Small Plastic, Large Plastic, Small Kraft Paper and Large Kraft Paper. All of these bags are currently used in San José. For example: the small paper and small plastic bags are presently distributed by Safeway and Save Mart in San José; the large paper bag is distributed at Zanotto's, Whole Foods, and Trader Joe's; the large plastic bag is distributed at Target. The size ratio of all four sizes of bags is summarized in Table 3.0-1.

<b>Table 3.0-1 Capacities of Common Bags</b>		
<b>Bag</b>	<b>Tennis Balls</b>	<b>Capacity<sup>1</sup></b>
Small Plastic: HDPE Plastic (Safeway)	57	1
Large Plastic: LDPE Plastic (Target)	70	1.2
Small Paper: Kraft Paper 14x12x7 (Safeway)	86	1.5
Large Paper: Kraft Paper 17x12x7 (Zanotto's)	114	2
<sup>1</sup> Capacities are relative to that of the Small Plastic bag, which is considered to have a baseline capacity of one (1)		

The bags evaluated in the Boustead LCA were the same size as the Large Plastic and Large Kraft Paper bags shown in Photos 22 and 24. Boustead assumed that everyone used the same size bags. It becomes very difficult to estimate how many of which size plastic bags might be replaced by how many of which size paper bags – if any. Since the larger grocery store chains use the smaller plastic bags, it is likely that most of the 500 million bags used in San José currently are the smaller bags. Since many of the grocery stores that use the larger paper bags do not currently offer single-use plastic carryout bags as an option, the ratio of conversion is further complicated.

Since it is not possible to predict how many of which size paper bags might be purchased in the future, this discussion assumes that any additional number of single-use carryout paper bags will replace single-use plastic bags at a ratio of somewhere between 1.5:1 and 2:1, compared to the number of single-use plastic carryout bags presently used by the same customers. It should also be taken into consideration that when customers are paying for bags, they are likely to insist on the bigger bags, which could also influence their willingness to pay for the smaller bags, making the larger ratio (2:1) more appropriate.

These assumptions and methods were used to calculate estimates of impacts in some of the sections that follow, as described in those sections.

### 3.1 LAND USE AND AESTHETICS

#### 3.1.1 Existing Environmental Setting

##### 3.1.1.1 *Policies Adopted for the Purpose of Avoiding an Environmental Impact*

#### City Policies

In 1984, the City of San José adopted a *Solid Waste Strategy* as policy direction for managing the City's garbage collection and landfilling. At that time, there was an imminent threat from regulators that Newby Island, the primary sanitary landfill accepting municipal solid waste from San José residents and businesses, would be closed. The City's Strategy, once adopted by the City Council, was updated annually and reflects a progression from a focus on collecting garbage and expanding landfill capacity to an emphasis on extracting and redirecting resources from the waste stream and conserving landfill capacity. By 1986, it was officially called the City's *Waste Reduction Strategy*, and the primary goals were diversion of waste from landfills through multiple interrelated programs. In 1986, it was believed that recycling and waste-to-energy would be the major sources of diversion. By 1989, waste-to-energy was no longer being pursued, but the City was benefiting from substantial diversion through a variety of public/private alliances; "Private Initiatives" were an important component of the Strategy. In 1989, "Source Reduction" was identified as a component of the City's integrated Waste Reduction programs. The latter program's elements were entirely educational at that point, and included encouraging "businesses not to use plastic packaging."

In 1989, the state adopted the Integrated Waste Management Act of 1989 (commonly still called AB 939), which set goals for the entire state similar to those San José had been working toward for five years. As required by AB 939, the City adopted a Source Reduction and Recycling Element (SRRE) (last amended in 1994), which is part of the County Integrated Waste Management Plan (CoIWMP). The SRRE replaced the *Waste Reduction Strategy* as a comprehensive summary of the City's waste management goals and programs.

Source Reduction is one of the primary program elements identified for San José's programs. It is defined in the SRRE thus:

Source Reduction refers to any action that causes a net reduction in the generation of solid waste, and can include but is not limited to, replacing disposable materials and products with reusable materials and products, reducing packaging, and increasing the efficient use of paper, cardboard, glass, metal, plastic, and other materials in the manufacturing processes.

The identified medium range objective for the City's Source Reduction efforts is to:

...encourage source reduction behavior through a broad-based program that incorporates instructional and promotional alternatives, economic incentives and rate structure modifications, waste exchanges, and City leadership and regulatory programs.

Objectives identified in the SRRE included reducing use of non-recyclable materials, replacing disposable materials and products with reusable materials and products, and discouraging use of packaging made from non-renewable resources (especially when recycling is not feasible).

The waste stream includes many other disposable products that are difficult, if not impossible, to recycle or compost at a reasonable cost. It is technically possible for plastic bags and other plastic

film and foam packaging to be recycled and they have been included in the City's residential recycling programs. The recovery rate has continued to be very low, especially after contaminated materials are discarded by the City contractors or their commodity buyers. An additional problem is that the light weight materials tend to become airborne easily or otherwise migrate within the sorting and processing facilities, and to contaminate loads of other recycled materials, increasing processing costs and lowering the value of the other materials. The lightweight plastic bags also become entangled in the processing equipment, increasing costs of maintenance (see Photo 13). The City's experience with recycling plastic bags has been that processing costs greatly exceed their value.

A number of the policies developed through the Waste Reduction Strategy and incorporated into the SRRE are also now part of the City's adopted General Plan policies, as discussed in §2.6.

The proposed ordinance being considered by the City is consistent with the policies and objectives of the City's SRRE in that it promotes source reduction by encouraging residents of the City to replace disposable materials and products with reusable materials and products and by implementing a broad-based program that includes education, economic incentives and a regulatory program.

### **General Plan Policies**

The Goals and Policies section of the adopted General Plan identify the same priorities and values for the City's waste management programs that are reflected in the SRRE, particularly its emphasis on source reduction to reduce waste going to landfills. The City's reliance on a solid waste hierarchy, of which source reduction is the highest tier, is explicitly identified as governing all solid waste management goals and policies, including landfill siting criteria and siting and design criteria for other solid waste management facilities. This is reiterated in multiple Solid Waste Goals and Policies listed in §2.6 of this EIR.

The City of San José has tried for 15 years, with five different contractors, to recycle plastic bags. Given the lack of success, source reduction offers a more cost effective alternative with a much greater likelihood of both reducing the amount of waste disposed and the plastic-bag-related costs of operating a recycling program. Since the proposed ordinance would reduce the generation of unrecovered solid waste over time, it is consistent with General Plan policies related to solid waste management, source reduction, and landfill planning.

### **Urban Environmental Accords**

On World Environment Day 2005 in San Francisco, a group of mayors signed a set of 21 action statements intended as goals for the cities of the world. The Accords are a declaration of participating city governments to build ecologically sustainable, economically dynamic, and socially equitable futures for their urban citizens. Among the actions that are proposed are three actions entitled "Waste Reduction":

Action 4 – Establish a policy to achieve zero waste to landfills and incinerators by 2040.

Action 5 – Adopt a citywide law that reduces the use of a disposable, toxic or non-renewable product category by at least 50 percent in seven years.

Action 6 – Implement “user-friendly” recycling and composting programs, with the goal of reducing by twenty per cent per capita solid waste disposal to landfill and incineration in seven years.

On November 1, 2005, San José’s City Council signed on to the Urban Environmental Accords. The proposed ordinance would be consistent with the three actions related to Waste Reduction.

### **Green Vision**

In 2007, the City of San José adopted the *Green Vision*, a set of 10 environmental goals to be achieved over the course of 15 years. The *Green Vision* includes objectives such as reducing per capita energy use by 50 percent and receiving 100 percent of electrical power from clean renewable sources. Goal #5 of the *Green Vision* aims to divert 100 percent of waste from landfills. To achieve this goal, the City developed a *Zero Waste Strategic Plan* which includes an analysis of the current waste stream and descriptions of the policies, programs, and facilities that will be needed for 100 percent waste diversion. The *Zero Waste Strategic Plan* includes participation by the City in a countywide effort to reduce the proliferation of single-use carryout bags in the City.<sup>24</sup>

The proposed ordinance would be consistent with the Green Vision and the Zero Waste Strategic Plan because it will divert waste from landfill by reducing the use of single-use carryout bags.

### **California Ocean Protection Council Resolution to Reduce and Prevent Ocean Litter**

The California Ocean Protection Council (OPC) was created in 2004, pursuant to the adoption of the California Ocean Protection Act (COPA).

The OPC is guided by principles included in COPA:

- Recognizing the interconnectedness of the land and the sea, supporting sustainable uses of the coast, and ensuring the health of ecosystems
- Improving the protection, conservation, restoration, and management of coastal and ocean ecosystems through enhanced scientific understanding, including monitoring and data gathering
- Recognizing the “precautionary principle”: where the possibility of serious harm exists, lack of scientific certainty should not preclude action to prevent the harm
- Identifying the most effective and efficient use of public funds by identifying funding gaps and creating new and innovative processes for achieving success
- Making aesthetic, educational, and recreational uses of the coast and ocean a priority
- Involving the public in all aspects of OPC process through public meetings, workshops, public conferences, and other symposia.

In February 2007, the OPC adopted a resolution addressing the problems of oceanic pollution by litter from land-based sources. The resolution specifically identifies plastic and single-use plastic packaging as substantial components of the litter found on west coast beaches and in the marine environment. In addition to aesthetic and economic impacts, the resolution found the pollution to be a threat to marine life and human health and safety.

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<sup>24</sup> City of San José Environmental Services Department. *Integrated Waste Management Zero Waste Strategic Plan*. November 2008.



Subsequently, the OPC adopted an “Implementation Strategy to Reduce and Prevent Ocean Litter” in November 2008. The Strategy is intended to prompt a change in how California generates, handles, and disposes items that frequently end up in the ocean. The Implementation Strategy offers sixteen recommendations, ranging from banning smoking on state beaches to anti-litter education and clean-up initiatives, with three priority actions. The three priority actions intended to redefine California’s relationship with frequently used plastics and commonly littered items include the following:

- Action #1 – Implement a producer take-back program for convenience food packaging
- Action #2 – Prohibit single-use products that pose significant ocean litter impacts where a feasible less damaging alternative is available
- Action #3 – Assess fees on commonly littered items

The proposed ordinance under consideration by the City of San José would be explicitly consistent with the intent of the resolution. The prohibition on plastic and most paper single-use carryout bags is consistent with Action #2 and the provision for a fee on exempt bags with a high percentage of recycled content (but which could still contribute to litter problems) is consistent with Action #3.

### **3.1.1.2 Existing Land Uses**

Under existing conditions, most retail businesses in San José offer customers a free bag in which to place their purchases prior to leaving the store.<sup>25</sup> The bags are offered at the check-out counter and, in most cases, the purchases are placed in the bag by store employees. For those stores where customers are expected to bag their own purchases, the only free bags offered are plastic.

[Note: The following discussion refers frequently to acronyms used for different types of plastic used in making bags. A brief description of each type of plastic can be found in Figure 3. More information on the various types of plastic can be found at the American Chemistry Council website: [http://www.americanchemistry.com/s\\_plastics/bin.asp?CID=1102&DID=4645&DOC=FILE.PDF](http://www.americanchemistry.com/s_plastics/bin.asp?CID=1102&DID=4645&DOC=FILE.PDF) ]

Most grocery stores offer customers a choice of paper or plastic. Some grocery stores have only plastic available. A few grocery stores offer only paper. Some grocery and other stores offer a token refund if a customer brings their own reusable bag. Other stores, including clothing and department stores, drug stores, and specialty retail stores, offer plastic bags of various sizes and shapes. Some also offer paper bags. Most of the plastic bags used in grocery stores are HDPE and most of the plastic bags used in department stores are LDPE. The former are thin and very lightweight; the latter tend to be sturdier and are frequently reused, at least once or twice. The paper bags offered in most grocery stores are unbleached brown kraft paper; the paper bags offered at other retail stores vary widely, including brown and white (bleached) and various shades in between (see Figure 3).

In recent years, a significant number of stores began offering reusable bags for sale. Based on observation of stores in Santa Clara County, the reusable bags are most commonly canvas (cotton, cotton/PET blend, or PET), polypropylene, or polyethylene (both HDPE and LDPE). Some stores offer several different kinds. Tables 3.1-1 and 3.1-2 list some of the wide variety of bags found in local stores in San José and on the Internet. In addition, giving away reusable shopping bags has become a popular form of advertising for environmental organizations, businesses in related fields, public television stations, etc. Whole Foods implemented a program similar to one found in Ireland (and called there a “Bag for Life”) in which a bag made of recycled soda bottles (PET) is sold for a nominal price (\$0.99 at Whole Foods) and is replaced at no charge when it breaks or wears out.

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<sup>25</sup> The bags are only free to customers in that the customers do not pay for the bag separately at the time of purchase. The store must purchase the bags and recover their cost through normal business practices.

As illustrated in Tables 3.1-1 and 3.1-2, the variety of bags and bag types, and of the materials they are made from make it impossible to accurately estimate which bags would be the most used in San José as a result of this ordinance, where they would come from, and what might be the impacts caused by their manufacture and use. The open market on this type of merchandise is growing quickly and evolving in a variety of directions. Many, but not all of the bags are manufactured outside the United States.

The proposed ordinance would limit the distribution of free single-use carryout bags at retail establishments within the corporate limits of the City of San José (Figure 2). The incorporated city limits currently encompass approximately 200 square miles, with a population of over one million, located at the southerly end of San Francisco Bay, approximately equidistant between Oakland and San Francisco, in Santa Clara County. At this time, San José is the largest city in northern California and the tenth largest city in the United States.

<b>Table 3.1-1: Examples of Reusable Bags Available to the Public at Some Local Stores</b>			
<b>Store &amp; Bag Type</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
<b>Home Depot</b>			
Large Shopping Bag	“Parachute” nylon w/plastic cart clip		\$0.99
<b>IKEA</b>			
IKEA Blue Bag	Polypropylene	24"Hx48"Wx24"D 22"Lx14"Hx14"D	\$0.99 \$0.59
<b>Lucky</b>			
Reusable Plastic Grocery Bag	Low Density Polyethylene 20% Recycled Material	16"Hx17"Wx5.5"D	\$.25 (5¢ rebate for each reuse)
<b>Michael's Arts and Crafts</b>			
Tote Bag	Polypropylene	15.5"Hx13"Wx6.5"D	\$1.00
Tote Bag	Polypropylene	16"Hx13"Wx4"D	\$1.99
<b>Nijiya Market</b>			
Reusable Grocery Bag	Polypropylene	13"Hx11.5"Wx8"D	\$0.99
<b>Nordstrom</b>			
Nordstrom Reusable Tote	Linen w/PVC Trim, Cotton Lining, Faux Leather Bottom, Zipper	16"Hx15.5"Wx6"D	\$21.95
<b>Office Depot</b>			
Carryall Bag	Nylon w/ Plastic Cart Clip	15"Hx14"Wx14.5"D	\$2.99
Tote Bag	Non-Woven Polypropylene	13"Hx12"Wx8"D	\$0.99

**Table 3.1-1:  
Examples of Reusable Bags Available to the Public at Some Local Stores**

<b>Store &amp; Bag Type</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
<b>Petsmart</b>			
Reusable Tote	100% Unbleached Cotton	14"Hx14"Wx7.5"D	\$2.99
<b>PW Markets</b>			
Reusable Plastic Bag	LDPE	16"Hx18"Wx8"D	4 for \$1.00
<b>Raley's/Nob Hill</b>			
Reusable Tote Bag	Nonwoven Polypropylene	13"Hx12"Wx8"D	\$0.99
<b>Sally Beauty Supply</b>			
Reusable Bag	Nonwoven Polypropylene	13"Hx12"Wx8"D	\$0.99
<b>Safeway</b>			
Lucerne Insulated Bag	Unknown plastic	12"Hx11"Wx8.5"D	\$2.99
Safeway Reusable Tote Bag	Polypropylene	15.5"Hx13.5"Wx7"D	\$0.99
<b>Save Mart</b>			
Reusable Shopping Bag	Polypropylene	13"Hx12"Wx7"D	\$1.29
<b>Target</b>			
Reusable Shopping Bag	Polypropylene	13"Hx12"Wx8"D	\$0.99
Compact Reusable Bag	Polypropylene	16"Hx15.5"Wx0"D	\$0.99
<b>Trader Joe's</b>			
Reusable Recycleable Paper Bag	Paper, 40% Post-Consumer Recycled Content	14"Hx12"Wx5.5"D	Free
Reusable Grocery Bag	100% Post-Consumer Waste (LDPE?)	14"Hx12"Wx6.5"D	\$0.99
Reusable Grocery Bag	100% Cotton (Canvas)	18"Hx12"Wx6"D	\$2.99
Reusable Tote Bag	Polypropylene	12"Hx18"Wx7"D	\$1.99
<b>Whole Foods</b>			
Whole Foods Green Bag	Polypropylene	13"Hx12"Wx8.5"D	\$0.99
Insulated Reusable Bag W/Zipper Closure	Polypropylene	12.5"Hx12"Wx7"D	\$2.99

<b>Table 3.1-1: Examples of Reusable Bags Available to the Public at Some Local Stores</b>			
<b>Store &amp; Bag Type</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
'I Used to Be a Plastic Bottle' Reusable Bag	80% Post-Consumer PET	15.5"Hx13.5"Wx7"D	\$0.99
Small Recycled Sheryl Crow Grocery Tote	80% Post-Consumer LDPE	11"Hx9"Wx7"D	\$0.79 (free replacement)
Large Recycled Sheryl Crow Grocery Tote	80% Post-Consumer LDPE	16"Hx13"Wx7"D	\$0.99 (free replacement)
<b>World Market</b>			
Reusable Bag	100% Cotton	14"Hx17.5"Wx5.5"D	\$2.99
<b>Zanotto's</b>			
Reusable Grocery Bag	Nonwoven Polypropylene	12"Hx12"Wx7.5"D	\$0.99
Reusable Bag	100% Cotton	14"Hx17.5"Wx6"D	\$12.99
Note: Dimensions are approximate			

<b>Table 3.1-2: Examples of Reusable Bags Available For Purchase on the Internet*</b>			
<b>Supply Company &amp; Bag Name</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
<b>Acme Bags</b>			
The Workhorse	Rip-Stop Nylon	21"Hx16"Wx6"D	\$5.95
The Workhorse Eco-Circle 100% Recycled Plastic	100% Recycled Post-Consumer PET	21"Hx16"Wx6"D	\$10.95
<b>BAGGU</b>			
Baby BAGGU	100% Ripstop Nylon	18"Hx10"Wx4"D	\$6.00
Big BAGGU	100% Ripstop Nylon	33"Hx18"Wx9"D	\$14.00
Duck Bag	100% Recycled Cotton Canvas	16"Hx10"Wx5.5"D	\$18.00
<b>Built</b>			
Built Fishnet Market Tote	Lightweight Neoprene	23.25"Hx12"W x5.5"D	\$39.95-\$45.00
<b>Care Company International</b>			
Pack-N-Tote Insulated	Nonwoven polypropylene,	15"x13"x9.5"	\$6.95-\$7.95

**Table 3.1-2:  
Examples of Reusable Bags Available For Purchase on the Internet\***

<b>Supply Company &amp; Bag Name</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
Grocery Bag	some recycled content		
<b>Chico Bag</b>			
Original ChicoBag Plus stuff pouch & carabiner	Washable Polyester	18"Hx18"W	\$5.00
Slung rePETe	Fabric 100% Recycled PET, Carabiner 97% Recycled Aluminium, Cord 100% Recycled PET, Cordlock 100% Recycled Polyurethane	13.5"Hx14.5"W	\$9.99
<b>Earthwise Bags</b>			
Reusable Bag	Nonwoven Polypropylene	16.75"x14"x7.75"	4/\$11.99 (\$3.00 ea.)
<b>ECOBAGS</b>			
Recycled Grocery Tote	100% Recycled Cotton	19"Wx15.5"Hx7.55"D	\$7.25
Canvas Tote Bag	55% Hemp, 45% Cotton	14.5"Hx11.25"W	\$5.99
Classic String Bag	Organic cotton	12"x12" (unstretched)	\$5.95- \$6.95
Recycled Tote	Recycled Cotton/ PET blend	14"Hx18"Wx5"D	\$9.95
<b>Ecoist Bags</b>			
The Daily- M&M Retro Tote	Recycled Candy Wrappers, Magnetic Snap Closure, Plastic Strap	12"Hx15"Wx6"D	\$120.00
<b>Ecolution</b>			
Lightweight Organic Cotton Shopping Bag	Organic Cotton	16.5"Hx15"W‡	\$4.95 (3 for \$3.95 ea)
<b>EcoStreet</b>			
EcoStreet Reuseable Bag	Lightweight Nylon	14"Hx18"W	\$10.00
<b>ENVIROSAX</b>			
Bamboo Supermarket Bag	45% Bamboo, 55% Linen	18"Hx16.5"W	\$24.95
<b>Factory Direct</b>			
Recycled Water Bottle Bag	85% Post-Consumer Recycled Plastic	16"Hx14"Wx7"D	From \$1.19 each (Negotiable)

**Table 3.1-2:  
Examples of Reusable Bags Available For Purchase on the Internet\***

<b>Supply Company &amp; Bag Name</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
<b>Flip and Tumble Bags</b>			
24-7 Reusable Bags	Ripstop Nylon	14"Hx12"Wx5"D	\$12.00
<b>French Woven Baskets</b>			
Classic Weave	Palm Leaf, Water Reed, and Wild Grasses, Leather Straps	12"Hx18"W	\$42.00
Plum Weave Tote	Palm Leaf, Water Reed, and Wild Grasses, Leather Handles	11"Hx15"W	\$42.00
<b>Gecko Traders</b>			
Koren Bags	Recycled Rice Bags	13.5"Hx 16.5"W	\$25.99
Market Bags	Recycled Rice Bags	12"Hx8.5"Wx5.5"D	\$27.00
<b>Kold-to-Go</b>			
Large Kold Bags	White Corrugated Polyethylene, Infrared Reflective Material, PE Foam	20"Hx15"Wx8"D	\$10.00
Extra Large Kold Bags	White Corrugated Polyethylene, Infrared Reflective Material, PE Foam	20"Hx20"Wx8"D	\$12.00
<b>KR Ideas</b>			
Zippered Grocery Bag	50% Recycled Materials, Polyester, Zipper	18"Hx16"Wx4.75"D	\$12.99
<b>LilyEcolo</b>			
Holdall Tote	100% Cotton	15.5"x14.5"x5.5"D	\$39.00
<b>Moosejaw</b>			
Air Grocery Bag	30 D Sil-Nylon	30 Litre Volume	\$17.95
<b>One Bag at a Time</b>			
Reusable Grocery Bag	Polypropylene	14"Hx12"Wx 8"D	\$2.00-\$4.00
<b>Onya Bags</b>			
The Original Onya Bag	Parachute Material	15"Hx14"Wx6"D	\$11.95
<b>Quest</b>			
Insulated Shopping Bag	Quilted Poly-Fiber Nylon Fabric	12"Hx14"Wx7"D	\$8.22
<b>RosyUndPosy</b>			
Cloth Market Tote	Burlap (Woven Jute), Unbleached Cotton	20"Hx12.5"Wx8"D	\$40.00

<b>Table 3.1-2: Examples of Reusable Bags Available For Purchase on the Internet*</b>			
<b>Supply Company &amp; Bag Name</b>	<b>Material</b>	<b>Dimensions</b>	<b>Cost/Bag</b>
<b>SmartCycle</b>			
Reusable Shopping Bag with stuff pouch	Recycled PETE bottles	12"Hx19"Wx6.6"D	\$3.95-\$6.95
<b>TuckerBags</b>			
Reusable Shopping Tote	Polyester	19"Hx16"W	\$8.99
<b>World of Good Bags</b>			
Fairtrade Natural Hemp Reusable Bag	100% Hemp	17"Hx12"Wx4"D	\$30.00
Trashy Market Bag	Recycled Water Sachets from Ghana (100% Polyethylene Plastic), Velcro, Zippers	14"Hx18"Wx4"D	\$24.00
<b>zer0w</b>			
Mega Tote	Woven Plastic and Billboard Materials	16"Hx21"Wx9"d	\$75.00
*These products may be available on more than one website. †Described as holding as much as a plastic grocery bag. Note: Dimensions are approximate.			

The proposed ordinance prohibits the free 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 and nonprofit charitable reuse organizations. Single-use paper bags with a minimum 40 percent post-consumer recycled content would be exempt from the prohibition, but would have to be sold for a minimum charge. Restaurants would be completely exempt from the ordinance. The stores may be located in any of the various commercial zones and in some planned development zones that also allow retail commercial land uses. There are approximately 4,400 acres of developed commercial land in San José, and approximately 125 acres of vacant land zoned for commercial uses. It is estimated, based on statewide numbers provided on their website by CalRecycle, that an average of 500 million plastic bags are handed out to customers of businesses in San José every year, most of them for the purpose of carrying home the customers' purchases.<sup>26</sup> Grocery stores in San José were contacted and asked how many paper and plastic bags they used. Some smaller, independent stores provided numbers but none of the large chain stores would provide such numbers. Therefore, the CalRecycle estimates are used for the purposes of this EIR.

The carryout bags handed out to customers are purchased by the businesses from various sources and are delivered to the stores. The stores contacted indicated that bags are delivered in mixed shipments

<sup>26</sup> The CalRecycle website says that the estimated number of single-use carryout plastic bags was provided by the Progressive Bag Alliance.

with other merchandise. No business said that a truck carrying only plastic and/or paper bags delivered bags to their store.

Most existing commercial development was constructed pursuant to the City's site and architectural review processes and site development, conditional use, or planned development permits. Commercial development constructed prior to the early 1970's may have been built without site and architectural review, but would have been governed by the City's zoning ordinance and building code. There may be a few remaining commercial buildings built prior to 1929, when San José adopted its first zoning ordinance. Although legally nonconforming, those older buildings may have inadequate parking and substandard waste enclosures, by current standards.

Most commercial buildings have outdoor bin enclosures where garbage (and in some cases, recycling) is gathered together and from where it is collected by franchised collection companies. Older buildings may have less formal arrangements, with bins placed in the parking lot, on the sidewalk, or in the landscaping.

Most larger commercial buildings, including most grocery stores and malls, are constructed with loading docks or loading doors through which shipments are received. Those that are not so designed have well-established systems for receiving shipments of merchandise, including supplies necessary to do business.

### **3.1.1.3      *Visual and Aesthetic Character***

The visual character of San José is that of a nearly flat valley framed by mountains to the east and southwest and San Francisco Bay to the north. Notable topographical features within the City include the Silver Creek Hills on the eastern boundary, the Santa Teresa Ridge in the southern portion of the City, and Communications Hill in the south central area of the City. Major waterways within the City include Coyote Creek, Guadalupe River, Los Gatos Creek, Silver Creek, and Penitencia Creek. Creekside vegetation is present within and/or adjacent to most of the major waterways. Baylands, salt ponds, and marshes border the southern tip of San Francisco Bay.

Most of San José is urbanized. The densest development occurs in the downtown area, which accommodates high-rise residential, office, and commercial buildings. Most of the land within San José's Urban Service Area contains suburban development, made up primarily of single family residences and residential-serving commercial business clusters, parks, schools, and other related uses. Industrial and office developments, usually low to mid-rise, are found at scattered locations throughout the City, with significant concentrations near the northern and southeastern boundaries.

### **Litter**

Littering is illegal in California. It is defined and prohibited by the California Penal Code Section 374. The San José Municipal Code also prohibits the littering of public parks and the accumulation of litter on privately owned property.

While littering is illegal, litter is a substantial presence in the urban environment, including San José. Photographs were taken to illustrate the visual presence of litter at several locations in San José where the litter is clearly visible from or within public rights-of-way (see Photos 15-20). Various composition studies of litter (in the United States, in California, in Santa Clara County, and in San José) have consistently found that plastic is a major component of litter, and in those studies that sort



and type the components of the plastic litter, it is documented that plastic bags make up a substantial part of the plastics total.

It is difficult to document and categorize litter because it is the result of human behavior, frequently impulsive behavior, and is operated on by various environmental factors (especially wind, sunshine, and rain). It is also very difficult to compare study results in a mathematical format, because there is no standardized methodology for preparing litter studies. Various litter studies done all over the world use different categories for the litter itself, document what is found in various ways, and each organizes the information differently. This is further complicated by different systems used to identify the materials littered. It is not uncommon to have substantial categories labeled “Miscellaneous Paper” and “Miscellaneous Plastic”.

In addition, paper and plastic behave differently in the natural environment. Paper breaks down in water, loses cohesion, and (in effect) becomes invisible. It biodegrades and leaves behind the organic paper fibers, and residues of whatever was on the paper (ink, glue, etc.). Plastic may photodegrade (break down in sunlight), which means it breaks up into smaller and smaller pieces.<sup>27</sup> Litter surveys can only document what is found. Many of the surveys reviewed for this study refer to the presence of small pieces of plastic and plastic film whose origin cannot be determined.

Litter also moves around. In no urban community is litter found in a regular distribution, occurring equally in all neighborhoods or uniformly applied at all locations. Nor does it stay where it is dropped. Lightweight litter such as small pieces of paper and plastic bags are easily caught in light winds and may accumulate in sheltered areas. Likewise in a marine environment or in urban waterways, floating litter is carried with the water and may travel for miles or become entangled in streamside vegetation or urban infrastructure.

No single plastic bag known to have been given away in San José has been identified in the mass of floating plastic found near the Pacific Gyre, the enormous ocean-borne concentration of floating garbage north of the Hawaiian Islands.<sup>28</sup> On the website called “Marine Debris Program” maintained by the National Oceanic and Atmospheric Administration’s National Ocean Service Office of Response and Restoration is a simplified strategic diagram of the ocean currents that support and maintain the Pacific Gyre.<sup>29</sup> It is apparent that the major oceanic currents travel from the California coast as part of the overall circulation system that contributes to the Gyre. There are also references in the literature to plastic bags seen underwater at other oceanic locations. San José’s plastic bags may or may not have contributed to the Pacific Gyre and/or to other accumulations of trash elsewhere in the Pacific.

Plastic bags are found on the streets, sidewalks, and in parks in San José, and in the storm sewers and catch basins that drain to San Francisco Bay. As shown in Photos 15, 16, and 20, plastic bags are also found on the banks and in the water of the creeks in San José. The creeks in San José all drain into the Bay, and the Bay drains into the Pacific Ocean twice a day. It is therefore necessary to conclude that plastic bag litter from San José contributes to the plastic litter polluting the creeks, Bay, and Pacific Ocean.

Additionally, in §3.2.2 in the discussion of biological resources, the National Oceanic and Atmospheric Administration (NOAA) describes a recent year in which substantial floating debris from stormwater systems was washed from Bay Area communities into the Cordell Bank Marine

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<sup>27</sup> Algalita Marine Research Foundation. *Pelagic Plastic*. April 9, 2007.

<sup>28</sup> Please see §3.2.2 of this EIR for more detail about the Pacific Gyre.

<sup>29</sup> <http://marinedebris.noaa.gov/info/patch.html>. Accessed on July 2, 2010.



Photo 15 - Litter, including plastic bags, in and around the Guadalupe River between Coleman Avenue and Julian Street



Photo 16 - Litter, including plastic bags, in and around the Guadalupe River between Coleman Avenue and Julian Street

PHOTOS 15 AND 16





Photo 17 - Plastic Bag litter at Santana Park, located at the northwest corner of Monroe Street and Tisch Way



Photo 18 - Paper Bag litter at Santana Park, located at the northwest corner of Monroe Street and Tisch Way

PHOTOS 17 AND 18



Photo 19 - Plastic bag litter on Winchester Avenue, between Payne Avenue and Loma Verde Drive, looking east.



Photo 20 - Litter, including plastic bags, in and around Coyote Creek east of Oakland Road.

PHOTOS 19 AND 20



Sanctuary. Since, as discussed previously, plastic bags are known to constitute a substantial percentage of the litter which accumulates in storm drains, this means that plastic bags from San José and other cities in the Bay Area would have ended up in a national marine sanctuary that provides habitat for a number of endangered species.

The proposed project will be an ordinance of the City of San José and will therefore have its greatest influence within San Jose. In order to document the presence of single-use plastic retail carryout bags in litter, City staff reviewed recent surveys of urban litter and other studies done in San José and similar communities.

### *Litter Surveys*

Perhaps the most comprehensive survey of litter and floating water pollution done for a significant urban area in the United States was recently prepared by the Anacostia Watershed Society for the District of Columbia Department of the Environment. It was published in December 2008. The Anacostia watershed is approximately 117,353 acres and is located in Prince George's County and Montgomery County (both in Maryland) and in the District of Columbia. The primary land uses within the watershed are residential and forest, although much of the land in the District also includes industrial development. The watershed is 30 percent park and forest lands, including Anacostia Park and Greenbelt Park and the National Arboretum.

The Anacostia survey is particularly useful because it included walking transects at quarterly intervals of all of the waterways, *and* windshield surveys of the streets that drain to those waterways; all of the surveys were repeated for each season of the year. The primary elements of the trash found in the Anacostia River itself were plastic bags (20+ percent), plastic food wrap from items such as candy bars, chips, etc. (25+ percent), and polystyrene (10+ percent). In the tributary streams, plastic bags were the overwhelmingly dominant element (45+ percent), with food wrap as the runnerup (25 percent). In an interesting contrast, the litter found on land upstream from these waterways also included substantial quantities of food wrap, but the largest category was paper, including things such as napkins and paper bags. Drink containers, glass, metal and plastic, were also found on the streets and in the waterways.

The City of Los Angeles did a waste characterization study in 2004 and found that plastic bags made up 25 percent by weight and 19 percent by volume of litter found in 30 storm drain catch basins. It should be noted in this context that storm drains flow into creeks and rivers in California, and from there to the Pacific Ocean in many cases (including Los Angeles and Santa Clara County).<sup>30</sup>

Each year, Caltrans sweeps 184,000 highway lane miles to remove debris and litter. In 2005, Caltrans and the various Adopt-a-Highway groups picked up a total of 11.6 million pounds of trash. A breakdown was not done for that material, but a litter management pilot study done by Caltrans from 1998 through 2000 on a freeway in the Los Angeles area found that plastic film (including plastic carryout bags) made up 7 percent by mass and 12 percent by volume of the litter collected.

Recent litter surveys done on land in San José found substantial quantities of plastic, including an identifiable number of retail plastic bags (4.88 percent of the "large litter" category) and non-retail plastic bags (2.84 percent of the "large litter" category).<sup>31</sup> Both miscellaneous paper (22.55 percent) and miscellaneous plastic (14.17 percent) were substantial categories. There may have been

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<sup>30</sup> Drainage from Santa Clara County enters San Francisco Bay. The water from San Francisco Bay flows into the ocean through the Golden Gate.

<sup>31</sup> City of San José. *Litter Assessment*. August 2009.

unidentifiable fragments of both plastic and paper shopping bags included in the miscellaneous categories.

The conclusion reached by reviewing these various documents is that plastic is a substantial element in litter found in most urban areas, including urban waterways, and plastic bags are commonly found in significant numbers in plastic litter. It is likely that single-use paper carryout bags were also an element in the paper litter, but there are far fewer single-use paper carryout bags given away in San José than single-use plastic bags (68 million versus 500 million annually in San José), and most of the grocery carryout paper bags are bigger and heavier than the plastic carryout bags. The Anacostia surveys found paper including paper bags was the largest category of litter on land, but not in the waterways. The International Coastal Cleanup described in §3.3.1.2 of this EIR, found that plastic bags far outnumber paper bags in litter picked up during the national clean-up day, including the litter picked up in Santa Clara County.

The California Regional Water Quality Control Board, San Francisco Bay Region, (RWQCB) adopted Resolution No. R2-2990-0008 on February 11, 2008. The resolution reflects the Board's proposal to modify the 303(d) list of impaired water bodies, as required by the federal Clean Water Act. As described in more detail in §3.3 *Hydrology and Water Quality*, the Regional Board identified a number of waterways in the Bay Area, in Santa Clara County, and in San José specifically as "trash impaired." In San José, these include Coyote Creek, Guadalupe River, San Tomas Aquino Creek, Saratoga Creek, and Silver Creek. That recommendation by the RWQCB was based on a substantial collection of photographs and reports which are documented on the Board's website at:

[http://www.waterboards.ca.gov/sanfranciscobay/water\\_issues/programs/TMDLs/303dlist.shtml](http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/TMDLs/303dlist.shtml)

In a pilot assessment of trash accumulation in waterways in Santa Clara County completed in early 2009, the SCVURPPP found that many of the pieces of trash found in the 19 stretches of San José waterways studied were plastic (46 percent of the total), with plastic bags comprising a substantial amount of the overall collected items (10 percent of the total). A focused collection was completed for a storm drain outfall on Stevens Creek on three separate dates from October 2008 to February 2009. Stevens Creek is also one of the trash impaired waterways on the Regional Board's 303(d) list. Plastic made up an overwhelming majority of the trash collected at this outfall (82 percent of the total), with plastic bags comprising roughly 23 percent of the overall collected items.

There are variations in the percentages of plastic and plastic bags found in litter at different times and places. The Anacostia Watershed monitoring report states that the quantity of plastic bags in streams doubled over the year of monitoring, which started in summer and ended in spring. The study does not identify a cause for this substantial increase. Visual surveys in San José and Santa Clara County by the preparers of this report found plastic bags obviously present in roadside litter, in creeks and on creek banks, in the areas near landfills, in residential neighborhoods, shopping centers (large and small), and in industrial areas. Other types of litter, including beverage containers, polystyrene and paper cups, sheets of loose paper, and pieces of cardboard and paperboard boxes were also routinely identified. Single-use paper bags were also present, but were not seen as frequently.

### **Agricultural Resources**

The Santa Clara Valley was an agricultural center throughout much of the late 19th and early 20th centuries. By 1900, the Valley was a world center for canned and dried fruit. In the 1920's, Santa Clara County contained over 40 canneries and 30 packing houses and produced approximately 90

percent of California's canned fruit. Since the 1960's, most of the agricultural land use pattern in the Valley has been replaced by urbanization. While patches of farmland are still scattered throughout the San José sphere of influence, most notably in the Coyote Valley area, the City is primarily urban and developed.

Major roads and freeways pass through San José and through nearby agricultural areas. The litter that occurs in agricultural fields is likely thrown from vehicles, escapes from trucks hauling garbage along these roads and freeways, and is blown or travels in stormwater or waterways from urban areas; it will, therefore, reflect the make-up of the trash and litter found along roadways and in the adjacent urban areas.

### **3.1.2 Land Use and Aesthetics Impacts**

#### **Thresholds of Significance**

For the purposes of this project, a land use impact is considered significant if the project would:

- physically divide an established community;
- 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;
- conflict with any applicable habitat conservation plan or natural community conservation plan;
- convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- conflict with existing zoning for agricultural use, or a Williamson Act contract;
- involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use;
- 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);
- displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere;
- displace substantial numbers of people, necessitating the construction of replacement housing elsewhere; or
- result in substantial shading of existing residences and/or a public park or open space area.
- have a substantial adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings; or
- create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

### 3.1.2.1 *Direct Land Use Impacts of the Proposed Project*

If it is assumed that San José consumers receive a proportional share of the single-use carryout bags handed out annually in California, then approximately 500 million plastic bags and 68 million paper bags are distributed free to consumers in San José each year (the number of paper bags is estimated based on the discussion in §2.1.2 of this EIR). With the implementation of the ordinance, it is assumed that the total numbers of single-use carryout bags handed out in the City will be reduced, and the quantity of such bags present in litter will also be reduced.

The ordinance would prohibit single-use carryout plastic and paper bags being handed out at checkout in retail establishments. An exception would be made for exempt paper bags containing at least 40 percent recycled content. Retail businesses could offer their customers exempt bags, but would be required to charge for them. Nonprofit charitable reuse retailers and restaurants would be completely exempt from the ordinance.

With implementation of the proposed ordinance, the following changes may be assumed:

*Ban on single-use carryout bags with the exception of a fee on 40 percent recycled content paper bags* -- Single-use carryout plastic bags would cease to be given away free in San José retail stores and the number of such bags being distributed in the City of San José would drop sharply. The Herrera fiscal analysis estimates that 5.5 percent of the total single-use carryout bags are used in facilities that will be exempt from the ordinance (restaurants and charitable reuse stores). That would result in 472,500,000 fewer single-use carryout bags being distributed for free in retail stores in San José.

The number of paper bags having less than 40 percent recycled content would virtually disappear in San José. An estimated 6.8 percent of the total paper bags are used by exempt businesses (restaurants and charitable reuse stores) and are assumed to remain in use. The behavior assumptions in the Herrera report would result in an estimated annual total of between 105 and 137 million single-use paper carryout bags being used while the fee is set at \$.10. At the high end, this is slightly more than double the current number and includes the exempt businesses continuing at the same rate of use (although some of the charitable stores are already encouraging customers to switch to reusable bags). The number is based on 35 percent of the current paper bag users continuing to use single-use use carryout paper bags with 40 percent recycled content, and 35 percent of the current plastic bag users switching to single-use use carryout paper bags with 40 percent recycled content. The number of bags is adjusted to reflect the 1.5:1 to 2:1 capacity ratio between single-use plastic carryout bags and single-use paper carryout bags.

Particularly in light of the survey of San José residents, these bag use numbers are likely to be conservatively high. Additionally, the numbers will drop as shoppers become accustomed to the ordinance and remember to bring the reusable bags with them.

As described in §2.3.1 above, a widespread public education campaign, including distribution and sale of reusable bags in advance of the ordinance taking effect, is being carried out by the City. The City estimates that within a brief time period (if not immediately) as more people develop the habit of bringing reusable bags, the number of single-use paper carryout bags sold in retail stores would return to current levels or below (estimated currently as an average of 186,000 per day).

Most environmental programs involve a change in behavior. San José's experience with implementing such programs in the past has been that extensive education before implementation,



including explanations of the purpose and benefits, reduces the negative perceptions and inconvenience that can result from change. The educational program, however, requires that a support system be in place to make the desired behavior change both convenient and feasible. In addition, there needs to be signals (such as fees or fines) on the behaviors that are considered undesirable (such as continuing to use single-use bags).

The reductions in single-use carryout bags identified are only the initial estimates. It is not the City's goal to increase paper bag use, but to decrease the use of all single-use bags and increase the community's reliance on reusable bags. It is the City's expectation based on implementation of other environmental programs requiring behavior change, particularly curbside recycling programs, that, over time people will become accustomed to using reusable bags and will rely on their use by choice.

There is not a great deal of past experience to rely on in predicting exactly how and when behavior might change. The imposition of a fee on both plastic and paper single-use carry bags by Denmark in 1994 resulted in a 66 percent reduction in use of both types of bags.<sup>32</sup> In 2001, Ireland imposed a fee on single-use plastic carryout bags, which resulted in a reduction of over 90 percent in the number of plastic bags used.<sup>33</sup> In January 2010, Washington D.C. saw a 50 to 80 percent reduction in the use of single-use plastic bags one month after the imposition of a five-cent fee.

The difference in effectiveness between the Irish and Danish programs likely was the result of differences in the two programs; the Danish tax was assessed on the bags sold to businesses, who presumably passed on the costs in various ways to their customers (including charging them for bags). The tax on single-use bags was just one of a number of "green" taxes assessed by the Danish government during that time period so the Danish population would have been well aware of the purpose and need for the taxes. The Irish fee was assessed on the customer at the time of purchase and was specifically assessed to reduce plastic litter in a country dependent on tourist-generated revenues (a purpose that the Irish themselves appeared to understand and agree with).

Because there were substantial reductions in the number of single-use carryout bags resulting from all of these programs, it is reasonable to assume that there would be a substantial reduction in the number of single-use carryout bags under the proposed San José ordinance. Because there would be an immediate net reduction of approximately 95 percent of the single-use carryout plastic bags given away annually in San José, the number of such bags that become litter is anticipated to be reduced accordingly (by 95 percent). This would be an immediate beneficial environmental impact.

**(Beneficial Impact)**

**3.1.2.2 Indirect Land Use Impacts of the Project**

Because the Irish fee was only assessed on plastic carryout bags, there was some increase in use of paper carryout bags. Irish businesses reported that the increase in paper bag use was not equivalent to the previous use of plastic carryout bags. Among other factors, the paper bags are bigger and can carry more. In comparisons made between single-use paper and plastic bags by the preparers of this report, the typical single-use paper shopping bag would hold between one and a half and twice the volume of a single-use plastic shopping bag. See the discussion in Appendix D and Photos 21-29.

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<sup>32</sup> Australia Department of Environment and Heritage. Plastic Shopping Bags – Analysis of Levies and Environmental Impacts, Final Report. December 2002.

<sup>33</sup> Government of Ireland, Department of the Environment, Heritage, and Local Government website. *Plastic Bags*. 2007. <<http://www.environ.ie/en/Environment/Waste/PlasticBags/>>

It is estimated that a minimum of between one and a half and three times the number of plastic bags are needed to carry the same volume as the paper bags. Clerks in grocery stores are sometimes seen double bagging purchases. This can occur using double plastic bags, double paper bags, or one of each (plastic inside paper or vice versa). It is not a uniform phenomenon, however, and is considered too speculative to try to predict.

It has been reported that plastic bag use increased significantly after the Irish fee was imposed. This is untrue. The story may have resulted from an increase in the sale of “bin liners” or “kitchen tidy bags” – plastic bags sold as garbage bags. Increases as high as 77 percent were reported by some retailers, but the base numbers of sales of these bags were very small compared to plastic shopping bags. There were no increases reported in the larger garbage and garden bag sales.

There may be an increase in sale of wastebasket liners in San José, for those customers who previously used freely distributed carryout bags to line wastebaskets but the number sold will never approach the 500 million plastic bags given away in San José each year (the consumer does pay for the bags, but not at the checkstand). Wastebasket liners are unlikely to end up as litter in either a land or marine environment because they are typically filled with household or commercial rubbish and are therefore too heavy to become airborne by the time they leave the home or office. If most carryout bags had been used as wastebasket liners, there would currently be no concerns about their contribution to litter. An increase in the sale of wastebasket liners is not likely to result in any increase in litter and has not been so large in other areas that an environmental impact would occur. The same assumptions would be true for the small plastic bags distributed in dog parks and other public places for use in picking up and disposing of animal feces. There may be some increase in their use, but there is virtually no possibility of that increase approaching the volume of freely distributed plastic retail carryout bags, and bags used to dispose of animal feces (which by the nature of the use are heavy after use) are also unlikely to end up as litter. The sale of plastic trash bags would not result in a significant adverse secondary land use impact.

### **3.1.2.3      *Impacts at the Retail Stores***

Long term, the proposed ordinance would create a substantial reduction in the total number of single-use carryout bags, paper and plastic, handed out in the City of San José. In the near term, however, the proposed ordinance might lead to a short-term increase in single-use paper bags used because the exempt bags will still be available at the check-out stand for a fee. As discussed earlier, the total number of exempt bags sold at check-out stands would be substantially fewer than the combined total of plastic and paper carryout bags formerly given away free.

Initially, physical impacts to the stores (changes in storage required and litter) would be minimal, and they will decline over time as customers become accustomed to using reusable bags. Single-use plastic bags require less space than single-use paper bags, but their number would be reduced by approximately 95 percent citywide and in most retail stores, they will be virtually eliminated. The total number of plastic and paper bags would not have to be stored in the same quantities, using up less internal space. There would be much less plastic bag litter in the immediate vicinity of the stores; if there is an increase in paper bag use, there might be an increase in paper bag litter near the store. Since the customer will have just paid for that bag, there may be less tendency to discard it immediately. People making small purchases (such as soda or cigarettes) may choose to not purchase a bag and will therefore not have one to discard.

Stores are likely to increase reusable bag giveaways and promotions (since reusable bags with the stores' names on them will be advertising the customers keep with them), which would further

reduce the numbers of single-use paper bags purchased. Reusable bags could occupy the storage space currently used for single-use carryout bags.

Single-use carryout bags given away or sold by grocery and other stores in San José are shipped and delivered to stores in mixed loads with other products. As described above, it is assumed that fewer or no single-use plastic carryout bags would be delivered to the stores, although exempt paper bags would still be delivered, as would the plastic bags used for produce and other exempt purposes. The same trucks would still be making the same rounds since those trucks that deliver carryout bags also deliver other merchandise to the stores. It is likely that the vendors would stock other merchandise for delivery to the same retail stores, or they might add other stores to the same routes, if the arrangement allows for more efficient routing. No physical changes would be required to the stores, their delivery arrangements, or the outside layouts of the business sites.

There is no reason to assume that the proposed project will directly result in the creation of any new buildings, permanent structures or other permanent physical changes in the natural or man-made environment other than a reduction in the presence of single-use plastic and paper bags in litter found in and around San José. A reduction in litter would not be a barrier nor would it constitute a division of a community. As discussed above, regulating single-use carryout bags would be compatible with the City of San José's long-established plans, policies, and programs for reducing the use of non-reusable materials and products, and materials that are not recyclable or not recyclable for a reasonable cost.

No physical changes in the built environment are anticipated or likely to occur as a result of the proposed project. No physical change would need to occur at the retail stores that would cease to give away single-use plastic carryout bags at the point sale, and would offer exempt bags to customers for a store charge.

#### **3.1.2.4            *Impacts to Littering***

A reduction in the 500 million single-use carryout plastic bags handed out to shoppers in San José each year, either completely or by a substantial percentage, would directly result in a reduction in the quantity of litter on the ground and in the streams, Bay and ocean. It is estimated that there may be an increase in the number of paper bags distributed, but the total number of single-use bags would be substantially less as more people switch to reusable bags. In the only program known to have been implemented in a large city in the United States, Washington D.C. recently enacted a fee on all single-use bags. During the first month of implementation of a five-cent fee, the number of single-use bags declined by a substantial percentage, estimated to be between 50 and 80 percent.

It is the City's intention that the proposed program will significantly reduce the number of all single-use carryout bags used in San José. The number of plastic bags will go down immediately. If it is assumed that the number of single-use bags that become litter remains a constant percentage of the number used, the number of bags discarded outdoors will decline immediately and will continue to drop.

A reduction in the number of paper and plastic bags discarded outside would reduce the amount of paper and plastic litter on and around the retail businesses that hand out the bags, in the streets of San José, accumulated on public and private property in and around San José, and in the creeks and streams in and around San José. Since paper does not last long in water, the ordinance would primarily reduce the amount of plastic litter in San Francisco Bay and the Pacific Ocean. Since the cities of Santa Clara County are well integrated and connected by a continuous network of roadways

and drainages, there could still be some single-use carryout bags in the streets and streams of San José, even if San José bans their use completely. Only a unified program that is adopted by all or most of the cities will effectively eliminate that source of litter. But a program that significantly reduces or eliminates single-use carryout bags handed out in the biggest city in northern California will substantially reduce the number that becomes litter in the streets and waterways.

The proposed project will create a substantial reduction in paper and plastic litter. (**Beneficial Impact**)

### **3.1.2.5      *Aesthetics Impacts Resulting from the Project***

Single-use carryout bags, especially plastic bags, contribute to a persistent litter problem in the City of San José (refer to Photos 14-20). Due to the expansive and lightweight nature of plastic bags, they are easily airborne by wind, often ending up entangled in brush and caught on fences. Because they are usually white (and therefore visible) and are difficult to collect, plastic bags constitute a greater aesthetic nuisance than some other types of litter.

The proposed ordinance would immediately reduce the total number of single-use carryout bags in San José, and would thereby reduce the proliferation of plastic litter in the City as well as downstream from the City (including within the Don Edwards National Wildlife Refuge and San Francisco Bay). Any substantial reduction in plastic litter would have a beneficial aesthetic impact.

The ordinance may lead to a short term increase in single-use paper bag usage as consumers would be unable to use single-use plastic bags but might be willing to pay a fee to use paper bags. A temporary increase in demand for paper bags could result in a slightly higher percentage of the litter stream being comprised of paper bags for that period of time. Paper bags, however, are not as easily dispersed by wind and biodegrade under natural conditions at a faster rate than plastic bags. Single-use paper carryout bags are also typically brown and are not as noticeable as white plastic bags. As the use of reusable bags increases, the number of single-use paper carryout bags purchased will decline, as will their presence in litter. The relatively minor aesthetic impacts of a short term increase in paper bags entering the litter stream as a result of the project would be offset by the substantial reduction in the much more visible and long-lived plastic bag litter. The result will be a net improvement. (**Less Than Significant Impact**)

### **3.1.2.7      *Agricultural Resources Impacts Resulting from the Project***

Litter is a contaminant that is found on agricultural land as well as in urban areas. Plastic that breaks into smaller pieces and remains in the soil reduces its fertility and permeability. Reducing the quantity of plastic litter generated in the urban areas of San José, especially wind blown plastic litter, will also reduce the quantity of plastic litter that contaminates the remaining farmland in and adjacent to the urban areas. Reducing the total number of single-use carryout bags, thus reducing the quantity of the litter that is made up of single-use carryout bags, will be a beneficial impact.

Implementation of the proposed project would not adversely impact any designated, planned or important farmlands. The project would likely reduce the quantity of litter on nearby agricultural lands, and would not impede or adversely impact any active agriculture. For these reasons, the proposed project would not result in a significant adverse impact on agricultural resources.

### **3.1.2.8**      *Land Use Impacts from Reusable Bags*

Reusable bags, because they are purchased by a user and because they are made of heavier materials, are less likely than single-use bags to be discarded outdoors. Obviously, any portable object can become litter (clothes, toys, etc.), but people place more value on things they purchase and a reusable bag by its nature has value as a useful object. Just as handbags, briefcases, and luggage are not frequently seen as littered items, reusable bags are not likely to occur in litter.

No other potentially significant land use impacts associated with increased use of reusable bags was identified.

### **3.1.3**      Mitigation for Project Impacts

The project would not result in any significant land use impacts. No mitigation is required.

### **3.1.4**      Conclusion

The proposed project would not result in any physical changes to the retail stores. **(Less Than Significant Impact)**

The proposed project will create a substantial reduction in paper and plastic litter. **(Less Than Significant Impact)**

As the use of reusable bags increase, the number of single-use paper carryout bags purchased will decline, as will their presence in litter. The relatively minor aesthetic impacts of an increase in paper bags entering the litter stream as a result of the project, should any increase actually occur, would be offset by the substantial reduction in the much more visible and long-lived plastic bag litter. **(Less Than Significant Impact)**

The project's impacts on agricultural resources would be beneficial. **(Beneficial Impact)**



Photo 21 - Single-Use HDPE Plastic Bag - 57 Tennis Balls (1:1)



Photo 22 - Single-Use LDPE Plastic Bag - 70 Tennis Balls (1.2:1)

PHOTOS 21 AND 22



Photo 23 - Single-Use Kraft Paper Bag - 86 Tennis Balls (1.5:1)



Photo 24 - Single-Use Kraft Paper Bag - 114 Tennis Balls (2:1)

PHOTOS 23 AND 24



Photo 25 - PET Plastic Reusable Bag - 114 Tennis Balls (2:1)



Photo 26 - Cotton Mesh Reusable Bag - 70 Tennis Balls (1.2:1)

PHOTOS 25 AND 26





Photo 27 - Polypropylene Reusable Bag - 87 Tennis Balls (1.5:1)



Photo 28 - Nylon Reusable Bag - 84 Tennis Balls (1.5:1)

PHOTOS 27 AND 28



Photo 29 - LDPE Reusable Bag - 94 Tennis Balls (1.6:1)

## **3.2 BIOLOGICAL RESOURCES**

### **3.2.1 Existing Regulatory Setting**

#### **Federal Clean Water Act**

Areas meeting the regulatory definition of “Waters of the U.S.” (jurisdictional waters) are subject to the jurisdiction of the United States Army Corps of Engineers (USACE) under provisions of Section 404 of the 1972 Clean Water Act and Section 10 of the 1899 Rivers and Harbors Act (described below). These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as “Waters of the U.S.,” tributaries of waters otherwise defined as “Waters of the U. S.,” the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to “Waters of the U.S.” (33 CFR, Part 328, Section 328.3). Areas of San José defined as Waters of the U.S. (i.e., wetlands and other waters) include relatively large waterways such as Coyote Creek, Los Gatos Creek and the Guadalupe River, as well as smaller perennial and intermittent drainages and wetlands scattered throughout the City.

Section 303(d) of the Federal Clean Water Act requires that states develop a list of water bodies that do not meet water quality standards, establish priority rankings for waters on the list, and develop action plans, called Total Maximum Daily Loads (TMDL), to improve water quality. The list of impaired water bodies is revised periodically (typically every two years).

In February 2009, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), recommended changes to the list of water bodies in the state for which federal water quality standards are not attained. The RWQCB recommended listing 26 Bay Area waterways as “trash-impaired” under Section 303(d) of the federal Clean Water Act, including Silver Creek, Coyote Creek, Saratoga Creek, San Tomas Aquino Creek, the Guadalupe River, and the lower San Francisco Bay shoreline. In support of this conclusion, the RWQCB staff report accompanying the recommendation stated that “plastic from trash persists for hundreds of years in the environment and can pose a threat to wildlife through ingestion, entrapment and entanglement, and this plastic can leach harmful chemicals to the aquatic environment.” Pending approval by the federal Environmental Protection Agency (EPA), this listing would require locally funded remediation programs for the affected waterways. It is currently understood that the programs for controlling litter will have to be funded by the jurisdictions in which the litter originates, which includes the City of San José for the six water bodies listed.

### **3.2.2 Existing Environmental Setting**

The City of San José includes portions of the Santa Clara Valley and surrounding hillsides. It is bordered by San Francisco Bay to the north, the Diablo Mountain Range to the east, and the Santa Cruz Mountains to the southwest. Two major watersheds, the Guadalupe River and Coyote Creek, convey runoff within the City of San José. The Guadalupe River receives drainage waters from the western portion of the City and flows to San Francisco Bay. Tributaries to the Guadalupe River include Guadalupe Creek, Los Gatos Creek, Ross Creek, Canoas Creek, Calabazas Creek, Saratoga Creek, and San Tomas Aquino Creek. Coyote Creek originates in southern Santa Clara County and flows to San Francisco Bay. Tributaries to Coyote Creek include Fisher Creek, Silver Creek, Penitencia Creek and Berryessa Creek.

Most of the property within the City of San José is in developed urban areas. Wildlife within developed areas of the City is generally limited to urban adapted birds and animals, such as American crow, northern mockingbird, house sparrow, mourning dove, opossum, raccoons, house mice, and fox squirrels. Intact plant communities and wildlife habitats within the City are still found near the San Francisco Bay, along riparian corridors, and on hillsides surrounding the valley floor. Local streams, including Coyote Creek and the Guadalupe River, support ecologically valuable riparian vegetation that provides food, cover and nesting sites for birds, reptiles, amphibians and mammals. These waterways also serve as important migration corridors for wildlife. Ocean-dwelling fish species such as steelhead and Chinook salmon have been reported in Coyote Creek and the lower reaches of the Guadalupe River. South San Francisco Bay and adjoining marsh habitats provide important biotic resources to the region. The salt marshes, sloughs, and creeks near the Bay provide food and shelter for fish and wildlife, improve water quality by trapping sediment and removing nutrients, and provide for the storage and passage of flood waters. They also provide habitat for a number of special status species, including the salt marsh harvest mouse and the California clapper rail, which are federally listed as endangered. The Don Edwards San Francisco Bay National Wildlife Refuge, located near the community of Alviso in North San José, is an area set aside for the preservation and restoration of natural bayland habitat. Because many of the urban streams in the Bay Area drain to the wetlands that comprise the Refuge (including the Guadalupe and Coyote), much of the litter they carry ends up being deposited there.

Plastic debris is common in marine habitats worldwide. Extensive scientific references document its presence in the deep sea and even at the poles. There are anecdotal references to its presence on the very highest mountains in the world.<sup>34</sup> The government of Nepal is seeking to ban plastic bags in Sagamatha National Park near the base of Mt. Everest.<sup>35</sup> Paper bags are also present in litter but paper does not survive as long or maintain its physical form in the natural environment. Heavy, large single-use kraft paper grocery sacks are not as easily windblown as single-use plastic bags. Lighter weight single-use paper bags are more easily windblown and also break down more quickly. Paper tears easily, especially when wet, and animals are not caught or entangled by paper. When paper degrades, it becomes wood fiber, an organic material. Dyes and inks on or in paper, like the dyes and inks on plastic film, can be either soy-based or petroleum-based and will contain chemicals that will enter the natural environment when the paper deteriorates.

As many as 260 species of animals are known to ingest or become entangled in plastic debris. In addition to the physical risks of becoming entangled or eating plastic, chemical contamination of water, animals, and human beings has been traced to plastic waste. There is no similar documentation of the widespread occurrence of animals suffering from the presence of paper debris.

Studies and expeditions have documented the mass of trash formed in the Pacific Gyre (also sometimes called the North Pacific Gyre). A gyre is an area within which little wind and extremely high pressure weather systems combine to greatly reduce ocean circulation. The subtropical gyres (they are found in all oceans near the equator) contain the doldrums mentioned in historic texts. The Pacific Gyre contains a growing mass of floating garbage, much of which is plastic. The conditions in the gyre have been well documented since at least 1997 by photographers, biologists, meteorologists, and various governmental agencies and nonprofit organizations. Photo 30 was taken by Corbett Kroehler and is currently on his website with a notation that it was posted to [Oceans, Pollution, Wildlife](#) on Aug 13th, 2008.

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<sup>34</sup> Powers, David, President, DJP&A. Personal communication, 1993.

<sup>35</sup> <http://green.blogs.nytimes.com/2010/04/22/shouldering-waste-on-the-trek-down-mount-everest/>



Photo 30 - Underwater Photo of Pacific Gyre

Credit: Corbett Kroehler



Gordon Moore, founder of the Algalita Marine Research Foundation, sailed through the Pacific Gyre in 1997. Moore and his crew said that they identified plastic bags from “Sears, Bristol Farms, The Baby Store, El Pollo Loco, Fred Meyer, and Taco Bell ‘Chalupa’ bags”. The Taco Bell bags were the “T-shirt” bags with two hand-hold holes that were introduced in the United States in 1979.

The Pacific Gyre continues to grow and now reaches into the eastern Pacific and portions of the Hawaiian archipelago and the Papahnaumokukea Marine National Monument.

Closer to home, the National Oceanic and Atmospheric Administration (NOAA) has extensive documentation on contamination by plastic debris in all of the National Marine Sanctuaries. Three of the sanctuaries are located adjacent to the coast of Northern California and are likely to receive runoff from the San Francisco Bay area – Cordell Bank, Gulf of the Farallones, and Monterey Bay.

From the NOAA website for Cordell Bank (which is just north of San Francisco Bay, as shown on Figure 4):

Levels of debris in both the ocean and at the land-sea interface are of growing concern. Marine debris poses a growing threat to marine life and biological diversity. Various types of debris are known to have adverse effects on marine species. Ingestion and entanglement are two of the largest problems associated with marine debris, which may cause injury and death to selected marine wildlife, including some endangered and protected species found in the Cordell Bank sanctuary. Marine debris originates from both land and ocean-based sources, although the majority of marine debris (approximately 80%) appears to come from land-based sources (U.S. Dept. of Commerce and U.S. Navy 1999). Land-based sources include: littering, storm water runoff, coastal municipal landfills, loss during garbage transport, open trash collection containers, industrial facilities, and beach-goers. Ocean-based sources include: commercial and recreational fishing, overboard disposal of passenger and commercial shipboard waste, and cargo containers falling off ships in high seas. The potential impact of floating marine debris on living resources in Cordell Bank sanctuary was highlighted by high rainfall in 2006, which flooded inland areas in the San Francisco Bay watershed and resulted in large amounts of debris washing 50 miles (80 km) to the northwest to Cordell Bank (Cordell Bank sanctuary, unpubl. data).<sup>36</sup>

While pictures of seals and turtles entangled with plastic bags have been widely publicized, NOAA also points out that:

Plastics in the marine environment never fully degrade and recent studies show plastic is consumed by organisms at all levels of the marine food web. Given the quantities of plastic debris floating in the ocean, the potential for ingestion is enormous. For example, survival of endangered sea turtles is threatened by ingestion of plastic; studies have found that as many as 75% of sampled loggerhead sea turtles (*Caretta caretta*) had plastic debris in their digestive tracks (Tomas et al. 2002). Plastic marine debris also impacts many seabird species. Surface feeding seabirds, including albatrosses, shearwaters, fulmars, and storm-petrels are most susceptible to plastic ingestion, with frequency of individuals with plastic in the stomach ranging from 50 to 80% (Nevins et al. 2005). For example, adult Black-footed Albatross often mistake floating plastic debris as food and ingest huge quantities of plastic bottle caps, plastic fragments, discarded cigarette lighters, and plastic toys.... When these adults return to their nests on the Northwestern Hawaiian Islands to feed their chicks, a high percentage of the meal is composed of plastic. Tagging studies have documented Black-footed Albatross crossing the eastern Pacific

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<sup>36</sup> National Marine Sanctuaries. “Cordell Bank 2009 Condition Report – Pressures on the Sanctuary”. 2009. <http://sanctuaries.noaa.gov/science/condition/cbnms/pressures.html>



to feed in and around Cordell Bank sanctuary (Hyrenbach et al. 2006); it is unknown what proportion of plastic these birds ingest comes from within sanctuary waters.<sup>37</sup>

As stated in the earlier quote, plastic in the Cordell Bank sanctuary includes debris from the San Francisco Bay area communities.

### 3.2.1.1 *Plastic Litter in Water Bodies*

Studies done on the components of urban litter find that plastic is a substantial element. The Anacostia study cited previously in this EIR found plastic wrapping, plastic containers, and plastic bags present throughout their study area. Although plastic bags and food wrappers were present on the city streets and sidewalks that drained to the Anacostia watershed, they were not the primary constituents in the dry land environment. In the waterways, however, plastic bags and wrappers were a major component. This pattern is consistent with the earlier discussion which said that paper deteriorates more quickly in a natural environment than plastic; there is more paper litter on urban streets than there is in urban waterways because paper degrades quickly when wet.

Plastic bags are not just a substantial component of litter in the Eastern United States. A characterization study of trash taken from stormwater catch basins by the City of Los Angeles in 2004 found that plastic bags and plastic film made up 25 percent *by weight* of the debris found, despite the relatively light weight of plastic film.

Prior to recommending that USEPA designate five creeks in San José as trash impaired, the Regional Water Quality Control Board reviewed a substantial number of photographs taken at various locations along those creeks. In many of the photographs, plastic bags are clearly discernable.

A recent study completed for the SCVURPPP documented items of trash collected on various stretches of creeks and rivers in the San José area during 2005. Trash was collected from 19 different stretches of Coyote Creek, Silver Creek, and the Guadalupe River, among other waterways. The study found that plastic bags comprised approximately 10 percent of the total number of trash items collected. The study also completed a focused count at one storm drain outfall on Stevens Creek on three separate dates from October 2008 to February 2009. Of the 849 items of trash collected from this outfall, 198 were plastic bags, comprising roughly 23 percent of the overall sample.<sup>38</sup>

Most of the concerns and issues with plastic in the environment revolve around the fact that plastic does not break down quickly and the items that enter the natural environment (bags, cups, plastic pellets, etc.) retain some aspect of their form for some time. Much of the ocean plastic has broken into smaller and smaller pieces, but is still recognizably pieces of plastic. Recent research has found that some plastics do degrade in the ocean environment. Specifically, certain hard plastics leach toxic chemicals (including bisphenol A or BPA) into the water and polystyrene breaks down into three styrene oligomers that are not found in nature. BPA disrupts the hormone systems of animals, and the styrene oligomers are believed to be human carcinogens. Plastics that retain their form are

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<sup>37</sup> National Marine Sanctuaries. "Cordell Bank 2009 Condition Report – Pressures on the Sanctuary". 2009. <<http://sanctuaries.noaa.gov/science/condition/cbnms/pressures.html>>

<sup>38</sup> Stevens Creek flows through communities east of and adjacent to San José. Silver Creek, Coyote Creek, and the Guadalupe River flow through the City of San José and the latter two streams outfall directly into San Francisco Bay. These findings of these studies are, therefore, indicative of litter likely to be generated by residents and businesses in San José and the other cities in Santa Clara County, that migrates into municipal storm drains and is carried into the creeks and rivers of the county and deposited in the Bay and ocean.



primarily dangers to animals that mistakenly eat them as food or become caught or entangled with them. The plastics that break down or degrade in the ocean environment contaminate the sea water.<sup>39</sup>

There is no information available that identifies a likelihood that plastic bags would degrade in the ocean. There is anecdotal evidence from scientific observers that plastic bags retain their form for extended periods in the ocean environment.

### 3.2.3 Special Status Species

There are 14 special status wildlife species that occur in San José in habitats associated with waterways, the baylands, or both. All of them are known to occur or may occur in or adjacent to waterways listed by the Regional Board as trash impaired (which are shown in *dark italics* in the table below). These include the following:

Species	Status	Types of Habitat Needed	Location of Habitat Utilized
Central California coast steelhead ( <i>Oncorhynchus mykiss</i> )	Federal Threatened	Cool streams with suitable spawning habitat and conditions allowing migration between spawning and marine habitats.	<i>Coyote Creek</i> , Upper Penitencia Creek, Los Gatos Creek, Alamitos Creek, Calero Creek, Guadalupe Creek, and the <i>Guadalupe River</i> . Also present in Alviso Slough, Coyote Slough, and in estuarine habitats of the South Bay during migration, which are part of the <i>lower San Francisco Bay shoreline</i> .
California red-legged frog ( <i>Rana draytonii</i> )	Federal Threatened	Streams, freshwater pools, and ponds with emergent or overhanging vegetation.	<i>Guadalupe Creek</i> , Calero Creek, Thompson Creek, and possibly other streams.
California clapper rail ( <i>Rallus longirostris obsoletus</i> )	Federal Endangered; State Endangered	Salt marsh habitat dominated by pickleweed and cordgrass.	Tidal sloughs, including tidal brackish/freshwater marsh habitats along Alviso Slough (part of the <i>lower San Francisco Bay shoreline</i> ) and <i>San Tomas Aquino Creek</i> .
Salt marsh harvest mouse ( <i>Reithrodontomys raviventris</i> )	Federal Endangered; State Endangered	Salt marsh habitat dominated by common pickleweed.	Salt marsh habitat dominated by common pickleweed, and in channels north of Alviso, adjacent to the <i>lower San Francisco Bay shoreline</i> .
Central Valley fall-run Chinook salmon ( <i>Oncorhynchus tshawytscha</i> )	State Species of Special Concern	Cool rivers and large streams that reach the ocean and that have shallow, partly shaded pools, riffles, and runs.	<i>Coyote Creek</i> , Los Gatos Creek, and the <i>Guadalupe River</i> and lower reaches of Alviso Slough (part of the <i>lower San Francisco Bay shoreline</i> ).
Western pond turtle ( <i>Actinemys marmorata</i> )	State Species of Special Concern	Permanent or nearly permanent water in a variety of habitats.	A number of creeks, rivers, lakes, and ponds in and around San José, including <i>Guadalupe River</i> and <i>Coyote Creek</i> .
Yellow warbler ( <i>Dendroica petechia</i> )	State Species of Special	Nests in riparian woodlands.	Uncommon breeder in riparian habitats in and around San José.

<sup>39</sup> Bernstein, Michael. *Plastics in Oceans decompose, release hazardous chemicals, surprising new study says*. August 19, 2009; and *Hard plastics decompose in oceans, releasing endocrine disruptor BPA*. March 23, 2010.

**Table 3.2-1:  
Special Status Wildlife Species Occurring in San Jose**

Species	Status	Types of Habitat Needed	Location of Habitat Utilized
	Concern		
San Francisco common yellowthroat ( <i>Geothlypis trichas sinuosa</i> )	State Species of Special Concern	Nests in herbaceous vegetation, usually in wetlands or moist floodplains.	The edge of the South Bay, incl. along Alviso Slough and <b>San Tomas Aquino Creek</b> , as well as along lower <b>Coyote Creek</b> and the <b>Guadalupe River</b> . Marshy habitat in Coyote Valley and along <b>Silver Creek</b> near Lake Cunningham.
Yellow-breasted chat ( <i>Icteria virens</i> )	State Species of Special Concern	Nests in dense stands of willow and other riparian habitat.	Along <b>Coyote Creek</b> .
Alameda song sparrow ( <i>Melospiza melodia pusillula</i> )	State Species of Special Concern	Nests in salt marsh, primarily in marsh gumplant and cordgrass along channels.	Tidal salt marshes in <b>South San Francisco Bay</b> ; may occur in the tidal brackish marshes of <b>San Tomas Aquino Creek</b> and Alviso Slough.
Bryant's Savannah Sparrow ( <i>Passerculus sandwichensis alaudinus</i> )	State Species of Special Concern	Nests in pickleweed dominant salt marsh and adjacent ruderal habitat.	Short pickleweed-dominated portions of diked/muted tidal salt marsh habitat, and in adjacent ruderal habitat, in the Alviso area (part of the <b>lower San Francisco Bay shoreline</b> .)
Tricolored blackbird ( <i>Agelaius tricolor</i> )	State Species of Special Concern	Nests near fresh water in dense emergent vegetation.	Ruderal/floodplain habitat on levees along <b>Coyote Creek</b> .
Salt marsh wandering shrew ( <i>Sorex vagrans halicoetes</i> )	State Species of Special Concern	Medium-high marsh 6-8 feet above sea level with abundant driftwood and common pickleweed.	Tidal salt marsh habitat in New Chicago Marsh (part of the <b>lower San Francisco Bay shoreline</b> .)
Ringtail ( <i>Bassariscus astutus</i> )	State Protected Species	Prefers riparian and heavily wooded habitats near water	Habitat along <b>Guadalupe River</b> and <b>Coyote Creek</b>
Note: Information in this table was compiled from environmental documents prepared by the City of San José, including FEIR for North San José Development Policies Update (6/05); FEIR for San José Downtown Strategy 2000 (6/05); DEIR for the Newby Island Sanitary Landfill and the Recyclery Zoning Project (9/09)			

There are other special status species in the Bay and in the Pacific Ocean near the Bay, including species referred to in the quotation from NOAA in §3.2.2, above. Endangered species that occupy habitat within the Cordell Bank sanctuary include Pacific leatherback sea turtles, blue (*Balaenoptera musculus*) and humpback (*Megaptera novaeangliae*) whales, black-footed albatross (*Phoebastria nigripes*), and short-tailed albatross (*Phoebastria albatrus*).<sup>40</sup>

South of the Cordell Bank sanctuary is the Gulf of the Farallones National Marine Sanctuary, which includes breeding grounds for harbor seals, elephant seals, harbor porpoises, Pacific white-sided dolphins, rockfish and the largest breeding concentration of seabirds in the contiguous United States. The endangered blue whales and 26 other listed species are found within the Farallones sanctuary.

The infiltration of litter into the natural biotic system poses a substantial threat to wildlife. In assessing the degree of impairment of the Santa Clara County streams evaluated, Water Board staff used the “threat to aquatic life” parameter. Staff stated that this was because the type of trash

<sup>40</sup> NOAA. *Cordell Bank National Marine Sanctuary Condition Report 2009*. June 2009.

measured by this parameter is particularly problematic for wildlife (including aquatic life). The two primary problems that trash poses to wildlife are entanglement and ingestion. Mammals, turtles, birds, fish, and crustaceans all have been affected by entanglement in or ingestion of floatable debris, and many of the species most vulnerable to the problems of floatable debris are endangered or threatened. Entanglement is harmful to wildlife because it can cause wounds that can lead to infections or loss of limbs; it can also cause strangulation, suffocation, drowning, and limit escape from predators. Ingestion of trash can lead to starvation or malnutrition if the ingested items block the intestinal tract, preventing digestion, or if they accumulate in the digestive tract, making the animal feel "full" and lessening its desire to feed. Ingested items can also block air passages and prevent breathing, thereby causing death. Parent birds that eat plastic or other trash will regurgitate the trash for their young, causing the chicks to starve to death.<sup>41</sup>

There is no debate about whether or not plastic bags litter the creeks of Santa Clara County. Their presence has been documented by numerous agencies and some were photographed for this EIR. The question of exactly how many plastic bags are present in any one creek at any particular time is one that cannot be answered with information available. Their presence in major creeks in San José has been documented by the hundreds of photographs evaluated by the Regional Board. Plastic bag litter is clearly visible from public streets and private property, creates a risk to wildlife and a threat to endangered species, and clogs the catch basins and storm sewers that carry runoff in an urban environment.

The presence of paper shopping bags in creek litter is less well defined. There is paper in the creeks, but it is usually sufficiently altered that its source cannot be identified. Most paper dissolves in water. Its presence adds to the nutrient loading in the creeks, and it is an undesirable contaminant. Because paper is made from wood fiber, it is organic and its dissolution in natural waterways will add to nutrient loading. No documentation was identified on the degree to which eutrophication from post-consumer paper litter is a significant problem in creeks or the ocean. However, an abstract of a scholarly presentation prepared in 1995 describes the multiple human causes of eutrophication in the coastal marine environment at a point in time before global warming and climate change were being widely discussed. The abstract identifies three primary causes of marine eutrophication: fertilizer, livestock waste, and human wastes (meaning sewage) that are present in the runoff from land. The increasing organic loading is identified as primarily resulting from nitrogen and phosphorus. The most recent addition causing increased nitrification is identified in the abstract as atmospheric oxides of nitrogen (NO<sub>x</sub>) generated by the burning of fossil fuels. No mention is made of paper litter as a factor.<sup>42</sup>

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<sup>41</sup> An article in the Australian *Daily Telegraph* from October 23, 2009, shows a picture of a dead Laysan albatross chick with its belly opened to show that it was full of plastic trash. The same article said that one-third of the albatross chicks on Midway Atoll die from ingestion of plastic.

<sup>42</sup> Nixon, Scott W. "Coastal Marine Eutrophication: A Definition, Social Causes, and Future Concerns", an abstract. February 1995.

### 3.2.4 Biological Resources Impacts

#### Thresholds of Significance

For the purposes of this project, a biological resources impact is considered significant if the project would:

- 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;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- 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;
- 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; or
- conflict with any local ordinances protecting biological resources, such as a tree preservation ordinance.

#### 3.2.4.1 *Biological Resources Impacts Resulting from the Project*

The proposed ordinance would reduce the proliferation of plastic litter in the biotic systems of the City and County, because extremely large numbers of free plastic bags would no longer be readily available within the City of San José. It is estimated that the ordinance would eliminate approximately 95 percent of the 1.4 million plastic bags per day entering the physical environment of the City of San José – the average number of single-use plastic bags given away to shoppers in San José each day. The secondary effect of prohibiting the widespread free distribution of single-use plastic carry-out bags cannot be precisely estimated at this point; the best known study was for the fee program in Ireland, where a reduction of 94 percent occurred when a fee was levied on single-use carryout plastic bags at the point of sale. Individual stores in Australia and Canada that charge fees for single-use plastic bags have experienced reductions of 83 and 97 percent, respectively.

In recent follow-up to a fee on single-use carryout bags enacted in the District of Columbia, a \$0.05 charge for all single-use bags resulted in an immediate substantial reduction in their use during the first month. District staff estimates that the reduction is in the 50-80 percent range for both paper and plastic single-use carryout bags.<sup>43</sup> As described in the Project Description, a reduction in plastic bags of 95 percent is anticipated but there may be an increase in paper bag use.

A substantial reduction in the number of single-use carryout plastic bags would produce a reduction in plastic litter entering waterways and flowing to San Francisco Bay and then into the ocean. A reduction of plastic litter entering natural water bodies would have a beneficial impact on wildlife dependent upon those ecological systems, as well as on the visual quality of the stream and Bay, and the visual quality of the streets, parks and both public and private properties currently subject to impacts from plastic bag litter. **(Beneficial Impact)**

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<sup>43</sup> Barry Weise, J.D., Legislative & Regulatory Analyst. District Department of the Environment.

The reduction in manufacturing 1.4 million single-use plastic bags per day would reduce the energy use and the generation of pollution associated with the manufacturing and distribution of those bags, and the secondary impacts the energy generation and materials manufacturing processes have on the natural environment (including wildlife and natural habitats) at locations other than Santa Clara County.

### **Secondary Biological Impacts Resulting from the Project**

The proposed ordinance might lead to a short term increase in the use of single-use paper bags with a minimum of 40 percent recycled content, as consumers would be unable to get the single-use plastic bags but some people might be willing to pay a fee at the checkout stand to use recycled content paper bags. A short term increase in demand for single-use recycled content paper bags could result in negative effects to biological resources related to increased timber harvesting and paper manufacturing. Due to both logging activities and later erosion, timber harvesting can lead to land degradation and biological diversity impacts, and paper production has adverse environmental impacts to air and water bodies due to a number of pollutants released during the manufacturing process. However, the City is proposing to limit single-use carryout paper bags to 40 percent recycled content, which would reduce the loss of trees as a result of any increase in demand for single-use paper bags in San José.

Additionally, as described earlier in this EIR, the degree to which paper bag use may increase is very uncertain and will definitely be temporary. The citizens of San José were surveyed and 81 percent indicated they would bring reusable bags rather than pay \$.10 for a paper bag. The estimate of an additional 37 to 69 million single-use paper carryout bags being utilized was developed as an average based on dissimilar programs in various areas. Two years after the ordinance is passed, the fee for single-use paper carryout bags will increase to \$.25 and use of reusable bags will be at 90 percent, based on averages.

The exact effects of paper manufacturing cannot be quantified by the City of San José. As in many industries, improvements have been made in recent years in response to environmental concerns and regulations. The life cycle analyses financed by the plastic industry usually identify significant impacts from the loss of substantial quantities of trees, and from the air and water pollution produced by paper manufacturing. The paper industry representatives point out that a substantial percentage of the trees used in paper making are grown for that purpose, that paper is widely recycled (nationwide, approximately 37 percent estimated by EPA and 63.4 percent estimated by the Paper Industry Association Council), and that most of the water used in paper manufacturing at the present time is captured, cleaned and returned, and not allowed to pollute the environment.<sup>44</sup>

However, even the loss of commercially grown trees adversely impacts the environment, including exposing land to erosion and causing habitat loss. While the loss of any trees would reduce forested habitat, commercially grown trees are unlikely to provide habitat for special status or listed species. Most of the trees are grown for paper and will be removed soon thereafter even if not used for single-use paper bags sold in San José. Recycling itself uses energy, water and other resources. Exactly what the specific net impacts of producing 40 percent recycled content paper bags would be, compared to producing plastic bags, is unknown. A comparative study of the differences in pollution when paper is made with recycled content is, however, discussed in § 3.3, Hydrology and Water Quality, of this EIR.

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<sup>44</sup> Patrick Rita, Orion Advocates provided information from the Paper Bag Council; December 1, 2009.

Whatever might be the comparative impacts on the environment of using, discarding, or manufacturing plastic or paper bags, the City of San José is not proposing to encourage the widespread use of single-use paper bags. The City's proposed ordinance is intended to facilitate and encourage the widespread use of reusable bags – bags that can be used multiple times, not once or twice and then discarded.

The City of San José has been working with retailers, community groups and other government agencies to promote and educate the public on the proposed ordinance and its purpose and benefits. Reusable bags are for sale in many businesses in San José now and are frequently given away at conventions and other environmental events. Reusable bags will continue to be sold and given away throughout the community. Such a program (widespread introduction of reusable bags) was implemented in Ireland prior to adoption of the fee program, and many shoppers started bringing reusable bags to the stores before the ordinance became effective.

There have been anecdotal reports that paper bag use increased in San Francisco after a ban on single-use carryout plastic bags was approved there. Representatives of the plastic bag industry have alleged that there will be a substantial increase in single-use paper bag use right after the ban on single-use plastic bags becomes effective. There is no quantified study illustrating such an increase in the use of an item with a new fee placed on it, and the amount of any such increase (should it actually occur) is not known. No study suggests that such an increase, should it actually occur, would be permanent where fees are charged for the single-use carryout paper bag alternative.

To limit or avoid an increased use of paper bags, the City will continue to work closely with the community with the goal of keeping the quantity of single-use paper bag use at or below current levels – the “existing conditions” identified in this EIR. The proposed ordinance will set the fee for a paper bag with 40 percent recycled content at \$.25, but will allow \$.10 to be charged initially. In two years, however, the full \$.25 fee will take effect. If there is a temporary increase in single-use carryout paper bags used, the increased fee is anticipated to bring levels of use back down below current levels.

All of the relevant information on real-world bag fee programs indicates that there will be an immediate decrease in the number of single-use paper bags distributed by retail businesses in San José. Fees charged for items that were previously free usually cause a decrease in use.

If there is an increase in single-use paper carryout bag use, however, as estimated in the conservative use assumptions in §2.3.2, there would also likely be a short term increase in the amount of virgin wood needed to supply bags in San José. Although “tree plantations” (commercially grown trees) do not generally create high quality habitat, they do provide some habitat for some species and their loss can contribute to erosion and global climate change.

A reduction by approximately 95 percent in the number of single-use carryout plastic bags given away in San José will reduce by approximately the same percentage the number of plastic bags that enter the litter stream in San José and its immediate environs.<sup>45</sup> This will substantially reduce the incidence of injuries to wildlife from plastic bag litter, including injuries to marine and riparian wildlife in and adjacent to San José. The reduction in plastic bag litter entering the natural environment will also reduce the opportunity for associated injuries to wildlife, including marine animals, in San Francisco Bay and the Pacific Ocean. **(Beneficial Impact)**

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<sup>45</sup> Bags purchased outside San José and thrown as litter inside San José would continue to exist until and unless adjacent jurisdictions adopt similar restrictions.

A significant increase in the number of single-use recycled content paper bags, even a short term increase, could result in an associated increase in paper bag litter. While the increased organics loading represented by the increased paper that enters waterways would be an adverse impact, it would not create substantial risks of injury or harm to wildlife and due to the ephemeral nature of paper, the litter exists for a considerably shorter length of time. The impact itself (creation of increased paper litter) would be short term, since experience in other locations and the survey of local residents indicates that even if there should be a significant increase in single-use paper bag use immediately after project implementation, the quantity of single-use carryout paper bags will return to existing levels within a brief period of time, or two years at most, when the full fee of \$.25 takes effect. The \$.25 fee for single-use paper carryout bags is anticipated to reduce the use of such bags to approximately 30 million fewer bags than are currently used in San José. **(Less Than Significant Impact)**

A short term increase in paper bag use may also result in a short term increase in trees cut down for virgin material to manufacture the paper bags. Since the trees are grown for paper manufacturing, a near term increase in paper bag demand in San José might cause trees to be harvested sooner than they would otherwise have been used (*i.e.*, trees would not be cut down for paper that would not otherwise have been cut down for paper). The estimated increase could range from approximately 15,000 to as many as 40,000 more trees cut down in a year; they would consist mostly of commercially grown “pulp trees”. This represents between four and eight one-thousandths of one percent of the wood processed each year for paper manufacturing (.004 to .008 percent). By the second year of the ordinance, the number will decrease, and the increase to a \$.25 fee on the single-use exempt paper bags is expected to reduce the number of single-use paper bags used back to existing conditions or fewer. The tree plantations are replanted and new trees grown to replace them. While the short term loss of trees is a negative impact, this increase is a relatively minor temporary increase in wood used for commercial paper manufacturing, should the increased demand in San José occur. The habitat loss and any associated erosion resulting from this incremental addition to tree removal would be short term, relatively minor, and would not be a significant impact. **(Less Than Significant Impact)**

### ***Impacts from Reusable Bags***

There has been speculation, including an article in the *Wall Street Journal*, that washing reusable bags will create new significant demands on water supplies and will add to the pollution stream entering natural waterways with detergents and dirty washwater.

In the study of microbial contamination in reusable bags conducted by Canadian plastic bag manufacturers (discussed in §3.6.3.1 of this EIR), almost all of the people who gave up their bags for testing said they had never washed them. This is also consistent with anecdotal information gathered during preparation of this EIR. Bags that are washed (usually when something is spilled on them) would typically be placed in a mixed laundry load and not washed by themselves, such that no additional water simply to wash bags alone would be used. Many of the polypropylene bags on the market contain labels suggesting that they be handwashed or washed with a sponge (which can also include wiping with a household disinfectant). Reusable polyethylene bags would also be surface cleaned. None of these cleaning techniques is likely to result in a measurable increase in water use or water pollution. Additionally, all sewage generated in San José from washing machines is treated to a tertiary level at the San José/Santa Clara Water Pollution Control Plant, thus avoiding any significant adverse impact on the natural environment.

Washing reusable bags will not result in a measurable increase in water pollution that could adversely impact wildlife. **(Less Than Significant Impact)**

### **3.2.4 Mitigation for Project Impacts**

No significant adverse impact was identified and no mitigation is required.

The adopted Green Vision and Zero Waste Strategy anticipates increased diversion of paper and other organics from the landfills. Commercially generated wastepaper totaling at least 35,000 tons has been identified as suitable for recycling. The City has circulated an RFP for service providers to assist in diverting the commercial wastepaper. Although the program has not yet been approved, the adopted long terms plans for waste diversion in San José are anticipated to divert more paper for recycling than would be required to provide the increased number of bags that the program may create a demand for.

Using recycled paper as a feedstock reduces impacts from paper manufacturing so substantially that it has been suggested as being more effective than “end-of-pipe” regulations. The City is not proposing to require 100 percent recycled content paper bags in the proposed ordinance only because they are not currently available in sufficient quantities to ensure availability. The City’s expanded recycling programs are expected to generate more recycled paper feedstock than would be required to manufacture 37 to 69 million single-use paper carryout bags, which range includes the quantity necessary to meet any increased demand for such bags that might result from the proposed ordinance. Any impacts of an increased demand for 40 percent recycled content paper carryout bags, should such an increase occur, would be more than offset by the benefits of using more recycled paper feedstock.

The increase in paper recycled in the City of San José pursuant to its adopted Zero Waste Strategy would more than offset any impacts resulting from an increase in single-use paper bags purchased from retailers as a result of the proposed project.



### **3.3 HYDROLOGY AND WATER QUALITY**

#### **3.3.1 Existing Environmental Setting**

##### **3.3.1.1 *Regulatory Requirements***

The Federal Clean Water Act requires the City to operate under a National Pollutant Discharge Elimination System (NPDES) municipal stormwater permit for the discharge of stormwater to surface waters via the City's storm sewer collection system. On October 14, 2009, the San Francisco Regional Water Quality Control Board (Water Board) adopted the Municipal Regional Stormwater NPDES Permit (Stormwater Permit) for the San Francisco Bay Region.

The Stormwater Permit became effective December 1, 2009, and remains in effect through November 30, 2014. It specifies actions necessary to reduce the discharge of pollutants in stormwater to the maximum extent practicable and effectively prohibits non-stormwater discharges into the municipal storm sewer system to protect local creeks and the Bay.

The Stormwater Permit regulates many areas and activities to prevent pollutants from impacting water quality in local waterways through such methods as stormwater treatment requirements for development, municipal operations Best Management Practices, public education and outreach, and water quality monitoring. The newly adopted Stormwater Permit places a heavy emphasis on reducing trash loads to creeks and waterways. The Trash Load Reduction provision requires annual clean up of in-creek Trash Hot Spots and establishes phased goals to reduce trash loads from the storm sewer system by 40% by 2014, 70% by 2017, and 100% by 2022. To demonstrate progress toward the 40% goal during its five-year term, the Stormwater Permit requires the following:

- Development of a Baseline Trash Load and Trash Load Reduction Tracking Method;
- Development of a Short-Term Load Reduction Strategy to meet the 40% goal by 2014;
- Development of a Long-Term Trash Load Reduction Strategy to meet the 100% goal by 2022; and
- Installation of full trash capture devices to treat runoff from a minimum drainage area equivalent to 895 acres.

Possible approaches the City will need to take to achieve this initial reduction goal include, but may not be limited to, the following:

- Installation of additional full trash capture devices;
- Enhancement of municipal maintenance activities such as street sweeping, inlet cleaning activities, and public litter can maintenance;
- Product stewardship and source reduction actions targeting highly littered items (such as single-use disposable bags); and
- Public Education and outreach designed to discourage littering behaviors.

Despite this progress in reducing urban contributions to pollution of the waterways of the South Bay, in February 2009, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), recommended changes to the list of water bodies in the state for which federal water quality standards are not attained. The RWQCB recommended listing 26 Bay Area waterways as "trash-impaired" under Section 303(d) of the federal Clean Water Act, including Silver Creek, Coyote Creek, the Guadalupe River, San Tomas Aquino Creek, Saratoga Creek, and the lower San Francisco Bay shoreline. Pending approval by the federal Environmental Protection Agency (EPA),

this listing would require locally funded remediation programs for the affected waterways. It is anticipated that San José, as the biggest city in the region within whose jurisdiction the six waterways occur, will be held accountable for a substantial percentage of that responsibility.

### 3.3.1.2 *Litter and Waterways*

Marine debris (i.e., ocean pollution) has been shown to have dramatic impacts on wildlife and habitat, and plastics comprise more than 60 percent of such debris. Single-use plastic shopping bags, contribute to a persistent litter problem that is of growing concern for the health of waterways locally and worldwide. Land-based sources, such as stormwater runoff from urbanized areas, are the dominant contributors.

The 2008 *International Coastal Cleanup* (ICC), produced by the Ocean Conservancy, found that plastic bags were the second most common debris item collected worldwide during the annual one-day coastal cleanup event. Paper bags were the sixth most common debris item collected.<sup>46</sup> Statistics from the ICC are shown in Table 3.3-1, below. Locally, 15,295 items of trash were collected in

<b>Table 3.3-1: 2008 International Coastal Cleanup Statistics</b>							
<b>Location</b>	<b>Paper Bags</b>	<b>Plastic Bags</b>	<b>Total Bags</b>	<b>Total Items</b>	<b>% Paper Bags</b>	<b>% Plastic Bags</b>	<b>% All Bags</b>
Santa Clara County	371	1,580	1,951	15,295	2.4 %	10.3 %	12.8 %
San Francisco County	959	2,212	3,171	24,152	4 %	9.2 %	13.1 %
San Mateo County	1,283	2,871	4,154	54,981	2.3 %	5.2 %	7.6 %
Solano County	2,530	3,158	5,688	64,920	3.9 %	4.9 %	8.8 %
Sonoma County	981	553	1,534	23,926	4.1 %	2.3 %	6.4 %
Alameda County	2,106	7,575	9,681	79,359	2.7 %	9.6 %	12.2 %
Contra Costa County	1,562	3,107	4,669	39,590	4 %	7.9 %	11.8 %
California	24,194	52,544	76,738	904,375	2.7 %	5.8 %	8.5 %
United States	78,417	229,758	308,175	3,945,855	2 %	5.8 %	7.8 %
Ireland	118	67	185	10,142	1.2 %	0.7 %	1.8 %
Worldwide	530,607	1,377,141	1,907,748	11,439,086	4.6 %	12 %	16.7 %
Source: Ocean Conservancy							

<sup>46</sup> Ocean Conservancy. *International Coastal Cleanup 2009 Report: A Rising Tide of Ocean Debris (And What We Can Do About It)*. 2009.

Santa Clara County, of which 1,580 (10.3 percent) were plastic bags and 371 (2.4 percent) were paper bags.<sup>47</sup> In Ireland, where a fee has been levied on plastic bags, out of 10,142 total items collected, 118 (1.2 percent) were paper bags and only 67 (0.7 percent) were plastic bags.

The 2008 *Anacostia Watershed Trash Reduction Plan* completed by the District of Columbia Department of the Environment discovered that plastic bags made up 21 percent of the trash in the main river and 47 percent of the trash in tributaries. A 2004 Los Angeles waste characterization study found that plastic bags comprised approximately 25 percent of the waste found in selected storm drain catch basins, by weight.

Most local waterways drain to San Francisco Bay; when the tide goes out, the water in San Francisco Bay moves into the ocean. Therefore, trash in Bay Area creeks and rivers can end up in the Pacific Ocean.

The California Ocean Protection Council (OPC) recently finalized its *Implementation Strategy for the OPC Resolution to Reduce and Prevent Ocean Litter*. The strategy cites the elimination of packaging wastes that contribute to litter, including single-use carryout bags, as a priority, and recommended a fee on paper and plastic bags as an incentive for the use of reusable bags.

A recent study completed for the SCVURPPP documented items of trash collected on various stretches of creeks and rivers in the San José area during 2005. Trash was collected from 19 different stretches of Coyote Creek, Silver Creek, and the Guadalupe River, among other waterways. The study found that plastic bags comprised approximately 10 percent of the total number of trash items collected. The study also completed a focused count at one storm drain outfall on Stevens Creek on three separate dates from October 2008 to February 2009. Of the 849 items of trash collected from this outfall, 198 were plastic bags, comprising roughly 23 percent of the overall sample. The City of San José estimates that implementation of an expanded litter control program to protect creeks, as required in the new permit, will cost the City approximately two to four million dollars annually.<sup>48</sup>

As discussed in the previous section of this EIR, §3.2, recently released research reports have identified products of plastic degradation in the ocean, including the endocrine disruptor BPA and certain styrene oligomers (chemical products of polystyrene degradation). Research released by the American Chemistry Society has identified evidence that plastic can and does degrade in the natural environment. While these chemical pollutants have been found in increasing concentrations in ocean water, none of them are believed to be associated with plastic bags.

Current litter abatement efforts in San José are diverse, costly, and have proven insufficient to address the problem, based on the RWQCB study and the City's own recent litter surveys. The RWQCB study, issued on October 14 of last year, includes trash load reduction in the regional Stormwater Permit. The trash reduction provision includes requirements for the City to annually clean up "trash hot spots" in creeks and establishes phased goals to reduce trash loads from the storm sewer system by 40 percent by 2014, 70 percent by 2017, and 100 percent by 2022. This sets an ambitious target for trash reductions, and will require significant resources to implement. Possible approaches to achieve this initial reduction goal include, but may not be limited to, installation of additional trash capture devices, enhancement of street sweeping and inlet cleaning activities, additional maintenance of public litter cans, product stewardship and source reduction actions

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<sup>47</sup> Allison Chan, Save the Bay via Ocean Conservancy. Email Communication. December 9, 2009.

<sup>48</sup> Since the program is not yet designed, this cost estimate is preliminary. It is provided only to give an order of magnitude to the impact this new program will have on the service delivery capacity of a City already facing another substantial budget shortfall and experiencing layoffs.

targeting highly littered items, public education and outreach, and increased enforcement of anti-littering laws. The City is evaluating these approaches as part of a future program to meet the litter reduction goals.

### **3.3.2 Hydrology and Water Quality Impacts**

#### **Thresholds of Significance**

For the purposes of this project, a hydrology and water quality impact is considered significant if the project would:

- violate any water quality standards or waste discharge requirements;
- substantially degrade or deplete groundwater resources or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- substantially alter the existing drainage pattern of the site or area, including through the alteration 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;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- 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;
- provide substantial additional sources of polluted runoff or otherwise substantially degrade surface or groundwater quality;
- place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- expose people or structures to inundation by seiche, tsunami, or mudflow.

#### **3.3.2.1 *Hydrology and Water Quality Impacts Resulting from the Project***

The proposed ordinance would reduce the proliferation of plastic bag litter into waterways, since an estimated 95 percent of the 1.4 million plastic bags currently given away daily (on average) to customers by local businesses would no longer be available. It is likely that 95 percent fewer plastic bags will enter the storm sewers in San José and the creeks in the area. Fewer plastic bags will clog catch basins in the public streets. San José will contribute less plastic to the pollution in San Francisco Bay and the Pacific Ocean, and fewer bags to endanger fish, turtles and birds in local creeks and the Bay and Ocean. **(Beneficial Impact)**

The ordinance will increase use of reusable bags. Many types of reusable bags are made from woven cloth or netting, and can be laundered. Most of the newer reusable bags being given out by local merchants (refer to Photos 10-15) are plastic, frequently polypropylene. These durable plastic bags can be wiped clean with a sponge; some can also be laundered (labels sometimes recommend hand washing). As discussed in §§3.2.4.2 and 3.6.3.1, most people don't wash their reusable bags very often, if at all.

It is unlikely that most bag users would dedicate entire laundry loads to shopping bags, or that such loads (if they ever occur) would be done frequently. Since any reusable bags that are washed would be part of a larger laundry load, the increase in water use and detergents resulting from bag laundering would be negligible, particularly compared to water used in the manufacturing process for plastic and paper bags.

If there were to be an increase in single-use paper bags used, the question arises as to whether it is large enough to result in a significant increase in the quantity of water used in their manufacture, or water quality impacts associated with that manufacture. Paper production from virgin materials requires more water than plastic bag production, and can lead to increased eutrophication (*i.e.*, increased nutrient loading) of water bodies due to pollutants released during the manufacturing process from manufacturing plants that do not treat all effluent. Eutrophication can degrade water quality and lead to a decreased level of dissolved oxygen, resulting in harmful impacts to wildlife. Paper manufactured with recycled content does not require the same substantial quantities of water and does not generate the same quantities or types of pollution. In a comparison study done in 1996, comparisons were made between the chemical emissions from plants using virgin fiber and plants using recycled paper as feedstocks. A total of 79 plants were examined, including both integrated plants (in which both pulp and paper products were produced) and plants manufacturing only pulp. The chemicals examined included chlorine, chlorine dioxide, chloroform, acids (hydrochloric and sulfuric), volatile organics (methanol, acetone, and methyl ethyl ketone), and ammonia. Because of differences in the integrated mills, and because some of the emissions were very low (essentially zero), the report uses statistical tools to balance the analysis.

During the years evaluated (1987-1992) by the study, chemical emissions dropped at most of the mills. For the mills using recycled wastepaper, “toxic releases in all categories were significantly lower”, compared to mills using only virgin wood fiber.<sup>49</sup> Since this study was done, EPA regulations have increased relative to toxic emissions, and the number of plants manufacturing paper with post-consumer recycled content have increased. The basic premise established by the study, that paper manufacturing which incorporates recycled content requires substantially less chemicals, is still relevant, however.

The estimated quantities of increased water use associated with kraft paper manufacturing are estimates generated by consultants (Boustead) paid by the plastic bag manufacturers. It should also be kept in mind that water and air pollution are both regulated by the federal government and the paper bag industry has stated that most paper manufacturing now reuses water multiple times before it is cleaned and discharged back into the environment.

Requiring that single-use paper carryout bags contain 40 percent recycled content would reduce any associated increase in water use and would result in substantially fewer releases of toxic chemicals than if the paper bags had less recycled content. It is impossible to know exactly the total percentages of recycled content in single-use paper bags now given away in San José. Requiring all single-use paper bags given away in retail stores to be at least 40 percent recycled content will likely result in some increased quantity of recycled paper content relative to existing conditions. Whether or not the adverse impacts from manufacturing single-use paper bags for use in San José increases relative to existing conditions depends on how many exempt paper bags people are prepared to pay ten cents for and what the total recycled content is for the current quantity of single-use paper bags used in San José. As shown in Photo 11, bags are already in use in San José that contain 100 percent recycled content.

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<sup>49</sup> Press, Daniel. *Toxic Releases from Paper Made With Recovered Wastepaper versus Virgin Wood Fiber: A Research Note*. Published by Springer-Verlag, NY. 1996.

Reducing single-use plastic bag use in San José by 95 percent will substantially reduce the use of water for plastic manufacture and the associated chemical use. Should the prohibition on single-use plastic bags induce a greater use of single-use paper bags, there may be secondary impacts resulting from that increase.

### Indirect Impacts

As described in §2.3.2 of this EIR, a ban on plastic bags and a \$.10 fee on paper bags could result in the elimination of 472.5 million plastic bags from San José's environment and a short term increase of somewhere between 37 and 69 million single-use paper carryout bags that might be purchased instead (the large range resulting from uncertainty of the relative sizes of both plastic bags formerly used and paper bags that might be purchased). Using the method described at the beginning of Section 3.0 of this EIR and the data from the Boustead LCA, charging a \$.10 fee could result in an annual increase in fresh water use of between 18 and 51 million gallons spread among the plants manufacturing the single-use paper carryout bags. Using this same method with data from the Carrefors LCA, however, indicates that a \$.10 fee could result in an annual reduction of water use.<sup>50</sup> A fee of \$.25 which would be effective within two years would result in a *reduction* of over 48 million gallons in water used spread among the same plants, using data from the Boustead LCA. Simply using water does not exceed any of the identified thresholds. If, as the paper industry representatives contend, the water is cleaned and most of it is returned to the environment, the adverse effects may be minimal. Past stories of substantial pollution of water bodies from paper manufacturing cannot be assumed true in light of current regulations.

It must be reiterated that estimates extrapolated from any specific LCA cannot be applied directly to the situation in San José. Some estimates show that the ordinance could result in a temporary increased use of fresh water. This increase would likely occur at various pulp and paper manufacturing plants that would supply the bags that might be sold in San José. It is not known where these plants are located, but they are likely dispersed throughout the western U.S., if not the entire U.S. and parts of Canada. The increase in water use is roughly equivalent to the annual demand of 228 to 560 multi-family housing units.<sup>51</sup> This increase might occur for some or all of the two years, at which point the full \$.25 fee charged for the single-use paper carryout bags would result in a large reduction in water use.

Paper manufacturing plants that require substantial quantities of water are typically located in areas that have appropriate water supplies. Modern plants reuse incoming water multiple times, according to representatives of the paper industry, and clean it up between uses and prior to discharge. A temporary incremental increase in water use at various paper plants, should the increase occur, would not be likely to result in a significant environmental impact. Incremental and temporary increases in water quality impacts, should they occur, would be not significant at a paper bag manufacturing plant that meets current national Clean Water Act standards for water discharged back into the environment. **(Less Than Significant Impact)**

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<sup>50</sup> According to the Carrefors LCA, manufacturing paper bags requires 3.3 times the amount of water as manufacturing plastic bags. Since the number of plastic bags reduced is more than 3.3 times the highest estimate of increased paper bags, there could be a net reduction in water use.

<sup>51</sup> This estimate uses a demand rate of 225 gallons per day per multi-family housing unit. Source: Mansour Nasser. San José Municipal Water. Personal Communication. August 12, 2004.

### **3.3.3 Mitigation for Project Impacts**

Since the project would not result in a significant impacts associated with an increase in water use or significant water quality impacts, no mitigation is proposed.

## 3.4 UTILITIES AND SERVICE SYSTEMS

### Federal Clean Water Act, Section 303(d)

In February 2009, the California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB), recommended changes to the list of water bodies in the state for which federal water quality standards are not attained. The RWQCB recommended listing 26 Bay Area waterways as “trash-impaired” under Section 303(d) of the federal Clean Water Act, including Silver Creek, San Tomas Aquino Creek, Saratoga Creek, Coyote Creek, the Guadalupe River, and the lower San Francisco Bay shoreline. Pending approval by the federal Environmental Protection Agency (EPA), this listing would require locally funded remediation programs for the affected waterways, including improvements to the storm water system. It is likely that the programs for controlling litter will have to be funded by the jurisdictions in which the litter originates, which is likely to include the City of San José for the six water bodies listed.

### Green Vision

In 2007, the City of San José adopted the *Green Vision*, a set of 10 environmental goals to be achieved over the course of 15 years. The *Green Vision* includes objectives such as reducing per capita energy use by 50 percent and receiving 100 percent of electrical power from clean renewable sources. Goal #5 of the *Green Vision* aims to divert 100 percent of waste from landfills. To achieve this goal, the City developed a *Zero Waste Strategic Plan* which includes an analysis of the current wastestream and descriptions of the policies, programs and facilities that will be needed for 100 percent waste diversion. The *Zero Waste Reduction Plan* includes a commitment to reduce the proliferation of single-use carryout bags in the City.<sup>52</sup>

#### 3.4.1 Existing Environmental Setting

##### 3.4.1.1 *Water Supply*

Potable water in the City of San José derives from a variety of sources and is managed and delivered by several entities. A portion of San José’s drinking water is supplied via a local water supply system in which runoff is collected in reservoirs and used to recharge the groundwater basin via streams and ponds. The Santa Clara Valley Water District (SCVWD) and other water retailers import a portion of the water consumed within the City from three main sources: the State Water Project via the South Bay Aqueduct, the San Francisco Water Department’s Hetch Hetchy Aqueduct, and the San Felipe Division of the Federal Central Valley Project.

##### 3.4.1.2 *Stormwater*

The City of San José’s Departments of Transportation and Public Works are responsible for the development, operation, and maintenance of the stormwater system throughout the City. The system collects runoff water from the streets and developed properties and carries it to creeks and rivers that ultimately drain into the San Francisco Bay. Stormwater is not treated in the municipal stormwater sewer system before being released into the Bay. In 1997, the SCVWD, Santa Clara County, and 13 cities adopted the Urban Runoff Management Plan, intended to reduce polluted runoff entering local waterways. New development or redevelopment in the County is required to implement on-site best management practices to prevent stormwater pollution and to incorporate treatment control measures

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<sup>52</sup> City of San José Environmental Services Department. *Integrated Waste Management Zero Waste Strategic Plan*. November 2008.



into the site design to remove pollutants from runoff prior to discharging it into the municipal stormwater sewer system.

### **3.4.1.3           *Solid Waste***

Solid waste and recycling collection services in the City of San José are provided by Green Team of San José, Garden City Sanitation, California Waste Solutions, and GreenWaste Recovery. San José has a contract with Newby Island Landfill until the year 2022. The City of San José disposes approximately 190,000 tons of residential garbage per year at Newby Island Landfill and recycles approximately 290,000 tons of material through its Recycle Plus programs.

According to the CIWMB's 2004 *Statewide Waste Characterization Study*, approximately 386,097 tons of paper bags and 147,038 tons of plastic grocery and merchandise bags were disposed of in 2003, comprising one percent and 0.4 percent of all landfilled waste in California, respectively. No one knows what is the cost of disposing of plastic bags. Despite extensive public education and outreach efforts, there has been limited success with plastic bag recycling programs in the City of San José and elsewhere in the state. Residents were willing to recycle plastic bags in large numbers, but most failed to understand that bags needed to be clean, have nothing adhering to them, and they needed to be bagged or packaged together so they would not be contaminated by all of the organic materials, dirt and other contaminants in the recycled materials stream. It was therefore neither convenient nor easy to recycle the bags, despite their being collected in a curbside program.

Plastic bags increase labor and costs at recycling facilities due to interference with machinery, leading to frequent system shutdowns and manual cleaning (see Photo 13). Because plastic bags are light and easily windblown, litter control at recycling facilities is an ongoing problem. In addition, plastic bags often become mixed with other recyclables, reducing the market value of those materials. San José's recycling facility operators report that recently bales of recycled plastic bags have little or no value. As a result the City's contractors have paid up to 180 dollars per ton to have these bales taken away. In 2009, the City ended the promotion of plastic bag recycling through the City's residential Recycle Plus program. As shown in Photo 13, a substantial quantity of the single-use plastic bags processed through the recycling facility are so contaminated that they end up as residue sent to landfill.

The state law that precludes local government from charging for plastic bags given away in grocery stores does require that the stores recycle single-use plastic bags. There is no visual evidence that those recycling efforts are productive (occasionally bins are visible and may contain a few bags), and stores have declined to provide information to the City of San Jose on the programs. The website "Use-Less-Stuff.com" did a review of the AB2449 recycling of plastic bags by grocery stores in San Francisco. The author of the review could not find bins in all stores (even after asking employees), in those he did find, there were few bags and most were not from the grocery store.<sup>53</sup>

The State of California was asked for a report on the program. The summary of information provided by grocery stores in California for 2008 (some stores declined to provide some information), included numbers of plastic bags each store had purchased and the quantity of plastic bags each store had sent to recycling facilities. The information indicates that statewide, a quantity of plastic bags equivalent to approximately seven percent of the plastic bags purchased were sent to be recycled. Since the City of San José ended the promotion of plastic bag recycling by its own

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<sup>53</sup> The Use Less Stuff Report. *A Qualitative Study of Grocery Bag Use in San Francisco*. September 22, 2008. Available at: <<http://use-less-stuff.com/Field-Report-on-San-Francisco-Plastic-Bag-Ban.pdf>>

Recycle Plus program, this in-store program is the only available means of recycling plastic bags in San José.

Single-use carryout bags, especially plastic bags, contribute to the proliferation of litter in San José. Current litter abatement efforts are diverse, costly, and have been insufficient to address the problem.

The Municipal Regional Permit for stormwater issued by the RWQCB in December 2009, requires aggressive efforts by local agencies to reduce the impacts of trash and litter on creeks. Such efforts will include public education, increased enforcement, increased maintenance activities, and the capital investment in structural controls that capture trash prior to discharge into creek systems. The litter collected in this effort will have to be landfilled, adding to the total volume of waste buried in landfills in San José.

### **3.4.2 Utilities and Service Systems Impacts**

#### **Thresholds of Significance**

For the purposes of this project, a utilities and service systems impact is considered significant if the project would:

- exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- need new or expanded entitlements for water supplies;
- be served by a landfill with insufficient permitted capacity; or
- not comply with federal, state, and local statutes and regulations related to solid waste.

#### **3.4.2.1 *Solid Waste Impacts Resulting from the Project***

The proposed project will eliminate 95 percent of the 500 million single-use plastic bags distributed in San José annually, most of which are landfilled. The in-store recycling program required by AB2449, the state law which forbids cities from requiring stores to charge for single-use plastic bags, is the only program recycling plastic bags in San José at this time. According to information provided by the grocery stores, an amount of plastic equivalent to approximately 7 percent of the bags purchased by the stores is sent to be recycled through this program. Based on visual inspections of the bins, the recycled plastic includes some quantity of plastic film from other sources (*e.g.*, dry cleaning bags).

The proposed ordinance may lead to a short term increase in the number of single-use paper bags used if consumers that are unable to acquire free single-use carryout bags are willing to pay a fee to use paper bags. The paper bag lifecycle produces more solid waste than plastic bags, partly because more solid waste is produced during paper manufacture and partly because each individual bag creates a greater weight of solid waste at the end of its lifetime simply by being heavier than an equivalent plastic bag. As a result, the ordinance could, hypothetically, result in an increase in solid waste entering landfills if substantial quantities of paper bags are disposed in garbage.

Paper bags, however, are more easily handled by the City's recycling system than plastic bags, and recycled paper bags offer a greater market value than recycled plastic bags, increasing the likelihood of post-consumer use and creating an incentive to encourage their recycling. The manufacture of bags made with post-consumer content is also a viable market for bags recycled in the City's own recycling programs. The process for recycling the bags and the manufacturing capacity to incorporate them into new bags already exists.

The EPA estimates that approximately 38 percent of paper bags are recycled nationally.<sup>54</sup> The Alameda County waste management agency, StopWaste, estimates that 60 to 80 percent of kraft paper bags are recycled there:

In Alameda County, where kraft paper bags are recycled with cardboard, we estimate our paper bag recycling rate to be between 60 and 80%. Other urban communities with active recycling programs and good processing infrastructure likely enjoy similarly high paper bag recycling rates.

The US EPA estimates a 38% recycling rate nationally for paper bags and sacks. Paper bag recycling rates would be expected to be comparable to cardboard recycling rates (kraft paper bags are generally recycled with cardboard). The American Forestry and Paper Association calculates a 2008 recovery rate for cardboard nationwide at 80.7% and for all paper and paperboard at 57.4%. That number would be expected to be much higher in California given California's long history of curbside recycling programs, mature paper recycling collection and processing infrastructure and easy access to international markets.<sup>55</sup>

Like the programs in Alameda County, San José has a mature and well utilized residential recycling program that captures a substantial percentage of the paper bags used in the City. It is reasonable to assume that it will continue to do so. Additionally, recent modifications made to the City's residential waste collection contracts would allow program improvements to capture higher percentages of recyclables, should the City wish to do so. Increasing the number of paper bags used in San José will not, therefore, result in a substantial increase in solid waste sent to landfills, which is a less than significant environmental impact. **(Less Than Significant Impact)**

### **3.4.2.2 Stormwater and Drainage Impacts Resulting from the Project**

As discussed in §3.1.1.3 of this EIR, a 2004 Los Angeles waste characterization study found that plastic bags comprised approximately 25 percent of the waste found in selected storm drain catch basins, by weight. A recent study completed for the SCVURPPP documented items of trash collected on various stretches of creeks and rivers in the San José area during 2005. Trash was collected from 19 different stretches of Coyote Creek, Silver Creek, and the Guadalupe River, among other waterways. The study found that plastic bags comprised approximately 10 percent of the total number of trash items collected. The SCVURPPP also completed a focused count at one storm drain outfall on Stevens Creek on three separate dates from October 2008 to February 2009. Of the 849 items of trash collected from this outfall, 198 were plastic bags, comprising roughly 23 percent of the overall sample.<sup>56</sup>

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<sup>54</sup> EPA. *Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2008*. November 2009. Available at:

<http://www.epa.gov/wastes/nonhaz/municipal/pubs/msw2008rpt.pdf>

<sup>55</sup> Debra Kaufman, StopWaste. Personal communication. March 9, 2010.

<sup>56</sup> Randall, Paul. EOA, Inc., consultants to SCVURPPP. Email communication. March 11, 2009.

The City of San José estimates that implementation of an expanded litter control program to protect creeks, as required by the new Stormwater Permit, will cost the City up to four million dollars annually. This is in addition to the estimated 4.9 million dollars already spent by the City to manage litter, as discussed in §2.1.2.3. While the cost of doing clean-up is not an environmental impact, the need to create a new and expensive program during a time when the City is laying off staff and reducing maintenance due to budget issues means that either the clean-up program may not be implemented at full effectiveness or other municipal programs will need to be eliminated.

A substantial reduction in the quantity of plastic bag litter would reduce the quantity of that litter that enters municipal storm drains and catch basins. Less litter would reduce localized flooding from backups in the storm drains and catch basins, and would lessen the pollution and clogging of the stormwater lines that drain public streets and private property throughout the City.

A substantial increase in paper bag use, should it occur, could increase the quantity of paper litter in the streets and creeks. Increasing paper litter is not a desirable outcome. Even though paper loses its cohesion and disintegrates when wet, the organic material it is made from remains in the water. Because kraft bags are not as easily windblown and are relatively short-lived as litter, however, they would not create the substantial creek litter problems that plastic bags cause. As documented in the Anacostia study discussed earlier, paper litter is visibly present in the streets (near the sources of litter), but becomes less and less prevalent as it moves through the watershed.

The temporary effects from increased paper bag use, should it occur, would not cause a significant litter impact. **(Less Than Significant Impact)**

### **3.4.2.3      *Water Supply and Wastewater Impacts Resulting From the Project***

The proposed project aims to stop the proliferation of single-use carryout bags in the City of San José and increase the use of reusable bags. Some types of reusable bags can be laundered. An increase in the laundering of reusable bags could lead to an increased use of potable water. Since few if any families have (or are likely to ever have) a large supply of reusable shopping bags that would all require laundering at once, most bags are washed in mixed loads as one is soiled. Additionally, such bags are not washed often (the most frequent washing identified through anecdotal information has been once a month). The incremental impact of adding a few shopping bags to mixed laundry loads a few times a year will not substantially increase the use of potable water or the generation of wastewater. Further reducing the likelihood of the ordinance causing a significant increase in water use, most of the new reusable bags being distributed by local businesses are made from plastics that can be easily cleaned with a damp sponge.

A significant increase in reusable bags, consistent with the City's goals for the proposed project, would not result in substantial increases in demand for potable water and/or wastewater treatment capacity. **(Less Than Significant Impact)**

### 3.4.3 Conclusion

As discussed in §§3.2 Biology and 3.3 Hydrology and Water Quality, increased water use associated with the project will be minimal in San José. Likewise, no measurable increase in wastewater is likely to occur. Reducing the number of plastic bags that would otherwise be landfilled or which arrive at the recycling facility would be a beneficial impact. Reducing the quantity of plastic bag litter that clog storm drains and catchbasins would also be a beneficial impact.

The proposed project will not have any significant adverse impacts on any utility or service system.  
**(Less Than Significant Impact)**

## **3.5 TRANSPORTATION**

### **3.5.1 Existing Environmental Setting**

The existing transportation system within the City of San José includes the roadway network (e.g., freeways, expressways, arterials, collectors, and neighborhood streets), transit systems (light rail, municipal buses, heavy rail), and trails and pathways for pedestrians, bicycles, and equestrians. The transportation system is owned and maintained by the City of San José (local streets and the facilities within the street rights-of-way, and some trails adjacent to creeks), Santa Clara County (county expressways), the Santa Clara Valley Transportation Authority (light rail transit rights-of-way), the Santa Clara Valley Water District (some trails adjacent to waterways) and the State of California (highways and freeways and some railroad tracks).

For CEQA analyses done in Santa Clara County, traffic conditions at study intersections effected by project traffic are evaluated using level of service (LOS). Level of Service is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or oversaturated conditions with excessive delays. San José's policies identify LOS D or better as the acceptable standard for most local street operations. The Santa Clara County Congestion Management Plan (CMP) level of service standard for signalized intersections, which applies only to regional intersections designated in the CMP, is LOS E or better. The CMP methodology requires that an impact analysis be done for any intersection to which a proposed project would add 10 or more vehicles per lane per hour.

### **3.5.2 Transportation Impacts**

#### **Thresholds of Significance**

For the purposes of this project, a transportation impact is considered significant if the project would:

- cause the level of service at a local intersection to degrade from an acceptable LOS D or better under background conditions to an unacceptable LOS E or F under project conditions; or
- cause the critical-movement delay at a local intersection with an unacceptable LOS E or LOS F under background conditions to degrade through an increase of four or more seconds and a demand-to-capacity ratio (V/C) increase of .01 (1%) or more; or
- cause the LOS of CMP regional intersections in Santa Clara County to drop below LOS E or cause critical movement delay at such an intersection that is already operating at LOS F to increase by four or more seconds; or
- cause a freeway segment to operate at LOS F, or contribute traffic in excess of one percent (1%) of segment capacity to a freeway segment already operating at LOS F; or
- impede the development or function of planned pedestrian or bicycle facilities; or
- conflict with adopted plans or policies supporting alternative transportation; or
- create an operational safety hazard; or
- result in inadequate emergency access; or
- result in inadequate parking capacity.

#### **3.5.2.1 *Transportation Discussion***

Single-use carryout bags in San José arrive at stores from a variety of locations. According to industry representatives, roughly 85 percent of plastic bags in the U.S. are produced domestically,

while the rest are imported.<sup>57</sup> Typically, bags are transported from the manufacturing plant to regional or subregional distributors, which then provide the bags to local stores. The vast majority of product deliveries to stores are provided via trucks.

The life cycle assessment (LCA) prepared for the Progressive Bag Alliance by Boustead Consulting & Associates included an analysis of the transportation phases of the overall product life of plastic and paper grocery bags. The analysis assumed weights of 13.15 pounds per 1,000 plastic bags (or 0.21 ounces per bag) and 114 pounds per 1,000 paper bags (or 1.82 ounces per bag). The LCA concluded that the gross energy involved in the transport of single-use bags is 11 megajoules (MJ) per 1,000 polyethylene plastic bags and 34 MJ per 1,000 paper bags.<sup>58</sup> The heavier weight and overall bulk of paper bags contributes to the higher energy requirement for transportation when compared to plastic bags. It can be deduced from this finding that more truck trips are required to transport a given amount of paper bags in comparison to plastic bags.

While bags may be delivered in dedicated loads to regional distributors, they are delivered to users as part of larger mixed loads. It is not clear whether the energy use reflected in the Boustead LCA reflected that pattern and, if it did, how the amount of energy required to deliver part of a mixed load was allocated.

### **3.5.2.2            *Transportation Impacts Resulting from the Project***

The proposed ordinance may lead to some short term increase in single-use paper bag use as consumers would be unable to get a free plastic bag while shopping but may be willing to pay a fee to use paper bags. A temporary increase in single-use paper-bag use, such as that discussed in the Project Description section of this EIR, might lead to an increase in the frequency of truck trips needed to deliver a greater number of single paper carryout bags to San Jose. Any increase in truck trips related to paper bag delivery would be at least partially offset by a substantial reduction in truck trips related to single-use plastic carryout bag delivery. Since the number of single-use plastic bags being delivered to San José would be reduced by 95 percent during this same time frame, the net increase in truck traffic resulting from the change in bag use would be approximately the equivalent of one truck trip per day.

In reality, since bags are delivered in mixed loads of merchandise, there would probably be no more truck trips necessary to deliver paper bags. Other mechanisms, such as including single-use paper bags in deliveries more frequently or increasing routing efficiencies could be used.

For the purposes of this project and all projects adding traffic to City streets, a transportation impact is considered significant if it does not conform to the City of San Jose's Transportation Level-of-Service Policy, Council Policy 5-3. Project traffic impacts are measured against background traffic volumes (existing traffic and approved but un-built projects) on the existing transportation roadway network in conformance with CEQA. Considered under the criteria of the City's Level-of-Service policy, the increased traffic generated by the proposed ordinance would be minimal (one truck trip per day maximum) and would not exceed the established threshold required for preparing a Traffic Impact Analysis (*i.e.*, it would not generate a substantial increase in peak hour traffic). The project conforms to the City of San Jose's transportation policies and would not result in a significant adverse traffic impact. **(Less Than Significant Impact)**

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<sup>57</sup> Save the Plastic Bag. An American Success Story Under Threat. Accessed October 19, 2009 at <<http://www.savetheplasticbag.com/>>.

<sup>58</sup> A megajoule is an international unit of work, equivalent to 737.582.5 foot-pounds.

### 3.5.3 Conclusion

The change in traffic resulting from the proposed project could result in the equivalent of up to one additional truck trip per day shortly after ordinance implementation. Since single-use bags are not delivered to stores in dedicated loads, there is unlikely to be any noticeable or measurable increase in traffic due to an increase in single-use paper bags used. **(Less Than Significant Impact)**



## **3.6 HAZARDS AND HAZARDOUS MATERIALS**

### **3.6.1 Regulatory Framework**

A myriad of laws and regulations at the federal, state, and local levels affect the management of hazardous materials. In California, the U.S. Environmental Protection Agency (U.S. EPA) has granted most enforcement authority over Federal hazardous materials regulations to the California Environmental Protection Agency (Cal EPA). In turn, two local agencies, the San Jose Fire Department (SJFD) and Santa Clara County Department of Environmental Health (SCCDEH), have been granted authority by the State to enforce most regulations pertaining to hazardous materials in the City of San Jose.

Oversight over investigation and remediation of sites affected by hazardous materials releases can be performed by State agencies, such as the Department of Toxic Substances Control (DTSC), regional agencies, such as the San Francisco Bay Regional Water Quality Control Board (RWQCB), or local agencies, such as SCCDEH or the Santa Clara Valley Water District (SCVWD).

Virtually all of the issues identified concerning hazardous materials and the regulation of single-use carryout bags, however, have revolved around their manufacture. Since none of those processes occur in San José, the local regulatory framework is less relevant.

### **3.6.2 Existing Environmental Setting**

#### **3.6.2.1 *Paper and Plastic***

The manufacturing of single-use carryout bags, both paper and plastic, involves the release of toxic chemicals into the environment. The EPA maintains a Toxic Release Inventory (TRI), which is a publicly available database that contains information on toxic chemical releases and waste management activities reported annually by certain industries as well as federal facilities. Reports on the plastics and paper industries identified substantial quantities of toxic chemicals released into the environment by both industries. The reports were not broken down into categories that would allow the pollutant releases to be attributed to HDPE bags and/or kraft paper bags, however.<sup>59</sup>

According to the 1997 *Profile of the Plastic Resin and Manmade Fiber Industries*, plastic resin manufacturing facilities released 64.1 million pounds of toxic chemicals into the environment and transferred 192.4 million pounds to other facilities for the purpose of recycling, energy recovery, treatment, or disposal, for a total of 256.5 million pounds in 1995. The top five chemicals released in terms of volume were ethylene, methanol, acetonitrile, propylene, and ammonia. Approximately 74 percent (48 million pounds) of the industry's releases were to the air, 21 percent (13.3 million pounds) of releases were by underground injection, and the remaining five percent were released as water discharges and disposals to land.

According to the 2002 *Profile of the Pulp and Paper Industry, 2<sup>nd</sup> Edition*, the pulp and paper industry released and transferred a total of approximately 263.1 million pounds of toxic chemicals in 2000. Methanol represented roughly 60 percent of all pulp and paper toxic chemical releases and transfers. Other common chemicals released by the industry include ammonia, hydrochloric acid, and sulfuric acid. The pulp and paper industry released 66 percent of its total TRI poundage to the

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<sup>59</sup> Environmental Protection Agency, Office of Compliance. *Profile of the Plastic Resin and Manmade Fiber Industries*. 1997; and *Profile of the Pulp and Paper Industry, 2nd Edition*. November 2002.

air, approximately 22 percent to water and publicly owned treatment works (POTWs), and nine percent was disposed on land (on site and off site).

Single-use carryout paper and plastic bags comprise only a portion of the industries described above. Any change in demand related to single-use carryout bags would affect the release of toxic chemicals by these industries in an amount proportional to their occurrence.

### **3.6.2.2 Suffocation**

According to the national Center for Disease Control, suffocation is the fourth leading cause of accidental death of toddlers (ages 1 to 4) and is the most common cause of accidental death for infants. A number of accident prevention organizations and information sources warn that plastic bags are a frequent cause of suffocation in young children and advise parents and caregivers to “dispose of any plastic bags or keep them away from children less than 3 years old”, including dry cleaning bags, grocery bags, garbage bags, and even sandwich bags.<sup>60</sup>

The risk to children is that suffocation can take place either “because the child places a bag over their head, or because the plastic is flexible enough to form an airtight seal around their nose and mouth.” Thinner plastic film is more flexible and is therefore more of a risk than thicker plastic sheeting. Paper bags, which are thicker, coarser, and more porous, are not considered a suffocation risk.

### **3.6.2.3 Cockroach Infestations**

An issue raised by a representative of the plastic bag manufacturers was the degree to which paper bags attract and house cockroaches. Cockroaches can spread infectious diseases and their droppings can trigger asthmatic attacks.

According to information provided by a number of sources online, including the City of New York Health Department, the University of Connecticut and the University of Nebraska, cockroaches will eat virtually any organic substance. This includes human food, grease, paper, pet food, garbage, the glue on can labels, and the detritus found on dirty clothes. Cockroaches are attracted to any location where there is food and moisture, and will live in the walls, cupboards, furniture, in piles of dirty laundry, under appliances, in garbage cans and recycling containers, within the seals on refrigerator doors, and in any pile of paper or cardboard, including paper bags and magazines. They can enter a home in boxes, bags, soft drink cartons, televisions, radios, used appliances and furniture, or they travel through tiny cracks in the walls or along plumbing. Different species of cockroaches will live in kitchens, bathrooms, bedrooms, and basements.

All of the advice provided for getting rid of cockroaches includes not allowing piles of cardboard or paper (including paper bags) to accumulate and putting all garbage and recycling in containers with tight fitting lids.<sup>61</sup>

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<sup>60</sup> KidsHealth. “Household Safety: Preventing Suffocation”. <[http://kidshealth.org/parent/firstaid\\_safe/home/safety\\_suffocation.html](http://kidshealth.org/parent/firstaid_safe/home/safety_suffocation.html)>; and “Suffocation Deaths: Prevention”. <<http://www.aboutkidshealth.ca/HealthAZ/Suffocation-Deaths-Prevention.aspx?articleID=8809&categoryID=AZ6d>>

<sup>61</sup> Environmental Health Watch. “Cockroach Control Guide”. 2010. <[http://www.ehw.org/Asthma/ASTH\\_Cockroach\\_Control.htm](http://www.ehw.org/Asthma/ASTH_Cockroach_Control.htm)>; University of Connecticut Integrated Pest Management. “Integrated Pest Management for Cockroaches”. <<http://www.hort.uconn.edu/ipm/homegrnd/htms/roach.htm>>; New York City Department of Health and Mental Hygiene. “Cockroach”. 2010. <<http://www.nyc.gov/html/doh/html/ehs/ehscroach.shtml>>; and Barb Ogg, Ph.D., and Clyde Ogg. “Least Toxic Cockroach Control”. <<http://lancaster.unl.edu/enviro/pest/factsheets/120-94.htm>>

### 3.6.3 Hazards and Hazardous Materials Impacts

#### Thresholds of Significance

For the purposes of this project, a hazards and hazardous materials impact is considered significant if the project would:

- create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials;
- 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;
- emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school;
- be located on a site which is included on a list of hazardous materials 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;
- 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;
- 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;
- impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 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.

#### 3.6.3.1 *Hazards and Hazardous Materials Impacts Resulting from the Project*

The proposed ordinance may lead to a short term increase in single-use paper bag usage as consumers would be unable to acquire free plastic bags but may be willing to pay a fee to use paper bags. A temporary increase in the number of single-use paper bags used, should such a temporary increase occur, may lead to a short term increased demand for paper. Since the proposed ordinance would limit single-use carryout paper bags to 40 percent post consumer recycled content bags, this requirement would result in a proportionally smaller incremental increase in the use of toxic chemicals than the overall percentage of increased use of paper bags (because recycled content reduces the chemical use in manufacturing paper compared to virgin content).

As described in §3.6.2.1 above, the plastic resin and pulp and paper industries *both* release and transfer a comparable amount of toxic chemicals (256.1 and 263.1 million pounds, respectively). As discussed previously, a possible short term increase in paper bag use caused by the unavailability of the plastic bags would not be a bag-for-bag replacement, but a much smaller number. Brown kraft paper bags (the type most commonly used in shopping bags) do not require the use of chlorine or other bleaching agents, and recycled paper does not require the powerful chemicals used to break up wood fiber (lignins) in virgin feedstock.

The proposed project will, therefore, substantially decrease (by approximately 95 percent) the number of single-use plastic bags manufactured for use in San José, and may temporarily increase the single-use paper bags manufactured for use in San José.

The LCAs prepared for plastic and paper bags identify substantial quantities of various emissions occurring in both the air and the water discharged in the manufacture of both kinds of bags. This includes both hazardous materials such as chlorine gas and dioxins as well as CO<sub>2</sub> and SO<sub>2</sub>. What is not clear is how relevant the emissions estimates in these LCAs are for the circumstances discussed in this EIR. For example, should the quantities of chlorine emitted (in various forms) be associated with brown kraft paper, which is not bleached? Do the quantities of pollutants estimated in these LCAs reflect the most current EPA regulations (such as compliance with the Best Available Retrofit Technology [BART] and Maximum Achievable Control Technology [MACT I and II])? As with all LCAs, there are a number of assumptions made about aspects of each manufacturing process, such as transport, fuel production and fuel use, that were based on past performance, cannot be verified and (due to changes in technology and regulations) will not be relevant for future conditions.

The project will result in a decrease of over a million single-use plastic bags per day being given away in San José, and there *might* be an initial increase of demand for single-use paper bags per day manufactured in the future. The paper bags will be at least 40 percent post consumer recycled content, further reducing the possibility of additional hazardous materials impacts occurring from manufacturing the bags. Based on the only known program in a large city in the United States (Washington D.C.) that requires retailers to charge for both paper and plastic single-use bags, it is possible that the numbers of both types of bags will be substantially reduced – in other words, single-use carryout plastic bags will almost completely disappear from retail businesses in San José and the number of single-use paper bags will be significantly reduced.

For these reasons, the proposed project is not anticipated to result in significant hazards and hazardous materials impacts related to the manufacturing of bags. **(Less Than Significant Impact)**

### 3.6.3.2 Potential Microbiological Hazards Associated with Reusable Bags

The proposed ordinance would likely lead to an increase in the use of reusable bags. In 2009, the Environment and Plastics Industry Council (EPIC), a committee of the Canadian Plastics Industry Association (CPIA), commissioned a study to test for the presence of bacteria and fungus in reusable and single-use shopping bags.<sup>62</sup> The study involved a total of 25 used reusable bags and four control bags (three unused reusable bags and one unused single-use plastic bag) analyzed in two series of testing. The first series included one used reusable bag and one unused reusable bag as a control. The second series tested 24 used reusable bags and three control bags (two unused reusable bags and one unused single-use plastic bag). The 24 reusable bags tested in the second series were obtained through street intercepts throughout downtown Toronto, Canada. As shoppers left major grocery stores and shopping areas, they were approached and offered a new reusable bag as replacement for their existing bag. The bags intercepted ranged in age from one month to three years. The four control bags were purchased off-the-rack from grocery stores in Toronto.

The bags were tested for ‘total plate count’ (i.e., all readily grown, but not necessarily harmful, aerobic bacteria), total coliforms, *Escherichia coli* (“E. coli”), *Salmonella*, mold, and yeast. The unused control bags showed no evidence of bacteria, mold, yeast or total coliforms.<sup>63</sup> Out of the 25 used reusable bags tested, 16 (64 percent) showed the presence of some level of bacteria (i.e., readily

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<sup>62</sup> Sporometrics. *Grocery Carry Bag Sanitation: A Microbiological Study of Reusable Bags and “First or Single-Use” Plastic Bags*. 2009.

<sup>63</sup> Coliforms are defined as rod-shaped gram-negative non-spore forming organisms. Coliforms are abundant in the feces of warm-blooded animals, and are also be found in the aquatic environment, in soil and on vegetation. Coliforms are easy to culture and their presence is used to indicate that other pathogenic organisms of fecal origin *may* be present.

grown, but not necessarily harmful, aerobic bacteria), five (20 percent) contained yeast, and six (24 percent) contained mold. The study said that an “unacceptable total coliform count” was found in three (12 percent) of the reusable bags, indicating the *possible* presence of intestinal bacteria (no specific test, however, was done for fecal coliform). Of these three bags, one had been exposed to a meat spill and had never been washed, and all three had been in use for at least one to three years. No *E. coli* or *Salmonella* were detected in any of the bags in the study.

When the reusable bags were intercepted from users for use in the study, almost all of the bag owners stated that their bags had never been washed. While 16 bags showed evidence of bacteria, only three bags showed bacterial exposure higher than the equivalent of handling the purchased items with unwashed hands, and two of those bags were at least two to three years old.

To put this information in a familiar context, two additional studies were consulted to identify the quantities of bacteria on everyday household surfaces and items. One study was published in the *Journal of Applied Microbiology*; it evaluated the presence of bacteria in 10 kitchens in the United States.<sup>64</sup> The study tested sink basins, faucet handles, table tops, counter tops, refrigerator doors, oven controls, cutting boards, and sponges. The first scenario analyzed in the study tested surfaces in each household that were maintained and cleaned in a normal fashion, but without the use of a disinfectant. Out of 767 samples tested for bacteria, 758 (99 percent) showed the presence of some level of bacteria. Out of 799 samples tested for total coliforms, 371 (46 percent) showed the presence of some amount of total coliforms. The second scenario tested surfaces that were maintained and cleaned in a normal fashion with “casual use” of a disinfectant. Out of 606 samples tested for bacteria, 577 (95 percent) showed the presence of some level of bacteria. Out of 297 samples tested for total coliforms, 258 (87 percent) showed the presence of total coliforms. Table 3.6-1, below, compares results from this study to results from the study on reusable bags. For each study, only samples taken from a clearly defined, measurable area are shown.

Another study evaluated the presence of bacteria on toothbrushes given to 10 individuals in Australia.<sup>65</sup> Ten adults were given new toothbrushes of the same type and brand, along with identical tubes of toothpaste. After three weeks of use, the toothbrushes were analyzed for the presence of bacteria. The results showed that no toothbrush was bacteria-free, and the total bacterial presence ranged from 10,000 to 1,000,000 colony forming units (cfu) of bacteria. Small amounts of coliforms were found on three of the 10 brushes.

The results of all three studies demonstrate that virtually every object exposed to routine human contact contains bacteria and other microbiological contaminants. The reusable bags were substantially lower in the quantities of such contaminants than surfaces and objects commonly found in the home, including kitchen surfaces where food is kept and prepared. Although levels of microbiological contaminants in used reusable bags could be higher than would be present in new, unused single-use plastic bags, proper cleaning of reusable bags, as with any other object that may come in contact with grocery products, would further reduce the potential for exposure of any food items to harmful bacteria.

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<sup>64</sup> Josephson, K.L., Rubino, J.R., Pepper, I.L. "Characterization and quantification of bacterial pathogens and indicator organisms in household kitchens with and without the use of a disinfectant cleaner". *Journal of Applied Microbiology*, Vol. 83 No.6, pp.737-50. 1997.

<sup>65</sup> Taji, SS, Rogers, AH. "The microbial contamination of toothbrushes. A pilot study," *Australian Dental Journal*, 43(2), pp.128-30. 1998.

<b>Table 3.6-1: Comparison of Microbiological Contamination on Reusable Bags and Household Surfaces</b>				
<b>Surface (size of area sampled)</b>	<b>Total Samples</b>	<b>Contaminated Samples</b>	<b>% of Total Samples Contaminated</b>	<b>Average cfu<sup>1</sup> Present on Contaminated Samples</b>
<b>Total Bacteria</b>				
Used Reusable Bags <sup>2</sup> (10 cm x 10 cm)	23	14	61%	1,010
Table Top <sup>3</sup> (5 cm x 5 cm)	75	72	94%	52,600
Cutting Board <sup>3</sup> (5 cm x 5 cm)	76	74	97%	67,500
Counter Top <sup>3</sup> (5 cm x 5 cm)	76	73	96%	144,000
Sponge <sup>3</sup> (5 cm x 5 cm)	76	72	95%	9,620,000
<b>Total Coliforms</b>				
Used Reusable Bags <sup>2</sup> (10 cm x 10 cm)	23	2	9%	55
Table Top <sup>3</sup> (5 cm x 5 cm)	77	28	36%	5,970
Cutting Board <sup>3</sup> (5 cm x 5 cm)	77	24	31%	36,300
Counter Top <sup>3</sup> (5 cm x 5 cm)	66	27	41%	22,300
Sponge <sup>3</sup> (5 cm x 5 cm)	77	57	74%	2,430,000
Notes: <sup>1</sup> cfu = colony forming units <sup>2</sup> Only reusable bags with a measured sample area (i.e., 10 cm x 10 cm) are included <sup>3</sup> Samples taken from surfaces that were maintained and cleaned in a normal fashion with “casual use” of a disinfectant				

Additionally, most stores typically use plastic or paper bags to protect or contain meat, fresh produce, food prepared at the establishment, or other unpackaged goods that must be protected from moisture, damage, or contamination, and typically place the new bag containing such products inside a carryout bag at the point of sale, so that direct contact between food and reusable (or other carryout) bags rarely occurs. Although no paper bags were tested as part of the study on reusable bags, it can be assumed that unused single-use paper bags, like the unused control bags in the study, would show no evidence of bacteria, mold, yeast or total coliforms.

A newer study was disclosed in a newspaper article just as this EIR was going to print.<sup>66</sup> A study funded by the American Chemistry Council was very similar to the study done in Canada. It found that most users of reusable bags hadn't washed them. No details were provided in the newspaper article. The study found bacteria and coliforms in most of the bags, and in 12 percent of the bags, *E. coli* was found. The likely source of much of the contamination was raw meat and/or other raw food. The danger the study warned of was allowing raw meat or meat juices to come into contact with food traditionally eaten raw (fruits and vegetables, for example). Since most people put produce into separate plastic bags that will not be regulated by this proposed ordinance, and many stores also put raw meat into a secondary plastic bag as well, the problem is not likely to become a significant one. This study also went one step farther than the Canadian study and evaluated the benefit of machine or hand washing the bags. It found bacteria levels reduced to almost nothing by washing.

The routine use of reusable bags as they are most commonly used, to carry packaged groceries and other purchases home from a store, would not expose users to unusual or excessive levels of harmful bacteria or other microbiological contaminants. Washing the bags when they become soiled would further reduce the likelihood of such exposure. **(Less Than Significant Impact)**

### **3.6.3.3 Other Hazards**

The proposed project will decrease the availability of single-use carryout plastic bags. Thin plastic film is a source of risk for injury or death to infants and young children if the plastic is placed over or near their faces. To the extent these very thin film plastic bags pose a suffocation hazard for young children, the risk would be reduced because there will be fewer of them in homes. None of the reusable bags, including reusable plastic bags, are apt to be as great a risk as the thin HDPE single-use bags that they would be replacing. **(Less Than Significant Impact)**

Should the number of single-use paper bags used in San José increase initially, homes that are experiencing problems with cockroaches would need to continue to keep such bags in tightly lidded containers as they need to do with their recyclables, or to not purchase them at the stores. An increase in single-use paper bags used in San José, should such an increase occur, would not result in a significant increase in cockroach populations or the adverse conditions associated with cockroaches since the existence of paper bags is only one of dozens of attractive havens that can harbor roaches (including walls, attics, old furniture, old appliances, cardboard boxes, old books and magazines, etc.), none of which would be influenced by the ordinance. **(Less Than Significant Impact)**

### **3.6.4 Conclusion**

The project will result in a decrease of over a million single-use plastic bags per day being given away in San José, and there might be an initial increase of demand for single-use paper bags per day manufactured in the future. The paper bags will be at least 40 percent post consumer recycled content, reducing the possibility of any additional hazardous materials impacts occurring from manufacturing the bags.

Two years after the ordinance is adopted, the full fee of \$.25 will become effective, further reducing the use of single-use paper bags. Even if single-use paper bag use were to temporarily increase despite users having to pay for the bags, existing data indicates that it is unlikely that the numbers will increase very significantly and they will ultimately decline with the institution of the higher fee. **(Less Than Significant Impact)**

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<sup>66</sup> Dennis, Tami. "Reusing Bags? That's good...and bad". *San José Mercury News*, p. A8. June 25, 2010.

The routine use of reusable bags to carry purchases, including groceries, home from the store would not expose users to unusual or excessive levels of microbiological contaminants. **(Less Than Significant Impact)**

Neither the decrease in numbers of plastic bags nor the short term initial increase in numbers of paper bags used in the community (should such an increase occur) would result in a significant adverse impact as a result of increased hazards. **(Less Than Significant Impact)**



### **3.7 AIR QUALITY**

#### **3.7.1 Existing Environmental Setting**

Air quality and the amount of a given pollutant in the atmosphere are determined by the amount of pollutant released and the atmosphere's ability to transport and dilute the pollutant. The major determination of transport and dilution are wind, atmospheric stability, terrain, and for photochemical pollutants, sun light.

The project site is within the San Francisco Bay Area Air Basin. The Bay Area Air Quality Management District (BAAQMD) is the regional government agency that monitors and regulates air pollution within the air basin.

Three pollutants are known at times to exceed the state and federal standards in the project area: ozone, particulates (PM<sub>10</sub>), and carbon monoxide. Both ozone and PM<sub>10</sub> are considered regional pollutants because their concentrations are not determined by proximity to individual sources, but show a relative uniformity over a region. Carbon monoxide is considered a local pollutant because elevated concentrations are usually only found near the source (e.g., congested intersections).

The primary source of ozone precursors in the Bay Area is motor vehicle emissions. There are a number of sources of particulate matter in the Bay Area, including combustion (such as fireplaces), industrial processes, grading and construction, and motor vehicles. Motor vehicles are by far the greatest source of carbon monoxide in the Bay Area.

Toxic air contaminants (TACs) are also a source of growing concern throughout California. A significant source of TACs is diesel exhaust from diesel engine vehicles, which includes a substantial number of toxic particulate components.

##### **3.7.1.1 Existing Patterns of Bag Use**

As discussed elsewhere in this EIR, the analysis is based on the assumption that approximately 500 million single-use plastic carryout bags are given away every year in San José. This averages 1.4 million plastic bags per day distributed in San José by existing businesses. Again, as explained elsewhere in this EIR, the analysis is assuming 68 million single-use paper carryout bags are given away every year in San José. That number averages 186,000 bags per day given to customers. While there is no way known to the City of San José to confirm these numbers, they are believed to be reasonable estimates based on waste characterization studies (see discussion in §2.1.1).

This scenario constitutes the Existing Setting against which changes caused by the proposed project are to be measured in order to identify project impacts.

#### **3.7.2 Air Quality Impacts**

##### **Thresholds of Significance**

For the purposes of this project, an air quality impact is considered significant if the project 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; or
- create objectionable odors affecting a substantial number of people.

### 3.7.2.1 *Air Quality Discussion*

Air quality impacts related to single-use carryout bags include the release of emissions during the manufacturing, transport, and disposal processes. Various life cycle assessments (LCAs) of shopping bags have been completed in support of bag regulation policies worldwide, and many of them were consulted during the preparation of this EIR (refer to § 9.0 References and Appendix E). The LCAs analyzed the various levels of emissions from different types of bags as they might impact air quality issues such as acid rain (i.e., oxides of nitrogen and sulfur), ground level ozone formation (i.e., O<sub>3</sub>), and global climate change (i.e., carbon dioxide equivalent). Most LCAs try to account for air emissions during all stages of product life, from product creation to disposal. LCAs do not have consistent methodologies, and frequently use assumptions that differ from each other, and from local conditions. One example is the assumption that some percentage of single-use bags in the waste stream would be incinerated in a waste-to-energy system; other than wood chips sold as fuel, waste in the City of San José is never incinerated because there are no municipal solid waste (MSW) incinerators anywhere in the area and regional air quality issues make it highly unlikely there will be in the future. Including it in a discussion of paper and plastic bags is, therefore, not relevant. This discussion of impacts does not, therefore, rely on the various LCAs for any purpose other than as a point of comparison.

According to LCAs prepared by consultants to the plastic bag industry, single-use paper bags generally have higher levels of associated air quality emissions when compared to single-use plastic bags and reusable bags. This is attributed to several factors, including the manufacturing process, the effect of paper bag weight and bulk on the transportation process, and the release of greenhouse gas emissions as paper bags biodegrade. The findings from other LCAs seem to differ based on the study, and no comprehensive comparison of the studies has been made by a neutral third party. In addition no LCA was found that looked at the emissions associated with manufacture of 40 percent or 100 percent recycled content paper bags. The air emissions summary in one LCA (Boustead), for example, does not identify the specific benefits or impacts of recycled content (which include less need for use of chemicals, energy, and water) although they are said to have been “taken into account.”

Additionally, heavier single-use plastic bags made of low-density polyethylene (LDPE), which are often used by clothing and boutique stores, were found by some studies to have a greater impact on global climate change than both single-use paper bags and single-use plastic bags made of high-density polyethylene (HDPE), which are most typically used by grocery stores and large format retail stores.

There is a quantity of emissions generated from the delivery of all types of the bags to the stores where they are given away, and further emissions associated with picking up those that end up as litter, and with removing those that are discarded as solid waste. Since the preparers of this study were unable to identify any delivery system dedicated only to distribution to users of plastic (or paper) single-use bags, the exact increment of energy use or pollution associated with their delivery to the location where they are given to the public is unknown.

For the purposes of this EIR, the City is assuming that single-use plastic bags distributed to the customers of businesses in San José will be reduced by approximately 95 percent or more – from an average of 1.4 million bags per day to an average of 75,000 bags or fewer per day. It is not known with any certainty what will happen to the number of paper bags used in San José. As discussed in §2.3.2 of this EIR, there is a possibility that use of single-use paper carrier bags may increase temporarily.

### **3.7.2.2 *Air Quality Impacts Resulting from the Project***

It has been alleged that the proposed ordinance could lead to a short term increase in single-use paper bag use if consumers are not given free single-use plastic bags at the point of sale, because they would be willing to pay a fee to use paper bags. An initial increase in single-use paper bag use could then lead to temporary incremental increases in air emissions associated with their manufacture and delivery. Of course, a substantial decrease in the emissions associated with plastic bag manufacture and delivery would be occurring simultaneously. Based on available information, it cannot be definitively determined what the net increases or decreases in air emissions from these activities might be.

Since paper bags will be required to have at least 40 percent recycled content under the proposed ordinance, the total quantity of emissions resulting from a change from a plastic to a paper bag may not increase substantially because manufacture of paper bags using recycled content results in less pollutant emissions than manufacture using virgin material. In addition, paper bags used in grocery stores are bigger than the HDPE plastic bags and would require fewer bags for more merchandise. In the Boustead LCA, it cannot be determined whether the LCA (which identifies substantial chlorine impacts in both processes) assumed that the paper must be bleached. Brown kraft paper, as stated previously, is not bleached.

The elimination of 95 percent of the single-use plastic bags used every day in San José, and a long term reduction in the number of single-use paper bags, would result in a decrease in the shipping capacity used to transport those bags to their regional distribution centers and eventually to stores in San José. Since the bags are transported to users in mixed loads, there may be no reduction in trips. Capacity in the trucks may be used to transport reusable bags offered for sale in the stores, or other commodities handled by the distributor.

The project will result in a decrease of over a million single-use plastic bags per day being given away in San José, and there might be an initial increase of demand for single-use paper bags. The paper bags will be at least 40 percent post consumer recycled content, reducing any increment of air quality impact that would otherwise result from the need to use additional virgin material to make some of the paper for the paper bags. The possibility of a short term increase in the use of single-use paper carryout bags of somewhere between 37 and 69 million bags during the first two years of the ordinance described in §2.3.2 would, using the assumptions from the Boustead LCA, result in annual reductions in the emissions of SO<sub>x</sub>, NO<sub>x</sub>, and CO in communities manufacturing single-use kraft paper and plastic carryout bags, compared to existing conditions.<sup>67</sup> A fee of \$.25 would result in even greater reductions.

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<sup>67</sup> Although the LCA contains data on other air quality emissions, these emissions were chosen because they are commonly used when referring to air quality and because the output units of other emissions reported in the LCA were not identical (i.e., PM<sub>10</sub> for plastic bags and simply “Dust” for paper bags), meaning they could not be compared directly.

Two years after the ordinance is adopted, the full fee of \$.25 will become effective, further reducing the use of single-use paper bags. Even if single-use paper bag use were to increase despite users having to pay for the bags, air quality impacts in the locations where both types of bags are manufactured will be reduced and they will further decline with the higher fee. **(Less Than Significant Impact)**

### **3.7.3            Mitigation for Project Impacts**

Since no significant air quality impacts will occur, no mitigation is required.

## **3.8 PUBLIC SERVICES**

### **3.8.1 Existing Environmental Setting**

Unlike utilities and service systems, public facilities and services are provided to the community as a whole, usually from a central location or from a defined set of nodes. The resource base for delivery of these services, including the physical service delivery mechanisms, is financed on a community-wide basis, usually from a unified or integrated financial system. The service delivery agency can be a city, county, service, or other special district. Usually, new development will create an incremental increase in the demand for these services; the amount of demand will vary widely, depending on both the nature of the development (residential vs. commercial, for instance) and the type of services, as well as on the specific characteristics of the development (such as senior housing vs. family housing).

The impact of a particular project on public facility services is generally a fiscal impact. By increasing the demand for a type of service, a project could cause an eventual increase in the cost of providing the service (more personnel hours to patrol an area, additional fire equipment needed to service a tall building, etc.). That is a fiscal impact, not an environmental one. CEQA does not require an analysis of fiscal impacts.

CEQA analysis is required if the increased demand is of sufficient size to trigger the need for a new facility (such as a school or fire station), since the new facility would have a physical impact on the environment. CEQA requires that an EIR then identify and evaluate the physical impacts on the environment that such a facility would have. To reiterate, the impact that must be analyzed in an EIR is the impact that would result from constructing a new public facility (should one be required), not the fiscal impact of a project on the capacity of a public service system.

#### **3.8.1.1 *Fire Service***

Fire protection service in San José is provided by the City of San José Fire Department (SJFD), which serves a population of over a million and a total area of 205 square miles. The SJFD responds to all fires, hazardous materials spills, and medical emergencies (including injury accidents) in the City. It is the SJFD's goal not to exceed four minutes for the "first response" and six minutes for the "second response" times.

#### **3.8.1.2 *Police Service***

Police protection services in the City are provided by the San José Police Department (SJPD). The SJPD presently consists of approximately 1,390 sworn officers and 341 marked police cars. The SJPD has four patrol divisions (plus San José Airport), 16 patrol districts, 83 patrol beats and 357 patrol beat building blocks (BBB).<sup>68</sup>

#### **3.8.1.3 *Schools***

Nineteen public school districts are located wholly or partially within the City of San José. There are also two public junior colleges and a state university in the City. All of the public education facilities are responsible for maintaining their own property, including controlling litter.

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<sup>68</sup> Sergeant Christopher Monahan, Office of the Chief of Police. Personal Communication. February 27, 2009.

### **3.8.1.4**        *Parks*

The City of San José provides park lands, open space, and community facilities for public recreation and community services. Some of these facilities are provided in conjunction with, or are supplemented by, other public uses such as County parks and lands used for flood control purposes. Park and recreation facilities vary in size, use, type of service, and provide for City, regional, and neighborhood uses. The Department of Parks, Recreation, and Neighborhood Services is responsible for the construction, operation, and maintenance of all City park and recreational facilities, including litter removal.

### **3.8.2**        **Public Services Impacts**

#### **Thresholds of Significance**

For the purposes of this EIR, a public facilities and services impact is considered significant if the project will result in:

- substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services.

#### **3.8.2.1**        *Public Services Impacts Resulting from the Project*

To the extent that the proposed project may incrementally reduce the resources required to keep litter cleaned up on school campuses, in public parks, and on the grounds of other public facilities (*e.g.*, in the landscaping and on the grounds of libraries, fire stations, etc.), it may free up staff and funding to maintain other parts of the facilities.

The proposed project would not substantially increase the demand for public services, nor would it require construction or expansion of other public facilities.

### **3.8.3**        **Mitigation for Project Impacts**

Since the project will not have any significant impacts on public facilities, no mitigation is required.

### **3.9 ENERGY**

This section was prepared pursuant to CEQA Guidelines Section 15126(c) and Appendix G (Energy Conservation of the Guidelines), which require that EIRs include a discussion of the energy impacts of proposed projects with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy. The information in this section is based largely on data and reports produced by the California Energy Commission and the Energy Information Administration of the U.S. Department of Energy.

#### **3.9.1 Introduction**

Energy consumption is analyzed in an EIR because of the environmental impacts associated with its production and usage. Such impacts include the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emissions of pollutants during both the production and consumption phases.

Energy usage is typically quantified using the British Thermal Unit (Btu).<sup>69</sup> As points of reference, the approximate amount of energy contained in a gallon of gasoline, a cubic foot of natural gas, and a kilowatt hour (kWhr) of electricity are 123,000 Btu, 1,000 Btu, and 3,400 Btu, respectively.

Energy conservation is embodied in many federal, state, and local statutes and policies. At the federal level, energy standards apply to numerous products (e.g., the EnergyStar<sup>TM</sup> program) and transportation (e.g., fuel efficiency standards). At the state level, Title 24 of the California Administrative Code sets forth energy standards for buildings, provides rebates/tax credits for the installation of renewable energy systems, and promotes conservation in multiple areas through the *Flex Your Power* program promotes conservation in multiple areas.

At the local level, the City's General Plan Sustainable City Strategy and Green Building Policy have objectives and goals regarding energy efficiency and the use of renewable energy technologies. In addition, the City's Green Vision promotes energy conservation.

##### **3.9.1.1 *General Plan***

#### **Sustainable City Strategy**

The Sustainable City Strategy is a statement of the City's commitment to becoming an environmentally and economically sustainable city. Programs promoted under this strategy include recycling, waste disposal, water conservation, transportation demand management, and energy efficiency. The Sustainable City Strategy is intended to support these efforts by ensuring that development is designed and built in a manner consistent with the efficient use of resources and environmental protection.

#### **Energy Goal**

The City's Energy Goal is to foster development, which, by its location and design, reduces the use of non-renewable energy resources in transportation, buildings and urban services (utilities), and expands the use of renewable energy resources.

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<sup>69</sup> The British Thermal Unit (BTU) is the amount of energy that is required to raise the temperature of one pound of water by one degree Fahrenheit.

### 3.9.1.2 *San José Green Vision*

In October 2007, the City Council adopted the *San José Green Vision*. The *Green Vision* is a 15-year plan to transform San José into a world center of Clean Technology, promote cutting-edge sustainable practices, and demonstrate that the goals of economic growth, environmental stewardship and fiscal responsibility are inextricably linked. The 10 goals of the *Green Vision* are as follows:

1. Create 25,000 Clean Tech jobs as the World Center of Clean Tech Innovation;
2. Reduce per capita energy use by 50 percent;
3. Receive 100 percent of our electrical power from clean renewable sources;
4. Build or retrofit 50 million square feet of green buildings;
5. Divert 100 percent of the waste from our landfill and convert waste to energy;
6. Recycle or beneficially reuse 100 percent of our wastewater (100 million gallons per day);
7. Adopt a General Plan with measurable standards for sustainable development;
8. Ensure that 100 percent of public fleet vehicles run on alternative fuels;
9. Plant 100,000 new trees and replace 100 percent of our streetlights with smart, zero-emission lighting; and
10. Create 100 miles of interconnected trails.

Achieving the above goals would reduce the City's energy use and promote renewable energy sources, promote alternative fuels, and encourage automobile-alternative modes of transportation.

### 3.9.2 Existing Environmental Setting

Total energy usage in California was 8,420 trillion Btu in the year 2006 (the most recent year for which this specific data was found).<sup>70</sup> Of California's total energy usage in 2006, the consumption breakdown by sector was approximately 18 percent (1,552 trillion Btu) for residential uses, 19 percent (1,583 trillion Btu) for commercial uses, and 23 percent (1,942 trillion Btu) for industrial uses, and 40 percent (3,343 trillion Btu) for transportation.<sup>71</sup> This energy is primarily supplied in the form of natural gas, petroleum, nuclear electric power, and hydroelectric power.

#### 3.9.2.1 *Electricity*

Electricity supply in California involves a complex grid of power plants and transmission lines located in the Western United States, Canada, and Mexico. The issue is complicated by market forces that have become prominent since 1998, which is when a new regulatory environment commonly referred to as "deregulation" took effect in California. Supply is further complicated by the fact that the peak demand for electricity is significantly higher than the off-peak demand. For example, in August 2004, peak electric demand – due in large part to hot weather – reached a record high of 44,497 megawatts, which is almost double the lowest demand period. Recent record peak electricity usage was documented at approximately 58,900 megawatts.<sup>72</sup>

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<sup>70</sup> United States Energy Information Administration. *Annual Energy Review*. Available at: <http://www.eia.doe.gov/emeu/aer/overview.html>.

<sup>71</sup> Aldrich, Bob. State of California Energy Commission. Personal Communication. March 28, 2007. Data available at: [http://www.eia.doe.gov/emeu/states/sep\\_sum/html/pdf/rank\\_use.pdf](http://www.eia.doe.gov/emeu/states/sep_sum/html/pdf/rank_use.pdf).

<sup>72</sup> California Energy Commission, Energy Almanac. *Historic Statewide California Electricity Demand*. August 29, 2008. Available at: [http://www.energyalmanac.ca.gov/electricity/historic\\_peak\\_demand.html](http://www.energyalmanac.ca.gov/electricity/historic_peak_demand.html).



## Electricity Sources

Approximately 70 percent of electricity used in California is generated within the state, with the balance imported from states in the southwest (22 percent) and the Pacific Northwest (8 percent). The electricity is produced from power plants fueled by natural gas (45 percent), coal (16 percent), hydro (12 percent), nuclear (15 percent), and renewables (12 percent).<sup>73</sup> Today, none of California's electricity comes from petroleum. The state of California adopted a Renewables Portfolio Standard with a mandate of generating, by 2010, 20 percent of its power from renewable sources such as biomass, geothermal, small hydro, solar, and wind. By 2020, that state is to have 33 percent of the state's electricity come from renewable resources.<sup>74</sup>

Five companies, Pacific Gas & Electric (PG&E), Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), Los Angeles Department of Water and Power (LADWP), and Sacramento Municipal Utility District (SMUD), provide about 80 percent of all electricity consumed in California. The remaining 20 percent is provided by smaller utility companies.<sup>75</sup>

## Electricity Consumption

Electricity consumption in California increased by approximately 12 percent from approximately 245,000 gigawatt hours (GWh) in 1997 to approximately 285,000 GWh in 2007.<sup>76</sup> Electricity consumption in California is dominated by the commercial and residential sectors: approximately 37 percent of electricity is by the commercial sector, 32 percent by the residential sector, 16 percent by the industrial sector, and the remaining 15 percent by agriculture, transportation, communication, utilities, mining, and street lighting.<sup>77</sup> Electricity consumption is forecasted to increase by approximately 12 percent from approximately 285,000 GWh in 2007 to approximately 320,000 GWh in 2017.<sup>78</sup>

The California Energy Commission reviewed electricity supply and demand information from publicly owned utilities throughout the state and has concluded that, in total, the utilities have sufficient resources to meet the anticipated electricity demand for the next several years.<sup>79</sup>

### 3.9.2.2 *Natural Gas*

## Natural Gas Sources

Natural gas provides almost one-third of California's total energy requirements. Approximately 14 percent of natural gas used in California is generated within the state. The remaining 86 percent comes from other states (63 percent) and Canada (23 percent). Natural gas from out-of-state producers is delivered into California via five major interstate natural gas pipelines. Most of the natural gas used in California (98 percent) is distributed by three major utility companies including

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<sup>73</sup> California Energy Commission, Energy Almanac. *California's Major Sources of Energy*. July 1, 2008.

Available at: <[http://energy.almanac.ca.gov/overview/energy\\_sources.html](http://energy.almanac.ca.gov/overview/energy_sources.html).>

<sup>74</sup> California Energy Commission 2007. *2007 Integrated Energy Policy Report* (CEC-100-2007-008CMF). Page 23. Note that the Energy Commission adopts an Integrated Energy Policy Report (IEPR) every two years and an update every other year. The 2007 IEPR is the most recent IEPR available.

<sup>75</sup> Ibid, page 24.

<sup>76</sup> Ibid, Figure 2-2, page 37.

<sup>77</sup> Ibid, Figure 1-9, page 25.

<sup>78</sup> Ibid, Figure 2-2, page 37.

<sup>79</sup> Ibid, Page 41.

Southern California Gas Company, SDG&E, and PG&E. The remaining two percent is distributed by municipalities and smaller companies.<sup>80</sup>

### Natural Gas Consumption

It is estimated that California consumed 6.0 trillion cubic feet of natural gas a day in 2008.<sup>81</sup> Natural gas in California is mostly used to generate electricity. Approximately 43 percent of natural gas is consumed to generate electricity, 23 percent is used by the industrial sector, 22 percent by the residential sector, 10 percent by the commercial sector, and the remaining two percent is stored or lost.<sup>82</sup> California's natural gas consumption is forecasted to increase by approximately 12 percent from approximately 6.0 trillion cubic feet of natural gas a day in 2008 to approximately 6.7 trillion cubic feet of natural gas a day in 2017.<sup>83</sup>

Natural gas has become the fuel of choice for electricity generation; however California's supply of natural gas is dependent on imports from other states and Canada. According to the California Energy Commission, gas production in the United States has remained relatively constant (i.e., not increasing) since the 1990s and gas production in Canada from mature basins are declining.

To meet electricity needs, the California Energy Commission recommends securing alternative and diverse sources of natural gas (such as liquefied natural gas and biogas) and using renewable sources of energy to generate electricity (such as solar energy) to meet the growing demand.<sup>84</sup>

#### 3.9.2.3 *Fuel for Motor Vehicles*

### Fuel Sources

Transportation fuels, including gasoline and diesel fuels, are produced by refining crude oil. California is the third highest producer of transportation fuels in the nation, with a crude oil distillation capacity of more than 1.9 million barrels per day.<sup>85</sup> Approximately 39 percent of crude oil used in California is produced in-state, the remaining 61 percent comes from Alaska (16 percent) and foreign sources (45 percent). Foreign imports are primarily from Saudi Arabia, Ecuador, Iraq, and Mexico.<sup>86</sup> Until the mid-1990s, California refineries kept pace with the demand for gasoline and diesel fuel, but since then, refiners have had to import more finished products. California imports approximately 10 percent of its refined blending components and finished gasoline and diesel to meet growing demands. All imported crude supplies and products arrive to California by ship through marine terminals.<sup>87</sup>

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<sup>80</sup> California Energy Commission, Energy Almanac. *Overview of Natural Gas in California*. Available at: <<http://www.energyalmanac.ca.gov/naturalgas/overview.html>>

<sup>81</sup> California Energy Commission 2007. *2007 Integrated Energy Policy Report* (CEC-100-2007-008CMF). Page 179.

<sup>82</sup> California Energy Commission, Energy Almanac. *Overview of Natural Gas in California*. Available at: <<http://www.energyalmanac.ca.gov/naturalgas/overview.html>>

<sup>83</sup> California Energy Commission 2007. *2007 Integrated Energy Policy Report* (CEC-100-2007-008CMF). Page 179.

<sup>84</sup> Ibid, page 186-87.

<sup>85</sup> Ibid, page 27.

<sup>86</sup> California Energy Commission, Energy Almanac. *California's Major Sources of Energy*. July 1, 2008. Available at: <[http://www.energyalmanac.ca.gov/overview/energy\\_sources.html](http://www.energyalmanac.ca.gov/overview/energy_sources.html)>

<sup>87</sup> California Energy Commission 2007. *2007 Integrated Energy Policy Report* (CEC-100-2007-008CMF). Page 27.

Currently, California's petroleum infrastructure operates at near capacity, and the volume of imports is constrained by storage capacity and capabilities.<sup>88</sup> It is estimated that the demand for gasoline and diesel will increase by one to two percent each year as the population registers more vehicles and drives more miles.<sup>89</sup>

### **Fuel Consumption**

More than 40 percent of all energy used in California is for the transportation of people and goods. California is the third largest consumer of gasoline in the world, behind the entire United States and China.<sup>90</sup> In recent years, Californians consumed approximately 16 billion gallons of gasoline and four billion gallons of diesel annually.<sup>91</sup> This represents an approximately 50 percent increase over the amount that was used 20 years ago. The primary factors contributing to this increase are: 1) population growth and more on-road vehicles, 2) low per-mile cost of gasoline for the past two decades, 3) lack of alternatives to conventional gasoline and diesel fuels, 4) consumer preference for larger, less fuel-efficient vehicles, and 5) land use patterns that have increased the distance between jobs and housing.<sup>92</sup> It is estimated that Californians will consume more than 24 billion gallons of gasoline and diesel fuel by the year 2020.<sup>93</sup>

According to the California Energy Commission, to meet near-term transportation fuel demands, the state must expand its marine terminal capacity, marine storage, the pipelines connecting these facilities with the refineries, and other distribution pipelines to meet rising fuel demand.<sup>94</sup> To meet transportation fuel demands over the next several decades, the state must increase fuel efficiency, expand non-traditional fuel use, and realign consumer preferences to reduce demand for all transportation fuels.

#### **3.9.2.4 Energy Use Associated with Single-Use and Reusable Bags**

Various life cycle assessments (LCA) of shopping bags have been completed in support of bag regulation policies worldwide, and have been reviewed as part of the analysis in this EIR (refer to § 9.0 References and Appendix E). The LCAs analyzed the various levels of energy requirements for different types of bags, including reusable bags. Most LCAs account for energy requirements during all stages of product life, from product creation to disposal. LCAs do not have identical methodologies, and frequently have assumptions that differ from each other, and from local conditions. One example is the assumption that bags in the waste stream could be incinerated in a waste-to-energy system; other than wood chips burned to generate energy, waste from the City of San José is never incinerated because there is no MSW incinerator anywhere in the area and air quality regulations make it unlikely that there ever will be. This discussion of impacts does not, therefore, rely on the various LCAs for any purpose other than as a point of comparison. The findings of the LCAs as they relate to energy use are summarized below.

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<sup>88</sup> Ibid, page 190.

<sup>89</sup> Ibid, page 29.

<sup>90</sup> Ibid, page 189.

<sup>91</sup> Ibid, page 187.

<sup>92</sup> California Energy Commission. *2005 Integrated Energy Policy Report*. November 2005. Page 7.

<sup>93</sup> California Energy Commission 2007. *2007 Integrated Energy Policy Report (CEC-100-2007-008CMF)*. Page 10.

<sup>94</sup> Ibid, page 195.

Boustead Consulting & Associates for the Progressive Bag Alliance (USA):  
Life Cycle Assessment for Three Types of Grocery Bags

Boustead Consulting & Associates prepared an LCA for the Progressive Bag Alliance that evaluates the impacts of paper bags versus HDPE plastic bags; the report is undated but the peer review was completed in 2007. The LCA accounted for 30 percent recycled material in paper bags, and assumed that plastic bags were fully recyclable. It was also assumed that the carrying capacity of one paper bag is equal to 1.5 plastic bags. The LCA concluded that paper bags require approximately 3.4 times the amount of energy as plastic bags. (At a 1:1 capacity ratio, the LCA concluded that paper bags require 5.15 times the amount of energy.) These conclusions are not directly relevant to the proposed project since the City has found that (1) plastic bags are not readily recyclable; (2) plastic bags do not have the same capacity as paper bags; and (3) the proposed project will require that paper bags have *at least* 40 percent recycled content. Since bags with more than 40 percent recycled content are already being used in San José, the average recycled content will be more than 40 percent after the ordinance is implemented.

Ecobilan for Carrefour:  
Évaluation des Impacts Environnementaux des Sacs de Caisse Carrefour

In 2004, an LCA was prepared for the French retail chain Carrefour by Ecobilan. The bags analyzed included single-use HDPE bags, reusable LDPE bags, single-use paper bags, and biodegradable plastic bags. The LCA analyzed the impacts of the amount of bags needed to transport 9,000 liters of goods, which is an estimated annual purchase volume. The results of the LCA, as they relate to energy, are summarized in Table 3.9-1. The analysis also reflected the differences in size (capacity).

<b>Table 3.9-1: Ecobilan for Carrefour Consumption of Non-Renewable Primary Energy for Carryout Bags</b>	
<b>Bag Type</b>	<b>Ratio of Energy Use*</b>
Single-Use HDPE Plastic Bag	1.0
Reusable LDPE Plastic Bag (used two times)	1.4
Reusable LDPE Plastic Bag (used three times)	0.9
Reusable LDPE Plastic Bag (used four times)	0.7
Reusable LDPE Plastic Bag (used twenty times)	0.1
Single-Use Paper Bag	1.0
Biodegradable Plastic Bag	0.9
*Note: Numbers greater than one indicate a greater environmental impact compared with lightweight plastic carrier bags and numbers less than one indicate a lesser environmental impact compared with lightweight plastic carrier bags.	

The LCA concluded that single-use paper bags require approximately the same amount of non-renewable primary energy as single-use HDPE plastic bags. Reusable LDPE plastic bags used at least 20 times require approximately 90 percent less energy than single-use paper and plastic bags. The relevant measure in this context is no longer what resources are required to *make* the bag, but how many resources are required *per use*.

Nolan-ITU for the Australia Department of Environment and Heritage (Australia):  
Plastic Shopping Bags – Analysis of Levies and Environmental Impacts

In 2002, a report was prepared for the Australia Department of Environment and Heritage to analyze the impacts that might result from a number of different policy options being explored to reduce plastic bag usage. The report states that the embodied energy in one average HDPE single-use bag, weighing 6 grams, is approximately 0.48 MJ, including the production of the polymer, bag manufacturing and transport. For the purposes of comparison, the amount of fuel consumed by driving a car one kilometer (approximately 0.6 mile) is 4.18 MJ, which is equivalent to 8.7 bags. The report included an analysis of primary energy use associated with a variety of different carryout bag types. The analysis was based on the energy use of a household carrying approximately 70 grocery items home from a supermarket each week for a year using each type of bag. Plastic (HDPE) bags were assumed to have a recycling rate of two percent, while paper bags were assumed to have a recycling rate of 60 percent. No recycled content was assumed, except in the case of the 50 percent recycled plastic (HDPE) bag. None of the recycling assumptions are relevant to the United States. Additionally, paper bags were considered to have the same capacity as plastic bags, which does not reflect real-world conditions. The results of the LCA are summarized in Table 3.9-2.

<b>Bag Type</b>	<b>Primary Energy Use (MJ)</b>
Single-use Plastic Bag (HDPE)	210
Single-use Plastic Bag (HDPE) with 50 Percent Recycled Content	117
Single-use Plastic Bag (LDPE)	957
Reusable Plastic Bag (LDPE)	78
Reusable Cloth Bag	160
Reusable Plastic Bag (Woven HDPE)	18.6
Polypropylene/Nylon Reusable Bag	46.3
Single-use Paper Bag	721
Single-use Biodegradable Plastic Bag	61.3

This analysis found that single-use paper bags require approximately 3.4 times the amount of energy as single-use HDPE plastic bags. The heavier duty plastic bags (LDPE), which are frequently used in department and other specialty stores, but not usually in grocery stores, were found to require the greatest amount of energy, while woven HDPE reusable plastic bags required the least.

### **3.9.3 Energy Impacts**

#### **Thresholds of Significance**

For the purposes of this project, an energy impact would be considered significant if the project would:

- use fuel or energy in a wasteful manner;
- result in a substantial increase in demand upon energy resources in relation to projected supplies; or
- result in longer overall distances between jobs and housing.

### **3.9.2.1**      *Energy Discussion*

According to some LCAs prepared by consultants to the plastic bag industry, single-use paper bags generally have higher levels of energy use when compared to single-use plastic bags and reusable bags. This is attributed to several factors, including the manufacturing process and the effect of paper bag weight and bulk on the transportation process. The findings from other LCAs seem to differ based on the study, and no comprehensive comparison of the studies has been made by a neutral third party. In addition no LCA was found that looked at the emissions associated with manufacture of 40 percent or 100 percent recycled content paper bags. The energy summary in one LCA (Boustead), for example, does not identify the specific benefits or impacts of recycled content (lower water use, less chemical use, less energy use) although they are said to have been “taken into account.”

Additionally, heavier single-use plastic bags made of low-density polyethylene (LDPE), which are often used by clothing and boutique stores, were found by some studies to have greater energy requirements than both single-use paper bags and single-use plastic bags made of high-density polyethylene (HDPE), which are most typically used by grocery stores and large format retail stores.

There is a quantity of energy required to deliver all types of the bags to the stores where they are given away, and further energy use associated with picking up those that end up as litter, and with removing those that are discarded as solid waste. Since the preparers of this study were unable to identify any delivery system dedicated only to distribution to users of plastic (or paper) single-use bags, the exact increment of energy use associated with their delivery to the location where they are given to the public is unknown.

For the purposes of this EIR, the City is assuming that single-use plastic bags distributed to the customers of businesses in San José will be reduced by 95 percent or more – from an average of 1.4 million bags per day to an average of 75,000 bags or fewer per day. It is not known what will happen to the number of paper bags used in San José. Based on the information currently available from the only program in a large city in the United States that charges for both paper and plastic bags (Washington D.C.), the number of paper bags used in San José may go down when people are asked to pay for them.

### **3.9.2.2**      *Energy Impacts Resulting from the Project*

As discussed in §2.3.2 of this EIR, there might be an increase in single-use paper carryout bags purchased by shoppers in San José when all free single-use plastic bags are banned. An initial short term increase of between 37 and 69 million single-use paper carryout bags could occur when the initial \$.10 fee on paper bags is first imposed. Based upon the survey of San José residents, experience of other jurisdictions, including Ireland and Washington, D.C., plus the Herrera report referenced earlier in this EIR, the number of paper bags is assumed to decline steeply when the full \$.25 fee takes affect after two years. Using the methodology described at the beginning of §3.0 of this EIR, the data from the Boustead LCA shows that at a \$.10 fee level there would be an annual reduction in energy use that could be as high as 143 million MJ compared to existing conditions. A fee of \$.25 would result in a reduction of over 320 million MJ. This conclusion does not take into account statements made by the paper bag manufacturers’ representatives that most kraft paper bags are manufactured at plants using energy derived from waste products of the wood and paper processing required to make paper.

Since paper bags will be required to have at least 40 percent recycled content under the proposed ordinance, the total quantity of energy use resulting from a change from a single-use plastic to a single-use paper bag with 40 percent recycled content may not increase substantially because manufacture of paper using recycled content requires less energy than manufacture using virgin material.<sup>95</sup> In addition, paper bags used in grocery stores are bigger than the HDPE plastic bags and would require fewer bags for more merchandise.

The elimination of 95 percent of the single-use plastic bags used every day in San José, and an ultimate reduction in the number of single-use paper bags, would result in a decrease in the shipping capacity used to transport those bags to their regional distribution centers and eventually to stores in San José. Since the bags are transported to users in mixed loads, there may be no reduction in trips. Capacity in the trucks may be used to transport reusable bags offered for sale in the stores, or other commodities handled by the distributor.

The City will continue to work with stakeholders and members of the community to increase use of reusable bags and will ensure that the number of single-use paper bags used, even should the use increase temporarily, returns to the rate of use existing at this time.

Based on information provided by available LCAs, even a short term increase in single-use paper carryout bags used in San José as a result of the ban on single-use plastic carryout bags would not result in increased energy use in the manufacture of single-use bags at various locations, given that the number of single-use bags distributed in San José is expected to be reduced by 90 percent. (**Less Than Significant Impact**)

### **3.9.3 Mitigation for Project Impacts**

Since the project will not result in a significant energy impact no mitigation is required.

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<sup>95</sup> Environmental Defense Fund Paper Calculator. Available at: <<http://www.edf.org/papercalculator/>>

### 3.10 GREENHOUSE GAS EMISSIONS

This section provides a general discussion of global climate change and focuses on emissions from human activities that alter the chemical composition of the atmosphere. The discussion on global climate change and greenhouse gas emission is based upon the California Global Warming Solutions Act of 2006 (Assembly Bill (AB) 32), the 2006 Climate Action Team (CAT) Report to Governor Schwarzenegger and the Legislature, and research, information and analysis completed by the International Panel on Climate Change (IPCC), the United States Environmental Protection Agency, California Air Resources Board, and the CAT.

Global climate change refers to changes in weather including temperatures, precipitation, and wind patterns. Global temperatures are modulated by naturally occurring and anthropogenic (generated by mankind) atmospheric gases such as carbon dioxide, methane, and nitrous oxide.<sup>96</sup> These gases allow sunlight into the Earth's atmosphere but prevent heat from radiating back out into outer space and escaping from the earth's atmosphere, thus altering the Earth's energy balance. This phenomenon is known as the greenhouse effect.

Naturally occurring greenhouse gases include water vapor<sup>97</sup>, carbon dioxide, methane, nitrous oxide, and ozone. Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but are for the most part solely a product of industrial activities. The major greenhouse gases, other than water vapor, are briefly described below.<sup>98</sup>

**Carbon Dioxide (CO<sub>2</sub>)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, respiration, and as a result of other chemical reactions (e.g., manufacturing of cement). Carbon dioxide is also removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.

**Methane (CH<sub>4</sub>)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.

**Nitrous Oxide (N<sub>2</sub>O)** is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.

**Fluorinated Gases** are synthetic, strong greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases. High Global Warming Potential gases are emitted from a variety of industrial processes including aluminum production, semiconductor manufacturing, electric power transmission, and magnesium

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<sup>96</sup> Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Bases*. Available at: <<http://ipcc.ch/>>

<sup>97</sup> Concentrations of water are highly variable in the atmosphere over time, with water occurring as vapor, cloud droplets and ice crystals. Changes in its concentration are also considered to be a result of climate feedbacks rather than a direct result of industrialization or other human activities. For this reason, water vapor is not discussed further as a greenhouse gas.

<sup>98</sup> Environmental Protection Agency. *2009 U.S. Greenhouse Gas Inventory Report*. Accessed April 20, 2009. <<http://www.epa.gov/climatechange/emissions/usinventoryreport.html>>; and National Oceanic and Atmospheric Administration. *Greenhouse Gases Frequently Asked Questions*. Accessed April 22, 2009. <<http://lwf.ncdc.noaa.gov/oa/climate/gases.html>>



production and processing, and the production of HCFC-22, a hydrochlorofluorocarbon used as a refrigerant and in air conditioners.

### **3.10.1 Human Influence on Climate**

The world's leading climate scientists have reached consensus that global climate change is underway, is "very likely" caused by humans, and hotter temperatures and rises in sea level "would continue for centuries," no matter how much humans control future emissions. A report of the Intergovernmental Panel on Climate Change (IPCC), an international group of scientists and representatives concluded "the widespread warming of the atmosphere and ocean, together with ice-mass loss, support the conclusion that it is extremely unlikely that global climate change of the past 50 years can be explained without external forces, and very likely that it is not due to known natural causes alone."<sup>99</sup>

Human activities have exerted a growing influence on some of the key factors that govern climate by changing the composition of the atmosphere and by modifying vegetation. The concentration of carbon dioxide in the atmosphere has increased from the burning of coal, oil, and natural gas for energy production and transportation and the removal of forests and woodlands around the world to provide space for agriculture and other human activities. Emissions of other greenhouse gases, such as methane and nitrous oxide, have also increased due to human activities. Carbon dioxide accounts for approximately 85 percent of total emissions, and methane and nitrous oxide account for almost 14 percent. Each of these gases, however, contributes to global warming at a different relative rate. Methane has a global warming potential 23 times that of carbon dioxide, while nitrous oxide is 296 times that of the same amount of carbon monoxide. To account for these differences, estimates of greenhouse gas emissions are often described in terms of carbon dioxide equivalents (CO<sub>2</sub>e).

In 2007, the IPCC predicted a temperature increase of between two and 11.5 degrees Fahrenheit (F) (1.1 and 6.4 degrees Celsius) by the end of the 21<sup>st</sup> century under six different scenarios of emissions and carbon dioxide equivalent concentrations.<sup>100</sup> Sea levels were predicted to rise by 0.18 to 0.59 meters (seven to 23 inches) during this time, with an additional 3.9 to 7.8 inches possible depending upon the rate of polar ice sheets melting from increased warming. The IPCC report states that the increase in hurricane and tropical cyclone strength since 1970 can likely be attributed to human-generated greenhouse gases.

On a per person basis, greenhouse gas emissions are lower in California than most other states; however, California is a populous state and the second largest emitter of greenhouse gases in the United States and one of the largest emitters in the world.<sup>101</sup> Transportation is the largest source of greenhouse gas emissions in California, followed by industrial sources and electric power generation.<sup>102</sup>

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<sup>99</sup> Intergovernmental Panel on Climate Change. *Climate Change 2007: The Physical Science Bases*. Available at: <<http://ipcc.ch/>>

<sup>100</sup> Intergovernmental Panel on Climate Change. "Summary for Policymakers". In: *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. <<http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf>>

<sup>101</sup> California Legislative Analyst's Office. *Analysis of the 2006-07 Budget Bill (Governor's Climate Change Initiative)*. 2006. <[http://www.lao.ca.gov/analysis\\_2006/resources/res\\_04\\_an106.html](http://www.lao.ca.gov/analysis_2006/resources/res_04_an106.html)>

<sup>102</sup> California Air Resources Board. *Climate Change Scoping Plan*. 2008. <<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>>

According to the Draft 2009 Climate Action Team Report<sup>103</sup>, the following climate change effects and conditions can be expected in California over the course of the next century:

- **Warming Trends.** Increasing temperatures with summer warming increasing from about 0.9 to 3.6 degrees Fahrenheit (F) in the first 30 years of the 21<sup>st</sup> century and from about 2.7 to 10.5 degrees F in the last 30 years of the 21<sup>st</sup> century.
- **Precipitation.** Changes in precipitation patterns and earlier melting of the Sierra snow pack that will have an effect on river flows, runoff, and water supplies in California.
- **Sea-Level Rise.** By 2050, sea-level rise could range from 11 to 18 inches higher and by 2100 sea-level rise could be 23 to 55 inches higher than in the year 2000. As sea level rises, major transportation infrastructure could be inundated and there also will be an increased rate of coastal flooding when high tides coincide with winter storms. Other impacts of sea-level rise include loss of coastal habitats (such as beaches and wetlands), direct impacts to coastal communities, and biodiversity reduction due to species loss.
- **Agriculture.** Increased challenges for the state's agricultural sector from temperature and precipitation effects on crop yields, crop losses from extreme weather events, and changes to pest and weed ranges.
- **Forestry.** Increased vulnerability of forests due to pest infestation, increased temperatures, wildfire frequency, and precipitation changes.
- **Water Resources.** Reduced reliability of State Water Project (SWP) and Central Valley Project (CVP) water supply systems due to the interaction of projected growth, a warmer-drier climate resulting in reduced streamflows and reservoir storage, and salinity increases in the Delta.
- **Coastal Areas.** Coastal erosion of beaches (especially during severe winter storms), and impacts to property, infrastructure, and housing due to flooding in coastal areas and the San Francisco bay area (including due to levee breaching).
- **Energy.** Increased electricity demand, particularly in the Central Valley, during hot summer months and possible reductions in energy generation from hydropower systems due to changes in runoff patterns.
- **Air Quality.** Increased concentrations of ozone and particulate matter associated with higher temperatures and increased natural biogenic emissions, which could impact air quality (particularly in the South Coast and San Joaquin air basins).
- **Public Health.** Effects on public health due to an increased frequency, duration and severity of heat events, increased air pollution, wildfire outbreaks, and physical events such as flooding. Air pollution and increased wildfires have the potential to increase respiratory problems.

The report concludes that extreme events from heat waves, floods, droughts, wildfires, and bad air quality are likely to become more frequent in the future in California.

### **3.10.2 Regulatory Context for Global Climate Change**

Global climate change resulting from greenhouse gas emissions is an emerging environmental concern being raised and discussed at the international, national, and statewide level. At each level,

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<sup>103</sup> California Environmental Protection Agency. *Draft Climate Action Team Report to Governor Schwarzenegger and the Legislature*. April 1, 2009. <<http://www.climatechange.ca.gov/publications/cat/>>

agencies are considering strategies to control emissions of gases that contribute to global warming.<sup>104</sup> Regulatory efforts in California that apply to the project are summarized below.

### **3.10.2.1      *State of California Executive Order S-3-05***

In June 2005, the Governor of California signed Executive Order S-3-05 which identified Cal/EPA as the lead coordinating State agency for establishing climate change emission reduction targets in California. A multi-agency “Climate Action Team” was set up to implement Executive Order S-3-05. Under this order, the state plans to reduce greenhouse gas emissions to 80 percent below 1990 levels by 2050. Greenhouse gas emission reduction strategies and measures to reduce global warming were identified by the California Climate Action Team in 2006 and in the Climate Change Scoping Plan adopted in December 2008.<sup>105</sup>

### **3.10.2.2      *Assembly Bill 32 – The California Global Warming Solutions Act of 2006***

Subsequently, in the fall of 2006, California Assembly Bill (AB 32), the global warming bill, was signed into law. AB 32 required the state Air Resources Board (ARB) to adopt regulations by set dates to require reporting and verification of statewide greenhouse gas emissions and to monitor and enforce compliance with the program. The bill requires achievement by 2020 of a statewide greenhouse gas emissions limit equivalent to 1990 emissions, and the adoption of rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions. According to the California Air Pollution Control Officers Association, reducing greenhouse gas emission levels from 2020 to 1990 levels would require a 28 to 33 percent reduction of “business-as-usual” greenhouse gas emissions depending on the methodology used to determine the future emission inventories.<sup>106</sup>

Strategies identified by ARB to reduce greenhouse gas emissions include, but are not limited to, new vehicle emission standards, enforcement of diesel truck anti-idling requirements, capture of more methane from landfills, hydrofluorocarbon (HFC) reduction strategies for the use and disposal of refrigerants, manure management in agricultural operations, and increased use of alternative fuels.

As part of implementation of AB 32, a statewide 1990 Greenhouse Gas Emissions inventory and 2020 Emissions Limit were adopted by the ARB in 2007. ARB’s mandatory reporting regulation was approved by the Board in December 2007, and became effective on December 2, 2008. Starting in 2009, facilities in several key industrial sectors, such as electricity generation, petroleum refineries and cement manufacturing, are required to report greenhouse gas emissions. The ARB also approved

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<sup>104</sup> On April 2, 2007, the United States Supreme Court issued a 5-4 decision in *Massachusetts v. EPA*, which holds that the U.S. Environmental Protection Agency has authority under the Clean Air Act to regulate greenhouse gas emissions from new vehicles. The U.S. EPA has previously argued it lacked legal authority under the Clean Air Act to regulate greenhouse gases. The majority opinion of the Supreme Court decision noted that greenhouse gases meet the Clean Air Act’s definition of an “air pollutant,” and the EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.

<sup>105</sup> California Environmental Protection Agency. *Climate Action Team Executive Summary Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. 2006. <[http://www.climatechange.ca.gov/climate\\_action\\_team/reports/2006-04-03\\_FINAL\\_CAT\\_REPORT\\_EXECSUMMARY.pdf](http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT_EXECSUMMARY.pdf)>; and California Air Resources Board. *Climate Change Scoping Plan*. 2008.

<sup>106</sup> California Air Pollution Control Officers Association. *CEQA & Climate Change, Evaluating and addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. January 2008. Available at: <<http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf>>.

another key requirement of AB 32, the *Climate Change Scoping Plan*, on December 11, 2008.<sup>107</sup> The *Scoping Plan*, developed by ARB with input from the Climate Action Team, proposes a comprehensive set of actions designed to reduce overall carbon emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, and enhance public health while creating new jobs and enhancing the growth in California's economy. The ARB is currently working on additional regulations to implement the *Scoping Plan*. Regulations to obtain the maximum technologically feasible and cost-effective reductions in greenhouse gases are to be adopted by January 1, 2011.

### **3.10.2.3      *Senate Bill 97 – Modification to the Public Resources Code***

On August 24, 2007, Governor Schwarzenegger signed Senate Bill (SB 97) which requires the Office of Planning and Research (OPR) to prepare, develop, and transmit to the Resources Agency guidelines for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions, including, but not limited to effects associated with transportation or energy consumption. The Resources Agency is required to certify and adopt these guidelines by January 1, 2010.

At the direction of the Governor's Office of Planning and Research, ARB developed preliminary recommendations for statewide interim thresholds of significance for greenhouse gas emissions. ARB focused on common project types that, collectively, are responsible for substantial greenhouse gas emissions – specifically industrial, residential, and commercial projects. These recommended approaches have not been adopted by ARB and additional workshops are not currently scheduled.

### **Revisions to BAAQMD CEQA Guidelines**

BAAQMD recently adopted an updated version of its Air Quality Guidelines (June 2010). The guidelines include new and updated thresholds for analyzing air quality impacts, including a threshold for greenhouse gas emissions. Under the threshold, if a project would result in operational-related greenhouse gas emissions of 1,100 metric tons of carbon dioxide equivalents a year or more, it would make a cumulatively considerable contribution to greenhouse gas emissions and result in a cumulatively significant impact to global climate change. The guidelines also outline a methodology for estimating greenhouse gases, including use of the URBEMIS model for direct emissions from land use projects.

### **3.10.2.4      *Senate Bill 375 – Redesigning Communities to Reduce Greenhouse Gases***

SB 375 encourages housing and transportation planning on a regional scale, in a manner designed to reduce vehicle use and associated greenhouse gas emissions. It requires the California Air Resources Board (ARB) to set regional targets for the purpose of reducing greenhouse gas emissions from passenger vehicles for 2020 and 2035. Once plans and strategies are in place to meet the SB 375 targets, certain projects in these regions can be relieved of specific review requirements of CEQA. The targets apply to the regions in the State covered by the 18 metropolitan planning organizations (MPOs), including the Metropolitan Transportation Commission (MTC) in the San Francisco Bay Area. The MTC has developed the currently proposed *Transportation 2035 Plan* (January 2009) with the AB 32 GHG reduction targets in mind; however MTC's RTP update for 2013 would be the first MTC plan subject to SB 375.<sup>108</sup>

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<sup>107</sup> California Air Resources Board. 2008. Climate Change Scoping Plan.

<<http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm>>

<sup>108</sup> MTC. *Draft EIR for the Transportation 2035 Plan*(*Transportation in Motion 2035*). January 2009.

<[http://www.mtc.ca.gov/planning/2035\\_plan/EIR.htm](http://www.mtc.ca.gov/planning/2035_plan/EIR.htm)>.

SB 375 requires MPOs to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan that sets forth a vision for growth for the region while taking into account transportation, housing, environmental, and economic needs. The SCS will be the blueprint by which the region will meet its GHG emissions reductions target if there is a feasible way to do so. The MPOs also will be required to prepare an alternative planning strategy with alternative development patterns, infrastructure, or additional transportation measures or policies to meet identified targets.

Per SB 375, the ARB appointed a Regional Targets Advisory Committee (RTAC) on January 23, 2009, to provide recommendations on factors to be considered and methodologies to be used in ARB's target setting process. The RTAC may consider any relevant issues, including, but not limited to, data needs, modeling techniques, growth forecasts, the impacts of regional jobs-housing balance on interregional travel and greenhouse gas emissions, economic and demographic trends, the magnitude of greenhouse gas reduction benefits from a variety of land use and transportation strategies, and appropriate methods to describe regional targets and to monitor performance in attaining those targets. The RTAC is required to provide its recommendations in a report to ARB by September 30, 2009. ARB must propose draft targets by June 10, 2010, and adopt final targets by September 30, 2010.<sup>109</sup>

### **3.10.2.5**      *City of San José Strategies, Goals, and Policies*

At the local level, the City's General Plan has strategies, goals, and policies in place to reduce its greenhouse gas emissions and impact on global climate change include the following:

- *Urban Conservation/Preservation Strategy*
- *The Greenline/Urban Growth Boundary*
- *Sustainable City Strategy*
- *Solid Waste Goal 2* – extend the life span of existing landfills by promoting source reduction, recycling, composting, and transformation of solid wastes.
- *Solid Waste Goal 5* – achieve a high level of public awareness of solid waste issues and alternatives to landfilling.
- *Urban Forest Goal* – preserve, protect, and increase plantings of urban trees within the City.
- *Air Quality Policy 2* – expansion and improvement of public transportation services and facilities should be promoted, where appropriate, to both encourage energy conservation and reduce air pollution.
- *Air Quality Policy 6* – continue to actively enforce the City's ozone-depleting compound ordinance and supporting policy to ban the use of chlorofluorocarbon compounds in packaging and in building construction and remodeling to help reduce damage in the global atmospheric ozone layer.
- *Energy Goal* – the City should foster development which, by its location and design, reduced the use of non-renewable energy resources in transportation, buildings, and urban services (utilities) and expands the use of renewable energy resources.
- *Energy Policy 9* – the City should encourage the development of renewable energy sources and alternative fuels and cooperate with other public and quasi-public agencies.

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<sup>109</sup> California Air Resources Board. "SB 375 Regional Targets Advisory Committee". Accessed February 18, 2009. <<http://www.arb.ca.gov/cc/sb375/rtac/rtac.htm>>; and California Senate Bill No. 375. Accessed February 18, 2009. Available at: <[http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb\\_0351-0400/sb\\_375\\_bill\\_20080930\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/07-08/bill/sen/sb_0351-0400/sb_375_bill_20080930_chaptered.pdf)>

In addition, the *San José Green Vision* adopted in October 2007, is a 15-year plan to transform the City into a world center of Clean Technology, promote cutting-edge sustainable practices, and demonstrate that the goals of economic growth, environmental stewardship and fiscal responsibility are inextricably linked. The 10 goals of the *Green Vision* are as follows:

1. Create 25,000 Clean Tech jobs as the World Center of Clean Tech Innovation;
2. Reduce per capita energy use by 50 percent;
3. Receive 100 percent of our electrical power from clean renewable sources;
4. Build or retrofit 50 million square feet of green buildings;
5. Divert 100 percent of the waste from our landfill and convert waste to energy;
6. Recycle or beneficially reuse 100 percent of our wastewater (100 million gallons per day);
7. Adopt a General Plan with measurable standards for sustainable development;
8. Ensure that 100 percent of public fleet vehicles run on alternative fuels;
9. Plant 100,000 new trees and replace 100 percent of our streetlights with smart, zero-emission lighting; and
10. Create 100 miles of interconnected trails.

### **3.10.2.6 *Climate Action Plan***

The City of San José Department of Environmental Services is currently preparing a Climate Action Plan for San José that will identify current and projected greenhouse gas emissions and measures for local government and the community to implement to reduce and avoid greenhouse gas emissions. The Climate Action Plan will include community input and is anticipated to be completed in 2010.

### **3.10.3 Existing Conditions**

#### **3.10.3.1 *Greenhouse Gas Emissions Associated with Single-Use and Reusable Bags***

The activities involved in the production, transport, use, and disposal of single-use carryout bags release greenhouse gas emissions (i.e., carbon dioxide, methane, and nitrogen dioxide) into the environment. Of the various life cycle assessments (LCAs) that have been completed for different types of carryout bags, some have addressed greenhouse gas emissions. LCAs do not have consistent methodologies, and frequently have assumptions that differ from each other, and from local conditions. One example is the assumption that bags in the waste stream could be incinerated in a waste-to-energy system; waste in the City of San José (other than wood chips burned in waste-to-energy facilities in the Central Valley) is never incinerated because there is no MSW incinerator in the area. This discussion of impacts does not, therefore, rely on the various LCAs for any purpose other than as a point of comparison. The findings of the LCAs are summarized below.

#### **Nolan-ITU for the Australia Department of Environment and Heritage (Australia): *Plastic Shopping Bags – Analysis of Levies and Environmental Impacts***

In 2002, a report was prepared for the Australia Department of Environment and Heritage to analyze the impacts that might result from a number of different policy options being explored to reduce plastic bag usage. The report included an analysis of greenhouse gas emissions that are produced from a variety of different carryout bag types. The analysis was based on the greenhouse gas emissions of a household carrying approximately 70 grocery items home from a supermarket each week for a year using each type of bag. Plastic (HDPE) bags were assumed to have a recycling rate of two percent, while paper bags were assumed to have a recycling rate of 60 percent. No recycled content was assumed, except in the case of the 50 percent recycled plastic (HDPE) bag. A reusable



woven HDPE plastic bag was assumed to last for 104 uses. A summary of this analysis is presented in Table 3.10-1.

Bag Type	Greenhouse Gas Emissions (Kilograms of CO <sub>2</sub> Per Year)
Plastic Bag (HDPE)	6.08
Plastic Bag (HDPE) with 50 Percent Recycled Content	4.79
Plastic Bag (LDPE)	29.80
Reusable Plastic Bag (LDPE)	2.43
Reusable Cloth Bag	2.52
Reusable Plastic Bag (Woven HDPE)	0.63
Paper Bag	11.80
Biodegradable Plastic Bag	6.61

Boustead Consulting & Associates for the Progressive Bag Alliance (USA):  
Life Cycle Assessment for Three Types of Grocery Bags

Boustead Consulting & Associates prepared an LCA for the Progressive Bag Alliance that evaluates the impacts of paper bags versus plastic bags; the report is undated but the peer review was completed in 2007. The LCA accounted for 30 percent recycled material in paper bags, and assumed that plastic bags were fully recyclable. The results of the LCA are summarized in Table 3.10-2.<sup>110</sup>

Bag Type/ Amount	Life Cycle Stage	Tons of CO <sub>2</sub> e
1,500 plastic bags	Production	0.04
	Disposal	0.00
	<b>Total</b>	<b>0.04</b>
1,000 paper bags	Production	0.03
	Disposal	0.05
	<b>Total</b>	<b>0.08</b>

<sup>1</sup> CO<sub>2</sub>e = carbon dioxide equivalent

The LCA concluded that paper bags release approximately twice as much greenhouse gas emissions as plastic bags. The majority of emissions resulted from bag production, with plastic bags releasing slightly more emissions in that stage. In the disposal stage, the following was assumed:

<sup>110</sup> The assumptions upon which this LCA was based make its conclusions less than fully relevant for this evaluation. The project is proposing to use paper bags made from 40 percent recycled material. The City of San José has not been able to successfully recycle a reliable percentage of the plastic bags collected. In addition, the ratio identified for carrying capacity (1:1.5) does not reflect actual practice or the functional capacity of the two kinds of bags.

- Plastic Bags: 5.2 percent recycled, 13.6 percent incinerated, and 81.2 percent landfilled
- Paper Bags: 21 percent recycled, 13.6 percent incinerated, 65.4 percent landfilled

The 0.00 tons of CO<sub>2</sub>e related to disposal of plastic bags is explained by the fact that since plastic bags do not degrade, the only end of life emissions result from incineration, which amount to less 0.01 tons of CO<sub>2</sub>e. Paper bags release greenhouse gas emissions such as methane as they degrade, which accounts for the higher emissions total related to disposal. The LCA concluded that from all operations just prior to disposal, the resulting CO<sub>2</sub> equivalents are more than 20 percent greater for the single-use plastic bag when compared to the paper bag. The number for plastic bags is slightly lower than reality, because plastic bags in San José are not recycled to the extent that Boustead assumed.

Ecobilan for Carrefour:

Évaluation des Impacts Environnementaux des Sacs de Caisse Carrefour

In 2004, an LCA was prepared for the French retail chain Carrefour by Ecobilan. The bags analyzed included single-use HDPE bags, reusable LDPE bags, single-use paper bags, and biodegradable plastic bags. The LCA analyzed the impacts of the amount of bags needed to transport 9,000 liters of goods, which is an estimated annual purchase volume. The analysis in the report included an assessment of the greenhouse gas emissions of the various bags, which is summarized in Table 3.10-3.

<b>Table 3.10-3: Ecobilan for Carrefour Greenhouse Gas Emissions</b>	
<b>Bag Type</b>	<b>Ratio of Greenhouse Gas Emissions*</b>
Single-Use HDPE Plastic Bag	1.0
Reusable LDPE Plastic Bag (used two times)	1.3
Reusable LDPE Plastic Bag (used three times)	0.9
Reusable LDPE Plastic Bag (used four times)	0.7
Reusable LDPE Plastic Bag (used twenty times)	0.1
Single-Use Paper Bag	1.9
Biodegradable Plastic Bag	1.4
*Note: Numbers greater than one indicate a greater environmental impact compared with lightweight plastic carrier bags and numbers less than one indicate a lesser environmental impact compared with lightweight plastic carrier bags.	

The report concluded that paper bags produce 90 percent more greenhouse gas emissions than plastic bags, and that reusable LDPE bags used at least three times produce less emissions than both paper and plastic bags.



### **3.10.4 Greenhouse Gas Emissions Impacts**

#### **Thresholds of Significance**

For the purposes of this EIR, a global climate change impact is considered significant if the project would:

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

#### **3.10.4.1 *Greenhouse Gas Emissions Discussion***

Various life cycle assessments (LCAs) of shopping bags have been completed in support of bag regulation policies worldwide, and many of them were consulted during the preparation of this EIR (refer to § 9.0 References and Appendix E). Most LCAs try to account for greenhouse gas emissions that result from all stages of product life, from product creation to disposal. LCAs do not have consistent methodologies, and frequently use assumptions that differ from each other, and from local conditions. One example is the assumption that some percentage of single-use bags in the waste stream would be incinerated in a waste-to-energy system; other than wood chips sold as fuel, waste in the City of San José is never incinerated because there is no MSW incinerator in the area.. Including it in a discussion of paper and plastic bags is, therefore, not relevant. This discussion of impacts does not, therefore, rely on the various LCAs for any purpose other than as a point of comparison.

According to some LCAs prepared by consultants to the plastic bag industry, single-use paper bags generally result in greater greenhouse gas emissions when compared to single-use plastic bags and reusable bags. This is attributed to several factors, including the manufacturing process and the effect of paper bag weight and bulk on the transportation process, plus the eventual degradation of paper bags in landfills. The findings from other LCAs seem to differ based on the study, and no comprehensive comparison of the studies has been made by a neutral third party. In addition, no LCA was found that looked at the emissions associated with manufacture of 40 percent or 100 percent recycled content paper bags.

Additionally, heavier single-use plastic bags made of low-density polyethylene (LDPE), which are often used by clothing and boutique stores, were found by some studies to result in greater greenhouse gas emissions than both single-use paper bags and single-use plastic bags made of high-density polyethylene (HDPE), which are most typically used by grocery stores and large format retail stores.

There is a quantity of energy required to deliver all types of single-use bags to the stores where they are given away, and further energy use associated with picking up those that end up as litter, and with removing those that are discarded as solid waste. Since the preparers of this study were unable to identify any delivery system dedicated only to distribution to users of plastic (or paper) single-use bags, the exact increment of energy use, and the resulting greenhouse gas emissions, associated with their delivery to the location where they are given to the public is unknown.

For the purposes of this EIR, the City is assuming that single-use plastic bags distributed to the customers of businesses in San José will be reduced by 95 more – from an average of 1.4 million

bags per day to an average of 75,000 bags or fewer per day. It is not known with any certainty what will happen to the number of single-use paper bags used in San José. Based on the information currently available from the only program in a large city in the United States that charges for both paper and plastic bags (Washington D.C.), the number of single-use paper bags used in San José may go down substantially when people are asked to pay for them.

### **3.10.4.2      *Greenhouse Gas Emissions Impacts Resulting from the Project***

Contrary to the last paragraph (above), it has been postulated that the proposed ordinance would lead to an increase in single-use paper bag use if consumers are not given free single-use plastic bags at the point of sale, because they would be willing to pay a fee to use paper bags. An increase in single-use paper-bag use could then lead to incremental increases in gas emissions associated with their manufacture and delivery. Of course, a substantial decrease in greenhouse gas emissions associated with plastic bag manufacture and delivery would be occurring simultaneously. Based on available information, it cannot be definitively determined what the net increases or decreases in greenhouse gas emissions might be.

Since single-use paper bags sold to consumers will be required to have at least 40 percent recycled content under the proposed ordinance, the total quantity of greenhouse gas emissions resulting from a change from a plastic to a paper bag may not increase substantially because manufacture of paper using recycled content results in less greenhouse gas emissions than manufacture using virgin material.<sup>111</sup> In addition, paper bags used in grocery stores are bigger than the HDPE plastic bags and would require fewer bags for more merchandise.

As discussed in §2.3.2, a conservative estimate of increased use of single-use paper carryout bags would be an increase of 37 to 69 million additional paper bags. Using the methodology described at the beginning of §3.0, the data from the Boustead LCA shows that there could be an annual reduction in greenhouse gas emissions of as much as 9,600 tons of CO<sub>2</sub>e compared to existing conditions with the reduction in plastic bag use and the anticipated increase in paper bag use. A fee of \$.25 would result in a reduction of as much as 15,000 tons of CO<sub>2</sub>e.

The elimination of 95 percent of the single-use plastic bags used every day in San José, and a possible reduction in the number of single-use paper bags, would result in a decrease in the shipping capacity used to transport those bags to their regional distribution centers and eventually to stores in San José. Since the bags are transported to users in mixed loads, there may be no reduction in trips. Capacity in the trucks may be used to transport reusable bags offered for sale in the stores, or other commodities handled by the distributor.

The City will continue to work with stakeholders and members of the community to increase use of reusable bags and will ensure that the number of single-use paper bags used, even should the use increase temporarily, returns to the rate of use existing at this time. Bag use will be reduced even further when the fee for single-use paper bags is raised to \$.25 two years after implementation. **(Less Than Significant Impact)**

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<sup>111</sup> Environmental Defense Fund Paper Calculator. Available at: <<http://www.edf.org/papercalculator/>>

### **3.10.4.3**      *Impacts to the Project*

Because the project does not involve any physical development, the likely effects of climate change, such as sea level rise, would not result in any impacts on the project.

### **3.10.5**      **Mitigation for Project Impacts**

Since no significant greenhouse gas emissions impacts will occur, no mitigation is required.

## **4.0 CUMULATIVE IMPACTS**

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Cumulative impacts, as defined by CEQA, refer to two or more individual effects, which when combined, are considerable or which compound or increase other environmental impacts. Cumulative impacts may result from individually minor, but collectively significant projects taking place over a period of time. The CEQA Guidelines state (§15130) that an EIR should discuss cumulative impacts “when the project's incremental effect is cumulatively considerable.” The discussion does not need to be in as great detail as is necessary for project impacts, but is to be “guided by the standards of practicality and reasonableness.” The purpose of the cumulative analysis is to allow decision makers to better understand the impacts that might result from approval of past, present and reasonably foreseeable future projects, in conjunction with the proposed project addressed this EIR.

The CEQA Guidelines advise that a discussion of cumulative impacts should reflect both their severity and the likelihood of their occurrence. To accomplish these two objectives, the analysis should include either a list of past, present and probable future projects or a summary of projections from an adopted general plan or similar document. The analysis must then determine what the project’s contribution to any cumulatively significant impact is cumulatively considerable, as defined by Section 15065(a)(3) of the CEQA Guidelines.

The cumulative analysis for the Single-Use Carryout Bag Ordinance is based upon consideration of a past, present, and probable future actions taken to regulate the distribution of single-use carryout bags locally, regionally, and nationally.

Given the nature of the cumulative projects, their locations, and the impacts and scale of the proposed ordinance, the issue areas for which cumulative impacts could be substantial and which can be addressed in a meaningful manner in this EIR include water quantity and quality, and biological resources. These cumulative impacts are addressed in greater detail below. Other areas of impact, including energy use, air quality and the generation of greenhouse gases, may experience significant impacts from the cumulative projects, but any analysis done in this EIR would be subject to the same flaws and errors attributed to the LCAs and would be so speculative as to be meaningless. Since San José would reduce the use of single-use paper bags to a quantity below existing conditions, even if there is an increase in such bag use, it will be temporary and would not rise to a level of being cumulatively considerable.

### **Cumulative Projects Related to Single-Use Carryout Bag Regulation**

The proposed project was initiated by the Santa Clara County Solid Waste Task Force, and is likely to be adopted by many if not all jurisdictions in the County – 13 cities and the county itself.

Currently, two cities in the San Francisco Bay Area have enacted programs regulating bag use. In 2007, San Francisco banned single-use plastic bags in supermarkets and chain pharmacies. In 2009, Palo Alto (a city in Santa Clara County) banned the distribution of single-use plastic bags at supermarkets. Other cities in California, such as Santa Monica and Manhattan Beach, have attempted to regulate bag distribution but have been forced to put these regulations on hold until more thorough environmental review is completed.

At the state level, legislation banning the distribution of single-use plastic bags in California and requiring a fee of at least five cents on paper bags has been passed by the state Assembly (AB 1998).

If the state Senate passes the legislation, the bill would become law. Concurrently, numerous cities and counties throughout the state are in the process of considering their own single-use bag regulation programs (Berkeley, San Diego, Santa Cruz, Los Angeles County, etc.).

Nationally, Washington D.C. recently enacted a fee on all single-use bags distributed in the District. Other municipalities throughout the U.S., such as Portland, Oregon and Austin, Texas, are considering their own bag regulation programs.

While all of these programs differ in their specifics, most have similar goals: to decrease the use of single-use bags and increase the use of reusable bags. Some programs, such as the ones in San Francisco and Palo Alto, target only plastic bags, while others, such as the one in Washington D.C., target both paper and plastic. Programs that target only plastic bags will reduce plastic bag use but might lead to an unknown increase in paper bag use. Programs that ban plastic bags and place a fee on paper bags will reduce plastic bag use but may or may not lead to an increase in paper bag use. Programs that target both bags equally will likely lead to comparable reductions in both paper and plastic bag use.

The overall cumulative increase or decrease of paper and plastic bag use resulting from this wide array of programs would require a degree of speculation that would be inconsistent with the purpose of CEQA. As reflected throughout this EIR, there is no solid basis for guessing what future behavior will be when these various programs are fully implemented.

Negative environmental effects, however, could conceivably occur if the cumulative effect of these various programs leads to a large increase in paper bag use compared to existing conditions, especially if the increased use of paper bags is permanent. However, it is more likely that the cumulative effect of more jurisdictions banning and/or regulating single-use carryout plastic and paper bags will be that more people will use reusable bags more consistently. A frequently heard reason for not using reusable bags is that people forget to take them into the store. As more people use them, more people will see other shoppers carrying the reusable bags from car to store and will remember to take them into the stores. This phenomenon was noticeable during the start-up period for curbside recycling programs – people who saw neighbors putting out recycling, remembered to put out their own.

The extent to which cumulatively considerable impacts could occur from increased use of single-use paper carryout bags, and the extent to which the proposed ordinance in San José could contribute to these impacts, are discussed in further detail below.

## **4.1 HYDROLOGY AND WATER QUALITY**

### **4.1.1 Thresholds of Significance**

Consistent with the thresholds used by the City in evaluating project-specific hydrology and water quality impacts, this analysis examines whether implementation of the cumulative projects would result in the following types of impacts:

- violate any water quality standards or waste discharge requirements;
- substantially degrade or deplete groundwater resources or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;

- substantially alter the existing drainage pattern of the site or area, including through the alteration 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;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- 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;
- provide substantial additional sources of polluted runoff or otherwise substantially degrade surface or groundwater quality;
- place within a 100-year flood hazard area structures which would impede or redirect flood flows;
- expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- expose people or structures to inundation by seiche, tsunami, or mudflow.

#### **4.1.2 Discussion of Impacts**

##### **4.1.2.1 *Water Use***

As described in §3.3 of the EIR, the proposed ordinance in San José could result in an increased use of fresh water related to the manufacturing of paper bags. If this increase were to occur, it would be substantially reduced within two years when the \$.025 fee on paper bags becomes effective. It is just as probable that paper bag use would substantially decline during the same two years, as people adapt to the use of reusable bags.

Although the specific effects of the range of single-use bag regulatory programs currently enacted or being considered are unknown, it is theoretically possible that they could lead to a cumulative increase in paper bag use. It is also possible that the increase in paper bag use could be great enough that the simultaneous reduction in plastic bag use would not completely counteract some of the environmental effects of such an increase. If this is the case, the cumulative combination of single-use carryout bag regulations could lead to an overall increase in water use related to single-use carryout paper bag manufacturing.

Paper manufacturing plants that require substantial quantities of water are typically located in areas that have appropriate water supplies. Modern plants reuse incoming water multiple times, according to representatives of the paper industry, and clean it up between uses and prior to discharge. According to the Paper Industry Association Council, nearly 79 million tons of paper were produced in the U.S. in 2009.<sup>112</sup> An equally substantial quantity was manufactured in Canada and other countries. The increase of paper manufacturing resulting from bag regulation could be substantial if many or most of the regulations adopted throughout the U.S. allow for substantial and ongoing use of single-use carryout paper bags. If most of the jurisdictions adopt an approach similar to San José's, in which a fee that increases over time is charged for paper bag use, or perhaps which bans single-use paper carryout bags as well as plastic, then there will not be a cumulatively significant or permanent increase in paper manufacturing.

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<sup>112</sup> Paper Industry Association Council. "Paper and Paperboard Recovery". 2010. Accessed June 24, 2010. [http://www.paperrecycles.org/stat\\_pages/stat\\_intro.html](http://www.paperrecycles.org/stat_pages/stat_intro.html)

Since San José is proposing a program that will minimize the increase in single-use paper bag use, the project proposed for San José will not result in a cumulatively considerable contribution to a significant cumulative impact, should one occur. **(Less Than Significant Cumulative Impact)**

It is assumed that most of the paper manufacturing plants in the U.S. are in compliance with the national Clean Water Act. Any increases in water use at various paper plants would not be likely to result in a significant water quality impact at a plant that meets current national Clean Water Act standards for water discharged back into the environment. **(Less Than Significant Cumulative Impact)**

## **4.2 BIOLOGICAL RESOURCES**

Consistent with the thresholds used by the City in evaluating project-specific hydrology and water quality impacts, this analysis examines whether implementation of the cumulative projects would result in the following types of impacts:

### **4.2.1 Thresholds of Significance**

Consistent with the thresholds used by the City in evaluating project-specific biological resources impacts, this analysis examines whether implementation of the cumulative projects would result in the following types of impacts:

- 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;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- 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;
- 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; or
- conflict with any local ordinances protecting biological resources, such as a tree preservation ordinance.

### **4.2.2 Discussion of Impacts**

#### **4.2.2.1 *Tree Removal***

As stated in §3.2 of the EIR, the proposed ordinance in San José could result in a short term increase in paper bag use, which may also result in a short term increase in trees cut down for virgin material to manufacture the paper bags. The estimated increase could result in approximately 15-20,000 more trees cut down in a year; that number would be the commercially grown “pulp trees” typically grown in Canada. The paper bag industry representatives have said that most paper bags are made from commercially grown timber. These tree plantations are basically farms – the trees are planted, thinned, and managed until they are ready for harvest. Once harvested, the “crop” is replanted.

In most jurisdictions in California, mitigation for tree removals under CEQA is replanting the trees. This is typical of all except significant “heritage” type trees.

By the second year of San José's ordinance, the number of paper bags used and the harvesting of trees they are made from will decrease because the increase to a \$.25 fee on the single-use exempt paper bags is expected to reduce the number of single-use paper bags used back to existing conditions or fewer paper bags used. (This represents four one-thousandths of one percent of the wood processed each year for paper manufacturing.)

Although the specific effects of the range of single-use bag regulatory programs currently enacted or being considered are unknown, it is theoretically possible that they could result in a cumulative increase in paper bag use. It is also possible that the increase in paper bag use could be great enough that the simultaneous reduction in plastic bag use would not completely counteract some of the environmental effects of such an increase. If this is the case, the cumulative collection of single-use carryout bag regulations could lead to an overall increase trees cut down for paper bag manufacturing.

According to the Paper Industry Association Council, nearly 79 million tons of paper were produced in the U.S. in 2009.<sup>113</sup> The increase of paper manufacturing resulting from bag regulation would represent a small fraction of the overall paper manufacturing in the U.S. Tree plantations are replanted and new trees grown to replace them.

While the loss of trees is a negative impact, any increase related to the proposed ordinance in San José would be a relatively minor temporary increase in wood used for commercial paper manufacturing. The associated habitat loss from this small contribution to the cumulative impact would be mitigated by replanting the trees. **(Less Than Significant Cumulative Impact)**

**Conclusions:** The proposed regulation of single-use plastic and paper carryout bags will not result in cumulatively considerable contributions to cumulatively significant environmental impacts. **(Less Than Significant Cumulative Impacts)**

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<sup>113</sup> Paper Industry Association Council. "Paper and Paperboard Recovery". 2010. Accessed June 24, 2010. <[http://www.paperrecycles.org/stat\\_pages/stat\\_intro.html](http://www.paperrecycles.org/stat_pages/stat_intro.html)>



## 5.0 GROWTH INDUCING IMPACTS

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The *CEQA Guidelines* [Section 15126.2(d)] requires that an EIR discuss the ways in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in a surrounding area. Projects which could remove obstacles to population growth (such as a major public service expansion) must also be considered in this discussion.

The proposed ordinance would apply within the City of San José and would not result in an expansion of the urban service area or the pressure to expand beyond the City's existing Sphere of Influence. It would not open additional undeveloped land to further growth.

The proposed project, therefore, would not result in significant or adverse growth inducement.

**Conclusion:** The project would not directly result in population growth in the City of San José or induce new growth through the extension of new utilities or infrastructure.

## **6.0 ALTERNATIVES TO THE PROPOSED PROJECT**

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CEQA requires that an EIR identify alternatives to a project as it is proposed. The CEQA Guidelines specify that the EIR should identify alternatives that “will feasibly attain most of the basic objectives of the project but will avoid or substantially lessen any of the significant effects of the project.” The purpose of this section is to determine whether there are alternatives of design, scope or location that will substantially lessen the significant impacts, even if those alternatives “impede to some degree the attainment of the project objectives,” or are more expensive. [Section 15126.6]

In order to comply with the purposes of CEQA, it is important to identify alternatives that reduce the significant impacts that are anticipated to occur if the project is implemented and to try to meet as many of the project’s objectives as possible. The Guidelines emphasize a common sense approach -- the alternatives should be reasonable, should “foster informed decision making and public participation,” and should focus on alternatives that avoid or substantially lessen the significant impacts.

The discussion of alternatives should include enough information to allow a meaningful evaluation and comparison with the proposed project. The CEQA Guidelines state that if an alternative would cause one or more additional impacts when compared to the effects of the proposed project, the discussion should identify the additional impact, but in less detail than the significant effects of the proposed project.

### **6.1 SELECTION OF ALTERNATIVES**

The three critical factors to consider in selecting and evaluating alternatives are (1) the significant impacts from the proposed project that could be reduced or avoided by an alternative, (2) the project’s objectives, and (3) the feasibility of the alternatives available. Each of these factors is discussed below.

#### **6.1.1 Significant Impacts of the Project**

As discussed above, the CEQA Guidelines advise that the alternatives analysis in an EIR should be limited to alternatives that would avoid or substantially lessen any of the significant effects of the project and would achieve most of the project objectives.

This EIR did not identify significant unavoidable impacts from this project. It does, however, identify controversial statements made by opponents of the proposed project which suggest that a significant increase in single-use paper bags used in San José might occur because people would be prepared to pay a store charge for single-use paper bags with 40 percent recycled content when free single-use plastic bags are not available. The same comments postulate that manufacturing and distributing the paper bags would create more significant impacts than the impacts that would have occurred from manufacturing and distributing the plastic bags. These statements are suggested with, in some cases, no substantive factual support or, in other cases, based on the findings of life cycle analyses (LCAs) that are referenced in this EIR.

The preceding discussion of each area of impact describes the premises of the EIR analysis and its conclusions. An increase in the manufacture of 40 percent recycled content single-use paper bags may occur after the ordinance is passed. Because no ordinance like the one proposed has ever been implemented in a large California city (or any other city known to the City of San José), there are no-

fact based studies of what people will do when free single-use plastic carryout bags are no longer available but a single-use carryout paper bag can be purchased. The City's conclusions are therefore based on the limited experience of others and the City's own experience in implementing environmental programs requiring behavior changes over the last 25 years.

Due to increasing regulatory standards and the global nature of the marketplace, it is impossible for the City of San José to identify with any degree of accuracy what impacts might occur if more single-use paper bags with 40 percent post consumer recycled content are manufactured to meet a future demand in San José, compared to what is presently being manufactured. There is a great deal of information available on the impacts of manufacturing paper bags, but some of the reports examined are too old to be used to predict the future, much of the information conflicts, and a substantial quantity of the information that is available about paper manufacturing is incomplete. The reports, including LCAs, frequently do not identify the years of plant operation summarized; detailed quantities of pollutants are identified but no indication is given as to whether the pollutants were captured or released into the environment; and some of the assumptions incorporated into the life cycle analyses are not relevant to San José or most cities in California (such as assumptions that substantial quantities of single-use plastic bags are being recycled, and other percentages of the single-use bags would be incinerated). There is also no information on whether impacts from manufacturing the single-use paper bags would be significant in the environment in which they occur (for example, what constitutes a “significant” use of water in a location that has a plentiful supply of water?).

In the absence of accurate and specific information on what the impacts of increased paper bag manufacturing might be, it is also difficult to identify alternatives that might reduce those impacts. However, it is not the City of San José's objective to increase the use (or manufacture) of *any* single-use bags. The City's proposed ordinance is deliberately structured to minimize the likelihood of people switching to paper bags in that it requires store owners to charge for the exempt single-use carryout paper bags, precluding the past practice of passing along bag costs in the price of merchandise. The assumption is that human nature will limit the degree to which consumers will pay for a product they have assumed to be free in the past. This assumption is supported by the behavior of consumers in Washington D.C., who used between 50 and 80 percent fewer single-use bags (paper and plastic) when a nickel (five cents) charge was imposed on both.

The Boustead LCA, which is based on conditions in the United States and is relatively recent (probably prepared in 2006 or shortly before), concludes that greenhouse gas emissions (CO<sub>2</sub> equivalents) from the manufacture and use of single-use paper bags with 30 percent recycled content are 20 percent lower than those from single-use plastic bags up, until the paper bags are disposed.<sup>114</sup> The analysis also states that plastic bags will never degrade, which is technically not accurate, but it is correct that paper bags will break down in landfills and will then generate greenhouse gases more quickly than plastic. Eventually the paper bags will also break down. An alternative that would reduce or avoid that impact would be for the City to ban single-use paper bags from landfills.

Other sources of impacts associated with the manufacture of single-use paper bags are the use of substantial quantities of water and the pollution of water used. There was no current LCA found that explicitly reflected the current and future impacts of manufacturing paper in conformance with current regulations promulgated under the Federal Clean Water Act. One study that examined the differences in water and other pollutants when recycled paper is used instead of virgin feedstock found such substantial benefits from using recycled paper feedstock that it recommended that

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<sup>114</sup> Boustead, *op. cit.*, page 48.

regulators evaluate the feedstock as a means of meeting clean water standards, instead of just focusing on end-of-pipe standards.<sup>115</sup> That report was prepared more than ten years ago, however, and it is not known to what extent conditions have changed since then, although there are paper mills in the United States that use only recycled paper feedstocks. Additionally, input from representatives of the paper bag manufacturing industry have stated that water is routinely cleaned and reused in the manufacture of paper bags, substantially reducing the quantity of water actually “used” and the quantity of pollution discharged into the environment. No specific independently documented information is available about all paper manufacturing, although the factories making products from recycled paper in Santa Clara were documented by the City of San José as intensively recycling process water multiple times. Paper industry representatives state that the water is now routinely used multiple times and is cleaned and treated before being discharged back into the environment.

More bags are manufactured from recycled feedstock now than in the past and representatives of the paper bag industry have said that virtually all kraft bags currently sold in the United States contain recycled content. Paper manufactured in China and imported into the United States to make paper bags frequently contain higher percentages of recycled content because China does not have extensive forest resources to harvest for paper. Since the project proposes a minimum of 40 percent recycled content and since bags with more than 40 percent are already distributed in San José, the single-use paper bags sold under the proposed ordinance will have an average greater than 40 percent. No LCA examined evaluated a single-use paper bag with more than 30 percent recycled content. It is not possible to precisely estimate what impacts on water use and/or water pollution might occur from an increased demand for 40 percent post-consumer recycled content single-use carryout paper bags in San José. While, based upon City staff research, the current market can meet increased demand for 40 percent recycled content paper bags, the City is unable to confirm at this time that bags with an increased percentage of recycled content could also be supplied. Because of the size of the demand that could be generated in San José, it is reasonable to assume that, with sufficient notice, the industry could and would meet demand in San José. An alternative that would reduce any increased water use and water pollution from an increased demand for paper bags, should such an increase occur in San José despite a new fee being charged for single-use carryout paper bags, would be an ordinance that requires a higher percentage of post-consumer recycled content. This alternative is discussed below.

The proposed ordinance imposes a fee of \$.25 but defers collection of the full fee for two years. In the interim, a reduced fee of \$.10 would be collected. This is based on the belief that any fee, even a modest one, will influence people to bring reusable bags when shopping. In those jurisdictions where fees have been used, such as Ireland and Washington D.C., the fees have been effective in discouraging use of single-use plastic bags. This was true even in Denmark, where the fee was charged to the storekeepers and was not directly charged to shoppers.

An alternative that would preclude any increase in single-use paper bags would be to ban them as well as the plastic single-use carryout bags. Even if the increased numbers of paper bags would not result in impacts greater than those which are currently occurring, the manufacture of single-use carryout paper bags has impacts on the environment which would be reduced by not allowing them to be used in San José. This alternative is also discussed below.

The CEQA Guidelines advise that the alternatives analysis in an EIR should be limited to alternatives that would avoid or substantially lessen any of the significant effects of the project and would achieve most of the project objectives. No significant unavoidable impacts are predicted to occur

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<sup>115</sup> Press, Daniel, *op.cit.*

from implementation of the project as proposed. The greatest likelihood for such impacts would be related to an increase in paper bag use, assuming that consumers would be willing to pay a store charge for single-use paper bags to replace single-use plastic bags that are not available. A substantial increased demand for single-use paper bags, should it occur in San José, might result in increased secondary impacts associated with manufacturing those bags. Those impacts might include increased water use, increased water pollution, and tree removal related to paper manufacturing.

In addition, if local recycling programs did not recycle all, or substantially all of the increased number of single-use paper bags, there might be an increase in CO<sub>2</sub> equivalents generated by decomposition of the paper in sanitary landfills.

Alternatives should therefore be considered that could address these possible impacts.

### **6.1.2 Objectives of the Project**

While CEQA does not require that alternatives must be capable of meeting all the project objectives, their ability to meet most of the objectives is relevant to their consideration. The objectives of the City of San José in proposing an ordinance prohibiting the free distribution of single-use paper and plastic carryout bags include the following:

1. Minimizing the dedication of non-renewable resources to single-use carryout bags.
2. Facilitating the change in consumer behavior toward the use of reusable bags in San Jose.
3. Eliminating the use of the estimated 568 million single-use carryout bags per year by 2013 by regulating their free distribution at retail establishments.
4. Minimizing to the greatest extent feasible the amount of single-use carryout bag litter contaminating public and private property in San Jose, polluting streets, parks, sidewalks, storm and sewer systems, creeks and streams.
5. Minimizing to the greatest extent feasible the quantity of single-use carryout bag litter polluting streams and other water bodies in Santa Clara County and the San Francisco Bay Area, and contaminating the world's oceans.
6. Minimizing to the greatest extent feasible the presence of plastic bags in the City's recycling program, where they contaminate recovered material streams and clog processing equipment.

These objectives are fundamental to the adopted Zero Waste Strategic Plan and Green Vision, and they reinforce the City's adopted General Plan.

### **6.1.3 Feasibility of Alternatives**

CEQA, the CEQA Guidelines, and case law on the subject have found that feasibility can be based on a wide range of factors and influences. CEQA's general definition of feasibility is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Among the factors that may be taken into account in considering the feasibility of an alternative are "...site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations,

jurisdictional boundaries...and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site..." [Section 15126.6 (f)(1)].

#### **6.1.4 Alternatives Considered but Rejected**

##### Education, Recycling and Litter Control

Among the options considered by the City and the County Solid Waste Task Force was an offer/proposal by representatives of the plastic bag manufacturers (the American Chemistry Council, or ACC) to help fund an educational program about bags. The plastic bag manufacturers proposed as possible goals for such a program that it might increase plastic bag recycling, include provision for litter clean-up, and would therefore need to be a public education program to promote recycling and litter abatement. The ACC offered to help fund such a program if the City promised not to ban bags for two years.

City Staff evaluated such a program and reported on their findings in a staff report dated January 20, 2009, and subsequently in a memo dated August 7, 2009. The educational campaign to implement such a program would cost an estimated \$4.5 million to reach the San José target audience for reusable bags (costs for the entire county would be substantially more). In their analysis, staff pointed out that a similar campaign to persuade teenagers to quit smoking was an adjunct to a regulatory system that makes sale of tobacco to teenagers a crime; the reduction in teenage smoking achieved by the program was less than the reduction of single-use carryout bag use that could be expected with either a ban or a fee.

Without a long term, multimillion dollar budget, public education campaigns have not been proven to be an effective method for creating behavior change. As discussed elsewhere in this EIR, educational campaigns encouraging behavior change have been successfully managed for a number of environmental initiatives. In all cases, however, there was a well-planned support infrastructure that was implemented simultaneously. The desired behaviors were facilitated by the infrastructure, while the educational campaign provided context and reinforced the purpose of the program. Undesirable behaviors were discouraged by fees or fines, once the program was well accepted. Curbside recycling programs were tremendously successful in Santa Clara County, whereas the voluntary drop-off programs that preceded curbside collection resulted in much less materials collected.

Because this alternative is highly unlikely to successfully eliminate plastic bag litter or to increase the quantity of plastic bags successfully recycled, this alternative would be substantially less consistent with the project objectives, and would not be a feasible method of achieving any of the goals, since the City is experiencing severe budget problems and would be unable to fund such a program in the foreseeable future.

The point of this alternative program would be to get people to recycle plastic bags instead of discarding them as litter or sending them to landfills. The City of San José has more experience than nearly any city in the nation with collecting and recycling plastic bags from residents. For over 15 years the City struggled with plastic bag recycling, and finally decided to terminate promoting plastic bag recycling through the City's residential recycling program. Despite extensive public education and outreach, it was a struggle to get most residents to keep the plastic bags clean and to adequately separate plastic bags and plastic film for recycling (thereby keeping it clean enough to be recycled), and to process and market the material. Recycling plastic bags was not convenient for the public and has, therefore, never been successful. As reported earlier in this EIR, there were no recent buyers for

the material and the City's recycling facility operators have had to pay \$180 per ton to have the bales of plastic bags hauled away.

In addition to increasing labor and facility costs because the bags interfere with the operating machinery in the materials recovery facility, plastic bags become mixed with other recyclables, reducing the market value of the other commodities. In late 2008, a 1,400 pound bale of mixed paper was rejected by a recyclable commodities buyer because of excessive plastic contamination. Photo 13 illustrates the scale of that problem currently being dealt with in a nearby materials recovery facility in Alameda County. For all of these reasons, the City finally concluded that the nature of the product itself made recycling it infeasible.

As discussed in §2.1.2.3 of this EIR, the City of San José is expending substantial resources (\$4.9 million annually) on litter control already. As referenced above, it has spent 15 years trying to make plastic bag recycling work. The City considers itself an authority on the subject of managing single-use plastic bags in the urban waste stream based upon those 15 years of experience, and does not believe that an increased emphasis on recycling and litter control would be a feasible method of meeting the project objectives, particularly in light of the experience that occurred with past, similar programs.

**Conclusion:** This alternative would not be fully consistent with the project's objectives, would not be feasible, and to the extent that further delay in implementing source reduction would result in more single-use plastic bags entering the environment and polluting the ocean, as well as the streams and streets of San José, would also not be environmentally superior. It is not discussed any further in this EIR.

#### Exemption for Degradable Plastic Bags

The substitution of biodegradable, or otherwise degradable, plastic bags for the non-degradable plastic bags currently distributed at stores is often discussed when considering fees or bans on single-use bags. Biodegradable bags are seen as offering a solution to the litter problem associated with plastic bags because they break down in the environment. Biodegradable bags, however, pose other environmental problems that preclude their consideration as a viable alternative in the context of the proposed project. The following discussion summarizes the reasons that biodegradable plastic bags were not considered an environmentally superior alternative.

#### *Litter*

Although biodegradable bags would break down more quickly in the environment, thus reducing the environmental effects related to the persistence of plastic litter in the environment, this is only one aspect of the litter problem. The most efficient and effective way to reduce litter is to eliminate it at the source – otherwise, it is still litter. By replacing single-use plastic bags with biodegradable plastic bags, the long term visible presence of plastic litter would be reduced. Overall, however, plastic bag litter might actually increase slightly as consumers would not feel as guilty about littering biodegradable plastic bags because they break down. As several litter studies have shown, biodegradable materials such as paper still comprise a substantial portion of the overall litter content. Just because materials eventually break down does not mean they do not become litter.

## *Recycling*

Conventional plastic bags can be recycled into new products. While San José is not supporting or officially accepting plastic bags for recycling, they still arrive at the recycling facilities and they may still be included in mixed recycling programs elsewhere in the country. Biodegradable bags, however, when introduced into the recycling system, contaminate the plastic recycling stream and lower the quality of the end product. If items produced from recycled plastic contain a certain percentage derived from biodegradable bags, they will have inherently lower functional properties because the plastic will begin to degrade. The presence of biodegradable plastic in the recycling system could seriously compromise the recycled plastic industry, as consumers would be hesitant to purchase anything made from recycled plastic that needs to maintain its structural integrity, such as water-tight containers, conveyance mechanisms, or building materials.

Although some types of biodegradable bags, such as “oxo-biodegradable” bags, are reported not to damage the overall value of the reclaimed material, their large scale use as grocery bags has not been studied, and the effects of switching to this particular type of degradable bag are unknown. The European Plastics Recyclers report that “OXO-degradable additives” are incompatible with mechanical recycling and have the potential to pollute existing waste streams.<sup>116</sup> If several types of both conventional and degradable plastic bags were to be present in the recycling system, maintaining clear separation of valid and invalid materials would probably be impossible. Oxo degradable bags also emit CO<sub>2</sub> when they break down, and could therefore have substantial impacts on global climate change.

Biodegradable bags are intended to be suitable for composting. Although most biodegradable plastics will not compost in home composting systems, they will break down in “industrial” compost facilities. While many jurisdictions do not have access to such facilities, the City of San José is served by a composting operation that could presumably process the bags.

## *Resource Consumption*

The first objective of the proposed project, “Minimizing the dedication of non-renewable resources to single-use carryout bags” would not be supported using degradable bags. Some LCAs found degradable plastic bags have worse environmental impacts than conventional plastic bags in the areas of energy use and greenhouse gas emissions over the life span of the product.

Virtually all LCAs consulted for this EIR concluded that reusable bags are the environmentally preferable option. Encouraging the use of degradable plastic single-use bags that could be more environmentally harmful in certain areas than bags that are currently distributed would not be consistent with project objectives, particularly objectives to encourage use of reusable bags, minimizing carryout bag litter, and minimizing the presence of plastic bags in the City’s recycling program. This alternative would not be environmentally superior to the proposed project.

## *Degradation Products*

According to a report prepared for the Australia Department of Environment and Heritage, “the degradation of a range of biodegradable plastics can result in a wide range of degradation products and residues which can be toxic, contribute to the biological oxygen demand (BOD) and chemical

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<sup>116</sup> European Plastics Recyclers. *Press Release - OXO Degradable Additives are Incompatible with Mechanical Recycling*. June 10, 2009.



oxygen demand (COD) of water bodies, and the impacts of which are largely unknown.” According to a report prepared for the Scottish Executive, the Marine Conservation Society (MCS) reports that any littered bioerodable bags based on HDPE will still cause problems to wildlife as they will break down into smaller pieces that can be ingested. This assertion is questioned by representatives of the plastics industry, who suggest that degradation to carbon dioxide, water and humus is likely and that, should an animal ingest these smaller pieces, the degradation process will actually continue in its gut. This issue is not one the City of San José is able to reconcile with the project’s objectives, nor with the City’s specific areas of responsibility.

**Conclusion:** This alternative would not be consistent with the project’s objectives to facilitate use of reusable bags, minimize single-use carryout bag litter, and minimize adverse effects on the City’s recycling program; would probably not be feasible because the bags are not widely available, and based on available information, would not be environmentally superior. It is not discussed any further in this EIR.

#### Rebate for the Use of Reusable Bags

While a rebate on customers’ purchases for the use of a reusable bag may encourage the use of reusable bags and even increase their use above current levels, it is unlikely that the use of single-use bags would decrease enough to achieve any of the project’s identified objectives, based on the following information. Currently, many stores offer a five cent rebate for each reusable bag used. This has had minimal effect on customer behavior. A larger rebate might result in a larger increase in the use of reusable bags. The source of funding for a large-scale rebate system, however, would be problematic. If the rebate was 25 cents, millions of dollars in funding would be required in San José to meet the goals anticipated for the proposed project. No source of funding has been identified and the City is unable to commit to such a substantial cost in the foreseeable future, given current budgetary problems and constraints being experienced by the City.

**Conclusion:** This alternative would not be feasible. It is not discussed any further in this EIR.

#### Fee on Single-Use Paper and Plastic Bags

Another approach considered in the ordinance development process was a fee on both paper and plastic single-use bags distributed at the point of sale in the City of San José. Like the currently proposed ordinance, bags used by customers or the store to protect or contain meat, fresh produce, food prepared or packaged at the establishment, or other goods that must be protected from moisture, damage, or contamination, and that are placed in a single-use carryout bag at the point of sale would be excluded. Charitable reuse stores, restaurants, take-out food establishments, or any other businesses that receive most of their revenue from the sale of food prepared or packaged at the establishment would also be exempt from the ordinance.

While it is difficult to project with any accuracy the behavioral changes that would result from a fee on both paper and plastic single-use bags, information on the most recent experience in Washington D.C., which enacted a fee on both types of single-use bags, shows a reduction of 50 to 80 percent in single-use bags the first month.

Both the impacts and the benefits from a fee on both types of single-use bags could therefore be similar to those from the proposed project, greater, or less. It is likely, however, that there would be more plastic bags in use because they would still be available.

AB 2449 requires all California grocery stores to take back and recycle plastic grocery bags. Under that legislation (which is still law in California), however, no city, county, or other public agency is allowed to impose a plastic carryout bag fee upon a store that is in compliance with the statute.

Because a fee on plastic bags could not be imposed on any stores in compliance with the statute, which is assumed to include most major grocery and drug stores, a fee on plastic bags would largely be ineffective. It would also not eliminate single-use plastic bags as completely as a ban, so plastic bag litter is likely to still occur. Because San José would be unable to levy a fee on most single-use plastic bags distributed in the City, this alternative is infeasible. AB 2449 expires in 2013. This alternative could become feasible when AB 2449 expires, or prior to that date if the legislation is repealed.

**Conclusion:** This alternative would not be feasible and is not environmentally superior. It is not discussed any further in this EIR.

Given the information provided above, the alternatives to the proposed project that were selected for further analysis in this EIR include: (1) Landfill Bans: This is the ordinance as currently proposed banning single-use plastic carryout bags, with a ban on the disposal of single-use paper bags and/or recyclable paper from landfills in the City of San José, (2) Higher Recycled Content in Single-Use Paper Bags: This is the ordinance as currently proposed with a requirement for a higher percentage of recycled content in single-use exempt paper bags, and (3) Ban on All Single-use Bags: This would be a ban on all single-use carryout bags, both paper and plastic. The comparative impacts of these three alternatives and the No Project alternative required by CEQA are each discussed below.

## 6.2 NO PROJECT ALTERNATIVE

The CEQA Guidelines require that an EIR include a “No Project” alternative, which addresses both “the existing conditions, as well as what will be reasonably expected to occur in the foreseeable future if the project is not approved, based on current plans and consistent with available infrastructure and community services.”

The “No Project” alternative in relation to the proposed ordinance would be the continuation of existing conditions where there is no regulation of single-use carryout bags distributed at the point of sale in the City of San José. Without adoption of the proposed ordinance, various negative environmental effects associated with single-use paper and plastic bags, such as resource consumption, water pollution, death and injuries to marine mammals and other wildlife, and litter, would continue at the same rate as currently exists.

**Conclusion:** Although the No Project Alternative would not introduce new impacts substantively different than what already exists, it precludes the reduction of plastic bag litter. Over time, the quantity of plastic bag litter is likely to increase with population increases, and the impacts it causes will increase as well.

## 6.3 LANDFILL BAN ALTERNATIVE

The City of San José is proposing an ordinance that bans the distribution at the point of sale in retail establishments of single-use carryout plastic bags, which are currently handed out in the City at the rate of 1.4 million bags per day. Single-use plastic bags could not be given away to customers at the checkout stand in retail businesses in San José. This alternative would include the ordinance as presently proposed, plus a further amendment to the City’s Municipal Code that would prohibit the

disposal of single-use paper carryout bags in any sanitary landfill in San José. The ordinance could just cover bags, or it could prohibit the landfilling of any paper or paper product that is readily recycled (white office paper, paperboard, cardboard, etc.).

There are currently three sanitary landfills operating in San José that accept all types of municipal solid waste for landfill burial, including both residential and commercial garbage: Newby Island, Kirby Canyon, and Guadalupe Mines. The two Zanker landfills receive some paper and cardboard in commercial waste and construction debris loads, much of which is separated at the sites for recycling. Zanker Road Landfill is not permitted to accept garbage, only construction and demolition debris and other dry wastes, while Zanker Material Processing Facility may accept garbage for disposal, but is not under contract with any jurisdiction to do so. The City is the Local Enforcement Agency (LEA) for the landfills and is therefore responsible for overseeing the landfills' compliance with their existing permits as well as other relevant laws and regulations.

A ban is suggested because the experience in other jurisdictions has been that landfill bans are very clear and straightforward and people understand them. According to information on the CalRecycle website, 23 states ban some or all yard waste, as does Alameda, San Diego and Sonoma Counties. Other materials banned by landfills include construction and demolition debris, newspaper, magazines, corrugated cardboard, computer and office paper, and other materials routinely recycled.

The City of Morgan Hill, which does not have a landfill within its corporate boundaries, forbids putting cardboard or yard waste into a container intended to be disposed at a landfill.

Virtually all jurisdictions, including the State of California, have regulations or laws prohibiting hazardous materials and items such as whole tires from being disposed in landfills. California bans landfill disposal of large metal items, such as large appliances.

There are various ways to regulate landfill bans – laws can (and do) (a) forbid a landfill from accepting banned materials, (b) prohibit haulers from delivering banned materials to a landfill for the purpose of disposal, and/or (c) forbid generators from placing banned materials into a container for disposal at a landfill. Likewise, enforcement of a ban can occur at any point in the handling and/or disposal process.

For the purposes of this EIR, the alternative is assumed to be the proposed project with the addition of a ban on single-use paper bags being disposed at sanitary landfills in the City of San José. No assumptions are made about the nature of the regulation or the type of enforcement.

### **6.3.1 Comparison of Environmental Impacts**

As discussed above, no significant unavoidable impacts were identified as resulting from the proposed project. There are however a number of impacts that could result from the project if (1) the citizens of San José were to behave differently than they have in the past in implementing a new environmental initiative, (2) a substantial increase in the number of single-use paper bags distributed by businesses in San José were to occur, and (3) significant adverse impacts of manufacturing those bags at various possible unidentified locations were to occur. The impacts could include increased water use, increased water pollution, increased air pollution, and increased energy use.

It should be kept in mind that water and air pollution are both regulated by the federal government and the paper bag industry has already stated that most paper manufacturing now reuses water multiple times before it is cleaned and discharged back into the environment. Paper bag

manufacturers also report that most of the energy used to produce unbleached kraft paper from woodchips is renewable energy derived from waste forest products and from the byproducts of paper pulping.

Increasing the amount of paper that is recycled and reducing the amount of paper that is landfilled would result in less material delivered to sanitary landfills for disposal under both the residential waste collection contracts and commercial waste hauling franchises in the City of San José. It would also result in an increase in material that is hauled to material recovery facilities for processing and recycling. Since the amounts would be balanced (between the reduction in landfilling and the increase in recycling), it is unlikely that any significant changes would occur in the amount of energy required to haul the materials within the City of San José. There would be a substantial decrease in the generation of greenhouse gases and other landfill gases from paper decomposing in the landfills, and an incremental increase in the exhaust from vehicles hauling the paper to outlying locations for processing. There are two paper recycling plants in the City of Santa Clara, but it is unlikely that all of the recovered paper would go there because both plants are already operating at viable capacities.

This substantial increase in paper available for recycling and manufacturing into new paper products would reduce the impacts associated with creating equivalent volumes of products from virgin materials. This would include reduced water use, reduced water pollution, and reduced air pollution. It cannot be determined from available information whether there would be a reduction in energy consumed.

There would be a reduction in leachate produced at the landfill from decomposing paper.

### **6.3.3 Relationship to Project Objectives**

Increasing the amount of paper bags and/or other paper and paper products that is recycled in San José's recycling program is fully consistent with all of the City's objectives and with established policies including the Green Vision and Zero Waste Strategic Plan.

### **6.3.4 Feasibility**

A landfill disposal ban could include the following provisions:

Disposal of single-use paper carryout bags and other unbleached kraft paper, such as corrugated cardboard containers, in garbage carts or bins would be prohibited, except for paper bags used to dispose of pet wastes or other materials not acceptable in the City's recycling and composting programs:

- Clean and dry paper bags and boxes must be placed in recycling carts and bins or recycled in some other manner;
- Wet paper bags and bags and boxes contaminated with food wastes must be placed in containers provided for food wastes, where such programs are in place; and
- Where composting programs are not yet in place for bags and boxes that are wet or contaminated with food wastes, disposal in garbage carts would still be permitted,.

Landfilling paper carryout bags and other kraft bags and boxes by disposal facility operators would be prohibited, except for paper bags containing pet wastes or other materials not acceptable in the City's recycling and composting programs.

Implementing a comprehensive ban on paper carryout bags and other kraft bags and boxes would be difficult and would require several years to become effective for the following reasons:

- The current system for collection of yard trimmings from single-family homes (with piles of green waste set out loose in the street) does not allow for collection of food wastes or food-contaminated paper except on a small number of pilot routes; provision of food waste collection service using carts is not expected to be provided to all residents until sometime after 2013.
- The current contract for composting residential yard trimmings does not provide for co-collection of food wastes and food-contaminated paper—composting mixed organic wastes would require use of a much more expensive process and expansion of the facilities that are able to provide such service locally;
- Implementing a ban at a multitude of disparate commercial establishments (restaurants, hotels, office buildings, medical facilities, etc.) would be very difficult due to the multiple user types and outreach audiences and the large number of franchised service providers;
- Enforcement of a disposal ban at the waste generator level would require inspection of the contents of carts and waste bins, since non-compliance would not be readily apparent (as opposed to the store-based regulation of carryout bags, where non-compliance would be obvious to a casual observer); the City does not have the resources to perform such enforcement;
- A disposal ban intended to be enforced at landfills within the City is impracticable due to the large portion of waste received from outside San Jose, much of which is delivered under long-term municipal contracts, or which is delivered by independent haulers not directly regulated by the City; although disposal bans on large items such as tires and appliances, can be readily enforced by landfill staff, and such items can be pulled from the disposal area after they are dumped, enforcing a ban on paper bags delivered in mixed loads and enclosed garbage trucks would be extremely difficult;
- A significant portion of the City's commercial wastes is currently hauled to landfills outside San Jose, over which the City has no regulatory authority and no ability to inspect or enforce local ordinances.

**Conclusion:** This alternative may be environmentally superior to the proposed project and is consistent with the City objectives. However the landfill ban alternative would still allow the distribution of single-use paper bags, which is less environmentally preferable than an outright ban on single-use paper bags (Alternative 6.5), in that energy and resources would still be used to make and recycle them. In addition, the landfill ban would create the need for additional City staff to administer and enforce an expanded regulatory program, making this alternative more costly to implement.

#### **6.4 INCREASED RECYCLED CONTENT IN SINGLE-USE PAPER BAGS**

While the City of San José could set a different and higher standard for the quantity of recycled content in single-use exempt paper bags, City staff has done research to confirm that 40 percent recycled content bags can be supplied in sufficient quantities to meet demand in San José. At the present time, bags are manufactured with higher recycled content (up to and including 100 percent) but they are not manufactured in sufficient numbers to replace current single-use paper bags in San José.

With sufficient notice, the supply could probably be increased as private companies adjust their business activities to respond to increased demand, and the availability of higher recycled content paper bags is likely to increase substantially in the future.

**Conclusion:** This alternative is not, therefore, feasible at the present time because there is not sufficient higher recycled content paper bags available to meet demand in San José, but it may be considered by the City in the future.

## **6.5 BAN ON ALL SINGLE-USE CARRYOUT BAGS ALTERNATIVE**

One approach considered in the ordinance development process was a ban on all single-use bags distributed at the point of sale in the City of San José. Like the currently proposed ordinance, bags used by customers or the store to protect or contain meat, fresh produce, food prepared or packaged at the establishment, or other goods that must be protected from moisture, damage, or contamination, and that are placed in a single-use carryout bag at the point of sale would be excluded. Restaurants, take-out food establishments, or any other businesses that receive most of their revenue from the sale of food prepared or packaged at the establishment would be exempt from the ordinance. Charitable reuse stores would also be exempt.

All other single-use paper and plastic carryout bags would be banned, however, from distribution at all other retail establishments.

### **6.5.1 Comparison of Environmental Impacts**

Because this alternative would eliminate the distribution of nearly all single-use carryout bags in San José, impacts would be beneficial in virtually every environmental indicator. Any effects related to an initial increase in the use of paper bags would be avoided under this alternative.

#### **6.5.1.1 *Land Use/Aesthetics***

While multiple jurisdictions around the world have banned plastic bags, a ban on both paper and plastic bags has yet to be implemented on a large scale in any location. The effects of a ban on all single-use bags, therefore, are relatively unknown. It can be assumed that reusable bags would become the main method used by customers to transport goods from retail establishments to their residences – a situation that existed in most of Europe until fairly recently. Stores may also make available used boxes and packaging, such as already occurs at some warehouse stores and was a common practice in the U.S. 50 years ago (and the source of the term “box boy”). In either instance, the reuse of items for the transport of goods is environmentally preferable to the use of new bags for each purchase.

Physical impacts to stores would be minimal. Plastic and paper bags would no longer have to be shipped to and stored in retail establishments, using up less space in both delivery vehicles and stores. Some of the vacant storage space could be occupied with reusable bags that the store may give away or sell (most stores are selling a wide variety of reusable bags in the San José area already). Because reusable bags are by their very nature and purpose reused multiple times, significantly fewer total bags would be necessary. Physical impacts from changes in delivery patterns would be minimal and primarily beneficial. While fewer single-use bags would be delivered to the stores, the same trucks would still be making the same rounds since those trucks deliver other merchandise to the stores. It is likely that the vendors would stock other merchandise for delivery, or might add other stores to the same routes, allowing for more efficient routing. Less fuel would be

required to deliver bags. No physical changes would be required to the stores, their delivery arrangements, or the outside layouts of the business sites.

#### **6.5.1.2 Litter**

A reduction in the 568 million single-use paper and plastic bags handed out to shoppers in San José each year, either completely or by a substantial percentage, would directly result in a substantial reduction in the quantity of paper and plastic litter. A reduction in the number of paper and plastic bags discarded outside would reduce the amount of paper and plastic litter on and around the retail business properties that hand out the bags, in the streets of San José, accumulated on public and private property in and around San José, and in the creeks and streams in and around San José. Since paper does not last long in water, the ordinance would primarily reduce the amount of plastic litter that accumulates and remains in creek channels, and in San Francisco Bay and the Pacific Ocean. Since the cities of Santa Clara County are well integrated and connected by a continuous network of roadways and drainages, there could still be some single-use carryout bags in the streets and streams of San José, even if San José bans their use completely. Only a unified program that is adopted by all or most of the cities will effectively eliminate that source of litter. But a program that significantly reduces or eliminates the 568 million single-use carryout bags handed out in the biggest city in northern California will substantially reduce the number that becomes litter in the streets, parking lots, parks, and open spaces. Any substantial reduction in litter would have beneficial aesthetic and land use impacts.

#### **6.5.1.3 *Biological Resources***

A substantial reduction in the number of single-use carryout bags, especially plastic bags, would produce a reduction in plastic litter entering local waterways and flowing to San Francisco Bay. This would have a beneficial impact on wildlife dependent upon those ecological systems, including the wildlife such as birds, fish, reptiles and amphibians that live in the riverine and riparian habitats and adjacent lands, and in the streams and Bay.

A ban on both paper and plastic bags could not lead to even an incremental increase in paper bags, which might occur with the proposed ordinance. No impacts associated with a possible increase in paper bags would not occur under this alternative.

#### **6.5.1.4 *Hydrology and Water Quality***

A ban on both paper and plastic bags would reduce the proliferation of paper and plastic litter into waterways, as bags would no longer be available. It would also reduce the amount of water used in the manufacturing of both paper and plastic single-use carryout bags, and the amount of water pollution that is created by that manufacturing.

A ban also would likely result in a larger and immediate increase in the quantity of reusable bags used in San José than is likely to occur under the proposed ordinance. Many types of reusable bags are made from woven cloth, and can be laundered. Most of the newer reusable bags being given out by local merchants are plastic, frequently polypropylene. These durable plastic bags can be wiped clean with a sponge. An increase in the laundering of reusable bags could lead to an increased demand for water. A survey made by plastic bag manufacturers in Canada, and an informal users' survey conducted during preparation of this EIR failed to identify anyone that washed their reusable grocery bags more often than once a month. Most people questioned had never washed their bags.

Since the bags would typically be part of a larger laundry load, the increase in water use resulting from reusable bag laundering would be negligible.

A ban on both paper and plastic bags would not lead to any increase in the use of paper bags or any incremental impacts.

#### **6.5.1.4**      *Utilities and Service Systems*

A ban on both paper and plastic bags would result in a decrease in both litter and solid waste deposited in landfills to a greater degree than the proposed ordinance. A substantial reduction in the overall quantity of plastic and paper bag litter also would reduce the quantity of that litter that enters municipal storm drains and catch basins. Less litter would reduce localized flooding from backups in the storm drains and catch basins, and would reduce the pollution and clogging of the stormwater lines that drain public streets and private property throughout the City.

A complete ban would increase the use of reusable bags in San José to a greater degree than the proposed ordinance. Some types of reusable bags can be laundered. An increase in the laundering of reusable bags could lead to an increased use of potable water. Since few if any families have (or are likely to ever have) a large supply of reusable shopping bags that would all require laundering at once, most bags are washed in mixed loads as one is soiled. Additionally, such bags are not washed often (the most frequent washing identified has been once a month). The incremental impact of adding a few shopping bags to mixed laundry loads a few times a year will not substantially increase the use of potable water or the generation of wastewater. Further reducing the likelihood of the ban causing a significant increase in water use, most of the new reusable bags being distributed by local businesses are plastics that can be easily cleaned with a damp sponge.

#### **6.5.1.5**      *Transportation*

A ban on all single-use carryout bags would result in a reduction in the overall trips related to bag delivery. Because reusable bags are used multiple times, a much smaller total number of reusable bags would be required, negating the impacts of any increased trips due to the heavier weight and larger dimensions of reusable bags that might require more delivery truck space. For this reason, a complete ban would have a beneficial transportation impact.

#### **6.5.1.6**      *Hazardous Materials*

The manufacture of reusable bags will sometimes result in increased use of hazardous materials, especially associated with plastics processing and sometimes with the growing and/or processing of natural fibers.

A ban on single-use bags would be specifically intended, like the proposed project, to increase the use of reusable bags. As discussed in §3.0, some of the reusable bags may generate adverse effects (including impacts resulting from the use of hazardous materials) from one or more aspect of their manufacture or distribution. Some of the impacts from the manufacture or distribution of one or more of these reusable bags may be greater per bag than the impacts from the manufacture or distribution of any one single-use bag. There are a great many different kinds of reusable bags currently available on the market, and the patterns of which bags are widely distributed and common change fairly often over time. The popular alternative bag in the United States 15 years ago was cotton canvas (Photo 31). The canvas bags last many years and many are still in common use. String bags made of cotton, hemp, and other fibers are widely available in Europe and are





Photo 31 - Reusable Cotton Bags from 1987-1994

increasingly available in the U.S. (Photo 24). Reusable bags made of plastics including PET, LDPE, and polypropylene are now becoming widely available.

Because reusable bags are sturdier, they require more material and a more rigorous manufacturing process. There is such a wide variety of the bags, it is impossible to identify exactly how many uses per bag is required to offset the impacts of using a single-use carryout plastic bag once. In one of the LCAs prepared (for Carrefour), a comparison was made between the impacts of a single-use HDPE bag and a reusable LDPE bag. The comparison found that by the fourth use, the impacts per use of the reusable bag were lower than those of the single-use bag.

While widespread use of reusable bags may result in an increase in certain hazardous materials used in some industries producing material for reusable bags, the product generated (a reusable bag) will last much longer and be used many more times than the single-use plastic or paper bag it replaces – both of which also resulted in the generation of hazardous materials. The impacts per time of use (or per pound of materials carried) will, therefore, be substantially less over the lifetime of the reusable bag.

#### **6.5.1.7**      *Air Quality*

A ban on both paper and plastic bags would substantially reduce or eliminate all single-use carryout bags, compared to the possibility of some ongoing use of single-use recycled content paper bags, which could occur with the proposed ordinance. Reusable bags were found to have lower air quality emissions per use than both paper and plastic bags in virtually every LCA, and the more often each reusable bag is used, the less impact per use accrues. A ban on all single-use bags would result in most consumers switching to reusable bags. A ban on all single-use bags, therefore, would result in an overall decrease in air quality emissions from bag use. This would be a beneficial environmental impact.

#### **6.5.1.8**      *Public Services*

To the extent that the proposed ordinance may incrementally reduce the resources required to keep litter cleaned up on school campuses, in public parks, and on the grounds of other public facilities (*e.g.*, in the landscaping and on the grounds of libraries, fire stations, etc.), it may free up staff and funding to maintain other parts of the facilities. A ban on all single-use bags would achieve this beneficial impact to a greater degree.

#### **6.5.1.9**      *Energy*

A ban on all single-use bags would result in most consumers switching to reusable bags, which have a lower energy requirement than both paper and plastic bags over the lifespan of the product. For this reason, a ban on all single-use bags would result in a beneficial environmental impact on energy use.

### **6.5.1.10**      *Climate Change*

Because all types of single-use bags result in greater climate change emissions than reusable bags over the lifespan of the product, and because the proposed ordinance would allow customers to pay a fee for single-use paper bags instead of using reusable bags, a ban on all single-use bags would result in fewer emissions over time than the proposed ordinance. For this reason, a ban on all single-use bags would result in a beneficial environmental impact.

### **6.5.2**            **Relationship to Project Objectives**

Some of the project objectives relate to reducing the proliferation of litter in San José. A ban on all single-use bags would meet these objectives by eliminating two sources of litter, single-use paper and plastic bags. It would also reduce the dedication of resources to ephemeral uses, including paper, plastic and the energy required to transform them.

Many single-use paper bags contain recycled content. Under the proposed ordinance, paper bags would be required to contain at least 40 percent recycled material. By substantially reducing the distribution of paper bags containing recycled content in San José, a full ban would slightly reduce the overall market for recycled goods collected in the City's curbside recycling programs.

### **6.5.3**            **Feasibility**

There are no known impediments to the adoption of a ban on all single-use carryout bags. A complete ban on all single-use bags would require a dramatic and virtually instantaneous shift in consumer behavior. Consumers would need to acquire reusable bags or other means of transporting goods from stores to their homes, and would have to form the habit of bringing reusable bags or other containers with them whenever they go shopping. Conceivably, customers could buy disposable bags themselves and throw them away, but most people assign a higher value to products they pay for and not many will buy bags in sufficient quantities to keep throwing them away.<sup>117</sup> A substantial education campaign would be required initially to inform consumers of an upcoming ban, and measures would need to be taken to ensure that consumers of all income levels would have access to adequate quantities of reusable bags to minimize demand for paper bags. There are well established businesses (such as Costco and similar stores) that do not offer any bags to customers, although boxes may be available. Although it could result in an incrementally greater disruption to some consumers' lifestyles than the proposed ordinance, a ban on all single-use bags is feasible.

**Conclusion:** This alternative is environmentally superior to the proposed project because it would eliminate two sources of litter without increasing the impacts of manufacturing any more single-use bags, paper or plastic. It is compatible with all of the City's objectives for the project, and is more compatible than the proposed ordinance with the third objective: Eliminating the use of the estimated 568 million single-use carryout bags per year by 2013 by regulating their free distribution at retail establishments.

The feasibility of this alternative project would depend in part on its economic implications and impacts, and the degree to which retail stores could factually support a contention that having no single-use bags available for customers, even for a fee, would hurt their businesses.

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<sup>117</sup> There are products such as toilet paper and paper towels that are purchased to be used once and discarded. The purpose of the product is that it is undesirable after use, however, and even paper towels are now advertising that they can be reused!

## **6.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

The CEQA Guidelines state that an EIR shall identify an environmentally superior alternative. The Ban on All Single-Use Carryout Bags would avoid all of the potentially significant impacts, or reduce them to less than significant levels. Since a ban on all single-use bags would result in the greatest environmental benefit, the Ban on All Single-Use Carryout Bags Alternative would be the Environmentally Superior Alternative.

## **7.0 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES**

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This section was prepared pursuant to CEQA Guidelines Section 15162.2(c), which requires a discussion of the significant irreversible changes that would result from the implementation of a proposed project. Significant irreversible changes include the use of nonrenewable resources, the commitment of future generations to similar use, irreversible damage resulting from environmental accidents associated with the project, and irretrievable commitments of resources.

The proposed project will reduce the use of nonrenewable resources in the long term and therefore will not cause further significant irreversible environmental changes through continued use of oil for an ephemeral purpose.

## **8.0 SIGNIFICANT UNAVOIDABLE IMPACTS**

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If the project is implemented as proposed, it would not result in any significant unavoidable impacts.

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