

City of Long Beach

# Plastic Carryout Bag Ordinance

## Addendum to the Ordinances to Ban Plastic Carryout Bags in Los Angeles County Final EIR

*April 2011*



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## INTRODUCTION

This document is an addendum to the Ordinances to Ban Plastic Carryout Bags in Los Angeles County Final Environmental Impact Report (EIR) that was adopted by the County of Los Angeles Board of Supervisors on November 16, 2010 (SCH #2009111104). As one of the 88 incorporated cities within Los Angeles County, the City of Long Beach proposes an ordinance to ban plastic carryout bags consistent with the ordinance analyzed in the County's Final EIR and adopted by the Board of Supervisors. The addendum is required to address the possible environmental effects associated with adoption of such an ordinance within Long Beach. The proposed ordinance within Long Beach would ban plastic carryout bags at all supermarkets and other grocery stores, pharmacies, drug stores, convenience stores, food marts, and farmers markets and would place a ten (10) cent charge on the issuance of recyclable paper carryout bags by an affected store, as defined. The ordinance would also require a store to provide or make available to a customer only recyclable paper carryout bags or reusable bags.

According to Section 15164 of the *California Environmental Quality Act (CEQA) Guidelines*, an addendum to a previously adopted Final EIR is the appropriate environmental document in instances when "only minor technical changes or additions are necessary" and when the new information does not involve new significant environmental effects beyond those identified in an adopted Final EIR. The change being contemplated involves adopting a Plastic Carryout Bag Ban Ordinance in the City of Long Beach that is similar to the County's adopted Ordinance. The City is one of the 88 incorporated cities that were included in the EIR analysis for the County's Ordinance. The City would adopt the County's Plastic Carryout Bag Ordinance with a few minor changes that are specific to Long Beach. These minor revisions are discussed below in the project description. The City's proposed Ordinance would have no new significant environmental effects beyond those identified in the County's Certified EIR. Since the proposed Ordinance does not require substantial changes to the County's Ordinance, major revisions of the EIR analysis are not warranted. As such, a subsequent EIR pursuant to Section 15162 of the *CEQA Guidelines* would not be warranted and an addendum is the appropriate environmental document under CEQA.

This addendum includes a description of the currently proposed Ordinance in Long Beach and a comparison of the impacts of the proposed Ordinance to those identified for the County's approved Ordinance, which was studied in the Final EIR that was certified on November 16, 2010.

## PROJECT DESCRIPTION

The proposed Plastic Carryout Bag Ordinance ("Ordinance") would ban the issuance of plastic carryout bags and impose a ten (10) cent charge on the issuance of recyclable paper carryout bags at all supermarkets and other grocery stores, pharmacies, drug



stores, convenience stores, foodmarts, and Long Beach farmers markets. The Ordinance would require a store to provide or make available to a customer only recyclable paper carryout bags or reusable bags. The Ordinance would also encourage a store to educate its staff to promote reusable bags and to post signs encouraging customers to use reusable bags. The stores that would be affected are located within the City limits and include the following:

1. A full-line, self-service retail store with gross annual sales of two million dollars (\$2,000,000), or more, that sells a line of dry grocery, canned goods, or non-food items and some perishable items; or
2. A store of at least 10,000 square feet of retail space that generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law (Part 1.5 [commencing with Section 7200] of Division 2 of the Revenue and Taxation Code) and that has a pharmacy licensed pursuant to Chapter 9 (commencing with Section 4000) of Division 2 of the Business and Professions Code; or
3. A drug store, pharmacy, supermarket, grocery store, convenience store, food mart, of other entity engaged in the retail sale of a limited line of goods that includes milk, bread, soda, and snack foods, including those stores with a Type 20 or 21 license issued by the Department of Alcoholic Beverage Control.

The Ordinance includes compostable and biodegradable plastic carryout bags in the definition of plastic carryout bags, and, as a result, these types of plastic bags would be banned as well. The Ordinance would impose a ten (10) cent charge on the recyclable paper carryout bag and requires that the paper bags be one hundred percent (100%) recyclable overall, contain a minimum of forty percent (40%) post-consumer recycled material, and be accepted for recycling in curbside programs in the City/County, among other criteria. With respect to reusable bags, the Ordinance would require that the reusable bag be designed for a minimum lifetime of 125 uses, be machine washable, and not contain lead, cadmium, or any other heavy metal in toxic amounts, among other criteria.

The Ordinance would exempt from the ten (10) cent charge those customers who are participating either in the California Special Supplemental Food Program for the Women, Infants, and Children or the Supplemental Food Program. Stores must provide at the point of sale, free of charge, either reusable bags or recyclable paper carryout bags or both, to these customers, at the store's option. Plastic bags that are a minimum of 2.25 mils thick and are used by many stores are considered to be reusable bags, per the definition in the ordinance. Customers may also opt to use their own reusable bags or not use any bag.



The differences between the City's proposed Ordinance and the ordinance adopted by the County include the following:

- Under the City's Ordinance the plastic bag ban would also apply to farmers markets, whereas the County's Ordinance does not specify farmer's markets.
- Under the County's Ordinance stores affected by the ordinance must provide quarterly reports to the Director of Public Works that summarize the money collected for recyclable paper carryout bags and the efforts undertaken to promote the use of reusable bags. Under the City's Ordinance, affected stores are required to keep complete and accurate records of the money collected for recyclable paper carryout bags for a minimum of three years. The record shall be available for inspection at no cost to the City during regular business hours by any City employee authorized to enforce the Ordinance.
- The City's Ordinance would take effect for stores with gross annual sales of \$2 million or more and stores of at least 10,000 square feet on August 1, 2011. This date is one month later than the July 1, 2011 operative date in the County's Ordinance. For stores of less than 10,000 square feet, the City's Ordinance would take effect on February 1, 2012, which is one month later than the County's Ordinance for stores of that size.

The differences between the City and County Ordinances as listed above are minor changes that would not result in any changes to the environmental impacts that were analyzed in the County's Final EIR (adopted November 2010). As such, the City's proposed Ordinance is consistent with the County's Ordinance but would be specific to the City of Long Beach.

The City's objectives for the proposed Ordinance would be similar to the County's objectives for the countywide ordinance. The objectives as described in the County's Final EIR include:

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



- *Reduce Countywide disposal of plastic carryout bags in landfills by 50 percent from 2007 annual amounts*

Similarly the objectives of the City's Ordinance would include:

- *Reduce the Citywide consumption of plastic carryout bags from the estimated 1,600 plastic carryout bags per household in 2007 to fewer than 800 plastic bags per household in 2013*
- *Reduce the Citywide contribution of plastic carryout bags to litter that blights public spaces Citywide by 50 percent by 2013*
- *Assist the County in the reduction of the County's, City's, and Flood Control District's costs for prevention, clean-up, and enforcement efforts to reduce litter in the City and the County by \$4 million*
- *Substantially increase awareness of the negative impacts of plastic carryout bags and the benefits of reusable bags, and reach at least 24,736 residents (5 percent of Long Beach's population) with an environmental awareness message*
- *Reduce citywide disposal of plastic carryout bags in landfills by 50 percent from 2007 annual amounts*

## ENVIRONMENTAL IMPACTS

This section addresses each of the environmental issues studied in the Final EIR, comparing the effects of the proposed Long Beach Plastic Carryout Bag Ordinance with the effects of the County of Los Angeles Plastic Carryout Bag Ordinance that was the subject of the adopted Final EIR. In addition to stating the County's finding for each impact statement, the analysis includes a discussion of the City's impact related to adopting its own plastic carryout bag ban ordinance and the impacts associated with implementation of such an ordinance citywide.

The City's proposed Ordinance would not change any of the impacts identified as less than significant in the County's Final EIR Initial Study (Volume II: Section D of the Final EIR). Each of those impacts would remain less than significant for the City's proposed Ordinance. As such, further discussion of these issues in this addendum is not warranted.

### Air Quality

The City's proposed Ordinance would have impacts related to Air Quality similar to those of the previously studied County Ordinance (identified as Alternative 5 in the County's Final EIR) since the City's proposed Ordinance is consistent with the County's adopted Ordinance and would apply to an estimated 315 stores within the City (see Appendix A for the estimated number of affected stores). These stores were considered in the County's Final EIR analysis, which analyzed approximately 5,084 stores in the



incorporated cities. Therefore, all of the stores that would be subject to the City's proposed Ordinance have already been analyzed for air quality impacts as part of the County's Final EIR and, as shown below, impacts would be no greater than what was already determined in the County's Final EIR. Like the County's Ordinance, the City's proposed Ordinance does not involve any construction activities; therefore, there would be no regional or localized construction impacts and consideration of construction impacts is not relevant. Thus, this analysis focuses on operational impacts. As studied in the County's Final EIR, operational impacts include indirect emissions based on life cycle assessments, criteria pollutant emissions resulting from disposal of paper carryout bags in landfills, and emissions resulting from increased delivery trips.

*Indirect Emissions Based on Life Cycle Assessments.* As described on pages 12-41 of the County's Final EIR, based on a conservative scenario of 50 percent conversion from the use of plastic carryout bags to the use of paper carryout bags, and using life cycle data from the Ecobilan study (2004), the County's Ordinance would be expected to result in an overall decrease in emissions of carbon monoxide (CO), particulate matter (PM), sulphur oxide (SO<sub>x</sub>) and volatile organic compounds (VOCs), but would result in an increase in nitrogen oxide (NO<sub>x</sub>). Table 1 below shows the estimated daily emission changes that would result if each of the incorporated cities in the County (including Long Beach) were to implement a plastic bag ban ordinance similar to the County's Ordinance. As noted above, the City's approximately 315 stores that would be required to adhere to the City's proposed Ordinance are included within the approximately 5,084 stores listed in Table 1. The emissions related to converting from plastic to paper bags as a result of the City's proposed Ordinance are also shown in Table 1. As shown, emissions related to CO, PM, Sox and VOCs would decrease in Long Beach and NO<sub>x</sub> emissions would increase. Therefore, similar to the County's determination in the Final EIR, impacts as a result of criteria pollutants from the conversion of plastic bags to paper bags would be expected to result in both beneficial impacts (CO, PM, Sox and VOCs) and adverse impacts (NO<sub>x</sub>) to air quality, depending on which criteria pollutants are analyzed.

In addition to increasing the use of paper bags, by banning the use of plastic carryout bags the proposed Ordinance would be expected to result in increased use of reusable bags which may also increase emissions. However, as described in the County's Final EIR, because reusable bags must be designed to have a minimum lifespan of at least 125 uses, air quality impacts due to the life cycle of a reusable bag would be expected to be lower than those of a plastic or paper carryout bag when considered on a per-bag basis. Thus, consistent with the findings of the County's Final EIR, any conversion from the use of plastic carryout bags to reusable bags would reasonably be expected to result in an environmental benefit.



**Table 1**  
**Estimated Daily Emission Changes Due to the**  
**County's Ordinance and the City's Ordinance Based on the Ecobilan Data (lbs/day)**

<b>Emission Source</b>	<b>VOCs<sup>1</sup></b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>So<sub>x</sub></b>	<b>PM</b>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	-2,729 <sup>2</sup>	1,058	-5,004	-1,190	-1,936
City Ordinance – 315 stores within Long Beach <sup>3</sup>	-121.33	184	-292.25	-30.44	-111.25

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

**NOTES:**

1. Total VOCs include all compounds defined as contributors to the formation of photochemical oxidants in the Ecobilan Study, apart from methane, ethane, and acetone, which are not included in the SCAQMD definition of VOCs under Rule 102.
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.
3. Emissions related to the 315 stores in Long Beach are also included as part of the 5,084 stores in the incorporated areas in the County's Ordinance emissions.

*Criteria Pollutant Emissions Resulting from Disposal of Paper Carryout Bags in Landfills.* As shown in Table 2, the County's Final EIR determined that if the County's Ordinance was implemented in all 88 incorporated cities, including Long Beach, NO<sub>x</sub> emissions resulting from decomposition of carryout bags at a landfill (known as end of life data) would increase by approximately 110 pounds per day. NO<sub>x</sub> emissions resulting from implementation of the City's Ordinance would be only 12.7 pounds per day as shown in Table 2. Nevertheless, any emissions resulting from the end of life of paper carryout bags, including from truck trips transporting paper carryout bag waste to landfills in the County, are currently controlled by regional and state regulations such as CARB's Solid Waste Collection Vehicle Rule and SCAQMD Rule 1193, Clean On-road Residential and Commercial Refuse Collection. Therefore, similar to the County's significance finding, the impacts from the City's proposed Ordinance to air quality due to vehicle trips transporting paper carryout bags to landfills would be less than significant.

**Table 2**  
**Estimated Daily NO<sub>x</sub> Emission Increases Due to End of Life (Disposal)**  
**Based on the Ecobilan Data**

<b>Emission Source</b>	<b>NO<sub>x</sub> (lbs/day)<sup>1</sup></b>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	110
City Ordinance – 315 stores within Long Beach <sup>3</sup>	12.7

**Sources:**

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

**NOTES:** Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates for bags and sacks.



*Emissions Resulting From Increased Delivery Trips.* Similar to the County’s Ordinance, the City’s proposed Ordinance would be expected to cause a potential increase in delivery truck trips required to transport paper and reusable carryout bags to affected stores. As stated in the County’s Final EIR, assuming a worst case scenario where the number of trips to deliver reusable bags in the incorporated cities equals the number of trips to deliver paper bags (approximately 79 trips), the County’s Ordinance would result in an overall increase of approximately 158 truck trips per day. Using the County’s method to determine truck trips, with implementation of the City’s proposed Ordinance, the overall increase in truck trips to City stores would only be approximately 12 truck trips per day.<sup>1</sup> As shown in Table 3, similar to the County’s Ordinance, the increase of truck trips in the City would not result in an exceedance of any thresholds of significance set by the SCAQMD. As with the County’s Ordinance, impacts related to mobile emissions from the City’s proposed Ordinance would be less than significant.

As with the County’s Ordinance, the City’s Ordinance would not conflict with or obstruct the implementation of any applicable air quality plan; would not violate any air quality standard or contribute substantially to an existing or projected air quality violation; would not result in a cumulatively considerable net increase of any criteria pollutant for which the region is in non-attainment under an applicable federal or state ambient air quality standard; would not expose sensitive receptors to substantial pollutant concentrations; and would not create objectionable odors affecting a substantial number of people. Consistent with the findings in the County’s Final EIR, impacts to air quality would be below levels of significance and would not result in a cumulatively considerable contribution to a significant cumulative impact.

**Table 3**  
**Estimated Daily Operational Emissions From Increased Truck Trips**

<b>Emission Source</b>	<b>VOCs</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>2.5</sub></b>	<b>PM<sub>10</sub></b>
County Ordinance – 96 delivery trucks trips in the incorporated cities of the County and unincorporated areas	0.80	1.90	12.02	0.01	0.46	0.40
City Ordinance – 12 delivery truck trips per day in the City (both reusable and paper)	0.08	0.15	0.98	0.0	0.04	0.19
<i>SCAQMD Threshold</i>	55	55	550	150	55	150
<b>Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<b>County Ordinance Significant Impact?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

*Source: Los Angeles County Final EIR, November 2010; and, URBEMIS output (see Appendix A).*

<sup>1</sup> (97 stores x 10,000 plastic carryout bags per day/2,304,000 plastic carryout bags per truck) + (218 stores x 5,000 plastic bags per day/2,304,000 plastic bags per truck) x 6.5 the number of truck trips for paper rather than plastic x 2 (paper and reusable bags)= 11.62 daily truck trips or 5.81 for just paper or just reusable



## **Biological Resources**

As with the County's Ordinance, the City's proposed Ordinance would result in a reduction in the use and disposal of plastic carryout bags. As such, the City's Ordinance would achieve reductions in litter composed of plastic carryout bag waste found in freshwater and coastal environments, which has been shown to have significant adverse impacts upon biological resources. The City's Ordinance would also be anticipated to increase consumer use of reusable carryout bags, which, as discussed in the County's Final EIR, have not been widely noted to have adverse impacts upon biological resources. Although reusable bags may become a part of the waste stream, because they can be reused multiple times (at least 125 times under the proposed Ordinance) and are heavier than plastic carryout bags, the number of reusable bags that would likely end up as litter which could impact biological resources would be lower than the number of plastic or paper carryout bags. The City's Ordinance may indirectly increase the number of paper carryout bags used in the City. However, due to their weight, paper bags are less likely to become litter. In addition, because paper is compostable (unlike plastic), paper bags do not persist in the marine environment for as long as plastic bags.

For the reasons stated above, consistent with the findings of the County's Final EIR, the City's proposed Ordinance would have the potential to reduce impacts to wildlife habitats and aquatic life, and would result in potentially beneficial impacts to sensitive habitats; federally protected wetlands; rare, threatened, and endangered species; and species of special concern. The City's proposed ordinances would not have a substantial adverse effect on any species identified as candidate, sensitive, or special status; would not have a substantial adverse effect on riparian habitats or other sensitive natural communities, including federally protected wetlands as defined by Section 404 of the CWA; would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; and would not conflict with any City or County General Plan policies requiring the protection of biological resources. As with the County's Ordinance, the City's Ordinance would not be expected to result in any significant adverse impacts to biological resources and would be expected to achieve additional benefits due to a reduction in the use of plastic carryout bags. Similarly, like the County's Ordinance, the City's proposed Ordinance would not result in a cumulatively considerable contribution to a significant cumulative impact to biological resources.

## **Greenhouse Gas Emissions**

Carryout bags have the potential to contribute to the generation of greenhouse gas emissions (GHGs) either through emissions associated with manufacturing process of carryout bags, truck trips delivering carryout bags to retailers or through disposal



during landfill degradation. For the County's Final EIR (County's Final EIR, page 12-47, November 16, 2010), it was determined that the proposed ordinances would have a significant impact to greenhouse gas emissions when the potential for any one of the following two thresholds was reached:

- *Generate greenhouse gas emissions, either directly or indirectly that may have a significant effect on the environment*
- *Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases"*

The second threshold was further explained by two additional significance criteria in the County's Final EIR:

- *"Inconsistency with laws and regulations in managing GHG emissions*
- *Inconsistency with the goal to reduce GHG emissions to 1990 levels (approximately 427 metric tons or 9.6 metric tons of carbon dioxide equivalents (CO<sub>2</sub>e) per capita) as required by AB 32"*

For this analysis, the City has determined to select its own GHG significance threshold rather than relying on the County's threshold as used in the County's Final EIR. For this analysis, the City's proposed Ordinance is evaluated based on a plan-based threshold of 6.6 metric tons CO<sub>2</sub>e per service population (defined to include both residents and employees) per year. The City does not recommend adoption of that threshold for any other purpose at this time, but that numeric threshold is recommended for this analysis for the following reasons. First, the 6.6 metric tons CO<sub>2</sub>e per service population threshold was recently adopted by the Bay Area Air Quality Management District (BAAQMD) as a quantitative GHG emissions thresholds for plan-level projects (BAAQMD, "California Environmental Quality Act: Air Quality Guidelines" (June 2010).) Second, the BAAQMD derived that "efficiency" metric from statewide compliance with AB 32, and so that metric may be appropriately applied in regions other than the Bay Area. Finally, although SCAQMD has not yet acted on the proposal, staff of the SCAQMD are proposing the same efficiency metric for use in the South Coast region (SCAQMD, "Proposed Tier 4 Performance Standards, September 2010). Thus, the City finds that a 6.6 metric ton CO<sub>2</sub>e per service population per year threshold is appropriately used in this analysis at this time.

Therefore, the City's proposed Ordinance would have a significant impact related to GHG emissions if the GHG emissions would result in more than 6.6 metric tons of CO<sub>2</sub>e per service population (residents and employees) per year. Based on existing population and employment data provided by the California Department of Finance (2010), the existing service population in Long Beach is approximately 680,647 which includes a population of approximately 494,709 and approximately 185,938 employees citywide.



*Manufacturing Process.* As discussed in the County’s Final EIR, based on a conservative scenario of a 50 percent conversion from the use of plastic carryout bags to the use of paper carryout bags, and using life cycle data from Ecobilan, the County’s Ordinance would be expected to contribute indirectly to an overall decrease of approximately 12,015 metric tons of GHG emissions per year as shown in Table 4. Thus, the County’s Final EIR determined that the County’s Ordinance would not be expected to conflict with the County’s 2020 target GHG emissions (108 million metric tons per year) and therefore impacts related to the manufacturing of paper bags would be less than significant. Similarly, for the City’s proposed Ordinance, the conversion of plastic to paper bags would reduce GHG emissions in the City by approximately 148 metric tons per year as shown in Table 4. As such, consistent with the findings of the County’s Final EIR, the City’s proposed Ordinance would have a beneficial effect related to GHG emissions from the manufacturing process.

**Table 4  
 Estimated GHG Emissions From Manufacturing Process based on Ecobilan Data**

Emission Areas	CO <sub>2</sub> e Emission Sources			
	Plastic Carryout Bags	Increase from 50% Conversion from Plastic to Paper Carryout Bags		
	Metric Tons per Day	Metric Tons Per Day	Metric Tons per Year <sup>2</sup>	Metric Tons per Year per Capita <sup>1</sup>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	568	-32.92	-12,015	-0.001
City Ordinance – 315 stores within Long Beach <sup>3</sup>	30.77	-0.405	-148	-0.0002

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

- Notes:
1. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).
  2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.
  3. Emissions related to the 315 stores in Long Beach are also included as part of the 5,084 stores in the incorporated areas in the County’s Ordinance emissions.

The City’s proposed Ordinance would promote an increase in the use of reusable bags, which also emit GHG emissions during the manufacturing process. However, because reusable bags would have a minimum lifetime use of 125 times under the proposed Ordinance, the number of reusable bags required would be expected to be far less than the number of plastic carryout bags currently used in the City. Therefore, it can be reasonably expected that the conversion of plastic to reusable bags would not result in an increase in GHG emissions from the manufacturing process.



*Truck Trips.* Delivery trucks that transport carryout bags from manufacturers or distributors to the local retailers in Long Beach would also contribute GHG emissions. GHG emissions from truck trips result primarily from the combustion of fossil fuels and include CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>Ox. As discussed in the County’s Final EIR, it is anticipated that implementation of the County’s Ordinance in all 88 incorporated cities and in the unincorporated areas would require approximately 96 additional truck trips per year to deliver paper bags. For the City’s proposed Ordinance, approximately 6 truck trips per day would be required to deliver paper bags to the estimated 315 stores located within Long Beach. The estimated increase in GHG emissions associated with truck trips (both countywide and just within the City are shown in Table 5). As shown, the additional truck trips countywide would yield approximately 260 metric tons of GHG emissions per year while in Long Beach, the 6 additional truck trips would yield 12 metric tons of GHG emissions per year. Similar to the finding in the County’s Final EIR, the total indirect GHG emissions due to mobile sources as a result of a 50-percent conversion of plastic to paper bags within Long Beach would represent an increase of approximately 0.000028 percent of California's GHG emissions target for 2020 of 427 million metric tons per year, and approximately 0.000011 percent of the County’s target emissions for 2020 (108 million metric tons), or 0.0000176 metric ton per capita per year, which would not conflict with the emission reduction goals established to reduce emissions of GHGs in California down to 1990 levels by 2020 as required by AB 32 (approximately 427 million metric tons in total or 9.6 metric tons per capita by 2020). Therefore, the indirect GHG emissions due to mobile sources for the City’s proposed Ordinance would be less than significant, similar to the determination related to mobile GHG emissions in the County’s Final EIR.

**Table 5**  
**Estimated GHG Emissions From Daily Mobile Emissions Due to Increased Vehicle Trips**

<b>Emission Sources</b>	<b>CO<sub>2</sub> Emissions (lbs/day)</b>	<b>CO<sub>2</sub> Emissions (metric tons/year)</b>	<b>Metric Tons per Year per Capita<sup>1</sup></b>
County Ordinance – 96 delivery trucks trips in the incorporated cities of the County and unincorporated areas (paper only)	1,572.35	260.32	0.000025
City Ordinance – 6 delivery truck trips per day in the City (paper only)	65.75	12	0.000018

Source:

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

Notes:

1. Per capita emissions are calculated using the estimated 2010 population in the County (10,615,700).
2. A negative number for emissions indicates the extent of the reduction in air pollutants generated by paper carryout bags in comparison to the air pollutants generated by plastic carryout bags by subtracting the data for plastic carryout bags from the data for paper carryout bags.
3. Emissions related to the 6 trips in Long Beach for paper bag delivery are also included in the 96 trips in the incorporated areas in the County's Ordinance emissions.



*Landfill Degradation/End of Life Emissions.* Once disposed of by customers, carryout bags that are not recycled are deposited to a landfill where they are left to decompose and degrade. Depending on the type and materials used, a carryout bag will degrade at various rates. When carryout bag materials degrade in aerobic conditions at a landfill, methane (CH<sub>4</sub>) is emitted. This contributes to global climate change.

As shown in Table 6, using the Ecobilan data for the end of life of plastic and paper carryout bags, disposal of paper carryout bags at landfills would yield approximately 70,250 metric tons of GHG emissions per year, which is equivalent to approximately 0.007 metric tons per capita, based on the County’s Ordinance if applied countywide (incorporated cities and unincorporated areas). For the City’s proposed Ordinance, emissions related to the disposal of paper bags at landfills would yield approximately 6,335 metric tons of GHG emissions per year, which is equivalent to approximately 0.0093 metric tons per capita per year in Long Beach. As such, this increase would not exceed the 6.6 metric tons CO<sub>2</sub>e per capita per year threshold. Impacts would be less than significant.

**Table 6**  
**Estimated GHG Emissions Increases Due to End of Life Based on Ecobilan Data**

<b>Emission Sources</b>	<b>Increase of CO<sub>2</sub>e Emissions (metric tons/year)<sup>1</sup></b>	<b>Metric Tons per Year per Capita</b>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	70,250	0.0066
City Ordinance – 315 stores within Long Beach <sup>3</sup>	6,335	0.0093

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

Notes:

1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

The Boustead data uses slightly higher emission rates per bag than the Ecobilan data for end of life emissions. As such, based on the Boustead data as shown in Table 7, the County’s Final EIR determined that countywide emissions from disposal of paper carryout bags at landfills would yield approximately 184,621 metric tons of GHG emissions per year. For the City’s proposed Ordinance, emissions related to disposal of paper bags according to the Boustead data would yield approximately 10,555 metric tons of GHG emissions per year, which is equivalent to approximately 0.0155 metric tons per capita per year in Long Beach.



**Table 7**  
**Estimated GHG Emissions Increases Due to End of Life Based on Boustead Data**

<b>Emission Sources</b>	<b>Increase of CO<sub>2</sub> Emissions (metric tons/year)<sup>1</sup></b>	<b>Metric Tons per Year per Capita</b>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	184,621	0.01739
City Ordinance – 315 stores within Long Beach <sup>3</sup>	10,555	0.0155

Source:

*Boustead Consulting and Associates Ltd. 2007. Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper. Prepared for: Progressive Bag Affiliates. U.S. Environmental Protection Agency. November 2008. Municipal Solid Waste in the United States: 2007 Facts and Figures. Washington, DC. Available at: <http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf>*

Notes:

1. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

The Boustead results are likely to be overestimates as emissions from active landfills in the County are strictly controlled by SCAQMD Rule 1150.1 and AVAQMD Rule 1150.1, Control of Gaseous Emissions from Active Landfills, as well as the new state requirements that regulate methane emissions from landfills in accordance with the goals of Assembly Bill 32 as implemented in the California Air Resources Board Climate Change Scoping Plan (County’s Final EIR, page 12-49, November 2010). Nevertheless, the County’s Final EIR utilized the Boustead data as a conservative worst case analysis and determined that indirect impacts to GHG emissions from decomposition of paper bags in landfills may have the potential to be cumulatively considerable. However, for the City’s proposed Ordinance, an increase of approximately 0.0155 metric tons CO<sub>2e</sub> per capita per year based on the Boustead data would not exceed the City’s threshold of 6.6 metric tons CO<sub>2e</sub> per capita per year. Therefore, although impacts under the County’s Final EIR were determined to be significant, impacts associated with the City’s proposed Ordinance would be considered less than significant. As such, no mitigation measures, including Mitigation Measure MM-GHG-1 as listed in the County’s Final EIR, would be required for the City’s proposed Ordinance since impacts would be less than significant without mitigation.

## **Hydrology and Water Quality**

Hydrology and water quality impacts would be similar to those identified in the County’s Final EIR. The following discusses the impacts related to drainage, surface water quality, groundwater, flooding, and seiche, tsunami and mudflows that would result from implementation of the City’s proposed Ordinance.

*Drainage.* Consistent with the findings of the County’s Final EIR, the City’s proposed Ordinance would not require construction of new structures or additional storm water infrastructure. Consequently, the capacity of existing storm water drainage would remain unchanged and redirecting storm water flows would be



unnecessary. By banning plastic carryout bags within the City, the Ordinance would improve the existing drainage capacity by removing a significant source of trash that can clog features of the system and reduce its capacity (County’s Final EIR, 2010). Therefore, consistent with the findings of the County’s Final EIR, the proposed Ordinance would not result in significant adverse impacts to hydrology and water quality related to drainage.

*Surface Water Quality.* As noted in the County’s Final EIR, certain representatives of the plastic bag industry have argued that similar proposed ordinances have the potential to result in environmental impacts that could result in violations of water quality standards due to the increased reliance on paper carryout bags, which can potentially cause increased water eutrophication during the manufacturing process. Eutrophication occurs when high levels of nutrients, such as fertilizers, enter a water body and cause excessive growth of plants, such as algae, resulting in a reduction in water quality.

Several life-cycle-assessments (LCAs) have analyzed the impacts of bag manufacturing upon eutrophication and concluded that paper carryout bag manufacturing releases more pollutants, such as nitrates and phosphates, into water than does plastic carryout bag manufacturing (County’s Final EIR, 2010). However, as shown in Table 8 below, using the Ecobilan LCA, the County’s EIR determined that a 50 percent conversion from the use of plastic carryout bags to the use of paper carryout bags would be expected to increase eutrophication by approximately 42 additional kilograms of phosphate per day if all 88 incorporated cities of the County adopted plastic bag ordinances. Since Long Beach is one of the 88 incorporated cities in the County, the County’s Final EIR accounts for impacts from eutrophication associated with the City’s proposed Ordinance. As shown in Table 8, the increase in eutrophication just from the City’s proposed Ordinance would be approximately 3.6 kilograms of phosphate, or about 7% of the 50.87 kilograms of phosphate for the entire County.

**Table 8  
 Eutrophication Due to Plastic and Paper Carryout Bags Based on Ecobilan Data**

Eutrophication Sources	Eutrophication (kilograms phosphate equivalent)	
	Eutrophication from Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags (with implementation of Ordinance)
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	10.39	50.87
City Ordinance – 315 stores within Long Beach	0.64	3.6

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



As further stated in the County's Final EIR, since there are no significance thresholds related to eutrophication and since there does not appear to be any paper bag manufacturing facilities located within the County, determining the level of significance of eutrophication impacts from bag manufacturing would be inapplicable and speculative. As such, since there appears to be no manufacturing and production of paper carryout bags in the County (or in the City of Long Beach) there would be no expected impacts to water quality resulting from eutrophication during the manufacturing process. Further, any indirect increase in pollutant discharge from manufacturing plants due to increased demand for paper carryout bags would be regulated and controlled by the local, regional, and federal laws applicable to each manufacturing plant. Within the United States, pollutant discharges from bag manufacturing facilities would be required to comply with National Pollutant Discharge Elimination System (NPDES) requirements and permits. Thus, similar to the findings of the County's Final EIR, impacts of the proposed Ordinance, upon surface water quality outside of the Southern California region due to eutrophication would be less than significant. Therefore, similar to the County's findings, indirect impacts to water quality from eutrophication due to a potential increase in the demand for paper carryout bag manufacturing as a result of the City's proposed Ordinance would be less than significant.

Reusable bags could also indirectly increase eutrophication impacts related to facilities that manufacture reusable bags. However, as stated in the County's Final EIR, studies have shown that when used at least 104 times, the environmental impacts associated with a reusable bag are substantially less than impacts resulting from paper and plastic carryout bags (County's Final EIR, page 12-58, 2010). Like the County's Ordinance, the City's proposed Ordinance would require reusable bags to have a minimum lifespan of 125 uses; therefore, any conversion from the use of plastic carryout bags to reusable bags would be reasonably expected to be environmentally beneficial.

Any adverse indirect impact upon water quality due to eutrophication would likely be offset by positive impacts associated with the proposed Ordinance. The City's proposed Ordinance, similar to the County's Ordinance, would reduce the amount of litter associated with plastic carryout bags and, therefore, would decrease the amount of litter in water bodies within and in the vicinity of Long Beach. As such, the proposed Ordinance would generally improve water quality. This is a beneficial effect.

*Groundwater.* Similar to the findings of the County's Final EIR, the City's proposed Ordinance would not result in significant adverse impacts to hydrology or water quality in relation to groundwater. Because the proposed Ordinance does not require the construction of new structures, it would not result in the creation of impervious surfaces that would potentially reduce ground water levels. Further, although manufacturing facilities for paper and plastic carryout bags could potentially release pollutants that may affect groundwater, the discharge of pollutants locally and



nationally is regulated by the USEPA and the Regional Water Quality Control Boards (RWQCBs) under the federal Clean Water Act (CWA). Pollutant discharges from manufacturing facilities would be required to comply with the CWA. Further, as noted above, since there appears to be no manufacturing and production of paper carryout bags in the County (or in the City of Long Beach) there would be no expected impacts to ground water quality due to a potential increase in demand associated with conversion from plastic carryout bags to paper carryout bags. Therefore, impacts to groundwater quality related to the City's proposed Ordinance would be less than significant.

*Flooding.* Although some areas in Long Beach that would be affected by the City's proposed Ordinance are located within a 100-year Flood Zone area, the proposed Ordinance does not require the construction of new development and drainage patterns would not be affected upon implementation of the proposed ordinances. Therefore, similar to the finding of the County's Final EIR, the City's proposed Ordinance would not be expected to result in significant impacts to hydrology and water quality related to the 100-year Flood Zone.

*Seiche, Tsunami and Mudflows.* The City's proposed Ordinance would affect areas in Long Beach that are located near the Pacific Ocean and, thus, would be subject to a seiche or tsunami. However, implementation of the Ordinance would not require the construction of new development and would not result in an increase in population. As such, the proposed Ordinance would not be expected to increase the risk and hazard to individuals residing within areas that lie in the vicinity of coastal waters of being subject to a seiche or tsunami. Therefore, similar to the finding of the County's Final EIR, implementation of the City's proposed Ordinance would have a less than significant impact to hydrology and water quality in relation to seiche, tsunamis, and mudflows.

## **Utilities and Service Systems**

Impacts to utilities and service systems as a result of the City's proposed Ordinance would be similar to impacts discussed in the County's Final EIR. The following summarizes the impacts related to wastewater generation, water supply, solid waste, and energy consumption for the City's proposed Ordinance compared to the findings contained in the County's Final EIR.

*Wastewater Generation.* As noted in the County's Final EIR, manufacturing facilities for paper carryout bags appear to not be located within the County or Long Beach. Therefore, any increase in wastewater generation due to paper carryout bag manufacturing would not affect wastewater treatment providers in the County. Nevertheless, in the County's Final EIR, using the Ecobilan LCA data and assuming that 50 percent of consumers switch from plastic carryout bags to paper carryout bags, there was an expected increase in wastewater of approximately 0.04 million gallons per



day (MGD) for the 1,091 affected stores in the unincorporated territory of the County, and up to an additional 0.17 MGD if similar ordinances to the County’s Ordinance were to be adopted by the 88 incorporated cities of the County (as shown in Table 9 below). The increase of wastewater in Long Beach as a result of the City’s proposed Ordinance would be approximately 0.04 MGD. The Sanitation Districts of Los Angeles County currently treat approximately 510 MGD (County’s Final EIR, page 12-60, November 2010). Therefore, an additional 0.21 MGD due to paper carryout bag use throughout the County, including approximately 0.038 MGD in Long Beach, or approximately 0.04 percent of the current amount of wastewater treated per day, would not be a significant increase in wastewater and would not necessitate construction of new wastewater treatment facilities or expansion of existing facilities. The City’s proposed Ordinance would not change the conclusions regarding wastewater generation since the estimated increase of wastewater and impacts related to wastewater generation for the City’s proposed Ordinance would be less than significant.

**Table 9  
Wastewater Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data**

Wastewater Sources	Wastewater Generation (MGD)	
	Wastewater Generation from Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags (with implementation of Ordinance)
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	0.69	0.21
City Ordinance – 315 stores within Long Beach	0.04	0.038

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

*Water Supply.* Carryout bags would indirectly result in water use through the manufacturing process of carryout bags. As discussed in the County’s Final EIR, the conversion from plastic bags to paper carryout bags and reusable carryout bags would result in an increase of water use from the manufacturing process of paper and reusable bags. The increase of water use for conversion to paper bags varies depending on which LCA data is utilized. As shown in Table 10, the Ecobilan data used in the County’s Final EIR determined that due to a 50 percent conversion from plastic to paper carryout bags, the water demand from manufacturing facilities would increase by 0.47 MGD countywide compared to consumption due to plastic carryout bags. The City’s contribution to this countywide increase would be 0.06 MGD as a result of the City’s proposed Ordinance. In addition, as shown in Table 11, the Boustead data determined that water demand would increase by 10.21 MGD countywide. As noted above, the City of Long Beach’s approximately 315 stores were included within the approximately 5,084 stores in the incorporated cities of the County and the increase of water consumption at the 315 stores using the Boustead Data was estimated to be approximately 0.95 MGD as shown in Table 11.



**Table 10**  
**Water Consumption Due to Plastic and Paper Carryout Bags Based on Ecobilan Data**

Water Consumption Sources	Water Consumption (MGD)	
	Water Consumption from Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags (with implementation of Ordinance)
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	0.72	0.47
City Ordinance – 315 stores within Long Beach	0.044	0.06

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

**Table 11**  
**Water Consumption Due to Plastic and Paper Carryout Bags Based on Boustead Data**

Water Consumption Sources	Water Consumption (MGD)	
	Water Consumption from Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags (with implementation of Ordinance)
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	1.30	10.21
City Ordinance – 315 stores within Long Beach	0.08	0.95

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

As noted in the County’s Final EIR, the water districts within the County supplied approximately 1,563 MGD of water in fiscal year 2007/2008 (County’s Final EIR, page 12-61, November 2010). The daily increase of water use countywide due to the conversion from plastic to paper carryout bags based on the Ecobilan data would represent approximately 0.03 percent of the total water supplied by water districts in the County. Within Long Beach, the daily increase of water consumption would only represent approximately 0.0038 percent of the total water supplied by the water districts. The increase of water countywide based on the Boustead data would represent 0.65 percent of the total water supplied and the City’s increase of water as a result of the proposed Ordinance would only represent 0.06 percent of the total water supplied by the water districts. These increases would not have significant effects. As noted above, there appears to be no manufacturing and production of paper carryout bags in the County (or in the City of Long Beach). Therefore, any increase in water supply necessary for paper carryout bag manufacturing would not impact suppliers in the County and the proposed Ordinance, consistent with the findings in the County’s Final EIR, would not be anticipated to necessitate new or expanded entitlements for water.



As noted in the County's Final EIR, banning plastic bags would result in an increase in the use of reusable bags by consumers, the production of which would consume less water than the production of both paper carryout bags and plastic carryout bags when considered on a per bag basis. The City's proposed Ordinance, like the County's Ordinance, would require that reusable bags be designed for a minimum lifetime of 125 uses; therefore, water supply impacts associated with are anticipated to be reduced compared to use of plastic carryout bags. In addition, since the manufacturing facilities that produce reusable bags appear to not be located within the Los Angeles County or within Long Beach, water supply required for the manufacturing of reusable bags may be supplied by water districts outside the County or outside of California. Thus, water districts within the County may not be directly affected. Therefore, consistent with the findings of the County's Final EIR, any increase associated with reusable bag manufacturing as an indirect result of the City's proposed Ordinance would not necessitate new or expanded entitlements for water and impacts would be less than significant.

*Solid Waste.* As described in the County's Final EIR, based on the Ecobilan data, it was concluded that a 50 percent conversion scenario would result in less solid waste per day at landfills. Also, as shown in Table 12, the City's proposed Ordinance would also result in a reduction of approximately 5 tons of solid waste per day. However, as shown in Table 13, using the Boustead data, the County's Final EIR determined that a 50 percent conversion from plastic to paper carryout bags would result in an increase of approximately 255 tons of solid waste per day. Of this total countywide, approximately 15 tons of solid waste per day would be directly related to implementation of the City's proposed Ordinance. Nevertheless, as stated in the County's Final EIR, the permitted daily maximum capacity of all the County landfills is approximately 43,749 tons per day and currently the landfills combined accept an average of 21,051 tons per day (County's Final EIR, page 12-65, November 2010). Thus, the potential increase of 255 tons of solid waste per day would represent approximately 1.1% of the remaining total daily maximum capacity of approximately 22,698 tons per day.

In Long Beach, refuse is taken to the Southeast Resource Recovery Facility (SERRF) located at 120 Henry Ford Avenue near the harbor in southwest Long Beach. The SERRF processes an average of 1,290 tons of municipal solid waste each day, with a capacity of 2,240 tons per day (City of Long Beach Website, 2011; and, SERRF Facility details at CalRecycle, 2011). For the City's proposed Ordinance, using the worst case scenario (the Boustead data), even with an increase of approximately 15 tons of solid waste per day (which would increase the average waste processed at SERRF to approximately 1,305 tons per day, the increase of solid waste as a result of the City's proposed Ordinance would not exceed the existing capacity of 2,240 tons per day at the SERRF. Thus, the existing waste disposal facilities in the County and in the City could accommodate any indirect increases in solid waste related to the City's proposed



Ordinance. Similar to the findings in the County’s Final EIR, impacts related to solid waste would be less than significant.

**Table 12**  
**Solid Waste Generation Due to Plastic and Paper Carryout Bags Based on Ecobilan Data**

Solid Waste Sources	Solid Waste Generation (tons per day)	
	Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags, Assuming 2007 EPA Recycling Rates, <sup>1,2</sup>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	241	-17
City Ordinance – 315 stores within Long Beach	14.8	- 4.9

Source:

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

Notes:

1. Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion from the current use of plastic carryout bags, to a 50 percent use of paper carryout bags.
2. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

**Table 13**  
**Solid Waste Generation Due to Plastic and Paper Carryout Bags**  
**Based on Boustead Data**

Solid Waste Sources	Solid Waste Generation (tons per day)	
	Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags, Assuming 2007 EPA Recycling Rates, <sup>1,2</sup>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	173.29	255
City Ordinance – 315 stores within Long Beach	9	15

Source:

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

Notes:

1. Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion from the current use of plastic carryout bags, to a 50 percent use of paper carryout bags.
2. Assuming 36.8 percent of paper carryout bags are diverted from landfills and 11.9 percent of plastic carryout bags are diverted from landfills, based on the 2007 USEPA recycling rates.

*Energy Conservation.* Energy use for carryout bags is primarily related to the manufacturing process. Utilizing the Ecobilan data, the County’s EIR determined that non-renewable energy consumption would actually decrease due to the conversion from plastic to paper carryout bags. As shown in Table 14, using the Ecobilan data energy use as a result of the County’s Ordinance would decrease by approximately 2 million kilowatt hours (kWh) per year. Also shown in Table 14, energy use would be



reduced by approximately 0.05 million kWh (or approximately 55,000 kWh) per year with implementation of the City’s proposed Ordinance.

**Table 14  
 Non-Renewable Energy Consumption Based on Ecobilan Data**

Energy Consumption Sources	Energy Consumption (million kWh)	
	Plastic Carryout Bags (existing conditions)	Change Due to Conversion from Plastic to Paper Carryout Bags, <sup>1</sup>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	4.14	- 2.01
City Ordinance – 315 stores within Long Beach	0.25	-0.05

Source: Ecobilan. February 2004. *Environmental Impact Assessment of Carrefour Bags: An Analysis of the Life Cycle of Shopping Bags of Plastic, Paper, and Biodegradable Material.* Prepared for: Carrefour Group. Neuilly-sur-Seine, France. Notes: Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion from the current use of plastic carryout bags, to a 50 percent use of paper carryout bags.

The Boustead data, as shown in Table 15, found different results and determined that the County’s Ordinance would increase energy use per year countywide by approximately 3.6 million kWh. Based on the Boustead data, implementation of the City’s proposed Ordinance would increase energy use in the City by approximately 460,000 kWh . However, even based on Boustead data (which is a worst case scenario), the total increase of 3.6 million kWh countywide would represent less than 0.01 percent of the total energy use in the non-residential sector of the County (County’s Final EIR, page 12-66, November 2010). Further, as stated above paper bag manufacturing facilities appear not to be located within the County and, therefore, the energy supply required for paper carryout bag manufacturing may be supplied by districts outside of the County or outside of California, so impacts may not directly affect the County. Even in the conservative worst case scenario which would increase energy use by approximately 3.6 million kWh per year countywide and approximately 460,000 kWh in the City, impacts would be less than significant.

**Table 15  
 Total Energy Consumption Due to Plastic and Paper Carryout Bags  
 Based on Boustead Data**

Energy Consumption Sources	Energy Consumption (million kWh)	
	Plastic Carryout Bags (existing conditions)	Increase Due to Conversion from Plastic to Paper Carryout Bags, <sup>1</sup>
County Ordinance – 5,084 stores in incorporated areas plus 1,091 stores in unincorporated areas	4.74	3.61
City Ordinance – 315 stores within Long Beach	0.29	0.46

Source: Boustead Consulting and Associates Ltd. 2007. *Life Cycle Assessment for Three Types of Grocery Bags – Recyclable Plastic; Compostable, Biodegradable Plastic; and Recycled, Recyclable Paper.* Prepared for: Progressive Bag Affiliates. Notes: Negative numbers indicate the extent of the decrease in solid waste generation that would be expected from a conversion from the current use of plastic carryout bags, to a 50 percent use of paper carryout bags.



Energy use for the conversion of plastic to reusable bags would be expected to decrease as a result of the City's proposed Ordinance. Similar to the findings in the County's Final EIR, because reusable bags, by definition, are required to be used at least 125 times, the energy demands to manufacture a reusable bag are reduced significantly compared to paper and plastic carryout bags. As such, impacts related to conversion from paper to reusable carryout bags would have beneficial effects relative to energy conservation.

## Conclusion

As discussed above, impacts from the City's proposed Ordinance related to air quality, biological resources, hydrology and water quality, and utilities and service systems were determined to have similar impacts as the County's Final EIR. All of these issues were determined to result in either less than significant impacts or beneficial impacts. For greenhouse gas emissions, utilizing a threshold of 6.6 metric tons CO<sub>2e</sub> per capita per year, the City's proposed Ordinance was determined to have a less than significant impact since emissions related to manufacturing, transportation and disposal of carryout bags would result in less than 1 metric ton CO<sub>2e</sub> per capita per year. This determination would result in a reduced impact related to GHG emissions compared to the County's Final EIR, which determined that emissions related to the disposal of paper carryout bags would result in significant and unavoidable impacts. Based on the City's determination that none of the impacts of the proposed Ordinance, including those related to GHG emissions, would be significant, no new significant environmental effects beyond those already analyzed in the County's Final EIR would occur.



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<http://www.epa.gov/waste/nonhaz/municipal/pubs/msw07-rpt.pdf>

## **PERSONS CONTACTED**

Kubani, Dean; Director; City of Santa Monica Office of Sustainability and the Environment; March 2011.

Miller, Josephine; Environmental Analyst; City of Santa Monica Office of Sustainability and the Environment; March 2011.

Skye, Coby; Environmental Programs Divisions; County of Los Angeles Department of Public Works; March 2011.

## **LIST OF PREPARERS**

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## **Appendix A**



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*InfoUSA.com – Store Search in Long Beach  
Impact Worksheets (Ecobilan and Boustead data)  
GHG Calculations for Truck Trips  
URBEMIS Results for Truck Trips*

Home > U.S. Business Search > [Review Criteria](#)

[Learn more](#)

[Type of Business](#) | 
 [Size of Business](#) | 
 [Other Selections](#) | 
 [Geography](#) | 
 **Review Criteria**

[Print this page](#)

[Continue](#)

**Congratulations! You're almost done.**

We have **315 leads** that match your criteria.

Did you know we also have 17 emails? [Click Here](#) for details.

To provide you with the most accurate and deliverable data, we:

- Place more than 20 million phone calls per year.
- Send our business list through the United States Postal Service's (USPS) National Change of Address (NCOA) database.
- Certify our data using the USPS's Coding Accuracy Support Systems (CASS).



You currently have:

**315 Leads**

Did you know we also have:

**17 Emails** [?](#)

Additional Options:

[Save Search](#)  
[New Search](#)  
[Exclude Lists](#)

**How To Change Criteria:**

To change or add to your search criteria, click on the category title links.

To remove search criteria, click "Remove." Your count will automatically update.

In order to omit search criteria, click "Omit." Then select the criteria you would like to omit from this search.

**Type Of Business**

[Add](#) [Omit](#)

Primary NAICS Codes and Ranges	445110	<a href="#">Remove</a>
Primary NAICS Codes and Ranges	446110	<a href="#">Remove</a>
Primary NAICS Codes and Ranges	445120	<a href="#">Remove</a>

[Add](#)

**Size Of Business**

Square Footage	0 - 2,499 Feet	<a href="#">Remove</a>
Square Footage	2,500 - 9,999 Feet	<a href="#">Remove</a>
Square Footage	10,000 - 39,999 Feet	<a href="#">Remove</a>
Square Footage	40,000+ Feet	<a href="#">Remove</a>

[Add](#)

**Other Selections**

[Add](#) [Omit](#)

**Geography**

City	Long Beach, CA	<a href="#">Remove</a>
------	----------------	------------------------

Is Your Business Listing Accurate? [Check Now for FREE](#)

**FREE for 7 Days!** **UNLIMITED Business Credit Reports**  
[\(infogroup.Credit.net\)](#)

**50% off your second email blast**

<b>City of Long Beach Plastic Carryout Bag Ordinance</b>	
Number of Stores in City	315
Number of Stores 10,000 sf or more	97
Number of Stores < 10,000 sf	218
Plastic Bag Size (liters)	14
Paper Bag Size (liters)	20.48
Reusable bag size (liters)	37
Plastic bags used per day at stores >10,000 sf	10,000
Plastic bags used per day at stores < 10,000 sf	5000
Number of plastic bags used in City per day	2,060,000
Ordinance - Assume 50% switch to paper/reusable	
Number of paper bags per day with 50% conversion	1,030,000
Number of reusable bags per day with 50% conversion	1,030,000

Conversions

liters to gallons	0.264172
Kg to short tons	0.001102
MJ to kWh	0.277778

<b>Eutrophication - Ecobilan Data</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
grams phosphate per 9000 liters groceries		0.2	2.35	0.0044
grams phosphate per bag		0.00031111	0.00534756	1.80889E-05
grams phosphate per day citywide		640.888889	5507.98222	18.63155556
kg phosphate per day		0.64088889	5.50798222	0.018631556
<b>Increase in phosphate per day from Ordinance (kg)</b>			<b>4.86709333</b>	<b>-0.622257333</b>
Increase kg from Ordinance (50% conversion to paper and reusable )	<b>3.603947111</b>			

<b>Water Use - Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
Liters water per 9000 liters groceries		52.6	173	1.096
Liters water per bag per day		0.08182222	0.39367111	0.004505778
Liters water in City per day		168553.778	405481.244	4640.951111
Gallons per day		44527.197	107116.812	1226.009569
Millions gallons per day (MGD) in City		0.0445272	0.10711681	0.00122601
MGD per year		16.2524269	39.0976362	0.447493493
Increase in water use per year (MGD)			22.8452093	-15.80493342
Increase as a result of Ordinance (50% conversion to paper and reusable).	<b>0.063815624</b>			

<b>Wastewater - Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
Liters water per 9000 liters groceries		50	130.7	1.096
Liters water per bag per day		0.07777778	0.29741511	0.004505778
Liters water in City per day		160222.222	306337.564	4640.951111
Gallons per day		42326.2329	80925.8224	1226.009569
Millions gallons per day (MGD) in City		0.04232623	0.08092582	0.00122601
MGD per year		15.449075	29.5379252	0.447493493
Increase in water use per year (MGD)			14.0888502	-15.00158152
Increase per day (MGD)	<b>0.038599589</b>			
Increase as a result of Ordinance (50% conversion to paper and reusable) per year	<b>14.08885016</b>			

<b>Solid Waste - Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
kg waste per 9000 liters groceries (w/EPA recycling)		4.19356	3.83624	0.10488
kg waste per bag per day		0.00652332	0.00872958	0.000431173
kg waste in City per day		13438.03	8991.46456	444.1085333
Tons per day (w/recycling)		14.8128749	9.9113813	0.003916362
Tons per year		5406.69934	3617.65417	1.42947221
Increase in solid waste per year (MGD)			-1789.04516	-5405.269866
Increase as a result of Ordinance (50% conversion to paper and reusable). Tons/day	<b>-4.897577235</b>			

<b>2007 recycle rate</b>	
plastic bags	11.90%
paper bags	36.80%

Increase as a result of Ordinance (50% conversion to paper and reusable). Tons/year	<b>-12601.01437</b>
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<b>Energy - Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
MJ per 9000 liters groceries		286	295	6.44
MJ per bag per day		0.44488889	0.67128889	0.026475556
MJ in City per day		916471.111	691427.556	27269.82222
kWh in City per day		254575.311	192063.211	7574.950678
million kWh in City per day		0.25457531	0.19206321	0.007574951
Increase in million kWh per day			-0.0625121	-0.24700036
<b>Increase as a result of Ordinance (50% conversion to paper and reusable). Million kWh</b>	<b>-0.054937149</b>			
<b>Increase in kWh</b>	<b>-54937.14859</b>			

<b>Water Use - Boustead</b>		<b>Plastic bag</b>	<b>Paper bag</b>
Gallons per 1000 paper bags (1500 plastic bags)		58	1004
Gallons per bag		0.03866667	1.004
Gallons water in City per day		79653.3333	1034120
Millions gallons per day (MGD) in City		0.07965333	1.03412
MGD per year		29.0734667	377.4538
Increase in water use per year (MGD)			<b>348.380333</b>
Increase in water per day	0.954466667		

<b>Solid Waste -Boustead</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
kg waste per 1000 paper bags (1500 plastic bags)		6.20224	21.4248	0.10488
kg waste per bag per day		0.00413483	0.0214248	0
kg waste in City per day		8517.74293	22067.544	0
Tons per day		9.38919321	24.3252744	0
Tons per year		3427.05552	8878.72517	0
Increase in solid waste per year (MGD)			5451.66964	
Increase as a result of Ordinance (50% conversion to paper and reusable). Tons/day	<b>14.93608121</b>			
Increase as a result of Ordinance (50% conversion to paper and reusable). Tons/year	<b>2024.61412</b>			

**2007 recycle rate**

plastic bags	11.90%
paper bags	36.80%

<b>Energy - Boustead</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>
MJ per 1000 paper bags (1500 plastic)		763	2622	
MJ per bag per day		0.50866667	2.622	0
MJ in City per day		1047853.33	2700660	0
kWh in City per day		291070.373	750183.339	0
million kWh in City per day		0.29107037	0.75018334	0
Increase in million kWh per day			<b>0.45911297</b>	
<b>Increase as a result of Ordinance (50% conversion to paper and reusable). Million kWh</b>	<b>0.459112967</b>			
Increase in kWh	459112.9666			

<b>Air Quality - Ecobilan - Plastic Bags</b>	<b>VOCs</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>Particulates</b>
Emissions (grams) per 9000 liters groceries	37.929	27.1	48.2	23.4	19.2
Emissions (grams) per bag per day	0.059000667	0.042155556	0.07497778	0.0364	0.029866667
Emissions (pounds) per day per bag	0.000130074	9.29371E-05	0.0001653	8.025E-05	6.58447E-05
<b>Emissions (pounds) citywide</b>	<b>267.9528609</b>	<b>191.4504082</b>	<b>340.513272</b>	<b>165.31142</b>	<b>135.6401416</b>

grams to  
pounds 0.0022046

<b>Air Quality - Ecobilan - Paper Bags</b>	<b>VOCs</b>	<b>NOx</b>	<b>CO</b>	<b>SOx</b>	<b>Particulates</b>
Emissions (grams) per 9000 liters groceries	28.37487101	72.6	9.34	26.1	4.72
Emissions (grams) per bag per day	0.064568595	0.165205333	0.02125369	0.059392	0.010740622
Emissions (pounds) per day per bag	0.000142349	0.000364215	4.6856E-05	0.0001309	2.3679E-05
Emissions (pounds) citywide	146.6198675	375.1418773	48.2620542	134.86506	24.38938927
<b>Change from Plastic to Paper</b>	<b>-121.3329935</b>	<b>183.6914691</b>	<b>-292.251218</b>	<b>-30.44637</b>	<b>-111.2507523</b>

<b>Air Quality Just End of Life NOx - Ecobilan - Plastic Bags</b>		<b>NOx</b>
Emissions (grams) per 9000 liters groceries		0.97
Emissions (grams) per bag per day		0.001508889
Emissions (pounds) per day per bag		2.93067E-06
Emissions (pounds) citywide		6.03718728

<b>Air Quality - Ecobilan - Paper Bags</b>		<b>NOx</b>
Emissions (grams) per 9000 liters groceries		5.74
Emissions (grams) per bag per day		0.013061689
Emissions (pounds) per day per bag (w/EPA recycling)		1.81991E-05
Emissions (pounds) citywide		18.74510586
<b>Change from Plastic to Paper (pounds)</b>		<b>12.70791858</b>

<b>GHG - Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>	<b>Reusable bag used 125 times</b>		
GHG Emissions (metric tons) per 9000 liters groceries		0.0109	0.0205	0.000228	grams to metric tons	<b>0.000001</b>
metric tons per bag per day		1.49378E-05	2.9482E-05	9.373E-07		
metric tons citywide per day		30.77195956	30.3665607	0.9654533		
metric tons per year		11231.76524	11083.7947	352.39047		
Increase in metric tons per year			-147.970578	-10879.37		
Increase as a result of Ordinance (50% conversion to paper and reusable). Metric Tons/day	<b>-0.405398844</b>				<b>Long Beach Capita (Population + Employment)</b>	680647
Increase as a result of Ordinance (50% conversion to paper and reusable). Metric Tons/year	<b>-147.9705782</b>					
per capita increase	<b>-0.000217397</b>					

<b>GHG End of Life- Ecobilan</b>		<b>Plastic bag</b>	<b>Paper bag</b>
GHG Emissions (grams) per 9000 liters groceries		84.4879	7520.8
grams per bag per day		0.131425622	17.1139982
metric tons per bag per day		1.31426E-07	1.7114E-05
metric tons citywide per day		0.270736782	17.6274182
metric tons per year		98.81892535	6434.00763
Increase in metric tons per year			6335.18871
Increase as a result of Ordinance (50% conversion to paper and reusable). <b>Metric Tons/day</b>	<b>17.35668139</b>		

Increase as a result of Ordinance (50% conversion to paper and reusable). <b>Metric Tons/year</b>	<b>6335.188706</b>		
per capita annual	0.009307598		

<b>GHG End of Life- Boustead</b>		<b>Plastic bag</b>	<b>Paper bag</b>
metric tons for 1000 paper and 1500 plastic bags (w/EPA recycling)		0.002643	0.0316
metric tons per bag per day		0.000001762	0.0000316
metric tons citywide per day		3.62972	32.548
metric tons per year		1324.8478	11880.02
Increase in metric tons per year			10555.1722
Increase as a result of Ordinance (50% conversion to paper and reusable). <b>Metric Tons/day</b>	<b>28.91828</b>		
Increase as a result of Ordinance (50% conversion to paper and reusable). <b>Metric Tons/year</b>	<b>10555.1722</b>		
<b>Per capita increase</b>	0.015507557		

**Greenhouse Gas Emission Worksheet**  
**Mobile Emissions**

Scripps Park

**From URBEMIS 2007 Vehicle Fleet Mix Output:**

Daily Vehicle Miles Traveled (VMT): 54 (Net: Proposed - Existing)  
 Annual VMT: 19,710

Vehicle Type	Percent Type	CH4 Emission Factor (g/mile)*	CH4 Emission (g/mile)**	N2O Emission Factor (g/mile)*	N2O Emission (g/mile)**
Light Auto	0.0%	0.04	0	0.04	0
Light Truck < 3750 lbs	15.8%	0.05	0.0079	0.06	0.00948
Light Truck 3751-5750 lbs	53.1%	0.05	0.02655	0.06	0.03186
Med Truck 5751-8500 lbs	23.2%	0.12	0.02784	0.2	0.0464
Lite-Heavy Truck 8501-10,000 lbs	3.5%	0.12	0.0042	0.2	0.007
Lite-Heavy Truck 10,001-14,000 lbs	1.1%	0.09	0.00099	0.125	0.001375
Med-Heavy Truck 14,001-33,000 lbs	2.1%	0.06	0.00126	0.05	0.00105
Heavy-Heavy Truck 33,001-60,000 lbs	1.2%	0.06	0.00072	0.05	0.0006
Other Bus	0.0%	0.06	0	0.05	0
Urban Bus	0.0%	0.06	0	0.05	0
Motorcycle	0.0%	0.09	0	0.01	0
School Bus	0.0%	0.06	0	0.05	0
Motor Home	0.0%	0.09	0	0.125	0
<b>Total</b>	<b>100.0%</b>		<b>0.06946</b>		<b>0.097765</b>

**Total Emissions (metric tons) =**

**Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g**

**Conversion to Carbon Dioxide Equivalency (CO2e) Units based on Global Warming Potential (GWP)**

CH4 21 GWP  
 N2O 310 GWP  
 1 ton (short, US) = 0.90718474 metric ton

**Annual Mobile Emissions:**

	Total Emissions	Total CO2e units
CO2 Emissions***:	12.16 tons CO2	11 metric tons CO2e
CH4 Emissions:	0.0014 metric tons CH4	0 metric tons CO2e
N2O Emissions:	0.0019 metric tons N2O	1 metric tons CO2e
<b>Project Total:</b>		<b>12 metric tons CO2e</b>

**References**

\* from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile).  
 in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.  
 Assume Model year 2000-present, gasoline fueled.  
 \*\* Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.  
 \*\*\* From URBEMIS 2007 results for mobile sources

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Long Beach Plastic Bag Ordinance.urb924

Project Name: Long Beach Plastic Bag Ordinance

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.08	0.15	0.98	0.00	0.19	0.04	133.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.08	0.15	0.98	0.00	0.19	0.04	133.31

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\MMaddox\Application Data\Urbemis\Version9a\Projects\Long Beach Plastic Bag Ordinance.urb924

Project Name: Long Beach Plastic Bag Ordinance

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	ROG	NOX	CO	SO2	PM10	PM25	CO2
Truck Trips to deliver Carryout Bags	0.08	0.15	0.98	0.00	0.19	0.04	133.31
<b>TOTALS (lbs/day, unmitigated)</b>	<b>0.08</b>	<b>0.15</b>	<b>0.98</b>	<b>0.00</b>	<b>0.19</b>	<b>0.04</b>	<b>133.31</b>

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Truck Trips to deliver Carryout Bags		6.00	1000 sq ft	2.00	12.00	107.68
					12.00	107.68

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	0.0	0.6	99.2	0.2

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck < 3750 lbs	15.8	1.5	97.0	1.5
Light Truck 3751-5750 lbs	53.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	23.2	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	3.5	0.0	86.7	13.3
Lite-Heavy Truck 10,001-14,000 lbs	1.1	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	2.1	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	1.2	0.0	0.0	100.0
Other Bus	0.0	0.0	0.0	100.0
Urban Bus	0.0	0.0	0.0	100.0
Motorcycle	0.0	60.9	39.1	0.0
School Bus	0.0	0.0	0.0	100.0
Motor Home	0.0	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Truck Trips to deliver Carryout Bags				2.0	1.0	97.0

Operational Changes to Defaults