



Project Report

Economic Impact Analysis

**Proposed Ban on Plastic Carryout Bags in
Los Angeles County**

**Ordinance to be placed in Title 12
of the Los Angeles County Code**

Prepared for

**Sapphos Environmental, Inc.
Pasadena, California**

Submitted by

**AECOM Technical Services (AECOM)
(formerly Economics Research Associates)**

11 13 2010

Project No. 18373

Table of Contents

Table of Contents	2
General □ Limiting Conditions	3
Summary	4
Overview	5
Environmental Concerns.....	5
Brief History of Plastic Bag Efforts	6
Summary of Proposed Ordinance	9
Los Angeles County Demographics.....	10
Impact to Stores (Primary Consumers).....	12
Pricing	12
Types of Bags Used at Checkout	13
Paper Bags	14
Reusable Bags.....	15
Employment	15
Transportation	16
Impact	16
Per Capita Plastic Bag Consumption and Recycling	17
Per Capita Plastic Bag Consumption in California	17
Existing Hidden Cost of Plastic Carryout Bags.....	18
Switching Costs from Current Conditions to Post-Ban Carryout Methods	18
Cost of Additional Trash Bags	20
Sales Tax Implications	21
Total Cost of Proposed Ban.....	22
Socioeconomic Impacts	23
Appendices	24

General □ Limiting Conditions

Every reasonable effort has been made to ensure that the data contained in this report are accurate as of the date of this study; however, factors exist that are outside the control of AECOM and that may affect the estimates and/or projections noted herein. This study is based on estimates, assumptions and other information developed by AECOM from its independent research effort, general knowledge of the industry, and information provided by and consultations with the client and the client's representatives. No responsibility is assumed for inaccuracies in reporting by the client, the client's agent and representatives, or any other data source used in preparing or presenting this study.

This report is based on information that was current as of September 2010 and AECOM has not undertaken any update of its research effort since such date.

Because future events and circumstances, many of which are not known as of the date of this study, may affect the estimates contained therein, no warranty or representation is made by AECOM that any of the projected values or results contained in this study will actually be achieved.

Possession of this study does not carry with it the right of publication thereof or to use the name of "AECOM" or "Economics Research Associates" in any manner without first obtaining the prior written consent of AECOM. No abstracting, excerpting or summarization of this study may be made without first obtaining the prior written consent of AECOM. Further, AECOM has served solely in the capacity of consultant and has not rendered any expert opinions. This report is not to be used in conjunction with any public or private offering of securities, debt, equity, or other similar purpose where it may be relied upon to any degree by any person other than the client, nor is any third party entitled to rely upon this report, without first obtaining the prior written consent of AECOM. This study may not be used for purposes other than that for which it is prepared or for which prior written consent has first been obtained from AECOM. Any changes made to the study, or any use of the study not specifically prescribed under agreement between the parties or otherwise expressly approved by AECOM, shall be at the sole risk of the party making such changes or adopting such use.

This study is qualified in its entirety by, and should be considered in light of, these limitations, conditions and considerations.

Summary

In this report, AECOM has assessed the economic impact of a proposed ban on plastic carryout bags at grocery stores, pharmacies, and select other retail establishments doing business in Los Angeles County (County).

The report is divided into several sections:

1. First, an overview of common terms, environmental concerns, a brief history of existing bans and taxes on plastic bags, and a summary of the proposed ordinance to ban plastic carryout bags is provided.
2. Next, characteristics of Los Angeles County residents, including total population and number of households, and employment characteristics, are summarized.
3. The report then explores the impact on primary consumers, such as grocery stores and other retail stores, and on retail customers, who are the typical end users of plastic carryout bags.
4. The report concludes with a discussion of the potential socioeconomic impact of the proposed ordinance to County residents.

Economic impact is framed in terms of the **financial cost to retail customers**, specifically defined as new costs related to the proposed ordinance less costs that exist under current conditions. Potential savings or added value to customers, in the form of reduced taxes for litter abatement, increased property values, and the value of other environmental benefits associated with the proposed ordinance were not calculated in this study.

The per-capita costs to customers were estimated by analyzing the following three components that are expected to result in additional direct costs to customers:

- Switching costs: costs incurred for customers to purchase other means to carry their purchases from stores (e.g., paper bags and reusable bags) less the costs of current carryout methods (e.g., plastic, paper, and reusable bags). Many of these costs are currently incorporated into retail prices for goods and are therefore hidden from customers.
- New purchases: costs incurred for additional garbage bags purchased to replace plastic bags that are currently reused as wastebasket and trash can liners, and for the disposal of pet waste.
- New sales tax: additional taxes resulting from switching costs and new purchases as described above.

Per-Capita Cost □ Switching Costs □ New Purchases □ New Sales Tax

Per direction of the client, AECOM modeled an average, expected cost scenario to estimate the potential impact to the customer resulting from the proposed ordinance to ban plastic carryout bags and impose a charge on paper carryout bags. This model is based on a moderate case scenario, using the average or expected value of each key variable. It is AECOM's opinion that this scenario is representative of the economic impact most likely to occur under the proposed ordinance. The actual economic impact will vary depending on a number of factors, such as the actual cost of bags, the rate at which customers switch from plastic bags to other options, and the decision of stores to pass along any costs or savings to customers.

At present, the proposed ban on plastic bags is limited to supermarkets and other grocery stores, convenience stores, large retail outlets with pharmacies, and drug stores located only in the County unincorporated areas. As a result, the impact of the ban will be limited because only certain stores, and therefore customers, will be affected.

Based on an estimate of the costs outlined above, the total estimated economic impact to residents of the County unincorporated areas is approximately \$5.72 per capita annually.

Overview

For purposes of this report, the following key terms are defined:¹

- **Customer:** Any person purchasing or otherwise obtaining goods or other materials from a store.
- **Levy:** A fee or charge paid on an item at the point of sale.
- **Plastic carryout bag:** Any plastic bag that is provided to a customer at the point of sale (e.g., at the checkout register), excluding reusable bags, produce bags, or product bags, but including compostable and biodegradable bags, whether such bags are made predominantly of plastic derived from petroleum or biological based sources, such as corn or other plant sources.²
- **Reusable bag:** A bag with handles that is specifically designed and manufactured for multiple reuse, is machine-washable, and, if made of plastic, is at least 2.25 mils thick.³
- **Single-use carryout bag:** Any non-reusable bag provided at the retail point-of-sale for carrying and transporting retail goods. May be made of paper, plastic, or other material.
- **Single-use plastic carryout bag, or single-use plastic bag:** Same as plastic carryout bag, above. Used interchangeably.
- **Store:** Any retail establishment located within or doing business within the geographical limits of Los Angeles County.
- **Trash Bag or Garbage Bag:** Any plastic bag specifically designed, packaged, and/or sold for purposes of household trash disposal.⁴

Environmental Concerns

The widespread use of plastic carryout bags raises significant environmental concerns about short and long term adverse effects to marine ecosystems, solid waste management, global resource consumption, and impacts resulting from litter, all of which require public resources to mitigate or manage. Separate from this report, an environmental impact study is being conducted to quantify the environmental effects of plastic bags and impact of the proposed ordinance in Los Angeles County.

AECOM has not conducted a review of environmental literature for this report. Nonetheless, a summary of life-cycle assessments prepared for Seattle Public Utilities indicates that:

- Plastic shopping bags entering the marine environment represent a threat (not quantified) to marine life along with other packaging and other littered items.
- In most instances, a switch to reusable bags provides the greatest environmental benefits if used a minimum number of times. The environmental benefits of the reusable bag relative to those of

¹ Based on draft language and definitions provided by County Counsel. 19 October 2010. County of Los Angeles Department of Public Works. *Plastic Bag Ordinance to be Placed in Title 12 of the Los Angeles County Code (Draft)*.

² Also referencing Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. (p.1)

³ Based on draft language and definitions provided by County Counsel. 19 October 2010. County of Los Angeles Department of Public Works. *Plastic Bag Ordinance to be Placed in Title 12 of the Los Angeles County Code (Draft)*. Full text in ordinance: "Reusable bag" means a bag with handles that is specifically designed and manufactured for multiple reuse and meets all of the following requirements: (1) has a minimum lifetime of 125 uses, which for purposes of this section, "uses" means the capability of carrying a minimum of 22 pounds 125 times over a distance of at least 175 feet; (2) has a minimum volume of 15 liters; (3) is machine washable; (4) does not contain lead, cadmium, or any other heavy metal in toxic amounts; (5) has printed on the bag or on a tag that is permanently affixed, the name of the manufacturer, the location (country) where the bag was manufactured, the statement that the bag does not contain lead, cadmium, or any other heavy metal in toxic amounts, and the percentage of postconsumer recycled material used, if any; and (6) if made of plastic, is a minimum of at least 2.25 mils thick.

⁴ Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. (p.1) and http://en.wiktionary.org/wiki/trash_bag Accessed 15 November 2009.

disposable plastic bags depend on the number of times it is reused. Policies developed to discourage disposable shopping bags should focus on consumer behavior to maximize this approach.

- There was general agreement among the studies that paper bags were shown to have the greater environmentally [sic] burden, due primarily to the greater amount of resources (materials, [including water], and fuels for transport from greater weight per bag) that they require.⁵

In Los Angeles County, litter clean-up, including clean up of plastic carryout bags, is a substantial cost borne by various agencies, including California Department of Transportation (Caltrans), LA County Department of Public Works, LA County Flood Control District, and numerous municipal agencies, among others. For example:

- The County of Los Angeles Flood Control District spent over \$24 million on litter prevention, cleanup, and disposal in 2008-2009, the year data is most recently available.⁶
- Caltrans District 7 collected 50,000 cubic yards of litter and debris at a cost of \$12 million in FY 2005-2006. This does not include tens of thousands of hours spent by community services workers collecting litter along highways.⁷

In terms of litter volume, results of a 2001 Caltrans study of wastewater litter catch basins along freeways in Los Angeles indicated that plastic film comprised 7 percent by mass and 12 percent by volume of the total litter collected.⁸

These findings suggest that a reduction in plastic bag use could not only reduce environmental impacts related to plastic waste, but also lead to a tangible reduction in plastic carryout bag litter, resulting in potentially lower collection costs to County agencies. These savings could be passed on to rate payers or, more likely, allocated to other uses by the affected agencies for the public good, and may offset or help to offset the costs identified in this study. This analysis did not attempt to calculate the per-capita value of such benefits.

Cities in the United States and countries around the world have implemented various taxes, fees, charges, bans, and other strategies to address the environmental and civic costs and concerns related to the use and disposal of plastic bags. The efforts attempt to reduce the negative impacts resulting from single-use plastic bag waste and litter. A brief history of plastic bag bans and taxes is presented below; while it is intended to provide regional and international context to the proposed ordinance, it is not a comprehensive list.

Brief History of Plastic Bag Efforts

1994: Denmark levies a tax on suppliers of both paper and plastic bags. This tax is largely passed on to retailers, who in turn pass the cost on to customers. Denmark experienced an initial reduction of 60 percent in total disposable bag use; there has been a slight increase in this rate over time.⁹

2002: Ireland levies a nationwide tax against plastic shopping bags that is paid directly by consumers. Known as the "PlasTax," the 0.15 euro levy is applied at the point-of-sale to retailers and is required to be passed on directly to the consumer as an itemized line on any invoice. The PlasTax applies to all single-use,

⁵ Herrera Environmental Consultants, Inc. *Alternatives to Disposable Shopping Bags and Food Service Items: Volume I*. January 29, 2008. (p.ES-5). Available online: <http://www.seattlebagtax.org/herrera1.pdf>

⁶ Los Angeles County Municipal Storm Water Permit (Order 01-182) Individual Annual Report Form. October 2009. Available at: <http://dpw.lacounty.gov/wmd/NPDESRSA/AnnualReport/2009/Appendix%20D%20-%20Principal%20Permittee%20Annual%20Report/Principal%20Permittee%20Annual%20Report.pdf>

⁷ *ibid.* p.26

⁸ Lippner, Gary, John Johnston, Suzanne Combs, Kimberly Walter, and David Marx. *Results of the Caltrans Litter Management Pilot Study*. 2001. (Table 1, p.13) Presented in **Transportation Research Record 1743**. Available online at: <http://www.owp.csus.edu/research/papers/papers/PP020.pdf>
Authors note that study results are limited to freeway environment and that litter in municipal storm systems may have different characteristics. Variability in litter collected suggest that long term monitoring records are needed to produce statistically reliable results. (p.10)

⁹ GHK Ltd. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme. Final Report*. May 2007.

plastic carryout bags including biodegradable polymer bags. It does not apply to bags for fresh produce, reusable bags sold for 0.70 euro, or to bags holding goods sold on board a ship or plane or in an area of a port or airport exclusive to intended passengers.¹⁰ Plastic bag usage initially declined 90 to 95 percent; it subsequently leveled off closer to 75 percent of the original value.^{11, 12} However, there also appears to have been an increase in pre-packaging for fresh foods and a high rate of switchover to single-use paper bags.¹³

The Government of South Africa passed regulations in May 2002 prohibiting "the manufacture, trade, and commercial distribution of plastic bags" with wall thickness less than 80 micrometres (microns).¹⁴ Regulations were to become effective one year from date of published notice.¹⁵ However, lobbying by industry and labor resulted in their repeal nearly a year later.¹⁶ It appears that the regulations never went into effect.

Australia: The Environmental Protection and Heritage Council has been very active in trying to reduce plastic bag use. Retailers support single-use carryout bag reductions via a voluntary "Retailers Code." From 2003 to 2005, plastic bag use fell from 5.95 billion bags to 3.92 billion bags, and then fell again to 3.36 billion bags in 2006. This represents a 44-percent decrease over three years from voluntary activities. However, consumption of plastic bags rose 14 percent year over year in 2007, back up to 3.93 billion bags.¹⁷

In November of 2008, South Australia (a state in Australia) adopted a ban of lightweight, check-out style plastic bags. The ban, which went into effect on May 4, 2009, prevents any and all retailers from giving away or selling any plastic bag that is less than 35 microns thick and made of polyethylene polymer. As a result of the ban, more than ninety percent of shoppers are taking reusable bags to the supermarket, compared to approximately sixty percent before the ban took effect.¹⁸

Taiwan: The Taiwanese Government set a direct charge against consumers in 2003 as part of a wider waste-reduction initiative. The charge resulted in a 68-percent reduction in plastic bag use. However, there was also significant switching to paper and alternative bags. The initial ban on thin plastic bags was withdrawn from application to storefront restaurants following an increase in total plastic use and problems with compliance.¹⁹

2007: In November, the City and County of San Francisco (CA) banned the use of non-compostable plastic checkout bags in supermarkets and grocery stores with \$2 million or more in annual sales revenue. The ordinance allows use of recyclable paper bags and compostable plastic or durable (reusable) plastic bags at least 2.25 mils thick.

2008: On May 27, 2008, the City of Malibu adopted an ordinance banning plastic carryout bags. The ordinance provides that no affected retail establishment, restaurant, vendor or nonprofit vendor shall provide plastic bags or compostable plastic bags to customers.²⁰ Further, this same section of the ordinance prohibits

¹⁰ Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. (p.21)

¹¹ Scottish Executive, Environment Group Research Report. *Proposed Plastic Bag Levy -- Extended Impact Assessment: Volume 1: Main Report: Final Report*. August 2005. (p.7)

¹² GHK Ltd. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme. Final Report*. May 2007.

¹³ GHK Ltd. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme. Final Report*. May 2007.

¹⁴ 80 microns □ 3.15 mils

¹⁵ "Regulations on Plastic Bags Under Section 24 of the Environmental Conservation Act" *South Africa Environmental Quality Protection Branch, General Policy*. May 9, 2002.

¹⁶ Nhamo, Godwell. *Environmental Policy Processes Surrounding South Africa's Plastic Bags Regulations: Tensions, Debates and Responses in Waste Product Regulation*. Ph.D. Dissertation, Rhodes University, Grahamstown, South Africa, May 2005. (p.iii)

¹⁷ Australian Environmental Protection and Heritage Council. *Decision Regulatory Impact Statement: Investigation of Options to Reduce the Impacts of Plastic Bags*. April 2008.

¹⁸ Zero Waste South Australia. <http://www.zerowaste.sa.gov.au/plastic-bags>

¹⁹ GHK Ltd. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme. Final Report*. May 2007.

²⁰ Malibu Municipal Code, Title 9, "Public Peace and Welfare," Chapter 9.28, "Ban on Shopping Bags," Section 9.28.020.

any person from distributing plastic carryout bags or compostable plastic carryout bags at any City facility or any event held on City property. The ordinance became effective on June 26, 2008 and became operative for grocery stores, food vendors, restaurants, pharmacies, and city operations 6 months after the effective date, and at all other retail stores 12 months after the effective date.

In July, the Seattle City Council (WA) imposed a 20-cent-per-bag charge on retailers with the express purpose of reducing plastic and paper waste. The charge was suspended until a referendum could be held in August 2009, when voters passed a law revoking the fee. The American Chemistry Council spent approximately \$1.4 million in their effort to repeal the ban.^{21 22}

The Los Angeles City Council unanimously voted on July 22, 2008, to ban single-use, plastic carryout bags from stores beginning January 1, 2010, if the State had not imposed a fee of at least 25 cents by then. The ban allows shoppers to either bring their own bags or pay 25 cents for a paper or biodegradable bag. As of the writing of this report, the ordinance has not been implemented.²³

2009: In September, the San Jose City Council (CA) recommended approval of a ban that would prohibit the distribution of plastic carryout bags in all retail outlets except restaurants and those operated by nonprofit and social service organizations. Under the proposed ordinance, paper bags made of at least 50 percent recycled material would be allowed for a fee.^{24 25} In July of 2010, the City of San Jose issued a Draft EIR for the proposed plastic carryout bag ordinance.

In Palo Alto (CA), a complete ban went into effect in September on single-use plastic bags in grocery stores. The City was sued in April 2009 over the ordinance, but settled out of court, agreeing to conduct a full environmental impact analysis before applying the ban to other retail outlets.

The City Council of Edmonds, a suburb of Seattle, WA, voted to approve a complete ban on plastic bags in July 2009, pending the results of an environmental review. The ordinance bans single use plastic bag distribution in all retail outlets, while allowing for the distribution of free paper bags. The ordinance became effective on August 27, 2010.

In September, the District of Columbia adopted an ordinance to charge a fee on carryout bags that took effect on January 1, 2010. Titled "The Anacostia River Clean Up and Protection Act of 2009," the ordinance stipulates that a retail establishment shall charge each customer making a purchase from the establishment a fee of 5 cents for each disposable carryout bag provided to the customer with the purchase. The tax is one of the first of its kind in the nation. Under regulations created by the District of Columbia Department of the Environment, bakeries, delicatessens, grocery stores, pharmacies, and convenience stores that sell food, as well as restaurants and street vendors, liquor stores and "any business that sells food items," must charge the tax on paper or plastic carryout bags. Since the adoption of this ordinance, the District of Columbia has seen bag use drop to a median value of 5.0 million bags per month, down from an estimated bag use of 22.5 million bags per month prior to implementation of the ban.²⁶

²¹ "Debate Over Plastic Bags Heats Up In Seattle" *NPR*. August 10, 2009. Accessed online September 10, 2009 at

²² Christman, Keith. Senior Director, American Chemistry Council. Telephone interview with AECOM staff. September 4, 2009. The American Chemistry Council (ACC), formerly known as the Chemical Manufacturers' Association, is an industry trade association for American chemical companies, based in Arlington County, Virginia. The trade group represents U.S. chemical companies as well as the plastics and chlorine industries.

²³ "LA Plastic Bag Ban: Disposable Bags Outlawed by 2010" *Huffington Post*. July 23, 2008.

²⁴ "San Jose Closer to Ban on Plastic, Most Paper Bags" *San Jose Mercury News*. August 25, 2009.

²⁵ City of San Jose. City Council Agenda Synopsis, September 22, 2009. Available online: <http://www.sanjoseca.gov/clerk/Agenda/20090922/20090922syn.pdf>

²⁶ For detailed calculations, see Appendix 1. According to the legislative record for the ban, the District of Columbia did not track single-use bag consumption prior to implementation of the ban. Source: May 14, 2009 Fiscal Impact Statement "Anacostia River Clean Up and Protection Act of 2009" for bill number 18-150 available in the May 14, 2009 Committee Report, accessed 10/19/2010 at: <http://www.dccouncil.washington.dc.us/lms/legislation.aspx?LegNo=B18-0150&Description=%22ANACOSTIA%20RIVER%20CLEAN%20UP%20AND%20PROTECTION%20ACT%20OF%202009%22.%0D%0A%00ID%22118> In the fiscal impact estimates, the District of Columbia based estimates of existing bag usage in the District on figures for 2008 bag consumption in Seattle, WA. Bag use after implementation of the ban is based on Anacostia River Clean-up Protection Fund

Mexico City: Single use plastic shopping bags were officially banned in March 2009, and the law went into effect in August, with a one-year grace period to give retail outlets and plastics manufacturers time to implement a cost-effective switch.²⁷ The law affects all stores, production facilities and service providers within the Federal District, which encompasses the city limits.²⁸

2010: American Samoa is the first US Territory to ban plastic shopping bags. The law, signed by Governor Togiola Tulafono in August 2010, takes effect February 23, 2011. According to Jared Blumenfeld, the Environmental Protection Agency's Regional Administrator for the Pacific Southwest, "We welcome American Samoa's leadership in the Pacific islands to ban plastic shopping bags. This action will decrease the amount of plastic waste in the territory and directly protect marine and bird life in the Pacific."²⁹

Summary of Proposed Ordinance

The proposed ordinance under examination in this report would prohibit the issuance of plastic carryout bags by select retail establishments located within or doing business within the geographical limits of the County unincorporated areas. In addition, the proposed ordinance requires stores to charge 10¢ per bag, payable by customers, on all paper carryout bags provided at the retail point of sale.³⁰ Note that non-recyclable paper carryout bags will be prohibited under the ordinance.

The following retail establishments would be subject to the proposed ordinance (representing approximately 1,000 stores in the County unincorporated areas).³¹

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

Other legislation pertinent to the proposed ordinance includes the California statute known as Assembly Bill 2449 (effective July 1, 2007, located in California Public Resources Code Sections 42250 - 42257). AB 2449 requires all large supermarkets and retail stores to offer reusable bags for purchase, and to place containers for plastic bag recycling in prominent locations at each store.³² AB 2449 specifically prohibits local governments from imposing a fee on plastic carryout bags.³³

Distributions data provided by the Mr. William Bowie in the District of Columbia Office of the Chief Financial Officer, Office of Tax and Revenue, via email exchange in October 2010.

²⁷ Malkin, Elisabeth. "Unveiling a Plastic Bag Ban in Mexico City." *New York Times*. August 21, 2009.

²⁸ CNN Wire. "No More Plastic Bags for Mexico City." August 19, 2009.

²⁹ United States Environmental Protection Agency. September 30, 2010. U.S. EPA applauds American Samoa's decision to ban plastic shopping bags. Available at: <http://yosemite.epa.gov/opa/admpress.nsf/0/921A87D72D9AAFC1852577AE007394F1>

³⁰ County of Los Angeles Department of Public Works. 12 October 2010. *Plastic Bag Ordinance to be Placed in Title 12 of the Los Angeles County Code* (Draft).

³¹ *ibid.*

³² Available online: http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_2401-2450/ab_2449_bill_20060930_chaptered.pdf

³³ Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007. (p.7)

Los Angeles County Demographics

In Los Angeles County, the majority of residents live in incorporated cities (Table 1). Cities are home to 9.2 million County residents, made up of 3.0 million households with an approximate size of 3.0 persons per household. In contrast, 11 percent of the County's population resides in unincorporated areas: 1.1 million residents and 305,000 households with an approximate size of 3.5 persons per household. Households in unincorporated areas tend to be about 17 percent larger than those in cities. Nearly 40 percent of the households across the County include children under the age of 18.

Table 1: Population and Households, 2010

	Incorporated Cities	Unincorporated Areas	Total LA County
Population	9,165,000	1,090,000	10,260,000
% Distribution	89%	11%	100%
Households	2,985,000	305,000	3,290,000
% Distribution	91%	9%	100%
Average HH Size	3.0	3.5	3.1

Source: California Department of Finance, ESRI Business Analyst, American Community Survey
Population values rounded to nearest 5,000, total population excludes group quarters

Approximately 91 percent of the resident workforce was employed in 2008, the latest date when statistics by location were available. The services industry is unquestionably the largest employer in the County, employing 45-48 percent of residents. In the unincorporated areas of the County, employment is weighted more towards blue collar occupations, including industries such as agriculture, construction, and manufacturing.

Table 2: Employment by Status and Industry, 2008

	Incorporated Cities		Unincorporated Areas		Total LA County	
Workforce Status (Civilian, Age 16+)						
Employed	3,510,000	90.5%	395,000	90.7%	3,905,000	90.5%
Unemployed	370,000	9.5%	40,000	9.3%	410,000	9.5%
Total Resident Workforce	3,880,000		435,000		4,315,000	
Industry (Employed Pop, Aged 16+)						
Agriculture/Mining	10,000	0.2%	0	0.3%	10,000	0.2%
Construction	230,000	5.9%	30,000	6.7%	260,000	6.0%
Manufacturing	435,000	11.2%	55,000	12.9%	490,000	11.4%
Wholesale Trade	165,000	4.3%	25,000	5.4%	190,000	4.4%
Retail Trade	405,000	10.5%	45,000	10.9%	450,000	10.4%
Transportation/Utilities	185,000	4.8%	25,000	5.6%	210,000	4.9%
Information	165,000	4.2%	15,000	3.0%	180,000	4.2%
Finance/Insurance/Real Estate	300,000	7.7%	30,000	7.0%	330,000	7.6%
Services	1,865,000	48.1%	195,000	44.5%	2,060,000	47.7%
Public Administration	115,000	3.0%	15,000	3.7%	130,000	3.0%
Occupation (Workforce Pop, Age 16+)						
<u>White Collar</u>	<u>2,445,000</u>	<u>63.0%</u>	<u>255,000</u>	<u>58.9%</u>	<u>2,700,000</u>	<u>62.6%</u>
Management/Business/Financial	340,000	13.9%	35,000	12.8%	375,000	13.9%
Professional	545,000	22.3%	50,000	18.9%	595,000	22.0%
Sales	290,000	11.9%	30,000	11.8%	320,000	11.9%
Administrative Support	365,000	15.0%	40,000	15.4%	405,000	15.0%
<u>Services</u>	<u>630,000</u>	<u>16.2%</u>	<u>70,000</u>	<u>16.3%</u>	<u>700,000</u>	<u>16.2%</u>
<u>Blue Collar</u>	<u>805,000</u>	<u>20.7%</u>	<u>110,000</u>	<u>24.8%</u>	<u>915,000</u>	<u>21.2%</u>
Farming/Forestry/Fishing	0	0.1%	0	0.2%	0	0.0%
Construction/Extraction	40,000	4.9%	5,000	5.6%	45,000	4.9%
Installation/Maintenance/Repair	25,000	3.2%	5,000	3.8%	30,000	3.3%
Production	55,000	6.8%	10,000	7.9%	65,000	7.1%
Transportation/Material Moving	45,000	5.7%	10,000	7.4%	55,000	6.0%

Source: ESRI Business Analyst

Population values rounded to nearest 5,000

Impact to Stores (Primary Consumers)

Grocery stores, supermarkets, drug stores, convenience stores, and large-format retail outlets with pharmacies (such as Target and Wal-Mart) are most likely to be impacted by the proposed ordinance due to the language of the draft ordinance.

Key issues related to a ban on plastic bags include the following, according to a survey of local food service and general retailers prior to the implementation of a Seattle ban:³⁴

- Retailers are willing to cooperate as long as any measures do not impose onerous new requirements in fees, record-keeping, or other time-consuming activities
- Retailers' concern increases as the size of the retailer decreases
- Retailers prefer that the local government force the issue rather than suggest that shops institute changes — they want the government to shoulder customer blame
- Retailers want one to two years of lead time prior to the onset of any program

The U.S. retail grocery industry includes about 70,000 grocery stores with combined annual revenue of almost \$500 billion. Large companies include Kroger, Safeway, and SUPERVALU. The industry is concentrated: the 50 largest companies generate about 70 percent of revenue. Convenience stores, discount stores, and warehouse clubs and superstores that sell groceries are distinct from, but related to the retail grocery industry.

The retail grocery industry includes national and regional chains and independent retailers. Large companies may operate multiple chains under different banners. A typical grocery store averages 47,500 square feet; carries 45,000 different items; and generates almost \$400,000 weekly, according to the Food Marketing Institute. In retail grocery outlets, major product lines include perishable foods (50 percent of industry sales); non-perishable foods (25 percent); and non-food items (20 percent). Perishables include meats/poultry/fish, produce, dairy, frozen foods, and deli items. Nonperishable foods (or dry grocery products) include most packaged goods, such as cereals, snacks, and soft drinks. Nonfood items include health and beauty products, general merchandise, and medication (including prescription drugs).³⁵

Because price is a primary driver in the grocery shopping decision, companies have come to rely on price discounting and promotions to drive volume. While manufacturers bear most of the cost of trade promotions, frequent discounts have conditioned consumers to look for the best deal and have diminished store loyalty. Deep discounts and specials often create short-term volume increases at the expense of long-term business. This issue drives the concern among retailers that local customers may shop elsewhere if prices at local stores increase as a result of a plastic bag ban, which would be passed along to customers through higher retail prices or charges on carryout paper bags.

Pricing

According to interviews with industry experts and bag manufacturers, the typical price range for a single-use, plastic carryout bag in Los Angeles runs between one-half cent to one cent (\$0.005 to \$0.01) per bag. Single-use paper bags of the type commonly found in grocery stores typically sell for between five and fifteen cents (\$0.05 to \$0.15) per bag.

³⁴ Herrera Environmental Consultants, Inc. *Alternatives to Disposable Shopping Bags and Food Service Items: Volume I*. January 29, 2008. (p.6-3). Available online: <http://www.seattlebagtax.org/herrera1.pdf>

Focus group attendees included: pharmacy manager of large chain grocery store, owner of privately owned book store, manager of large chain department store, assistant manager of privately owned clothing store, manager of privately owned book store, manager of community owned grocery store, pharmacy manager of large chain grocery store, manager of privately owned general store, part owner of privately owned convenience store, part owner of privately owned convenience store (Appendix I)

³⁵ First Research. *Industry Profile: Grocery Stores and Supermarkets*. Quarterly update 7/6/2009.

Table 3: Estimated Retail Price of Single-Use Carryout Bag

	LDPE	HDPE		Paper Sack	Reusable Bag		Recycling
		low	high		low	high	\$/lb
CA Grocers Association	\$0.005			\$0.15	\$0.75	\$0.99	
Ralphs	\$0.005			\$0.05			
Command Packaging		\$0.015	\$0.025				
American Chemistry Council	\$0.010						\$0.15
Crown Poly Inc.	\$0.010	\$0.015	\$0.020				
Low	\$0.005			\$0.050	\$0.75		
Average	0.008			0.100	0.87		
High	\$0.010			\$0.150	\$0.99		

Source: Interviews with Matthew Dodson (CA Grocers Association), Kent Boatner (Ralphs), Pete Grande (Command Packaging), Keith Christman (American Chemistry Council), Cathy Browne (Crown Poly Inc.)

Types of Bags Used at Checkout

Studies from Australia indicate a substantially different mix of bag use among customers depending on whether or not there is a charge for carryout bags. In stores where single-use bags were available for free, more than two-thirds of customers chose single-use bags as the method to transport goods out of the store. In contrast, only a third of customers chose single-use bags in stores where there was a charge for each single-use bag.

Table 4: Distribution of Bags at Checkout (Australia)

	Supermarket/Grocery Stores		All Retail Outlets	
	No Charge for Single Use Bag	Charge a fee for Single Use bags	No Charge for Single Use Bag	Charge a fee for Single Use bags
Single use carryout bag	67%	31%	72%	27%
Reusable bag	16%	31%	13%	33%
No bag	17%	39%	15%	40%

□ No bag transactions include no bag and bags other than purpose-built reusable shopping bags (trolleys, back packs, handbags)

Source: Australian Environmental Protection and Heritage Council. *Plastic Retail Carry Bag Use, 2006 and 2007 Consumption: Final Report*. February 7, 2008. (P.17-18)

A survey of carryout bag use in Los Angeles County grocery stores conducted in August/September 2009 provides insight into typical customer behavior regarding carryout bag use (Table 5).³⁶ In the survey, grocers were divided into two categories:

- Traditional stores include most large supermarket chains [and] typically provide plastic carryout bags as the first choice to [the] consumer. □ Retail chains in this category include Albertsons, Bristol Farms, Food 4 Less, Gelson's, Gigante, Jon's Marketplace, Pavilions, Payless Foods, Price Rite 101, Ralphs, Superior Grocers, Top Valu, and Vons.
- Non-traditional stores encourage the use of reusable bags by not making plastic carryout bags as readily available to consumers as a first choice. □ Retail chains in this category include Whole Foods and Trader Joe's.

The LA County survey found that, on average, 96 percent of transactions at traditional stores used plastic carryout bags, with the remainder split evenly between paper and reusable bags. In non-traditional stores, 4 percent of transactions used plastic carryout bags, 78 percent used paper carryout bags, and 18 percent used reusable bags. The survey excluded 'express lane' transactions, which are likely to have higher volumes of

³⁶ Sapphos Environmental, Inc. *Bag Usage Data Collection Survey*. November 2009.

transactions involving reusable bags (such as backpacks or handbags) and no-bag transactions (where the customer carries the purchase out by hand). The survey methodology did not include a mechanism by which to count no-bag transactions, leading to under-representation of this carryout method.³⁷

Table 5: Distribution of Bags at Checkout (Los Angeles)

	<u>Traditional Grocery Stores</u>		<u>Non-Traditional Stores</u>	
Observations	4,280		840	
Average Transaction Value	\$35		\$38	
Plastic Carryout	17,110	96%	85	4%
Paper Carryout	270	2%	1,480	78%
<u>Reusable bag</u>	<u>410</u>	<u>2%</u>	<u>340</u>	<u>18%</u>
Total Bags Used	17,790	100%	1,910	100%
Average Number of Bags per Transaction	4.2		2.3	

Survey excluded express lanes, which would likely lead to higher counts of reusable bags or no-bag transactions in Non-Traditional Stores Category, Both Whole Foods and Trader Joes typically use paper bags unless plastic is requested by the customer.

Source: Sapphos Environmental, Inc. Bag Usage Data Collection Survey (11/2009)

As shown in Table 5, each transaction at a traditional grocery store consumed approximately 4.2 bags, of which 96 percent were plastic carryout bags. In contrast, transactions at non-traditional stores consumed 2.3 bags each, of which 78 percent were paper. The difference in the number of bags per transaction indicates that paper bags have a higher carrying capacity than plastic bags, considering that average transaction values were within 10 percent (\$3) of each other at both stores, without additional information about the quantity or type of purchases between stores. According to the survey data, one *paper* carryout bag has the same capacity as approximately 1.8 *plastic* carryout bags.³⁸

Paper Bags

The most direct impact to retailers of the proposed ban on plastic bags would be the increased cost resulting from a switch to paper carryout bags. Paper carryout bags are more expensive to retailers, and therefore to customers, on a per-bag basis than are plastic carryout bags (see Table 3).

According to Matthew Dodson, Director of Local Government Relations at the California Grocers Association, the most immediate impact of a potential plastic bag ban would be the higher cost to retailers of paper bags versus plastic bags, which in turn would have to be passed to consumers.³⁹

In a no-charge scenario (where plastic bags are banned but paper bags are free), customers have little incentive to switch to reusable bags because paper bags appear to be provided free of charge. As a result, customers are likely to pay the higher cost for paper bags incurred by retailers via increases in food and other retail prices.

Under the proposed ordinance that imposes a 10-cent charge, consumers would explicitly assume the cost of the paper bags, thus relieving retailers of the need to pass the cost on indirectly. Additionally, it is anticipated

³⁷ Sapphos Environmental, Inc. Email correspondence between Sapphos survey team and AECOM staff. 30 November 2009.

³⁸ This is a maximum capacity estimate, because (1) lower volume purchases (e.g. express lanes) are likely to use fewer bags but were excluded from the Sapphos survey; and (2) non-traditional stores have a substantially higher distribution of reusable bags, which have higher capacity than either paper or plastic.

³⁹ Dodson, Matthew. California Grocers Association. Telephone interview with AECOM staff. September 16 2009. The California Grocers Association is a non-profit, statewide trade association representing the food industry since 1898. CGA represents approximately 500 retail members operating over 6,000 food stores in California and Nevada, and approximately 300 grocery supplier companies. Retail membership includes chain and independent supermarkets, convenience stores and mass merchandisers.

that a charge placed on each paper bag would lead to a shift in consumer behavior towards reusable bags, due to the desire to avoid the charge.

Reusable Bags

Reusable bags, if they are promoted as an alternative to plastic and/or paper, must be washable to a minimum standard that protects the health and safety of the consumer.⁴⁰ Furthermore, customers must be educated to clean their reusable bags. This adds some additional cost to the proposed ordinance, which is likely to be assumed by public agencies and/or retailers in terms of public education campaigns.

In his interview, Mr. Dodson stated that most retailers are currently selling reusable bags at cost, with little to no profit accruing to the retailer. Many grocers/retailers sell their bags for \$0.75 to \$0.99 per bag (Table 3), though some grocers offer bags at a higher retail price.⁴¹ Encouraging the use of reusable bags over paper bags can lead to cost savings that accrue to the retailer, because they then do not have to purchase, store, and provide carryout bags to customers. Some retailers (such as Ralphs and Whole Foods) pass this savings to the customer by providing an instant rebate or reward for each reusable bag used in a transaction.⁴²

According to the proposed ordinance, a reusable bag must have a minimum lifetime of 125 uses, which means the capability of carrying a minimum of 22 pounds 125 times over a distance of at least 175 feet and have a minimum volume of 15 liters.⁴³ According to data gathered in the analysis of the Australia plastic bag initiative, a reusable bag has a lifetime of between 125 and 204 uses.⁴⁴ Based on its average cost and lifespan, a reusable bag costs one-half of 1¢ (\$0.005) per use.

Table 6: Reusable Bag Capacity and Cost

	Reuse Capacity	Cost/Bag	Cost/Use
Low	125	\$0.75	\$0.004
Average	165	\$0.87	\$0.005
High	204	\$0.99	\$0.005

Source : Nolan-ITU Pty Ltd., et al. 2006 and Table 3

Employment

Mr. Kent Boatner, Director of Store Operations for Ralphs Grocery Company, Southern California, does not expect a plastic bag ban to increase employment at his stores.⁴⁵ He estimates that it takes approximately the same amount of time to bag items into paper and plastic, though other studies have shown that 14 percent of customers think bagging takes more time with paper than with plastic, as do more than nearly 70 percent of grocery employees. This may be a factor in the use of plastic over paper by many checkout clerks. In terms of compliance with the proposed ordinance (without a fee), he does not anticipate needing new personnel, and would expect existing store employees, probably a store manager, to complete all necessary paperwork.

⁴⁰ National Plastic Shopping Bags Working Group. *Plastic Shopping Bags in Australia*. December 6, 2002. (p.21)

⁴¹ See also: Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007 and the Green Cities California Master Environmental Assessment on Single Use and Reusable Bags (2010) available online at <http://www.greencitiescalifornia.org/mea>

⁴² For example, Ralphs provides additional points on the Ralphs reward card for each reusable bag used per transaction. Whole Foods offers a \$0.05 instant rebate for each reusable bag used per transaction.

⁴³ County of Los Angeles Department of Public Works. 12 October 2010. *Plastic Bag Ordinance to be Placed in Title 12 of the Los Angeles County Code* (Draft).

⁴⁴ Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006.

⁴⁵ Boatner, Kent. Director of Store Operations for Ralphs Grocery Company. Telephone interview with AECOM staff. September 15, 2009.

Under a no-charge scenario, there is no anticipated impact to grocery store employment as a result of longer bagging times or additional administrative expenses resulting from the proposed ordinance. Under a 10-cent charge scenario, there are likely to be some additional compliance costs for retailers. These costs may be offset in part or in full by the charge itself, which according to the language of the proposed ordinance accrues to the retailer at the point of sale and may be used to offset the costs of complying with the ordinance.

Transportation

Another potential cost to retailers involves the transportation of paper bags, which are heavier than plastic and require more trucks to transport the same number of bags. According to information provided by Southern California Director of Store Operations for Ralphs, the ratio of plastic to paper in terms of transportation volume is 8:1 (8 plastic bags can be shipped for every 1 paper bag).^{46, 47}

The number of paper bags demanded upon implementation of the proposed ordinance will impact the number of net new shipments required to supply both wholesalers and retailers with sufficient volume of carryout bags. Although a lower number of paper bags can be transported per truck, the proposed ordinance would discourage consumers from utilizing paper bags. As a result, it is likely that the total number of trucks required to transport carryout bags would decline, leading to potentially lower transportation costs.⁴⁸ Therefore, this study has not estimated the distribution of any potential new transportation costs associated with the proposed ordinance.

Impact

The net economic impact of the proposed ordinance to primary consumers of carryout bags (grocery, supermarket, and other large retail outlets) is expected to be negligible.

It is also possible that retailers may experience reduced transportation and warehousing costs as a result of expected changes in consumer behavior. Although it is feasible that a reduction in costs to primary customers would be passed on to consumers in the form of lower prices, for the purposes of this analysis such impacts were assumed to be negligible and were not calculated.

⁴⁶ Boatner, Kent. Director of Store Operations for Ralphs Grocery Company. Telephone interview with AECOM staff. September 15, 2009. Ralphs Grocery is the largest supermarket division of Cincinnati, Ohio-based retail conglomerate Kroger. In addition to Ralphs supermarkets, the company operates the following brand name stores in California: Cala Foods, Bell Markets, Food-4-Less, and FoodsCo

⁴⁷ One truck can transport 864,000 carryout plastic bags. A truck can hold 24 pallets. A pallet of plastic bags consists of 36 cases holding 1,000 plastic bags each. With regard to paper bags, however, one truck can transport 108,000 carryout paper bags. A same-sized pallet of paper bags consists of 15 cases holding 300 paper bags each, or 4,500 paper bags per pallet. One truck of 24 pallets can transport 108,000 paper bags, roughly 12 percent, or one-eighth of the number of plastic bags that can be transported on the same truck.

⁴⁸ See Appendix 2 for detailed calculations.

Impact to Customers

As described in the previous section, the estimated direct cost of the switch from one plastic bag to one paper bag is between 5 and 10 cents per bag. Given the thin margins at grocery stores and commodity retail outlets in general, new costs incurred as a result of the proposed ordinance may be potentially passed on directly to consumers in the form of higher prices. Under the proposed ordinance, those costs are directly levied on the customer through a charge of 10¢ per bag.

Per Capita Plastic Bag Consumption and Recycling

Carryout plastic bags are used and recycled at different rates around the world. In Ireland, annual consumption was approximately 325 plastic carry bags per person per year prior to the implementation of the PlasTax. The Irish recycling rate of plastic bags was only one-half of one percent (0.5%). Australians consumed approximately 350 single-use plastic bags per year. The Australian recycling rate prior to the implementation of a number of plastic bag reduction policies was estimated at 2.7 percent.⁴⁹ The rate of plastic bag recycling in the United States is estimated to be less than 5 percent.⁵⁰ The table below summarizes available data on plastic bag consumption and recycling prior to the implementation of bans, taxes, or fees on plastic or carryout bags.

Table 7: Single-use Plastic Bag Consumption (no bans, fees, or taxes)

	Bags/Capita	Recycling Rate
Ireland	325	0.5%
Australia	340 - 350	2.7%
Scotland	153	
Hong Kong	1,095	
Wales	164	
United States		□5%

Source: see Footnote 51 ⁵¹

Per Capita Plastic Bag Consumption in California

AECOM estimates that residents of Los Angeles County consume from 580 to 700 single-use plastic bags per capita per year (see Appendix 3: Calculation of Per Capita Plastic Bag Consumption for details). These values are based on the estimated tonnage of plastic bags in the waste stream, as well as consumption figures from the Los Angeles County Department of Public Works. To calculate plastic bag consumption from the California waste stream, plastic bag tonnage is converted to bags per person and then adjusted for estimated recycling rates. We compared this value to estimates in the Los Angeles County Department of Public Works August 2007 study, and combined the results to develop an average estimate of plastic bag consumption per capita for residents of Los Angeles County. We then adjusted the per capita estimate to include only those

⁴⁹ The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006. (p.6)

⁵⁰ Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007.

⁵¹ Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. □Scottish Executive, Environment Group Research Report. *Proposed Plastic Bag Levy -- Extended Impact Assessment: Volume 2: Appendices*. August 2005. □Scottish Executive, Environment Group Research Report. *Proposed Plastic Bag Levy -- Extended Impact Assessment: Volume 1: Main Report: Final Report*. August 2005. □GHK Ltd. *The Benefits and Effects of the Plastic Shopping Bag Charging Scheme. Final Report*. May 2007. □National Assembly for Wales. *Report on the Sustainability Committee's Inquiry into Petition P-03-63: Banning Plastic Bags*. November 2008. □The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006. (p.6) □Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007.

bags likely to be consumed at retail outlets affected by the proposed ordinance. This was accomplished by using the percentage distribution of actual carryout bags among retail outlets in Australia, and comparing that figure with the estimated retail sales percentage distribution among retail categories for US consumers.

In conclusion, Los Angeles County residents currently consume an estimated 402 to 484 single use plastic bags annually at stores likely to be impacted by the County's proposed ban on plastic bags. **The average consumption rate is 433 plastic carryout bags per capita.**

Table 8: Single Use Plastic Carryout Bags Per Capita

	Total Bags per Capita	Bags/Capita at Stores likely to be impacted
Low	584	402
Average	630	433
High	703	484

Source: Appendix 3: Calculation of Per Capita Plastic Bag Consumption

Existing Hidden Cost of Plastic Carryout Bags

By applying the retailers' average cost per single-use bag to the average number of bags consumed per capita, the current hidden cost of single-use plastic carryout bags is estimated to be approximately \$3.25 per person annually, assuming approximately 433 plastic bags are used per capita at an average cost of \$0.008 per bag.⁵² This is the estimated dollar cost that retailers, and therefore retail customers, in Los Angeles are already paying for "free" single-use plastic carryout bags.

Table 9: Existing Hidden Cost per Capita

	Bags per Capita	Cost per Bag	Cost per Capita
Average	433	\$0.008	\$3.25

Source: Table 3, Table 8

Switching Costs from Current Conditions to Post-Ban Carryout Methods

The Irish government published a study in late 2008 on customer maximum willingness to pay for plastic bags, nearly seven years after the PlasTax went into effect. The survey found that 40 percent of respondents were not willing to pay anything for the use of a plastic bag in a retail context. In other words, a high proportion of customers did not want plastic bags if they were not perceived to be free.

Data suggests that when customers have a free carryout bag option, they overwhelmingly choose that option. Initial data from Washington, D.C., which implemented only a 5¢ fee on plastic and paper bags, suggests a drop in bag usage of nearly 80 percent.⁵³ In a qualitative study of the 2007 plastic bag ban in San Francisco commissioned by a pro-plastic bag advocacy group,⁵⁴ the author observed that, of the 25 stores he visited, all grocery chains affected by the ordinance had switched to paper bags, with none offering plastic of any type to customers at check-out. In comparison, independent grocers not subject to the San Francisco ban continued to offer plastic bags as the primary carryout option. According to an article in the Wall Street Journal, a 2008 survey of San Francisco residents showed that 58 percent said they "almost never" take reusable bags to the grocery store despite the existing ban on plastic bags, indicating a high reliance on paper alternatives.⁵⁵ In Los Angeles, customers at non-traditional grocery stores offering free paper carryout bags (with limited or no

⁵² Table 3, Table 8

⁵³ For details, see Appendix 1: Washington DC Plastic Bag Fee

⁵⁴ Lilienfeld, Robert. "A Qualitative Study of Grocery Bag Use in San Francisco." The ULS Report. September 22, 2008.

⁵⁵ Gamerman, Ellen. "An Inconvenient Bag." *Wall Street Journal*. September 26, 2008.

plastic bag option) used paper bags in more than three out of every four transactions.⁵⁶ When single-use bags were available for free, more than two-thirds of customers in Australia chose them as the method to transport goods out of the store. In contrast, less than a third of customers chose single-use bags in stores where there was a charge for each bag used.

Under the proposed ordinance, AECOM has therefore assumed that a majority of customers would change their primary carryout method based on information discussed above. Additionally, AECOM believes the inclusion of a "no bag" option is necessary in order to capture the impact of express lines and potential shift share from growing public awareness about the impact of single-use bags resulting from the proposed ordinance.

The number of carryout bags consumed per person *after* the implementation of the proposed ordinance is based on redistribution of current annual bag consumption per capita at affected stores (433 bags) to new carryout methods (paper, reusable, and no bags), adjusted for capacity differences between paper and plastic.

Table 10 provides the estimated distribution and number of carryout bags after the implementation of the proposed ordinance. Under the proposed ordinance, we expect a decrease in use of carryout paper bags and an increase in use of reusable bags, and a net decrease in total bags resulting from both greater capacity of paper bags compared to plastic as well as the use of no bag options. It is assumed that single-use paper bag consumption after the proposed ordinance will be approximately 64 new paper bags per capita per year (assuming 27 percent of the 433 plastic bags used currently would be replaced by paper bags, and 1 paper bag holds the equivalent of 1.8 plastic bags).

Based on the distribution of bags at checkout in Australia, and as described in Table 3 and Table 6, the estimated direct cost per bag varies by bag type, as shown below. To reach the total cost of the change in use, the average cost per bag is applied to the estimated number of bags consumed after implementation of the proposed ordinance. The total annual post-ban carryout cost for all bag types is estimated to be \$6.81 per capita.

Table 10: Post-Ordinance Distribution and Cost of Carryout Bags

From Plastic (433 Bags) to:	New Distribution	Post-Ordinance Bags	Cost per Bag	Total Cost
Paper	27%	64	\$0.100	\$6.40
Reusable bag	33%	78	\$0.005	\$0.41
No bag	40%	<u>173</u>	\$0.000	<u>\$0.00</u>
Total		315		\$6.81

Source: Table 4, Table 5, Table 6 and Table 8, AECOM

After subtracting the hidden costs of single-use, plastic carryout bags under the currently existing scenario (status quo, no-ban), the net post-ban cost of switching to alternative carryout methods under the proposed County ordinance is approximately \$3.56 per capita annually (Table 11).

Table 11: Total Switching Cost per Capita
(Post-Ordinance Carryout Cost less Current Carryout Cost)

	Post-Ban Cost	Pre-Ban Hidden Cost	Net Post-Ban Cost	Change
Average	\$6.81	\$3.25	\$3.56	2.1x

Source: Table 9, Table 10

⁵⁶ Table 5, Sapphos Environmental, Inc. *Bag Usage Data Collection Survey*. November 2009.

Cost of Additional Trash Bags

Many shoppers reuse disposable plastic carryout bags as trash can liners, for animal waste disposal, and for other activities. Los Angeles County residents impacted by the proposed ordinance may want to replace those plastic bags with other products. A study conducted on behalf of Seattle Public Utilities in November 2007 found that 92 percent of households claim to reuse or recycle their plastic grocery bags, with more than half (51 percent) typically reusing their plastic carryout bags.⁵⁷ According to a 2007 study of households that reuse plastic shopping bags commissioned by the American Plastics Council, the primary use is as wastebasket/trash liners (55 percent), followed by carrying/transporting items (18 percent), and animal waste (10 percent).⁵⁸ Bags reused for trash cans and animal waste make their way directly into the waste stream; bags reused for other purposes may eventually be recycled or else are thrown away. Based on data from these two studies, the total reuse rate of plastic carryout bags as trash bags is approximately 28% (see

Table 26 in the Appendix for details). Although paper carryout bags can be used for these uses, for the purposes of this analysis it was assumed that no paper bags would be used as trash bin liners.

The rate of substitution between plastic carryout bags to trash bags has been estimated as seven-to-one.⁵⁹ In other words, it takes seven disposable plastic carryout bags to replace one plastic trash bag.

Starting with the estimated use of 433 bags per capita under the status quo, a reuse rate of 28 percent indicates that Los Angeles residents reuse approximately 121 plastic carryout bags as trash bags each year. Based on the substitution rate discussed above, AECOM estimates that the proposed ordinance will result in an average demand for 17 new trash bags per capita per year.⁶⁰ As a point of reference, Californians purchase an estimated 126 trash bags per capita per year, based on information from the California Integrated Waste Management Board.⁶¹ This does not include single-use carryout bags that have been repurposed as trash bags.

Table 12: New Demand for Trash Bags Resulting from Proposed Ordinance

	Plastic Bags per Capita at Impacted Stores (current)	Reused Bags/Capita	Substitution Rate	New Trash Bags Demanded (post-ban)
Average	433	121	7x	17

Source: Appendix 4: Trash Bag Calculation

The retail price of a plastic trash bag varies based on the capacity, brand, quality, and retail outlet, among other factors. A brief price check of 4-gallon trash bags⁶² at several grocery stores in Los Angeles revealed prices ranging from 4.2¢ per bag (Ruffies™ 4-gallon bags, 105-count at Target) to 10.5¢ per bag (Glad™ 4-gallon bags, 30-count at Target), with an average price of 7.9¢ per bag. Table 13 summarizes prices identified among a variety of retailers. Four-gallon trash bags are the smallest size bags typically sold at stores affected by the ban and are therefore the most likely substitute for a plastic carryout bag being used as a garbage bag.

⁵⁷ Elway Research, Inc. *Public Opinion on Disposable Plastics*. December 2007. In Appendix H of Herrera Environmental Consultants, Inc. *Alternatives to Disposable Shopping Bags and Food Service Items: Volume II, Appendices*. January 2008. (pp. 80-144). Available online: <http://www.seattlebagtax.org/herrera2.pdf>

⁵⁸ American Plastics Council. *National Plastic Shopping Bag Recycling Signage Testing: A Survey of the General Population*. March 2007.

⁵⁹ The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006. (p.17)

⁶⁰ Appendix 4: Trash Bag Calculation Appendix 5: Socioeconomic Impacts

⁶¹ California Integrated Waste Management Board. "Comprehensive Film Plastic Diversion and Management Action Plan and Plastic Trash Bag Program." December 2004. □ California Department of Finance, E5 Population Data. See also Appendix 4: Trash Bag Calculation

⁶² AECOM has assumed that residents substitute plastic carryout bags for small household trash cans and wastebaskets. Based on limited observations, the smallest trash bag sold at most affected store types is a 4-gallon size.

When the price per trash bag is applied to the number of new bags demanded, the annual estimated total cost resulting from the proposed ordinance is approximately \$1.37 per capita annually.⁶³

Table 13: Retail Price of 4-Gallon Garbage Bag

Brand	Retailer	Volume (Gal)	Quantity (Bags)	Price	Price/Bag
Ralphs	Ralphs	4	30	\$1.99	\$0.066
Vons	Safeway	4	30	\$2.49	\$0.083
Jons	Springfield	4	30	\$2.79	\$0.093
Pavilions	Safeway	4	30	\$2.49	\$0.083
Target	Glad	4	30	\$3.14	\$0.105
Target	Ruffies	4	105	\$4.39	\$0.042
Average					\$0.079

Source: In-Store Survey by AECOM. Multiple locations throughout Los Angeles, CA. September-October 2009.

Sales Tax Implications

In addition to switching costs and additional purchases of trash bags, Los Angeles County residents affected by the proposed ordinance will also be subject to sales tax levied on applicable purchases at stores subject to the proposed ordinance. Under the proposed ordinance, the 10¢ charge on each paper bag is assumed to be taxable, since the charge is based on the cost of the paper bag.⁶⁴ ⁶⁵ This assumption was made so that the maximum impact could be assessed; however the final determination regarding whether sales tax applies will be made by the Board of Equalization. Consumers would also pay additional taxes when purchasing new reusable bags and trash bags.

The sales tax rate in Los Angeles County ranges from 9.75 percent to 10.75 percent, depending on the jurisdiction. The sales tax rate in the County unincorporated areas is 9.75 percent. The average sales tax rate in the County as of July 2009 was 9.76 percent; the median tax rate was 9.75 percent.⁶⁶

When the median sales tax rate is applied to total taxable sales for paper bags, reusable bags, and trash bags under the proposed ordinance, the total new sales tax is approximately \$0.80 per capita per year. Table 14 summarizes the additional costs associated with purchasing additional reusable bags and paper carryout bags (first column) and additional trash bags (second column), all of which would be subject to the median tax rate of 9.75 percent.

Table 14: New Sales Tax per Capita

	Taxable Sales: Post-Ban Carryout Bags	Taxable Sales: Trash Bags	Total Taxable Sales	New Taxes
Average	\$6.81	\$1.37	\$8.17	\$0.80

Source: Table 15,

Table 28, Appendix 4: Los Angeles County Sales Tax Rate, AECOM

Total Cost of Proposed Ordinance

The total cost of the proposed ordinance is a combination of costs resulting from:

⁶³ Table 28 in Appendix 3: Calculation of Per Capita Plastic Bag Consumption

⁶⁴ This is a worst-case assumption; the 10¢ charge may not be subject to sales tax.

⁶⁵ This is a worst-case assumption; the 10¢ charge may not be subject to sales tax.

⁶⁶ California State Board of Equalization, effective July 2009. For more details, see Appendix 3

- (1) Switching from plastic to alternative carryout methods (paper, reusable, and no bags);
- (2) Purchasing additional trash bags; and
- (3) Paying additional sales tax on items 1 and 2.

As shown in Table 15, the total annual cost of the proposed ordinance banning plastic carryout bags and charging 10¢ on paper carryout bags is estimated to be \$5.72 per capita per year. This is equivalent to a cost of approximately \$20 per household per year.

Table 15: Total Per Capita Cost of Proposed Ordinance (10¢ fee)

	Carryout Bags Cost	Trash Bags Cost	New Sales Tax for Carryout and Trash Bags	Total Cost
Average Cost	\$3.56	\$1.37	\$0.80	5.72

Source: Table 11, Table 14, Table 28

May not add up due to rounding

Socioeconomic Impacts

The estimated cost resulting from the proposed ordinance has been examined to see if there is a disproportionate impact on lower income households. In the County unincorporated areas, nearly 15 percent of households earn less than \$20,000 per year.⁶⁷ As a point of reference, the 2010 federal poverty threshold was defined as a family of four earning less than \$22,000.⁶⁸

By requiring stores to charge customers for paper bags, the proposed ordinance is likely to avoid a regressive impact. Customers can choose to avoid the charge on carryout paper bags by employing lower cost alternative, such as bringing reusable bags with them to the store or not using a bag for small purchases.

In a comprehensive study of an anticipated plastic bag tax in Australia (2002), researchers projected that low-income Australians would work harder compared to their moderate-income counterparts to avoid the proposed plastic bag tax. As a result, the impact of the levy on low-income families was expected to be considerably lower than the average cost to the average Australian. Further, the study's authors found that lower-income residents would experience no new or additional costs as compared to a no-charge situation under certain circumstances.⁶⁹

Since customers in Los Angeles are able to choose whether or not to pay the explicit cost associated with paper bags under the proposed ordinance, it is anticipated that the majority of lower-income residents will act to avoid most or all of the potential costs associated with the ordinance. This allows residents to control the costs they bear, and adjust behaviors accordingly. In addition, the proposed ordinance provides an exemption for residents participating in the California Special Supplemental Food Program for Women, Infants, and Children or in the Supplemental Food Program, thereby further mitigating the potential impact on low income residents. The impact of the proposed ordinance on lower-income residents of the County is therefore expected to be negligible.

⁶⁷ California Department of Finance □ ESRI Business Analyst. See Table 30 in Appendix 5: Socioeconomic Impacts

⁶⁸ *US Census Bureau*. Available online 10/22/2010 at <http://www.census.gov/hhes/www/poverty/data/threshld/index.html>
According to the 2009 Poverty Thresholds published by the U.S. Census Bureau, the poverty threshold is \$22,000 for a family of four, and \$17,100 for a family of three, and will vary slightly by the number of children under age 18 in the household.

⁶⁹ No impact scenario: If low-income households cut their plastic bag use by 95 percent instead of the nationally projected 75 percent, the study's authors found that they would experience no new or additional costs as compared to a no-tax situation under certain circumstances.

Nolan-ITU Pty Ltd., et al. *Environment Australia: Department of the Environment and Heritage: Plastic Shopping Bags – Analysis of Levies and Environmental Impacts: Final Report*. December 2002. (p.62)

Appendices

Appendix 1: Washington DC Plastic Bag Fee

Table 16: Washington DC Bag Fee Analysis

Date Collected	Actual Month	Monthly Receipts	Plastic Bags (est.) [□]	% Change over Prior Month
February	January	\$ 105,158.36	2,629,000	
March	February	\$ 180,049.14	4,501,000	71%
April	March	\$ 192,931.21	4,823,000	7%
May	April	\$ 224,521.19	5,613,000	16%
June	May	\$ 210,741.80	5,269,000	-6%
July	June	\$ 198,079.60	4,952,000	-6%
August	July	\$ 199,015.60	4,975,000	0%
September	August	\$ 199,591.45	4,990,000	0%
NA	September			
Total		\$ 1,510,088.35	37,752,000	bags in reporting period
Average		\$ 188,761.04	4,719,000	bags/month
Median		\$ 198,547.60	4,964,000	bags/month
Annual (est.)		\$ 2,382,571.20	59,568,000	bags/year
2009 Estimate of Plastic Bags Issued per Month (pre-ban)			22,500,000	(270,000,000 annually)
Estimated Monthly % Change: 2010 vs 2009			-78 [□]	

[□] Bag estimate rounded to nearest 100

Source: Mr. William Bowie, Washington DC Office of the Chief Financial Officer, via email correspondence with AECOM staff dated 10/21/2010, and

May 14, 2009 Fiscal Impact Statement [□] [□] Anacostia River Clean Up and Protection Act of 2009 [□] for bill number 18-150 available in the May 14, 2009 Committee Report, accessed 10/19/2010 at: <http://www.dccouncil.washington.dc.us/lms/legislation.aspx?LegNo=B18-0150&Description=%22ANACOSTIA%20RIVER%20CLEAN%20UP%20AND%20PROTECTION%20ACT%20OF%202009%22.%0D%0A%0AID%22118>

Appendix 2: Estimate of Relative Transportation Impact

Table 17: Estimated Transportation Impact

Bags		Plastic	Paper	Total	
<u>Trucks</u>					
Trucks: Pallets	1 :	24	24		
Pallets: Cases	1 :	36	15		
Cases: Bags	1 :	1,000	300		
Bags: Truck	1 :	864,000	108,000		
<u>Bags per Capita</u>					
Status Quo		433	48		
Ban, no fee		0	183		
Ban, 10¢ fee		0	64		
<u>Trucks per Capita</u>					
Status Quo		0.000502	0.000446	0.000947	<u>Ratio to Status Quo</u> 100%
Ban, 10¢ fee		0.000000	0.000592	0.000592	63%

Source: Boatner, Kent. Director of Store Operations for Ralphs Grocery Company. Telephone interview with AECOM staff. September 15, 2009. □ AECOM calculations

Appendix 3: Calculation of Per Capita Plastic Bag Consumption

Table 18: Amount and Composition of Film Plastic Disposed In California, 2003 – 2004

Category	Tons	% of Waste	Pounds/Capita
Plastic Trash Bags	390,500	22%	21.6
Plastic Grocery □ Other Merchandise Bags	147,000	8□	8.1
Non-Bag Comm/Industrial Film	290,300	17%	16.1
Film Products	93,100	5%	5.2
<u>Other/Misc Film</u>	<u>826,800</u>	<u>47%</u>	<u>45.7</u>
Total Film Plastic	1,747,700	100%	96.7
Other Plastic Waste	2,062,000		114.1
All Plastic Waste (Film Plastic □ Other)	3,809,700		210.8

Source: California Integrated Waste Management Board. *Comprehensive Film Plastic Diversion and Management Action Plan and Plastic Trash Bag Program*. December 2004. □ Cascadia Consulting Group. *Statewide Waste Characterization Study*. December 2004.

Table 19: Absolute and Relative Weights of Single-use Carryout Bags

	Grams	Pounds (lbs)	Relative Weight
Disposable Plastic Carry Bag	5.5	0.01213	1.0x
Paper Grocery Bag	42.6	0.09392	7.7x

Source: Nolan-ITU Pty Ltd., et al. Environment Australia: Department of the Environment and Heritage: *Plastic Shopping Bags □ Analysis of Levies and Environmental Impacts: Final Report*. December 2002.

Table 20: Single-use Carryout Bags Consumed per Capita, California

Category	Disposed Lbs/Capita	Lbs/Bag	Bags Disposed/ Capita	Disposal Factor□	Total Bags/ Capita
Plastic Grocery □ Other Merchandise Bags	8.1	0.01213	668	95%	703

□95% disposal rate based on 5% recycling rate

Source:

Table 18, California Integrated Waste Management Board. "Comprehensive Film Plastic Diversion and Management Action Plan and Plastic Trash Bag Program." December 2004. □ Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007.

Table 21: Alternative: Single-use Carryout Bags Consumed per Capita, California

Plastic Bags Consumed in LA County	6,000,000,000				
Year	2003	2004	2005	2006	2007
Population	9,961,000	10,078,000	10,163,000	10,223,000	10,276,000
Bags per Capita	602	595	590	587	584
Minimum	584				
Maximum	602				

Source: Los Angeles County Department of Public Works. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors*. August 2007. □ California Department of Finance, E5 Population Estimates

Table 22: Retail Industry Use of Plastic Bags by Type of Retailer, Australia

	2002 Pre-Ban	2005 Post-Ban
Supermarket	61%	57%
Other Food & Liquor	15%	16%
General Merchandise	10%	11%
Fast food, convenience and service stations	6%	7%
Other Retail	8%	9%
Supermarket & Other Food & Liquor	76%	73%

Source: The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006. Table refers to the distribution of plastic bags used by various retail outlets in Australia before and after the implementation of a ban on plastic bags

Table 23: Annual Expenditure Characteristics of US Consumer

	Western Region	Income: \$50,000- \$69,999
Estimated Retail Outlet Purchase	\$7,902	\$7,141
Percent at Grocery & Pharmacy Outlets	62%	62%

Source: Bureau of Economic Affairs, Consumer Expenditure Survey 2008 and AECOM

Table 24: Average Grocery & Pharmacy as Percent of Total Plastic Bag Use (Pre-Ban)

Australia	76%	Australia
United States	62%	United States
Average	69%	Average

Source:

Table 22, Table 23

Appendix 4: Trash Bag Calculation

Table 25: Estimated Trash Bags Consumed per Capita, California

Trash Bags sold in California (2003)	4,500,000,000
California Population (2003)	35,652,700
Trash Bags sold per Capita [□]	126

[□]Does not include reuse of plastic carryout bags

Source: California Integrated Waste Management Board. "Comprehensive Film Plastic Diversion and Management Action Plan and Plastic Trash Bag Program." December 2004. [□] California Department of Finance, E5 Population Data.

Table 26: Estimated Reuse Rate of Plastic Bag as Trash Bag

	Paper
Reuse rate of plastic carryout bags	51%
Percent used for wastebasket/trash liners	<u>55%</u>
Total reuse rate of plastic carryout bags for trash disposal	28%

Source: Elway Research, Inc. *Public Opinion on Disposable Plastics*. December 2007. In Appendix H of Herrera Environmental Consultants, Inc. *Alternatives to Disposable Shopping Bags and Food Service Items: Volume II, Appendices*. January 2008. (pp. 80-144). [□] American Plastics Council. *National Plastic Shopping Bag Recycling Signage Testing: A Survey of the General Population*. March 2007.

Table 27: Rate of Substitution (no. of plastic bags replaced by one alternative bag)

	Rate
Paper bag	2x
Reusable bag	125x
Trash bag	7x

Source: The Allen Consulting Group. *Phasing Out Light-Weight Plastic Bags: Costs and Benefits of Alternative Approaches*. May 2006. (p.17) and Table 5, Sapphos Environmental, Inc. Bag Usage Data Collection Survey (11/2009)

Table 28: Post Ban: Total New Cost per Capita of Additional Trash Bags

	New Trash Bag Demand	Cost/Bag	Cost/Capita
Average	17	\$0.079	\$1.37

Source: Table 12, Table 13

Appendix 4: Los Angeles County Sales Tax Rate

Table 29: Sales Tax Rate, Los Angeles County

Median Sales Tax Rate	9.75%	Average Sales Tax Rate	9.76%
City	Rate		
Acton	9.75%	Charter Oak	9.75%
Agoura	9.75%	Chatsworth (Los Angeles)	9.75%
Agoura Hills	9.75%	City of Commerce	9.75%
Agua Dulce	9.75%	City of Industry	9.75%
Alhambra	9.75%	City Terrace	9.75%
Almondale	9.75%	Claremont	9.75%
Alondra	9.75%	Cole	9.75%
Altadena	9.75%	Commerce	9.75%
Antelope Acres	9.75%	Compton	9.75%
Arcadia	9.75%	Cornell	9.75%
Arleta (Los Angeles)	9.75%	Covina	9.75%
Artesia	9.75%	Crenshaw	9.75%
Athens	9.75%	Cudahy	9.75%
Avalon	10.25%	Culver City	9.75%
Azusa	9.75%	Del Sur	9.75%
Bailey	9.75%	Diamond Bar	9.75%
Baldwin Park	9.75%	Downey	9.75%
Barrington	9.75%	Duarte	9.75%
Bassett	9.75%	Eagle Rock (Los Angeles)	9.75%
Bel Air Estates	9.75%	East Los Angeles	9.75%
Bell Gardens	9.75%	East Lynwood (Lynwood)	9.75%
Bell	9.75%	East Rancho Dominguez	9.75%
Bellflower	9.75%	East San Pedro (Los Angeles)	9.75%
Beverly Hills	9.75%	Eastgate	9.75%
Biola College (La Mirada)	9.75%	Echo Park (Los Angeles)	9.75%
Bouquet Canyon (Santa Clarita)	9.75%	El Monte	10.25%
Bradbury	9.75%	El Segundo	9.75%
Brents Junction	9.75%	Elizabeth Lake	9.75%
Brentwood (Los Angeles)	9.75%	Encino (Los Angeles)	9.75%
Burbank	9.75%	Flintridge (LaCanada/ Flintridge)	9.75%
Cabrillo	9.75%	Florence	9.75%
Calabasas Highlands	9.75%	Forest Park	9.75%
Calabasas Park	9.75%	Friendly Valley (Santa Clarita)	9.75%
Calabasas	9.75%	Gardena	9.75%
Canoga Annex	9.75%	Glassell Park (Los Angeles)	9.75%
Canoga Park (Los Angeles)	9.75%	Glendale	9.75%
Canyon Country (Santa Clarita)	9.75%	Glendora	9.75%
Carson	9.75%	Gorman	9.75%
Castaic	9.75%	Granada Hills (Los Angeles)	9.75%
Cedar	9.75%	Green Valley	9.75%
Century City	9.75%	Hacienda Heights	9.75%
Cerritos	9.75%	Harbor City (Los Angeles)	9.75%

Hawaiian Gardens	9.75%	Naples	9.75%
Hawthorne	9.75%	Newhall (Santa Clarita)	9.75%
Hazard	9.75%	North Gardena	9.75%
Hermosa Beach	9.75%	North Hills (Los Angeles)	9.75%
Hidden Hills	9.75%	North Hollywood (Los Angeles)	9.75%
Highland Park (Los Angeles)	9.75%	Northridge (Los Angeles)	9.75%
Hollywood (Los Angeles)	9.75%	Norwalk	9.75%
Honby	9.75%	Oban	9.75%
Huntington Park	9.75%	Olive View (Los Angeles)	9.75%
Hyde Park (Los Angeles)	9.75%	Pacific Palisades (Los Angeles)	9.75%
Industry	9.75%	Pacoima (Los Angeles)	9.75%
Inglewood	10.25%	Palmett	9.75%
Irwindale	9.75%	Palmdale	9.75%
Kagel Canyon	9.75%	Palos Verdes Estates	9.75%
L.A. Airport (Los Angeles)	9.75%	Palos Verdes/Peninsula	9.75%
La Canada- Flintridge	9.75%	Panorama City (Los Angeles)	9.75%
La Crescenta	9.75%	Paramount	9.75%
La Habra Heights	9.75%	Pasadena	9.75%
La Mirada	9.75%	Pearblossom	9.75%
La Puente	9.75%	Pearland	9.75%
La Verne	9.75%	Perry (Whittier)	9.75%
La Vina	9.75%	Pico Rivera	10.75%
Ladera Heights	9.75%	Pinetree	9.75%
Lake Hughes	9.75%	Playa Del Rey (Los Angeles)	9.75%
Lake Los Angeles	9.75%	Pomona	9.75%
Lakeview Terrace (Los Angeles)	9.75%	Porter Ranch (Los Angeles)	9.75%
Lakewood	9.75%	Portuguese Bend (Rancho Palos Verdes)	9.75%
Lancaster	9.75%	Pt. Dume	9.75%
Lang	9.75%	Quartz Hill	9.75%
Lawndale	9.75%	Rancho Dominguez	9.75%
Lennox	9.75%	Rancho Palos Verdes	9.75%
Leona Valley	9.75%	Rancho Park (Los Angeles)	9.75%
Lincoln Heights (Los Angeles)	9.75%	Ravenna	9.75%
Littlerock (Also Little Rock)	9.75%	Redondo Beach	9.75%
Llano	9.75%	Reseda (Los Angeles)	9.75%
Lomita	9.75%	Rimpau (Los Angeles)	9.75%
Long Beach	9.75%	Rolling Hills Estates	9.75%
Longview	9.75%	Rolling Hills	9.75%
Los Angeles	9.75%	Rose Bowl (Pasadena)	9.75%
Los Nietos	9.75%	Rosemead	9.75%
Marina Del Rey	9.75%	Rowland Heights	9.75%
Maywood	9.75%	San Dimas	9.75%
Mint Canyon	9.75%	San Fernando	9.75%
Mission Hills (Los Angeles)	9.75%	San Gabriel	9.75%
Moneta	9.75%	San Marino	9.75%
Monrovia	9.75%	San Pedro (Los Angeles)	9.75%
Montebello	9.75%	Santa Clarita	9.75%
Monterey Park	9.75%	Santa Fe Springs	9.75%
Montrose	9.75%	Santa Monica	9.75%
Mount Wilson	9.75%	Saugus (Santa Clarita)	9.75%

Sawtelle (Los Angeles)	9.75%	Van Nuys (Los Angeles)	9.75%
Seminole Hot Springs	9.75%	Vasquez Rocks	9.75%
Sepulveda (Los Angeles)	9.75%	Venice (Los Angeles)	9.75%
Sherman Oaks (Los Angeles)	9.75%	Verdugo City (Glendale)	9.75%
Sierra Madre	9.75%	Vernon	9.75%
Signal Hill	9.75%	Veteran's Hospital (Los Angeles)	9.75%
Sleepy Valley	9.75%	View Park	9.75%
Solemint	9.75%	Vincent	9.75%
South El Monte	9.75%	Walnut Park	9.75%
South Gate	10.75%	Walnut	9.75%
South Pasadena	9.75%	Watts	9.75%
South Whittier	9.75%	West Covina	9.75%
Stevenson Ranch	9.75%	West Hills (Los Angeles)	9.75%
Studio City (Los Angeles)	9.75%	West Hollywood	9.75%
Sulphur Springs	9.75%	West Los Angeles (Los Angeles)	9.75%
Sun Valley (Los Angeles)	9.75%	Westchester (Los Angeles)	9.75%
Sunland (Los Angeles)	9.75%	Westlake (Los Angeles)	9.75%
Sylmar (Los Angeles)	9.75%	Westlake Village	9.75%
Tarzana (Los Angeles)	9.75%	Westwood (Los Angeles)	9.75%
Temple City	9.75%	Whittier	9.75%
Terminal Island (Los Angeles)	9.75%	Willowbrook	9.75%
Toluca Lake (Los Angeles)	9.75%	Wilmington (Los Angeles)	9.75%
Topanga (Los Angeles)	9.75%	Wilsona Gardens	9.75%
Topanga Park (Los Angeles)	9.75%	Windsor Hills	9.75%
Torrance	9.75%	Winnetka (Los Angeles)	9.75%
Tujunga (Los Angeles)	9.75%	Woodland Hills (Los Angeles)	9.75%
Universal City	9.75%		
Val Verde Park	9.75%		
Valencia (Santa Clarita)	9.75%		
Valinda	9.75%		
Valley Village	9.75%		
Valyermo	9.75%		

Incorporated City

Source: California State Board of Equalization, rates effective July 2009

Appendix 5: Socioeconomic Impacts

Table 30: Household Income

Income Range	Incorporated Cities		Unincorporated Areas		Total LA County	
□ \$10,000	230,000	7.7%	20,000	6.6%	250,000	7.6%
\$10,000 - \$20,000	295,000	9.9%	25,000	8.2%	320,000	9.7%
\$20,000 - \$30,000	285,000	9.5%	25,000	8.2%	310,000	9.4%
\$30,000 - \$40,000	275,000	9.2%	25,000	8.2%	300,000	9.1%
\$40,000 - \$50,000	285,000	9.5%	30,000	9.8%	315,000	9.6%
\$50,000 - \$60,000	265,000	8.9%	30,000	9.8%	295,000	9.0%
\$60,000 - \$75,000	340,000	11.4%	40,000	13.1%	380,000	11.6%
\$75,000 - \$100,000	405,000	13.6%	45,000	14.8%	450,000	13.7%
\$100,000 - \$150,000	335,000	11.2%	40,000	13.1%	375,000	11.4%
\$150,000 □	270,000	9.0%	25,000	8.2%	295,000	9.0%
Total Households	2,985,000		305,000		3,290,000	
Median Household Income	\$54,200		\$60,000		\$54,800	
Average Household Income	\$74,600		\$77,500		\$74,900	

Source: California Department of Finance □ ESRI Business Analyst
Population values rounded to nearest 5,000

Appendix 6: Index of Figures

Table 1: Population and Households, 2010	10
Table 2: Employment by Status and Industry, 2008	11
Table 3: Estimated Retail Price of Single-Use Carryout Bag.....	13
Table 4: Distribution of Bags at Checkout (Australia)	13
Table 5: Distribution of Bags at Checkout (Los Angeles)	14
Table 6: Reusable Bag Capacity and Cost	15
Table 7: Single-use Plastic Bag Consumption (no bans, fees, or taxes).....	17
Table 8: Single Use Plastic Carryout Bags Per Capita	18
Table 9: Existing Hidden Cost per Capita	18
Table 10: Post-Ordinance Distribution and Cost of Carryout Bags	19
Table 11: Total Switching Cost per Capita (Post-Ordinance Carryout Cost less Current Carryout Cost).....	19
Table 12: New Demand for Trash Bags Resulting from Proposed Ordinance	20
Table 13: Retail Price of 4-Gallon Garbage Bag	20
Table 14: New Sales Tax per Capita	20
Table 15: Total Cost of Proposed Ordinance (10¢ fee).....	22
Table 16: Washington DC Bag Fee Analysis.....	25
Table 17: Estimated Transportation Impact.....	26
Table 18: Amount and Composition of Film Plastic Disposed In California, 2003-2004	27
Table 19: Absolute and Relative Weights of Single-use Carryout Bags.....	27
Table 20: Single-use Carryout Bags Consumed per Capita, California	27
Table 21: Alternative: Single-use Carryout Bags Consumed per Capita, California	27
Table 22: Retail Industry Use of Plastic Bags by Type of Retailer, Australia	28
Table 23: Annual Expenditure Characteristics of US Consumer	28
Table 24: Average Grocery & Pharmacy as Percent of Total Plastic Bag Use (Pre-Ban)	28
Table 25: Estimated Trash Bags Consumed per Capita, California	29
Table 26: Estimated Reuse Rate of Plastic Bag as Trash Bag	29
Table 27: Rate of Substitution (no. of plastic bags replaced by one alternative bag)	29
Table 28: Post Ban: Total New Cost per Capita of Additional Trash Bags.....	29
Table 29: Sales Tax Rate, Los Angeles County	30
Table 30: Household Income	33