

POLICY TOOLS FOR REDUCING IMPACT OF SINGLE-USE, CARRYOUT PLASTIC BAGS AND FOAM FOOD PACKAGING



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EXECUTIVE SUMMARY

This report discusses the policy tools for reducing the environmental impacts of single-use carryout plastic bags and foam food packaging in the City of Los Angeles (City). The City has long been interested in reducing these impacts. In January 1988, Mayor Tom Bradley instructed the Department of General Services to end the purchase of polystyrene foam containers because of concerns about the effect of these materials in the environment¹. Three City Council committees (LA River Ad Hoc Committee, RENEW LA Ad Hoc Committee, and Energy and Environment Committee) have taken particular interest in this issue. On March 5, 2008, these committees met in joint session and instructed the Bureau of Sanitation to prepare this report, which does the following:

- Discusses the relative impacts of plastic bags and foam food packaging and the alternatives available for these products.
- Describes the City's efforts to increase recycling and reduce plastic litter.
- Identifies policy options for further reduction of these impacts.
- Documents the input of environmental, businesses and community stakeholders.
- Makes recommendations for policy and program implementation.

Recommendations

Single-use, Carryout Plastic Bags

Based on the analysis of policy options described in this report we recommend that the City:

- Continue public outreach and education programs and campaigns promoting reusable plastic bags, plastic bag recycling, and anti-littering; and monitor the results.
- Support legislation to repeal the state pre-emption to place local fees on single-use carryout bags or place a statewide fee on these bags.
- Use the fees collected from single-use carryout bags to increase public education on reusable bags, anti-littering, and increased recycling.
- Consider requiring retailers to charge a fee on these bags if recycling rates are not increased or when the state pre-emption expires.

Foam Food Packaging

Based on the analysis of policy options described in this report we recommend that the City:

- Model zero waste behavior by banning foam food packaging at City facilities and events, test alternative products, costs and diversion programs.
- Begin development of the infrastructure that will be needed to divert food scraps and compostable paper and plastics.
- Consider phasing in a ban on foam food packaging at restaurants based on the lessons learned by implementing a ban at City facilities.

¹ Letter to Mr. John Cotti, dated January 6, 1988.

1.0 INTRODUCTION

With the need to reduce local landfill disposal, growing waste generation rates, finite raw materials, and concern about climate change, the City of Los Angeles (City) is in the first year of a six-year process to develop a 20-year Solid Waste Integrated Resources Plan (SWIRP) to achieve a zero waste goal. Zero waste is based on the concept that “wasting resources is inefficient and that efficient use of our natural resources is what we should work to achieve.”² Zero waste is the goal of the *Recovering Energy, Natural Resources, and Economic Benefits from Waste for Los Angeles* (RENEW LA) Plan and the *Green LA: An Action Plan to Lead the Nation in Fighting Global Warming* (Green LA Plan). The City’s goal is to divert up to 70 percent of waste from landfills by 2015. In addition, the Green LA Plan sets a goal of greenhouse gas (GHG) reductions of up to 35 percent below 1990 levels by 2030. Policies which support zero waste and GHG reduction goals, include recycling, producer responsibility, and waste reduction programs. Changing consumer behavior is integral to achieving both the zero waste and GHG goals. The City is interested in reducing the impact of plastics in the environment by reducing waste from single-use plastic carryout bags and foam food packaging, reducing litter from single-use plastic carryout bags and foam food packaging reaching its waterways, and motivating consumers to replace single-use, plastic carryout bags and foam food packaging with reusable products.

Plastic single-use, carryout bags and foam food packaging are also a ubiquitous component of litter in the City and in local creeks, the Los Angeles River, and the Pacific Ocean. As these products are lightweight, they are easily carried by the wind and water throughout the City and to other locations with serious environmental consequences. Plastic bags and foam food packaging do not decompose, instead they break into small pieces, which persist in the environment and cause serious impacts on marine and aquatic animals and ecosystems. The City, Los Angeles County (County), and State of California (State) have implemented comprehensive litter prevention, enforcement, and removal and comprehensive stormwater pollution abatement programs. Litter collection for beaches, state highways, cities, and counties cost the state over \$300 million each year.³ Despite these programs and the City’s curbside recycling collection program, which includes collection of both of these products, the City is attempting to reduce the quantity of these products and other litter which pollutes local waterbodies, such as the Los Angeles River to an acceptable level. Its location on waterways that drain into the Pacific Ocean requires the City to be especially sensitive to what washes out via stormwater runoff to nearby creeks and rivers. In compliance with the Adopted Total Maximum Daily Loads (TMDLs) for trash in Los Angeles, the City has initiated an aggressive program to prevent trash from entering the storm drains and reaching the City’s waterways. This program includes regular cleaning of catch basins (the curbside openings to the

² <http://www.ciwmb.ca.gov>, accessed February 2008.

³ <http://democrats.assembly.ca.gov/members/a40/press/20080116AD40PR01.htm>. Accessed March 2008.

storm drain system) and the installation of full trash capture devices at catch basins. On the average, each catch basin in the City is cleaned three times a year (in FY 2006/07 over 97,000 catch basin cleanings were performed). To date, the City has installed 14,300 catch basin screens and 7,600 inserts resulting in a more than 30 percent reduction in trash reaching the City's waterways with about 34,000 additional screens planned for installation. Reducing the use of single-use carryout plastic bags and foam food packaging could augment other City efforts to comply with the TMDL requirements and provide significant long-term environmental benefits to local and regional waterways.

DRAFT

2.0 SINGLE-USE, CARRYOUT BAGS

Single-use carryout bags are given away for free as a customer convenience in grocery stores, retail stores, takeout food locations, and pharmacies. The California Integrated Waste Management Board (CIWMB) estimates that Californians use approximately 19 billion single-use, carryout plastic bags annually, which translates to approximately 294 million pounds (147,000 tons) of single-use, carryout plastic bags.⁴ Consumers in the City use an estimated 2.3 billion single-use, carryout plastic bags annually.⁵ There are two main types of single-use, carryout plastic bags, HDPE lighter weight bags used primarily by grocery stores and restaurants; and LDPE thicker, glossier bags used at retail stores.⁶ Until the 1970s, paper was the most commonly used type of single-use, carryout bag at these establishments. Plastic bags began replacing paper bags, due to their light weight, strength, and low-cost in 1975. By 1996, four out of five grocery store bags used were plastic bags.⁷ Californians dispose of approximately 772 million pounds (386,000 tons) of paper bags annually.⁸ Currently, only approximately five percent of plastic bags and 21 percent of paper bags are recycled statewide.⁹ Many people reuse their single-use, carryout bags for garbage can liners and pet litter. It is difficult to estimate what percentage of bags is reused, but some estimates put it as high as 60 percent.¹⁰

⁴ <http://www.ciwmb.ca.gov/Pressroom/2007/July/37.htm> Accessed February 2008.

⁵ Estimate prorated from Los Angeles County estimate of 603.14 per person.

⁶ Los Angeles County "An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors." August 2007

⁷ *ibid*

⁸ California Integrated Waste Management Board 2004 Waste Characterization Study, Table 7.

⁹ <http://www.ciwmb.ca.gov/Pressroom/2007/July/37.htm> Accessed February 2008.

¹⁰ Nolan-ITU "The Impacts of degradable plastic bags in Australia." September 11, 2003

3.0 FOAM FOOD PACKAGING

The CIWMB estimates that over 370,000 tons of polystyrene is disposed or diverted in the State of California annually. Polystyrene is a petroleum-based plastic product, which is used in food service, packaging and shipping, and furniture. Polystyrene products comprise approximately 0.8 percent of all waste landfilled annually in California by weight. Polystyrene is very light weight, so it comprises a much larger percentage by volume than by weight. In the 1999 U.S. Coastal Cleanup Day, foamed polystyrene materials were the fourth largest category of material collected.¹¹

The two major types of polystyrene are called "general purpose" and "high impact". When a blowing agent, such as pentane, is added to general purpose polystyrene, the end product is a light weight foam-type material called expanded polystyrene (EPS), which is used for beverage cups, disposable food containers, and packaging peanuts. This method is called expanded bead method and makes up 15 percent of general purpose polystyrene. The other methods include injection mold extrusion and extrusion foam. Extrusion and extrusion foam products comprise 49 percent of general purpose polystyrene in the marketplace and include foam food packaging.

There are six major markets for polystyrene: furniture, electrical, building and construction, packaging, consumer/institutional, and other. Commercial and institutional products comprise 41 percent of all polystyrene, which includes food-service ware, such as foam cups and clamshells. Many restaurants provide foam containers for their patrons to carry out food and beverages because they are able to withstand high temperatures and have insulating properties. The clamshells are commonly used for take-out food and foam cups are used for hot beverages.

¹¹ California Integrated Waste Management Board. "Use and Disposal of Polystyrene in California. December 2004

4.0 ALTERNATIVE PRODUCTS

Alternatives to single-use, carryout plastic bags and foam food packaging include paper, aluminum, plastic, compostable plastic, and reusable products. Paper and aluminum production are very resource-intensive processes, especially in comparison to plastic (including foam) production. Paper product manufacturing uses 11 percent of the United States domestic energy consumption.¹² While paper, aluminum, and plastic are recyclable, these products must be clean from food or other contamination in order to be acceptable in a recycling stream. Much food paper packaging is also coated with polyethylene, a petroleum-based product, which is not recyclable. These products are also much heavier than foam and plastic bags; and therefore require more energy to transport and take up more space in a landfill. The other two options: compostable plastic and reusable products are more viable alternatives and are discussed in more detail in this section. City of Santa Barbara staff analyzed the alternatives available to foam food packaging and found that compostable and reusable products had the least cumulative impact on the environment of all alternatives.¹³ The City of Santa Monica and the City of Los Angeles have a localized list of product suppliers that are distributors of biodegradable and recyclable food containers.

4.1 Biodegradable/Compostable Plastic

Traditional plastic products do not biodegrade or compost; instead they break down into small pieces. The first degradable plastic products were introduced in the late 1980s. Over the past 25 years, industry, government, and academia have worked together to develop standards to support claims of “compostable”, “degradable”, and “biodegradable”. The Biodegradable Products Institution (BPI) is a collaboration of these stakeholders to develop standards and certification procedures for biodegradable products.¹⁴ While initially focused on bags, BPI now certifies all types of biodegradable products that comply with the American Society for Testing and Materials/Institute for Standards Research (ASTM/ISR) D-6400 standard, “Standard Specification for Compostable Plastics” (ASTM D-6400 Standard). Degradable plastics are measured by their ability to leave no trace, leave no toxic residue, and disintegrate in a reasonable time period (approximately three to six months).¹⁵ The Composting Act (SB 1749) in 2004 and the Solid Waste: Plastic Food and Beverage Containers Act (AB 2147) in 2006 currently require all plastic bags and food and beverage containers defined as “compostable”, “degradable”, or “biodegradable” to meet the ASTM- D6400 Standard.¹⁶

¹² City of Santa Barbara Environmental Services Division. “Update of Proposed Ban of Expanded Polystyrene.” Presentation to City Council. March 11, 2008

¹³ *ibid*

¹⁴ <http://www.bpiworld.org/> Accessed March 2008.

¹⁵ Nolan-ITU “The Impacts of degradable plastic bags in Australia.” September 11, 2003.

¹⁶ <http://www.ciwmb.ca.gov/Statutes/Legislation/CalHist/2000to2004.htm>. Accessed March 2008.

Degradable plastics are defined by the process they use to degrade and the composition of the bag. The two most common types of bags, based on degradation process, are biodegradable and compostable.

Biodegradable: being “capable of undergoing decomposition into carbon dioxide, methane, water, inorganic compounds or biomass by the actions of microorganisms.”¹⁷

Compostable: “those that degrade under composting conditions...under a mineralization rate that is compatible with the composting process.”¹⁸

The other types of degradable plastics, based on degradation process, include: bioerodable, photodegradable, and water soluble. Degradable bags, classified by composition include thermoplastic (starch-based), polyester (oil and natural gas-based), and starch-polyester blends.¹⁹ Traditional plastic products (i.e. bottles, bags) are also polyester blends, but the polymers are chemically altered in degradable plastic products to allow them to degrade or compost, depending on the type of process.

Degradable plastics do not readily degrade in a landfill. A landfill is designed to “prevent landfill contaminants from entering soil and drinking water supply – it also prevents aerobic degradation from taking place.”²⁰ In addition, degradable plastic bags can damage recycling equipment if mixed in with traditional, recyclable plastic bags. All degradable plastic products, if mixed into the recycling stream, can destabilize the polymers and reduce the quality of the recyclable product when mixed into the manufacturing process. Currently, there are few effective ways to distinguish a degradable plastic product from a non-degradable plastic product. In addition, outside of the ideal conditions, for example as a loose litter bag, degradable bags do not instantly degrade. For example, a biodegradable bag can take up to six months to degrade in a marine environment.²¹ Many of the negative environmental impacts from littered plastics also result from littered degradable plastics.

4.1.1 Implications of Bio-Based Products

According to the World Bank, global food prices have increased 83 percent in three years.²² This rapid increase in the price of food is a result of a “perfect storm” of events, which includes a rise in oil and energy prices, increasing demand in developing countries, droughts and floods damaging crops, and increased demand for biofuels.²³ According to the World Bank, “almost all of the increase in global

¹⁷ CIWMB. “Evaluation of the Performance of Rigid Plastic Packaging Containers, Bags, and Food Service Packaging in Full-Scale Commercial Composting.” March 6, 2007.

¹⁸ *ibid.*

¹⁹ Nolan-ITU “The Impacts of degradable plastic bags in Australia.” September 11, 2003.

²⁰ Nolan-ITU “The Impacts of degradable plastic bags in Australia.” September 11, 2003.

²¹ Nolan-ITU “The Impacts of degradable plastic bags in Australia.” September 11, 2003

²² World Bank. “Rising Food Prices: Policy Options and World Bank Response.” April 2008.

²³ NPR. “Rising Food Prices Spark Growing Concern” April 14, 2008.

maize [corn] production from 2004 to 2007 went for biofuels production.”²⁴ Global ethanol production increased by over 50 percent between 2000 and 2005 and many farmers are changing to alternative fuel crops from food crops. Experts are debating the level of impact on prices that the biofuel demand has had, but everyone agrees that it has an impact. For example, prices of wheat, rice, and corn have all increased, but corn primarily feeds the biofuel demand. Many compostable and degradable plastics are made from natural feedstocks. The increased demand for bio-based plastics could further exacerbate the rising food prices by further displacing food crops.

4.2 Reusable Products

A life cycle analysis conducted for the Australian government exemplifies the environmental impact differences between reusable and single-use products. Figure 3 below shows the comparison of degradable bags, traditional plastic and paper single-use bags, and reusable fiber and plastic bags in terms of material consumption, greenhouse gas (GHG) emissions, nonrenewable resource depletion (such as oil, coal, gas), and eutrophication (nitrates and phosphates released into waterways which can lead to the death of aquatic life downstream).

Figure 1 Assessment of Alternative Bags (assuming 52 household shopping trips per year)²⁵

| | Material Consumption (kg) | GHG (kg CO₂) | Resource Depletion (kg Sb eq) | Eutrophication (kg PO₄ eq) |
|--------------------------------|----------------------------------|--------------------------------|--------------------------------------|--|
| Degradable Bags | 3.338 | 6.884 | 0.055 | 0.339 |
| Traditional Single-Use Plastic | 3.120 | 6.080 | 0.099 | 0.002 |
| Traditional Paper | 22.152 | 30.500 | 0.273 | 0.026 |
| Reusable Bags | 0.652 | 1.965 | 0.033 | 0.003 |

Table Notes

- a) kg – kilograms
- b) kg CO₂ – kilograms of carbon dioxide
- c) kg Sb eq – kilograms of antimony equivalent
- d) kg PO₄ eq – kilograms of phosphate equivalent

Degradable bags have a greater impact than traditional single-use plastic bags in terms of material consumption, GHG emissions, and eutrophication. The reusable bags had the least impact in all categories, while the paper bags had the greatest impact in three of the four categories. The analysis found that the GHG emissions impact of the traditional paper bags was reduced by over half if they are reused once.

²⁴ World Bank. “Rising Food Prices: Policy Options and World Bank Response.” April 2008.

²⁵ Nolan-ITU “The Impacts of degradable plastic bags in Australia.” September 11, 2003.

4.2.1 Food Packaging

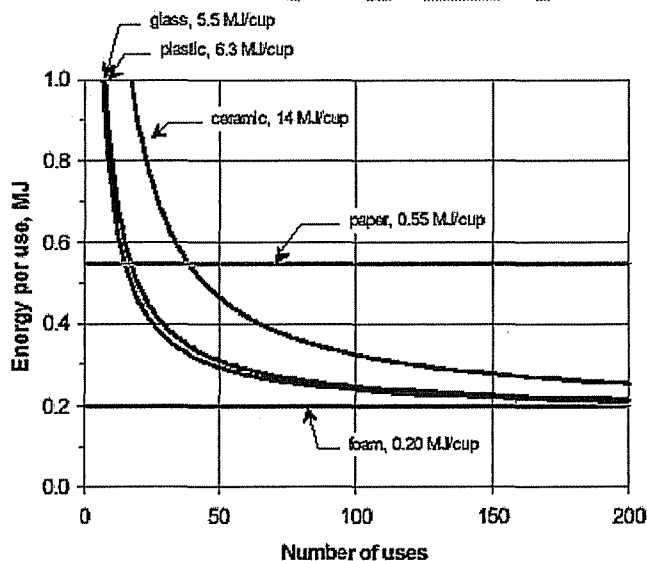
A life cycle study conducted in 1994 at the University of Victoria, examined the difference between reusable cups and single-use cups in terms of their energy use. According to the study, the embodied energy of the ceramic, plastic, or paper reusable cup is higher than the single-use paper or plastic on a one-use comparison. The study included the energy use of washing the cup after each use.

Figure 2 Reusable vs. Disposable Cups²⁶

| Cup Type | Cup Mass (g/cup) | Material Specific Energy (MJ/kg) | Embodied Energy (MJ/cup) |
|----------|------------------|----------------------------------|--------------------------|
| Ceramic | 292 | 48 | 14 |
| Plastic | 59 | 107 | 6.3 |
| Glass | 199 | 28 | 5.5 |
| Paper | 8.3 | 66 | 0.55 |
| Foam | 1.9 | 104 | 0.2 |

The energy difference is reduced with each use of the reusable cup, while it is constant with the single-use paper and plastic cups.

Figure 3 Energy Use per Use of Cup²⁷



This study estimated that it would take over 1,000 uses of a ceramic cup to have the same energy per use as a one use foam cup; and 393 uses of a glass cup to have the same energy as a foam cup.²⁸ If a ceramic cup is used once a day for three years, it will be used 1,095 times.

²⁶ <http://www.ilea.org/lcas/hocking1994.html> Accessed April 2008.

²⁷ <http://www.ilea.org/lcas/hocking1994.html> Accessed April 2008.

5.0 CITY OF LOS ANGELES

5.1 Restaurants and Grocery Stores

The City has a population of over 4 million people living within 470 square miles. Within the City there are 55,502 retail stores which include 12,048 restaurants and 601 bars.²⁹ There are hundreds of grocery stores and pharmacies in the City, which are regulated under AB 2449. In addition, there are many more small grocery stores and pharmacies using single-use, carryout plastic bags that are not required by AB 2449 to offer collection for the recycling of plastic bags.

5.2 Integrated Solid Waste Management System

5.2.1 Municipal Solid Waste (MSW)/Recycling Collection

The City manages a comprehensive integrated waste management system with weekly curbside collection of recyclables, yard trimmings, and garbage at 750,000 single-family residential households. The curbside recycling program accepts clean foam food packaging and plastic bags (including dry cleaning bags, single-use, carryout bags, and food bags). The citywide diversion rate is over 62 percent of MSW generated annually. City crews contribute to that overall diversion rate by collecting approximately 250,000 tons of recyclables and 480,000 tons of yard waste each year from the City's single-family residents. The City began offering plastic bag recycling through its residential curbside program in May 2005 and added foam food packaging collection in its curbside program July 1, 2007. At that time, the City launched its "New to the Blue" campaign to inform residents of all the material types that are now acceptable in the curbside program, including clean polystyrene, and all plastics #1 through #7. The Material Recovery Facilities (MRFs) that have contracts with the City to recover recyclables from the single family residential curbside blue bin collection program, recover and recycle clean plastic bags and EPS, including clean foam food packaging. The City's thin film plastic recycling not only includes plastic bags, but all types of film plastics such as mattress covers, furniture wrappings, inserts for appliances, etc. This requirement led to modifications in sorting operations at the MRFs by increasing the number of staff and required training to optimize sorting of plastic bags and EPS. All the MRFs are trying their best to maximize the recovery of thin film plastics and EPS from their processing lines.

The markets for plastic bags and EPS are very sensitive to contamination. Plastic bags are not recyclable when they are very wet, contaminated with a bit of oil, or organic waste (food, pet waste, etc.). Therefore, MRFs can only market clean plastic bags and clean EPS. Most of the City's contracted MRFs market plastic bags to China, and EPS to Timbron located in Stockton, California. The City Waste Composition Study, in 2000, estimated that plastic film, which includes single-use, carryout plastic bags,

²⁸ <http://www.ilea.org/lcas/hocking1994.html> Accessed April 2008.

²⁹ Karen Coca, City of LA "Re: Plastic data needs," e-mail message, March 27, 2008

comprised 5.5 percent of the overall waste composition in the City.³⁰ The City is currently working with the MRFs to determine the recovery rates of both plastic bags and food foam packaging. Initial data collected through the City's Blue Bin Program indicates that the City recycles approximately 70 tons of plastic bags per month, or approximately 7,700,000 plastic bags per month (assuming approximately 55 plastic bags/lb).³¹

In the past few years, supermarkets have begun at-store recycling collection of bags from customers, as well, but those numbers are not readily available. While foam food packaging is collected through the City's curbside program, processors only have markets for clean foam and have been focusing on diverting foam blocks and foam used in packaging. Clean foam food containers are technically recyclable, but practically very difficult to market. Foam food containers that are contaminated with food residue cannot be recycled and must be disposed.³¹

5.2.2 *Public Education and Outreach: "New to the LA Blue Campaign"*

BOS proposed a comprehensive "New to the LA Blue" education and outreach campaign including mass media and targeted advertising to educate residents about recycling, waste diversion, and contamination reduction over a six year period. A three-month Keep LA Beautiful/Litter Abatement and Blue Bin Recycling program, beginning in July 2007, was initiated to begin a long-term, sustained recycling education and outreach effort. Initial advertising efforts focused on global media and broadly defined program areas with emphasis in litter hot spots and areas of high residential bin contamination throughout the City, and utilized print, internet, bus and bus shelter, and radio advertisements. Additional outreach efforts also included ads on over 100 BOS collection trucks for plastic bag recycling, direct mailings, local/neighborhood papers, and trade publications.

More localized efforts and advertisements through Neighborhood Councils, Business Improvement Districts, and community based organizations and events are also anticipated. BOS is also in the process of reviewing and developing on-line games that will have a recycling education component and will be used to enhance its outreach to a younger audience.

5.2.2 *Recycling Ambassador Program*

The Recycling Ambassador Program began in February 2007 to reduce contamination rates through the deployment of Ambassadors who examine the contents of the blue, green, and black trash bins - the goal

³⁰ City of Los Angeles. "City of Los Angeles Waste Characterization and Quantification Study Year 2000. July 2002.

³¹ City of Los Angeles Waste Characterization Study at MRFs (4th Qtr. '07/1st Qtr '08 data)

³¹ Allan Company, Interview, March 13, 2008.

being to educate residents on all that can be recycled in their blue and green bins, and reduce the volume of material to landfills, thereby reducing tipping fees and increasing recycling revenue to the City.

Tasks involve inspecting both blue bins which contain recyclable materials, and green bins which contain yard trimmings, for contaminants. Black bins are also inspected for potential recyclable materials that can be put into blue bins. Education and/or positive feedback is integral to the Ambassador Program with residents receiving immediate feedback from Ambassadors through Improper Use Forms or Thank You/Survey Forms, and if appropriate, through public forums.

The Ambassador Program has received overwhelming positive public support and media response to the program. A significant reduction of recyclables in the black bins and a reduction in the number of contamination tags being handed out, and an increase in polystyrene recycling in the targeted areas is beginning to be realized. Ambassadors will continue to collect and analyze data and are being deployed on high contamination routes throughout the City to collect additional data, perform further studies, and conduct public outreach.

5.3 Stormwater Program

The quality of stormwater is especially important to the City of Los Angeles because it is located so close to the Pacific Ocean. The Los Angeles River runs from the San Gabriel and Santa Monica Mountains to the San Pedro Bay, through downtown Los Angeles, dropping 795 feet over 51 miles. The majority of the river has been concreted, reducing the quantity of water absorbed into the ground. The majority of Ballona Creek has also been concreted, transforming it from a meandering creek to a water channel that runs through the City to the Santa Monica Bay. The Dominguez Channel flows through part of Los Angeles into the San Pedro Bay. Both the San Pedro and Santa Monica Bays empty into the Pacific Ocean. The City's storm drain system releases approximately 100 million gallons of untreated, contaminated runoff and debris on a daily basis into these three bodies of water. This quantity increases to 10 billion gallons during a heavy rain event.

The two most common contaminants in stormwater are litter, including single-use, carryout plastic bags and foam food packaging; and toxins, including oil and antifreeze.³² There are generally two types of litter: accidental and deliberate litter.³³ Accidental litter is material deposited unintentionally through poor management practices, such as items that fly out of open bed trucks. Plastic bag and foam litter can

³² Los Angeles, Department of Public Works, Bureau of Sanitation, Watershed Protection Division. "High Trash Generation Areas and Control Measures." January 2002.

³³ RW Beck, for Keep America Beautiful. "Literature Review – Litter. A Review of Litter Studies, Attitude Surveys, and Other Litter-related Literature." July 2007.

be blown off of trucks, out of overfull trash cans and dumpsters, and out of landfills.³⁴ The majority of litter is deliberate; items deliberately disposed of in an “inappropriate location.” Takeout packaging and plastic bags can be intentionally littered in parks and out of car windows. Both of these sources of litter are contributing to the unacceptably high quantities of trash in the water systems. According to the City of Los Angeles, the three sources of litter in the City are (1) direct disposal, (2) stormwater runoff, and (3) light weight trash carried by the wind.³⁵

5.3.1 *Composition*

A large part of trash in the stormwater system and in the area waterways is plastic film and packaging. As part of the Great River Clean-up Event, in 2004, the Friends of the Los Angeles River and Bureau of Sanitation staff sorted 20 percent of the bags of trash collected at the clean-up event by material type. Plastic film was the second largest category collected by weight, 26.58 percent of the total weight collected and largest category by volume, 45.55 percent.³⁶ A composition study conducted by the Southern California Coastal Water Research Project in 2001, found that foamed plastics, including fast food containers, cups, and plates, were the most abundant item on Southern California beaches, excluding pre-production plastic pellets.³⁷ The City of Los Angeles sorted materials found in 20 catch basins along Figueroa Street between Cypress Avenue and Avenue 43 in June 2004 and found that plastic bags were 22 percent of the total by volume and 19 percent by weight. Polystyrene foam was found to be 20 percent of the total by volume and 17 percent by weight. It is important to note that the methodology did not include drying out the materials prior to measurement.³⁸

5.3.2 *Total Maximum Daily Loads (TMDL) Requirements*

Trash is a regulated water pollutant in the State because it can negatively impact water ways, including the Santa Monica Bay and ultimately the Pacific Ocean. In compliance with the Federal Clean Water Act (CWA) and an existing consent decree between the United States Environmental Protection Agency (EPA) and environmental groups, the Los Angeles Regional Water Quality Control Board (RWQCB) approved the Trash Total Maximum Daily Loads (TMDLs) for the Los Angeles River and Ballona Creek and Wetlands in September 2001. The City is mandated by these Trash TMDLs to reduce its trash

³⁴ RW Beck, for Keep America Beautiful. “Literature Review – Litter, A Review of Litter Studies, Attitude Surveys, and Other Litter-related Literature.” July 2007

³⁵ Los Angeles, Department of Public Works, Bureau of Sanitation, Watershed Protection Division. “High Trash Generation Areas and Control Measures.” January 2002.

³⁶ Friends of the L.A. River. “The First State of the Los Angeles River Report.” 2005.

³⁷ Shelly I. Moore, Dominic Gregorio, Michael Carreon, Stephen Weisberg, and Molly Leecaster. “Composition and Distribution of Beach Debris in Orange County, California.” 2001.

³⁸ Ad Hoc Committee on Los Angeles River and Watershed Protection Division. “Characterization of Urban Litter.” June 18, 2004.

contribution to these water bodies by 10 percent each year for a period of ten years.³⁹ The first compliance milestone in which a 20 percent trash reduction was to be demonstrated was September 30, 2006. The City has far exceeded the TMDLs established milestones and met both the September 2006, 20 percent trash reduction as well as the September 2007, 30 percent trash reduction milestones to the LA River and Ballona Creek.

The Watershed Protection Division (WPD) of the Bureau of Sanitation is the lead office in charge of the citywide Trash TMDL Implementation. WPD completed a study entitled *High Trash Generation Areas and Control Measures* in the spring of 2002, which identified the spatial distribution of trash in the City for both the Los Angeles River and Ballona Creek watersheds. The study examined the amount of trash accumulating in City-owned catch basins beginning in 1999 through the end of 2003. The ensuing analysis of the data resulted in the identification of three distinctive trash generation areas within the City. Those areas were categorized as low, medium, and high trash generation areas.

The City's strategy for compliance is based upon using the following two-pronged approach: 1) implementing institutional measures such as, public outreach, street sweeping, catch basin cleaning, and enforcement with a special focus on the high trash generation areas; and 2) installing structural trash control devices in the storm drain system, targeting first the high trash generating areas of the City, followed by the medium and low trash generating areas.

The BOS/WPD has used this strategy to implement various measures such as, online structures (i.e., Fresh Creek and PJ Hannah netting systems, and CDS systems) and catch basin (CB) trash capture/deflection systems (i.e., CB inserts and opening covers). Following evaluation of the existing City storm drain system and assessment of the different structural trash control devices deployed within the City over the course of the past four years, the City concluded that implementation of either CB inserts and/or CB opening screen covers at all catch basins within the City is the most feasible, practical and cost effective approach for compliance with the TMDL. Pilot studies conducted by the City have indicated that the CB inserts retain 100 percent of the trash that enters the CB over the course of a year; whereas the CB opening screen covers prevent approximately 86 percent of the trash from being discharged to the receiving waters.

5.3.3 Institutional

The public education program identified five major activities to outreach to the public regarding trash abatement:

³⁹ www.lastormwater.org. Accessed April 2008.

1. *Point-of-Purchase Campaign*

The City developed partnerships with retail businesses (coffee shops, cafés, hamburger stands and sandwich shops) within the high trash generating areas of Los Angeles whose customers may generate trash. The City developed a database of coffee shops, cafés, hamburger stands, and sandwich shops in the high trash areas. The next step was to visit the businesses in the high trash areas. City staff placed posters and educated staff members who then became spokespersons for the City regarding trash prevention.

2. *Mass Media Advertising*

The City focused its efforts on billboards, bus advertisements, bus benches and print advertisements in community papers in the high trash generating areas. A summary of the mass media advertising that has been conducted is listed below:

- Billboard Advertisements – Placed 200 billboards (100 English and 100 Spanish with the message “Drop Your Fast Food Wrapper In A Can Not the Curb” making an estimated 21,873,600 impressions on the general public.
- Bus Advertisements – Placed bilingual (English and Spanish) advertisements in the interiors of 2,530 buses with the message “Litter: Can It!” making an estimated 9,721,496 impressions on the general public.
- Bus Benches Advertisements – Posted bilingual (English and Spanish) advertisements on 200 bus benches with the message “Litter: Can It!” making an estimated 4,860,748 impressions on the general public.
- Community Newspapers – Placed 66 advertisements (45 English, 18 Spanish and 3 Korean) in 12 publications (9 English, 2 Spanish, 1 Korean) with the messages “Drop Your Cup In the Garbage Not The Gutter” and “Drop Your Fast Food Wrapper In A Can Not The Curb” making an estimated 5,885,000 impressions on the general public.
- High School Newspapers – Placed 25 advertisements in high school newspapers with the message “Drop Your Fast Food Wrapper In a Can Not the Curb” making an estimated 67,000 impressions on high school students.

3. *Elementary School Outreach*

The City of Los Angeles partnered with the non-profits *The Malibu Foundation For Environmental Education* and *TreePeople* to educate elementary-aged school students. Over a two-year period, *The Malibu Foundation for Environmental Education* presented assemblies to 279 schools, educating 132,445 students.

4. *Ocean Day*

Annually, the City of Los Angeles partners with the California Coastal Commission and the *Malibu Foundation for Environmental Education* to present Ocean Day, a day for elementary-aged students to clean Dockweiler Beach and participate in an aerial message in the sand, a photo of which is then sent to Los Angeles media. On average, 5,000 students participate in Ocean Day, removing 2.5 tons of trash from the beach. The message of the students’ beach clean-up annually reaches 2,000,000 LA residents.

5. *Business Improvement Districts (BIDs) Outreach*

Business improvement districts have been established through Los Angeles to improve the quality of life for businesses and address concerns and issues facing communities. The City’s Stormwater Program partnered with twelve business improvement districts citywide to coordinate trash outreach efforts. A mailing of 2,000 educational posters was mailed to 10 business improvement districts for distribution. A business advertorial was developed to educate business owners on the best management practices they could implement to reduce trash and pollution in their business districts.

Current statutes in the LA Municipal Code forbid littering in the City. The LA Police Department is the leading entity enforcing the Municipal Code requirement; however, other entities such as the Departments of Public Works and Recreation and Parks also deploy inspectors to prevent littering along City streets or in public parks, respectively. The City revised and consolidated its stormwater enforcement abilities with the Stormwater Ordinance in October 1998. This ordinance made it a crime to discharge pollutants in the storm drain system and gave the City the ability to cite, fine, and prosecute violators.

5.3.4 Structural Measures

Utilizing structural solutions was the second prong of the City's strategic approach. Los Angeles has more than 35,000 catch basins within the LA River and Ballona Creek watersheds. Each catch basin's role is to quickly divert rainwater away from city streets. Unfortunately, they also play the unintentional role of funneling trash into the storm drain system and into the City's regional waterways and bays. In the development of the City's implementation strategy, a working group of several City departments conducted a number of pilot studies to evaluate the effectiveness of different structural best management practices (BMP). The departments installed and evaluated various solutions including end-of-the-pipe trash systems, catch basin opening screen covers, catch basin inserts, netting systems, and hydrodynamic separator devices. As of October 26, 2007, the City has installed over 7,400 catch basin inserts and 14,300 catch basin opening screen covers in the high and medium, trash generation areas of the watersheds.

After careful evaluation, the City concluded that utilizing end-of-the-pipe solutions solely would be difficult due to field conditions and maintenance issues and that it would be more effective to focus on retrofitting its catch basins with either catch basin inserts or screen covers. The City implemented the installation of these structural BMPs in phases. The first group of BMPs was placed in the high trash generating areas of the City. The second group targeted the medium and the third group will target the low trash generating areas of the City. The following is a description of the various BMPs that have been installed throughout the City:

- Catch basin screen covers: Prevents trash greater than $\frac{3}{4}$ inch size from entering system. Screen covers consist of a coarse screen placed at the openings of the catch basin to prevent trash from entering the storm drain system. The screen covers have been installed in combination with the catch basin inserts, or independently, in the trash generating areas. A total of 14,300 catch basin opening screen covers have been installed in Los Angeles.
- Low-flow diversion: Reroutes urban runoff to the sewer system through a series of tanks and pumps. The Santa Monica Canyon Watershed and Downtown Los Angeles along the LA River are targeted for these devices. A low-flow diversion system routes dry-weather urban runoff from the storm drain system into the sanitary sewer system. LFDs reduce all types of pollutants, including trash, since the runoff is treated at a wastewater treatment facility. The City has installed nine units, including one LFD system in the downtown high trash generating area.

- Catch basin inserts: 5mm screen installed inside catch basin in front of outlet pipe. Considered full capture device. Catch basin inserts are installed inside a catch basin and are designed to trap all trash greater than five mm in size. They are designed to maximize a catch basin's trash capture volume and provide a flow bypass to prevent flooding. To date, 7,400 catch basin inserts have been installed in the City's high trash generating areas.
- Netting systems: Placed on primary storm drain lines to capture floatable debris. Considered full capture device. These systems include a net contained within a box structure retrofitted into the existing storm drain line. The floatable trash is trapped in the disposable nets. The City installed these netting systems in the high and medium trash generating areas of Los Angeles. The City has installed 13 units.
- Hydrodynamic Separators: These are devices that are considered full capture systems when designed to treat the one-year, one-hour storm. The City has installed three units to date.

The City also works to prevent trash from reaching the stormwater system through catch basin cleaning, use of motorized sweepers, and maintenance of public litter baskets. The Wastewater Collection Services Division of the BOS cleans the catch basins on a regular basis. At a minimum, the catch basin cleaning schedule complies with the NPDES Municipal Stormwater Permit requirements, which range from once to four times per year depending on the catch basin location. Scheduling of the cleaning of catch basins identified in the high trash generating areas was altered to take place prior to the start of the rainy season and on a more frequent basis during the rainy season to address the trash problem. The Bureau of Street Services regularly sweeps 28,000 lane miles of public roads and 800 miles of alleys throughout the City. Street sweeping frequency varies from daily in the most trash filled streets and alleys to monthly in the least urbanized portions of the City. The high trash areas of the City contain many of the special street and alley cleaning routes identified to pose a health and safety hazard and are cleaned more rigorously on a daily basis – this includes the collection of trash receptacles, thus preventing overflow of trash onto city streets. The Bureau has 135 motor sweepers, and maintains 3,000 public trash receptacles within the City.⁴⁰

⁴⁰ <http://www.lacity.org/san/index.htm>. Accessed April 2008.

6.0 COST AND ENVIRONMENTAL IMPACTS

Provided free of charge to consumers with their purchases, the real cost of disposable bags and foam food packaging is not a cost that either consumers or retailers have to pay. Figure 4 includes the average purchase price to retailers of common single-use, carryout bags. Foam food packaging is similarly inexpensive.

Figure 4: Average Cost per Type of Single Use, Carryout Bags⁴¹

| Type of Bag | Cost per unit |
|---------------------------|---------------|
| Traditional plastic bag | 2 – 5 cents |
| Paper bag | 5 – 23 cents |
| Biodegradable plastic bag | 8 – 17 cents |

The real costs of single-use, carryout bags and foam food packaging include, production externalities, waste management costs, litter management costs, and marine and aquatic environmental impacts. The City, County, and State must bear many of these costs, while other costs have even wider impacts.

6.1 Production Externalities

Manufacturing single-use, carryout plastic bags and foam food packaging create environmental impacts on land, air quality, water quality, and natural resource levels. Chemicals, energy, natural resources, and water are all used, in varying quantities, to create these products. These environmental impacts are called production externalities and are generally not reflected in the market costs. For example, the small price of single-use, carryout plastic bags does not include the impacts of the manufacturing process on the environment. Environmental costs of manufacturing single-use plastic bags include the discharge of chemicals, the impact of the use of oil, and the air emissions.

6.2 Litter and Environmental Costs

Litter, including disposable bags and foam food packaging, can impact roadways, waterways, neighborhoods, and parks in Los Angeles, creating visual blight and reducing property values. Plastic bags and foam food packaging pose an especially high risk to marine and terrestrial plant and animal life. The characteristics of plastic bags that make them so desirable, durability and flexibility, also contribute to the aquatic and marine environmental impact of discarded bags, because they do not decompose. Foam food packaging easily breaks down into small floating pieces, which pollute marine and terrestrial ecosystems even when the pieces are microscopic. Over 267 wildlife species are estimated to be

⁴¹ Los Angeles County “An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.” August 2007

impacted by plastic litter.⁴² Marine and terrestrial animals can ingest or become entangled in plastic debris; coral and riverbeds can be smothered by plastic bags that get caught on their rough edges; and small animals can travel on the plastics to other coasts where they are not naturally present, causing problems associated with invasive species. In the water, plastic acts like a sponge for toxic chemicals, accumulating concentrations of toxins many orders of magnitude above levels found in the water itself.⁴³ Animals can be poisoned by the toxic chemicals in plastics and those chemicals from other sources accumulating in the floating plastic.⁴⁴ Plastic that is mistaken for food and ingested can clog the animal's throat or artificially fill its stomach, causing it to starve. In addition, many animals become entangled in plastic debris and suffocate.

As described in the previous section, although the City, County, and the State have multiple programs to address the litter problem, litter is still reaching the Los Angeles River. The City is currently spending millions of dollars on litter prevention, enforcement, and maintenance programs. The City estimates that complying with the TMDL for the Los Angeles River and Ballona Creek will cost approximately \$85 million. The passage of Proposition O, in the fall of 2004, provided \$71.5 million for the implementation program to meet the trash compliance milestones. In addition to the direct costs incurred by City departments, the Council Districts and Neighborhood Councils sponsor multiple clean up days throughout the year. The City's Office of Community Beautification (OCB) assists and supports community residents with organizing neighborhood-based beautification and cleanup events. OCB loans tools and supplies, provides logistical support through the use of Public Works vehicles and trash bins, and coordinates the involvement of Los Angeles Conservation Corp Clean and Green or the local OCB contractor. OCB contracts with 16 community-based, non-profit agencies geographically spread throughout Los Angeles. Contractors proactively remove graffiti from major corridors, and respond to requests for service via 3-1-1, OCB, Council Offices, or the Mayor's Office. Contractors also provide litter and weed abatement services.

Due to its location, land-based litter does not only impact the City, but can also travel through the Los Angeles River to the Pacific Ocean. Single-use, carryout plastic bags and foam food packaging present unique challenges to litter prevention and clean-up programs. Due to their light weight, they can travel easily into streets and streams. Plastic bags, when caught up in stormwater, can contribute to clogged storm drains, causing flooding issues. Plastic bags and foam food packaging can negatively impact marine environments, streams and creeks, and roadways and parks.

⁴² Algalita Marine Research Foundation. "Pelagic Plastic." April 9, 2007.

⁴³ *ibid*

⁴⁴ Los Angeles County "An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors." August 2007 *and* Algalita Marine Research Foundation. "Pelagic Plastic." April 9, 2007.

6.2.1 Marine Litter

The Los Angeles River carries land-based litter, including plastic bags and foam food packaging, into the Pacific Ocean. “People’s mishandling of waste materials – creates the foundation for the marine debris problem.”⁴⁵ According to a study by the Ocean Conservancy, land-based litter comprises over 50 percent of all marine litter off of California. Plastic bags are approximately 11 percent of general marine litter.⁴⁶ While plastic will disintegrate into smaller pieces, it does not biodegrade in the ocean; instead it primarily accumulates at the surface of the water. The North Pacific Gyre is located approximately 1,000 miles from California; and is an area where multiple ocean currents meet and marine litter debris accumulates. A 1999 research expedition found that plastic film, including plastic bags, comprised approximately 29 percent of plastic collected at the North Pacific Gyre.⁴⁷ The Los Angeles River is one source of this plastic and other marine litter debris.

In 2006, the California Coastal Commission, in collaboration with the Los Angeles Regional Water Quality Control Board published an action plan, “Eliminating Land-based Discharges of Marine Debris in California.” Based on the fact that “product waste is the major component of trash in urban runoff,” the Plan recommends “reducing the amount of single-use and disposable products, increasing the recycling of bags, imposing bans and limits on the use of specific products that contribute to marine debris.”⁴⁸ In addition, the plan also recommends litter fees associated with specific products to fund litter reduction programs.

6.2.2 Roadway and Neighborhood Litter

The State Department of Transportation (Caltrans) conducted a litter study in 2007 and found that 14 percent of roadside litter was paper and over one-third was plastic. Plastic film, including plastic bags, was up to 12 percent, by volume, of all litter. “Styrofoam” was 15 percent, by volume, of all litter. Of the litter collected, 80 percent was “floatable” litter, which means if it were to reach the creeks or Los Angeles River, it would float on the water out to the Pacific Ocean. Plastic bags and foam food packaging are floatable litter.⁴⁹

⁴⁵ Ocean Conservancy. “National Marine Debris Monitoring Program: Final Data Analysis and Summary.” September 2007.

⁴⁶ *ibid.*

⁴⁷ Los Angeles County “An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.” August 2007.

⁴⁸ California Coastal Commission. “Eliminating Land-based Discharges of Marine Debris in California.” June 2006.

⁴⁹ California Department of Transportation District 7. “Litter Management Pilot Study.” June 26, 2000.

7.0 POLICY OPTIONS

The goal of the City is to reduce the impact of plastics in the environment by changing consumer and retail behavior in relation to single-use, carryout bags and foam food packaging. Many of the policy options discussed in this section have been implemented in other cities and countries over the past five years. A description of the impact of the policies in these other communities is included in the discussion. The following policy options are discussed in more detail:

- Status Quo - Follow State Guidance and Regulations
- Market Policy Tools
 - Mandatory rebate for reusable bag use
 - Tax or fee for use of single-use, carryout plastic and/or paper bags used towards public education, anti-littering campaigns, subsidize cost for reusable bags, increased recycling, etc.
 - Tax on retailers for purchase of foam food packaging
- Ban (of distribution)
 - Initially ban in City Facilities for five years and monitor impact
 - Of single-use, carryout plastic bags
 - Of foam food packaging
 - Citywide ban
 - Of single-use, carryout plastic bags
 - Of foam food packaging

Each policy tool is discussed as it applies to each of the targeted products: single-use, carryout plastic bags and foam food packaging. The use of these products is different and will therefore require unique policy solutions.

7.1 Phased Approach

Implementing a new citywide policy related to single-use, carryout plastic bags and foam food packaging will require time for the retailers and restaurants to adjust and comply. In general, it may be easier for the larger retailers to adjust than for the smaller retailers. The City should consider a phased implementation approach. Phasing implementation of an aggressive recycling program over a time period, allows retailers and the City time to educate consumers. Phasing implementation of a ban over a time period, allows retailers to use up their current stock of the banned item and purchase an acceptable alternative.

The City can also link implementation of a ban to the recycling rates of the materials. If the recycling rates of single-use, carryout bags and foam food packing increases to a set percentage in the given year, then the ban would not be implemented. In any policy implementation, the City can also phase

compliance requirements for retailers based on size to help alleviate the additional burden that smaller retailers may face in terms of implementation costs.

7.2 Follow State Guidance and Regulations

The State has begun to consider and pass legislation related to single-use, carryout plastic bags and foam food packaging. AB 2449 (single-use, plastic bags) went into effect less than one year ago, and new bills addressing plastics, including AB 2058 (plastic reduction benchmarks), and AB 904 (foam food packaging) are still being considered in the State legislature. The City could wait to assess the impact of these laws before enacting a new local policy. In addition, the City could look at ways to supplement these laws with local tools or lobby the State for specific changes to the laws to better enhance their effect. Some key principles the City will support in existing and/or future legislation include but are not limited to:

- Implementing a fee on single use, plastic bags that will lead to a reduction in their consumption.
- Ensure the fee goes back to the local municipalities to provide outreach and education on anti-littering, increasing recycling, and use of reuseable bags, etc.
- Implementing benchmarks that address a phased approach to single use, plastic bag and EPS reduction goals
- Engage stakeholders to provide policy level input from the community (e.g. SWIRP process, Neighborhood Councils, etc.)
- Continue focused public outreach and education

7.2.1 Encourage Plastic Bag Recycling

Stores have only been required to provide plastic bag recycling collection bins since July 1, 2007 under AB 2449; therefore the impact is difficult to assess. The City began collecting plastic bags in its curbside recycling program in May 2005. Currently, approximately five percent of plastic bags are recycled statewide.⁵⁰ It will take more time and data to assess whether these programs will increase plastic bag diversion and reduce litter. In June 2007, the City, in conjunction with 23 partners including the California Grocers Association and Progressive Bag Alliance, enacted the “*It’s Our L.A! Keep It Clean*” campaign to encourage consumers to bring their bags to stores for recycling. While the program is no longer active, the website remains as an outreach tool and includes a list of stores where recycling is available for consumers to know where they can recycle their bags. Additionally, the City launched the “*New to the LA Blue*” campaign in July 2007 to education residents about the new materials accepted in the curbside recycling program and encourage recycling of these new materials, including foam food packaging and single-use, plastic carryout bags.

⁵⁰ <http://www.ciwmb.ca.gov/Pressroom/2007/July/37.htm> Accessed February 2008.

Other various public outreach, education and giveaway events have included:

- “A Day without a Bag” Campaign in December 2007 where the City partnered with Heal the Bay, LA County and area retailers. There were 10,000 reuseable bags that were given away.
- Earth Day 2008 Reuseable Bag Giveaway Campaign: “Great Taste: Zero Waste”, where 50,000 reuseable bags were distributed to grocery stores throughout the City. This was in association with the California Grocers Association, and was funded by the Department of Conservation Bottle Bill Fund.
- Various City sponsored community events (in partnership with non-profits, Heal the Bay, FOLAR, and others)

AB 2449 only applies to large grocery stores (*full-line, self-service, retail store with gross annual sales of \$2 million or more and which sells a line of dry groceries, canned goods, nonfood items, and perishable goods*) and retail pharmacies (*over 10,000 square feet of retail space that generates sales tax and has a licensed pharmacy*).⁵¹ There are many other retail and smaller grocery stores within the City that are not required under the regulations to provide recycling bins for plastic bags. Providing outreach to these other stores, not currently required by AB 2449, to voluntarily collect plastic bags for recycling could help increase recycling rates. The City could also expand the recycling requirement to all grocery and retail stores which provide carryout disposable bags.

The City is authorized, under the law, to ensure that stores are in compliance with AB 2449 and may impose civil penalties in compliance with the following schedule:

- Five hundred dollars (\$500) for the first violation
- One thousand dollars (\$1,000) for the second violation
- Two thousand dollars (\$2,000) for the third violation
- Subsequent violation for those who do not comply with AB 2449⁵²

Through an active enforcement program, the City could ensure that all stores are in compliance, to maximize the collection and recycling of plastic bags. The California Integrated Waste Management Board (CIWMB) has not yet adopted reporting regulations for AB 2449. The reporting structure could influence how the City can enforce compliance.

The State Legislature has been considering bills which would amend AB 2449, including AB 2058 and AB 2829. AB 2058, currently being considered in the State Legislature, would require stores to meet diversion rate requirements by established deadlines. The current language states that stores must demonstrate a 35 percent diversion rate by July 1, 2011 and a 70 percent diversion rate by July 1, 2012. Those stores that do not demonstrate this diversion rate must sell plastic carryout bags to their customers

⁵¹ <http://www.ciwmb.ca.gov/LGCentral/Basics/PlasticBag.htm#Local>. Accessed February 2008.

⁵² <http://www.ciwmb.ca.gov/LGCentral/Basics/PlasticBag.htm#Local>. Accessed February 2008

for at least 15 cents per bag. The proceeds of the bag fee would go to litter clean-up cost.⁵³ AB 2829 is also currently being considered in the State Legislature. This bill would repeal the sunset date of 2013 of AB 2449 and instead require that after July 1, 2009, all stores must charge 25 cents per bag for each plastic carryout bag used. The store would be allowed to retain 3 percent of the fee and the remainder would be deposited into the California Plastic Carryout Bag Impact Fund. This bill would also repeal the prohibition of local governments from charging a fee on plastic carryout bags.⁵⁴ This bill failed committee passage on April 14, 2008, and has been held for reconsideration.

7.2.2 *Compostable or Recyclable Food Packaging Requirement*

AB 904 would require all food packaging to be recyclable or compostable. The Mayor and City Council adopted a resolution to support AB 904, as part of the City's 2007-08 State Legislative Program.⁵⁵ According to the current version of the bill, for a product to be defined as compostable or recyclable products must meet the ASTM-6400 standard. Further, it must be accepted back into residential curbside collection programs that are available to either at least 60 percent of state households or at least 60 percent of households in the city in which the packaging is used.⁵⁶ This definition would address the problem that the City currently faces, in that foam food packaging is "recyclable", but there is no market because of the high level of food contamination. For this reason, the majority of residential curbside collection programs do not accept this type of material. The City would need to consider not accepting foam food packaging curbside, if this legislation were to be signed into law. Other forms of clean EPS would be acceptable.

AB 904 would apply to "any establishment that provides prepared food for public consumption on or off its premises, including, but not limited to, a fast food restaurant." This legislation does not limit the applicability based on the size of the institution.⁵⁷

The penalties, included in the legislation are:

- No more than one hundred dollars (\$100) for each day the person is in violation of this chapter.
- The total annual penalties assessed upon a violator shall not exceed \$10,000.

⁵³ <http://www.assembly.ca.gov/acs/acsframeset2text.htm>. Accessed April 2008.

⁵⁴ *ibid*

⁵⁵ Memo to Ad Hoc River Committee, from Karen Sisson, City Administrative Officer. "Report Back on Motion Regarding Non-Recyclable Plastics and Polystyrene." January 18, 2008.

⁵⁶ http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_904&sess=CUR&house=B&author=feuer. Accessed March 2008

⁵⁷ http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_904&sess=CUR&house=B&author=feuer. Accessed March 2008

The money collected in fines would be used to assist local governments in programs to reduce plastic waste and marine debris.⁵⁸

7.2.3 Case Studies

Since the passage of AB 2449, other cities have passed or are considering passing a similar recycling requirement.

- o New York City, New York

The “New York City Plastic Carryout Bag Recycling Law” (Local Law 1 of 2008), effective in July 2008, requires retail and wholesale stores to provide plastic bag recycling containers on-site and provide reusable bags for purchase. The law applies to all retail and wholesale establishments that have either over 5,000 square feet of retail space or five or more stores located in the City. In addition, bag manufacturers are required to develop promotional materials to promote “reduction, reuse, and recycling of those bags.”⁵⁹

- o Los Angeles County, California

On April 10, 2007, Los Angeles County Board of Supervisors instructed the Chief Executive Officer, Director of Internal Services, and Director of Public Works to solicit input from stakeholders about strategies to reduce plastic and paper bag consumption in the County. The final report, dated August 2007, summarizing this input, recommended five alternative strategies:

Alternative 1: Ban plastic carryout bags at large supermarkets and retail stores one year after adoption of ordinance

Alternative 2: Ban plastic carryout bags at large supermarkets and retail stores effective:

- July 1, 2010 if the bag disposal rate does not decrease by a minimum of 35 percent
- July 1, 2013 if the bag disposal rate does not decrease by a minimum of 70 percent.

Alternative 3: Status Quo (monitor effects of AB 2449)

Alternative 4: Develop a voluntary single-use bag reduction program.

Alternative 5: Develop a voluntary single-use bag reduction program. If triggers defined in Alternative 2 are not met, then the County will institute a plastic bag ban.

On January 22, 2008, the County’s Board of Supervisors approved the “County of Los Angeles’ Single Use Bag Reduction and Recycling Program,” which instituted Alternative 5 described above. Under the law, the County will work with key stakeholders to implement a voluntary Single Use Bag Reduction and Recycling Program by July 1, 2008. This program should “promote reusable bags, reduce the use of disposable plastic bags, increase at-store recycling of plastic bags, increase the post-consumer recycled content of paper bags, and promote public awareness.” The disposal rate decrease goals defined in Alternative 2 above were lowered by five percentage points each.

⁵⁸ *ibid*

⁵⁹ New York City Local Law 1 of 2008 *and* http://home2.nyc.gov/html/nycwasteless/html/at_agencies/laws_directives.shtml#local001 accessed February 2008.

7.3 Market-based tools

The City could also use market-based policy tools to influence consumer behavior and reduce the use of single-use, carryout bags and foam food packaging. Market-based policy tools include mandatory rebates, taxes, or fees. According to a report, by the European Environmental Agency (EEA), on the effectiveness of market-based policy tools to enforce environmental policy, “market-based instruments...help to realize simultaneously environmental, economic, and social policy objectives by taking account of the hidden costs of production and consumption to people’s health and the environment in a cost-effective way.”⁶⁰ As detailed in Section 6 of this report, the City is currently responsible for many of the hidden production and consumption costs of single-use, carryout plastic bags and foam food packaging. Market-based tools allow the City to shift those costs back to the manufacturer or consumer.

Proposition 218 was a constitutional amendment adopted by the voters of California in November 1996, which requires voter or property-owner approval of property-related fees or taxes. Fees on plastic bags provided to customers at retail stores, would not be considered property-related fees. However, should the City consider placing a fee on plastics bags (and would intend to retain the fee rather than have the retailer retain the fee), it can avoid the "general tax" or "special tax" designation (subject to voter approval) by correlating the amount of the fee with the level of services being provided by the City (litter abatement, etc.) In 2006, the City of San Francisco estimated that litter abatement, stormwater channel cleanup and impacts to the recycling system cost the city 17 cents per bag.

7.3.1 *Mandatory Rebate for Reusable Bags*

A mandatory rebate offers consumers a financial incentive to use reusable bags. Many grocery stores currently offer a voluntary rebate of approximately five cents for each bag a customer brings and uses at check-out. The City could require that all stores provide a rebate to consumers who bring their own bags. No studies have been completed to determine if the bag rebates could have a significant impact on consumers’ behavior. Further studies would also have to be completed to determine the appropriate rebate level to significantly impact behavior. The California Beverage Container Recycling and Litter Reduction Act of 1986 (The Bottle Bill) provides a refund for consumers to return certain defined plastic, glass, and aluminum bottles and cans. Researchers found that recycling rates of HDPE plastic bottles increased from 18 percent to 38 percent at the end of the second year after introduction into the Bottle Bill. The report concluded that inclusion in the Bottle Bill, as well as inclusion in a curbside

⁶⁰ European Environmental Agency. EEA Report 1/2006 “Using the Market for Cost-effective Environmental Policy: Market-Based Instruments in Europe.” Copenhagen, 2006.

collection program, contributed to the increased recycling rate.⁶¹ The Bottle Bill is different from a rebate because the consumer pays the redemption value up front and then gets it back when the bottle is returned. In this case, the City would be requiring the retailer to provide a rebate without any reimbursement. The City's legal department would need to investigate whether this type of program could be implemented.

7.3.2 Tax or fee for use of single-use bags

Imposing a tax or fee for use of plastic or other single-use bags could also impact consumer behavior and reduce the use of these bags. A "tax" would be administered by the City on manufacturers or retailers; and a "fee" could be required or encouraged voluntarily by the City to be administered and retained by the retailer, or returned to the City to provide education on recycling, anti-littering, and use of reusable bags. Currently, AB 2449 prohibits the City from "imposing plastic carryout bag fee on a store."⁶² Whether all three of these market tools are prohibited by AB 2449 would need to be evaluated by the City's legal counsel. It is important to note, however, that how the tax or fee is administered could impact the results. Communities that require the consumer to pay the fee, rather than administering it at a higher level on the retailer or manufacturer, have had a higher reduction in plastic bag usage.

7.3.3 Impose a tax or fee use of foam food packaging

Imposing a tax or fee on restaurants for the purchase of foam food packaging could reduce the consumption of these types of packaging. Restaurants could pass the tax or fee onto patrons through their final bill, if they request a carryout container. Restaurants may also choose to use a different type of container or provide an incentive to its patrons to bring their own containers. It is important to note that the City may also choose to exempt compostable food packaging from the fee structure. The City has preliminary plans to expand its residential yard trimmings program to include food scraps and compostable food packaging. Compostable food packaging will only reduce litter and waste management costs if combined with a robust program for composting or other organic material recovery program.

7.3.4 Case Studies

- o Ireland (fee)

Ireland has assessed a fee on plastic bags since 2002. At this time, plastic bag litter was a problem. Annually, less than 0.5 percent of the estimated 1.28 million plastic bags were

⁶¹ California Department of Conservation. "California Beverage Container Recycling and Litter Reduction Study: A Report to the California Legislature."

⁶² AB 2449 law text

being recycled.⁶³ The levy, which was increased from 15 cents to 33 cents (US \$) per bag in 2007, is administered by retailers directly onto consumers. A billboard and television public campaign sought to educate the public about the upcoming levy prior to implementation.⁶⁴

In a study conducted by the University of Dublin in 2003, retailers reacted either neutrally or positively to the ban. Retailers felt that the additional costs to administer the fee were “modest, and generally less than the savings resulting from not having to purchase bags.”⁶⁵ Within the first year of implementation, plastic bag use declined 90 percent. The Minister for the Environment, Martin Cullin said, “The reduction has been immediate and the positive visual impact on the environment is plain to see.”⁶⁶

The Irish fee only applies to plastic bags. While no comprehensive study has been completed, anecdotal evidence suggests that paper bag usage has not increased dramatically. Instead, it appears that plastic bags are being replaced with reusable bags. One study reported that paper bag usage had primarily increased in non-food retailers, such as clothing stores.⁶⁷

- o Santa Monica (fee)

On February 26, 2008, the City Council of Santa Monica approved a paper bag fee, as part of a hybrid approach to address non-degradable single-use bags that included a ban on single-use plastic carryout bags. Retailers are required to charge a fee to consumers for use of paper bags. This fee is retained by the retailer and not collected by the City.

- o Denmark (tax)

Denmark has a range of “green taxes” on items including electricity, fuel, and waste. Included in these taxes, since 1993, is a tax on both paper and plastic single-use bags. The tax is applied to retailers and has reduced consumption of plastic and paper by approximately 55 percent.⁶⁸

7.4 Ban Single-use, Carryout Plastic Bags and Foam Food Packaging

An alternative to a market solution is to impose a Citywide ban of single-use, carryout plastic bags and foam food packaging. The ban would prevent retail stores from using these types of bags and restaurants from using this type of carryout food packaging. The goal would be to eliminate use of these bags and food packaging within the City, thus reducing the quantity of these materials in the litter stream. By not allowing the retail stores and restaurants to provide these products, the City would force consumers and retailers to change their behavior. However, it is important to consider when one product is banned another product that meets the needs of the consumer will replace it. The City needs to consider what that product will be and what the environmental, litter, and waste management costs of that product will be.

⁶³ Environment Australia. “Plastic Shopping Bags – Analysis of Levies and Environmental Impacts” December 2002.

⁶⁴ *ibid*

⁶⁵ University College Dublin. “Applying Environmental Product Taxes and Levies – Lessons from the Experience with the Irish Plastic Bags Levy.” July 2003.

⁶⁶ Environment Australia. “Plastic Shopping Bags – Analysis of Levies and Environmental Impacts” December 2002.

⁶⁷ AEA Technology “Proposed Plastic Bag Levy – Extended Impact Assessment Final Report, Volume I: Main Report.” 2005.

⁶⁸ Environment Australia. “Plastic Shopping Bags – Analysis of Levies and Environmental Impacts” December 2002.

In imposing a ban, the City would need to consider the scope of the ban, the implementation timetable, and enforcement mechanism.

7.4.1 Scope

The scope of the ban will define what type of product and what type and size of retail stores and restaurants are included in the ordinance. The scope will influence the quantity of bags and foam food packaging eliminated from the City's litter and waste management costs, the implementation and enforcement costs of the program, and how the consumer behavior changes. A larger number of bags and foam food packaging will be eliminated with a broader scope, but the implementation costs for the City may increase with a larger initial ban. For the bag ban, the City could include only food-service retailers; all retailers, and/or retailers of a certain size (based on annual sales or retail square footage). For the foam food packaging ban, the City could include only large chain restaurants; only fast food restaurants; or all restaurants and food service locations. Smaller retail stores and restaurants may also feel the impact of the ban more than the larger retail stores. However, including all retail stores and restaurants creates a more consistent policy that is easier for consumers to understand, easier for the City to monitor, and harder for retail establishments to evade. The scope would also include which institutions, if any, to exempt, based on special circumstances, such as hospitals and/or schools.

The scope of the bag ban could include plastic and paper bags; exclude compostable plastic bags; exclude bags made with recycled paper; or exclude all paper bags. The City of San Francisco allows compostable plastic bags at retailers, but the City also has an extensive compost collection program including residences. Without a comprehensive curbside compost collection program, compostable plastic bags may still end up in garbage and blowing in the wind as litter. These products will also end up in residential recycling carts, where they will make it more difficult to separate plastic film for recycling. The foam food packaging ban could include all food packaging, foam food packaging, all plastic food packaging; or exclude compostable packaging. As stated earlier, the impact of allowing compostable packaging on diversion rates and litter will depend on a robust curbside food composting program, and clear identification of compostable versus recyclable plastic packaging.

The low price of foam food packaging and single-use, carryout plastic bags is one of the qualities that attracts retailers to using these products that they give away for free. Many of the replacement products are more expensive. Recognizing that requiring retailers to switch to a different product could have financial implications to that retailer, the City could only require the replacement products when they are comparable in price.

7.4.2 *Implementation Timetable*

The implementation timetable can also influence the effectiveness of the ban. Enough time must be allowed for public outreach to ensure retailers and consumers are prepared for the ban and are able to find an environmentally sound, recyclable (or compostable), and cost effective alternative to the banned product. The City could link the implementation to certain milestones. For example, Los Angeles County recently approved a plastic bag ban, which would only be triggered if retailers are not able to meet diversion milestones.⁶⁹

7.4.3 *Enforcement*

Implementing a citywide ban will require an enforcement infrastructure to ensure compliance with the ban. Many cities that have implemented bans rely on responses to complaints to enforce the bans. Non-complying businesses are sent warning letters explaining the city's program and requirements. If necessary, fines or penalties could be imposed for non-complying businesses. The cities of Berkeley, California and Portland, Oregon have well-established foam food packaging bans. No active enforcement has been necessary in these cities and each reports a high level of compliance. In Berkeley, the City health inspectors include compliance with the foam food packaging ban on their checklist when conducting site visits at restaurants. The cities of Santa Monica, Oakland and San Francisco have recently implemented foam food packaging bans and have not needed to add staff or resources to enforce the ban. Each of these cities reports good compliance with the bans.

For a City the size and scale of Los Angeles, it may be necessary to add staff resources in order to respond to complaints or conduct site visits to businesses to ensure that the ban is being implemented. It would need to be determined whether this effort could be supported by existing staff. However, initial City staff estimates that a ban would require one enforcement position per Council District, one overall supervisor, and two support staff members, with an annual cost of \$2.6 million. The implementation timetable should include time to create this infrastructure and internal policies for managing the enforcement piece. Figure 5 below shows the detailed enforcement cost estimate.

⁶⁹ Los Angeles County "An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors." August 2007

Figure 5 Citywide Enforcement Component - Cost Projection

| Staff salaries | Description | No. | Amount | Sub-total |
|------------------------|--|------------|---------------------------|--------------------|
| Enforcement personnel | Management Analyst II | 15 | \$73,252 | \$1,098,780 |
| Supervisor | Senior Management Analyst I | 1 | \$88,692 | \$88,692 |
| Support staff | Senior Clerk Typist | 2 | \$50,658 | \$101,316 |
| | | | | \$1,288,788 |
| 5% salary savings rate | | | | (\$64,439) |
| | | | Adjusted Salary | \$1,224,349 |
| Expense | | | | |
| Computer | Standard w/ 19"LCD | 18 | \$1,300 | \$23,400 |
| Software | MS Professional | 18 | \$525 | \$9,450 |
| Network Duplex Printer | HP LaserJet 4250 DTN | 2 | \$1,765 | \$3,530 |
| Network Color Printer | HP Color LaserJet 5550 DTN | 1 | \$4,180 | \$4,180 |
| Printing & Binding | Business cards | 18 | \$50 | \$900 |
| Office & Admin Expense | Office Supplies | 18 | \$200 | \$3,600 |
| | | | | \$45,060 |
| Enforcement Vehicle | Honda Civic Hybrid | 15 | \$25,000 | \$375,000 |
| CAP 29 | (fringe benefits, central svc, dept admin support) | | | \$915,039 |
| | | | | |
| | | | TOTAL PROGRAM COST | \$2,559,448 |

7.4.4 Initial Ban within City-owned Facilities and Events

The City could initially ban single-use carryout plastic bags and foam food packaging at all City-owned facilities and events. Through an internal program, the City can test the market for alternative products. Implementing the ban on a smaller scale will provide the opportunity to estimate the impact, benefits, costs, and complications of a citywide ban.

7.4.5 Examples

- o **San Francisco (bag)**

The City of San Francisco passed an ordinance in March 2007, which banned non-compostable plastic bags and paper bags without at least 40 percent recycled content. The ban applies to supermarkets with gross annual sales of two million dollars and retail pharmacies with at least five locations within San Francisco.⁷⁰ Supermarkets had to comply with the law after six months; pharmacies had to comply with the law after one year. San Francisco offers curbside collection of compostables, which includes food scraps, food-contaminated paper and certified, compostable plastics.⁷¹

⁷⁰ <http://www.sfgov.org/site/uploadedfiles/bdsupvrs/ordinances07/o0081-07.pdf>. Accessed March 2008.

⁷¹ http://www.sfenvironment.org/our_programs/topics.html?ssi=3&ti=6. Accessed March 2008.

The law has only been in effect for approximately six months for supermarkets and has not gone into effect for pharmacies. No comprehensive studies have been done to determine the impact of the ban on the use of plastic bags or quantity of bags in the litter stream. Preliminary analysis indicates that there has been a 60 percent reduction in the use of plastic bags, which includes a 30 percent increase in use of reusable bags.⁷² The City had 95 percent compliance immediately with supermarkets.

- o Oakland, California (bag)

Concerned about marine litter and the negative environmental effects of plastic bags, the City of Oakland passed an ordinance to ban the use of non-compostable plastic carryout bags at retailers which gross one million dollars or more annually.⁷³ All retail stores had six months before the law took effect. The ordinance was passed in July 2007. However, in August 2007, the Coalition to Support Plastic Bag Recycling, including grocers and recycling organizations, filed a lawsuit against the City claiming the ban “will lead to increased use of paper bags, which could have its own negative environmental consequences.”⁷⁴ The lawsuit claims that the City should have completed an environmental impact report prior to passing the ordinance. On April 17, 2008, an Alameda County judge granted an injunction against the ban agreeing with the Coalition that the City should have conducted an environmental review prior to adopting the ban. The City Council will now consider whether to appeal the decision or conduct a full environmental review.⁷⁵

- o Bangladesh (bag)

Bangladesh faced serious flooding issues caused by plastic bag litter clogging sewer drains during the monsoon season. The government introduced a ban on the manufacture and use of plastic bags in 2002. The ban was introduced through a phased implementation procedure starting with the capital only, and then extending to other cities.

- o Palo Alto, California (bag)

At its City Council meeting on April 28, 2008, the City of Palo Alto will be considering the adoption of a “Reusable Bag Ordinance” which would ban the use of single-use plastic carryout bags. The proposed ban would prohibit the distribution of polyethylene bags at checkout stands at large supermarkets (with gross annual sales of \$2 million or more) and large pharmacies (with over 10,000 feet of store space) within the City. Polyethylene bags would continue to be allowed in the produce and meat sections of the stores. The intent of the ordinance is “to effect a transition to reusable bags at the impacted stores, and have that transition carryover to other consumer outlets.” The City has posted a Notice of Intent under the California Environmental Quality Act to adopt a Negative Declaration that such an ordinance will not have a significant negative impact on the environment.⁷⁶

- o Berkeley, California (foam)

The City of Berkeley adopted an EPS ban in 1988. The law requires that 50 percent, by volume, of all takeout food packaging be recyclable or compostable. The ban became effective in 1990. The City has reported no problems from restaurants in converting to alternative materials.⁷⁷

⁷² City of Palo Alto. “Analysis Regarding the Issue of Single-use Retail Carryout Bags. March 2008.

⁷³ <http://clerkwebsvr1.oaklandnet.com/attachments/16942.pdf>. Accessed March 2008.

⁷⁴ http://www.chicoer.com/news/national/ci_8120001. Accessed March 2008.

⁷⁵ San Francisco Chronicle, April 18, 2008.

⁷⁶ City of Palo Alto. “Notice of Intent to Adopt a Negative Declaration.” March 17, 2008.

⁷⁷ <http://www.sfenvironment.org/downloads/library/foodservicewaste.pdf>. Accessed March 2008.

- o Portland, Oregon (foam)

The City of Portland adopted an EPS ban in 1989. The City was concerned about diminishing landfill space and the negative impacts of litter. Retail food vendors and restaurants cannot serve food in polystyrene foam products. The ban excluded schools and churches. McDonalds and Kentucky Fried Chicken sued the City of Portland to prevent the ban from being implemented and did not win the lawsuit. After a citizen's complaint is filed, the restaurant is mailed a letter of possible violation and receives a follow-up visit after 60 days. Often, these violations result from a language barrier, and the City works with interpreters to clarify the regulation. The potential penalty for non-compliance is \$250, but the City has not issued a fine since the passing of the ban in 1989. Within the first 2 years of implementation, the individual hired to manage enforcement was only spending approximately five percent of his time on enforcement of this regulation.⁷⁸

- o San Francisco, California (foam)

Out of a concern for public health, the City of San Francisco banned the use of chlorofluorocarbons (CFC) in food containers in 1988. At the time, EPS food containers, a commonly used product, had CFCs. In 2006, out of a concern for litter and diminishing landfill space, the City of San Francisco adopted a ban on foam takeout food containers from restaurants, retail food vendors, City departments and City contractors. In addition, restaurants, retail food vendors, etc., are required to use compostable or recyclable materials as an alternative. The law has an exception if there is no affordable alternative, defined as "purchasable for no more than 15 percent more than the purchase cost of non-biodegradable, non-compostable, or non-recyclable alternatives."⁷⁹ The law, which went into effect in June 2007, applies to approximately 3,400 restaurants and city facility food-service providers and vendors.

- o Millbrae, California (foam)

The City of Millbrae adopted an EPS ban in 2007. The City prohibits food service vendors, such as restaurants, grocery stores, coffee shops and bars, from using foam or solid polystyrene disposable food service ware. In addition, food service ware must be compostable, reusable, or recyclable, unless there is no available alternative. The law went into effect on January 1, 2008. The ban includes containers *and* bowls, plates, trays, cartons, cups, lids, straws, and utensils.⁸⁰

- o City of Los Angeles, California (foam)

The City of LA adopted a ban on Styrofoam in 1980s for air quality purposes because of CFCs used in the production. The ban was allowed to expire because CFCs were no longer used in the production of the foam.

- o City of Santa Monica (foam ban)

Mr. Dean Kubani, Manager of the Environmental Programs Division for the City of Santa Monica, made a presentation to the Los Angeles City Council on March 5, 2008, to share his extensive research and experience with successfully implementing an EPS foodservice ban in Santa Monica. The ban went into effect immediately for City facilities (2007), and then restaurants and other food establishments had one year to phase in the alternative packaging program. The cost to the City for switching to non-EPS products was \$600 per year.

⁷⁸ Telephone Interview. Pat Barratt. April 2008.

⁷⁹ *ibid*

⁸⁰ Letter dated October 18, 2007 from the Ronald Pop, Department of Public Works City of Millbrae to businesses.

In Santa Monica, enforcement of the ban is completely customer based. If a customer sees EPS being used, they can and often do report it to the City. Mr. Kubani does not feel there are any capacity issues with alternative packaging suppliers. There is an exemption in the Santa Monica ordinance if demand exceeds supply and sufficient alternative packaging is not available. Compostable food service ware is included in the City's green waste program which is handled by American Waste in Sun Valley. According to Mr. Kubani, there have not been any problems.

Mr. Kubani noted that the best strategy to implement a ban is to provide restaurants plenty of time to change their purchasing habits. Santa Monica spent a lot of time and effort on outreach to the Chamber of Commerce, Santa Monica Visitor and Convention Bureau and through the local media.

In his discussions with the American Chemistry Council and others, industry representatives stated that "public behavior is the problem, not the package". The industry is embarrassed by the image of EPS on the beaches but feel it is the City's responsibility to keep the beaches clean. In their opinion, it is also the City's responsibility to conduct anti-litter campaigns.

DRAFT

8.0 STAKEHOLDER INPUT

8.1 Solid Waste Integrated Resources Plan Stakeholders

By mayoral directive, the Bureau of Sanitation has been engaged in a year-long stakeholder outreach effort to develop the guiding principles for the City's stakeholder-driven 20-year master plan for achieving zero waste, SWIRP. Phase 1 of this plan is nearing completion and the guiding principles will be formally adopted at the third citywide conference on May 3, 2008. Throughout the year, BOS has conducted regional workshops in each of the City's six collection districts. At the workshops held in each collection district in March 2008, SWIRP stakeholders were asked to review the list of emerging guiding principles that have been developed and discussed to-date; and to apply these guiding principles in a discussion of the issue of plastics in the City's environment. The emerging guiding principles include the following, listed in no particular order:

1. Education to decrease consumption
2. City leadership as a model for zero waste practices
3. Education to increase recycling
4. City leadership to increase recycling
5. Manufacturer responsibility
6. Consumer responsibility
7. Convenience
8. Incentives
9. New, safe, technology
10. Protect public health and the environment
11. Equity
12. Economic efficiency

At each workshop, stakeholders discussed strategies for reducing plastics in the environment and the concerns that they had about these strategies. They then voted on the top strategies to recommend for further consideration by the City Council. Listed below are the top strategies by collection district.

8.1.1 Harbor Collection District

- Fees for plastic bags and Styrofoam products
- Charge for the bags
 - Light weight plastic bags can be reused
 - Give food at church in reused bags
- Generic reusable bags that can be used at all market
 - Eliminate brands on bags
- Get rid of bags overall

- Target bag manufacturers
- Educate consumers to use straw, canvass, reusable bags
- “It’s your bag...bring it with you!”
- Catchy slogans to affect behavioral trends
- Increase outreach and education to residents in terms of which items are recycled

8.1.2 *East Valley Collection District*

- Develop a plan to show who exactly will pay for the transition from one product to another
- No plastic bags in the blue bin
- Eliminate instead of reduce
- Promote recycling at the City level and L.A.U.S.D.
- Look at the “entire picture” for replacement of materials
- Go to people in their language and education them on the City’s programs

8.1.3 *South LA Collection District*

- Recycle versus banning bags and Styrofoam
 - Better education to get it into the Blue Bin
 - Transitional implementation leading to penalties for non-compliance
- City to recruit volunteer businesses to participate in pilot program
 - City should give tax incentives to businesses
 - Businesses give discounts to customer
 - Customers are attracted to businesses
- Identification of Recycling Abuses
 - Use paper liners with addresses in the 3 bins to identify abusers
 - Gives City raw numbers on extent of problem
 - Incentives for compliance
 - Penalties for non-compliance

8.1.4 *West LA Collection District*

- Ban Styrofoam and plastics
- Ban Styrofoam and plastics but phase it in
- Branding and making it visible at supermarkets
- Education program at schools

8.1.5 *West Valley Collection District*

- Ban Styrofoam peanuts and other non-recyclable products
- Require recycling/trash clean-up
 - On high-traffic days, Recreation and Parks staff should encourage recycling
- Storm drain channels should have screens
- Catch basins should have filters
 - Incentives to consumers
- Bring your own cup/bowl/bag
 - All City meetings and facilities should have to have recycling

8.1.6 *North Central Collection District*

- The City must have an immediate ban on plastic and Styrofoam in City-run departments (all disposables)
- Incentives and/or tax credits for vendors and/or restaurants for use of non-Styrofoam products
- Education to effect behavioral and cultural change
- Eliminate gangs from neighborhoods (enforcing litter laws and anti-graffiti laws helps curb more significant crimes)
- Educate and launch a major campaign
 - Signs on sides of buses, bus stops, and billboards on how to recycle

8.1.7 *Daytime Downtown Workshop (all collection districts were welcome)*

- Education
 - People need to know where to recycle bags
 - Begin education at the preschool/kindergarten level
 - Brochures in Korean to hand out in the community
 - Other cultures may need other languages as well
 - The public is unaware of the items that go in each bin
 - Need pictures and labels; highlight the items that cannot be placed in the bins
 - The entire community needs to be re-educated
 - Utilize media and Public Services Announcements (PSA)
 - Have a "Green Day" contest to find more ways to educate; website for school to develop additional ideas
 - Work with Prison Ministers to help develop educational tools; many churches already involved
 - The City must educate their employees
- Fee on plastic bags
 - Rebate on reusable bag

- Lobby to eliminate AB 2449 preemption
- Heal the Bay supports banning plastic unless retailers charge for bags
- Incentives for new markets
 - Rebates
- Styrofoam should be banned; there is no need for it
 - There are adequate alternatives such as Tiffin carriers (from India)
 - We should want to reduce use of non-renewable carbon-based items

Stakeholders have been invited to the joint meeting of the LA River, RENEW LA, and Energy and Environment committees to share their views on City policies regarding plastics.

8.2 California Grocers Association

The California Grocers Association, a non-profit, statewide trade association, represents approximately 500 retail members operating over 6,000 food stores in California and Nevada and approximately 300 grocery suppliers. The California Grocers Association was founded in 1898. According to the California Grocers Association, many grocers are constantly facing difficult regulations. They recognize that flexibility is the key and that any issue resolution needs to be collaborative instead of imposed upon the retailers.

The California Grocers Association's main concern is the inconsistencies that exist between Southern California cities in banning certain products. As an example, the California Grocers Association represents two different grocers who are located on the same street separating the city limits of Los Angeles and Santa Monica. One city, one product is banned on one side of the street and permissible on the other. The grocers are also concerned about the cost of alternatives (plastic vs. paper and reusables) and the impact on customers in terms of cost and convenience.

The California Grocers Association expressed concern that City officials lack education in terms of recycling. Communication is key and education is a must not only for the City residents, but also for the City officials as well. The California Grocers Association vision is to have representatives from their constituents and the City sit down at a table and develop a unanimous ruling in key issues particularly in banning certain products.

8.3 California Restaurant Association (CRA)

The California Restaurant Association (CRA) represents eating and drinking establishments in the State. According to the CRA, anything the City does to promote recycling will be supported by their restaurant

members. Restaurants are moving away from the use of polystyrene. The restaurant chains are tired of being in the middle of the “packaging wars” and want packaging that is safe, environmentally responsible, and cost effective. Restaurants support the City’s FOG (Fats, Oils and Grease) program, food waste recycling, and recycled content and compostable packaging.

The CRA feels that the “green” packaging industry does not have the capacity to meet the demand if polystyrene was banned in Los Angeles. When McDonalds eliminated the clamshell package, their alternative packaging vendor went out of business because of their inability to meet McDonald’s orders. CRA met with City of Santa Monica in 2007 to encourage them to extend the start date of their polystyrene ban in order to give the packaging industry time to ramp up.

CRA fears that bans will happen before alternatives are in place. Many of the large fast food chains (such as Subway and El Pollo Loco) still use plastic bags but other chains like McDonalds have gone back to paper. Restaurants also have a concern about which plastics are recyclable vs. compostable and the raw materials and processes used in manufacturing.

In 10 years, the restaurant industry hopes to be “GREEN”. CRA supports public education and innovative partnerships. One example is to work with Caltrans to promote anti-littering campaigns. CRA is working with packaging companies to develop environmentally-friendly packaging and encourages City staff to attend the Western Food Expo at the LA Convention Center where many alternative packaging exhibits are highlighted.

The CRA also feels that recycling programs need to be expanded but the City needs to ensure consistent, ongoing public education to support them.

8.4 Heal the Bay

Heal the Bay (HTB), started twenty years ago, is a “non-profit environmental organization dedicated to making Southern California coastal waters and watersheds, including Santa Monica Bay, safe, healthy, and clean” through “research, education, community action, and advocacy.”⁸¹ HTB has over 10,000 members and its offices are located in the City of Santa Monica.

HTB feels strongly that bans are the most effective solutions for plastic bags and polystyrene. According to the HTB, we cannot recycle our way out of this problem, and voluntary approaches have been shown to

⁸¹ <http://www.healthebay.org>. Accessed April 2008.

fail. Since AB 2449 prohibits local governments from instituting a fee on plastic bags, HTB recommends giving stores the choice of applying a fee of \$0.25 or more per bag. If stores instituted a fee, then the ban would not apply. Fees are a good mechanism to discourage bag use.

HTB is pursuing meetings with the supermarket chains and independents with the hope that these chains would support a self-imposed fee on plastic bags. There may be some possible legal issues on how the fees would be directed. HTB would like to see fees used for pollution prevention and control programs. There is no definitive proposal yet on the fee structure or how the fees would be managed or spent. Given the circumstances in California, this store-initiated fee (similar to programs in Ireland) is an alternative approach that would still accomplish HTB's goals.

The "One Day Without a Bag" campaign was very successful. Bag donations were made by a variety of partners including several reusable bag manufacturers and the City/County. There is always the option to provide free or affordable reusable bags for seniors and low income constituents. The per-bag-fee could potentially help with funding more bag give-aways.

On the polystyrene issue, implementation timelines need to be tightened up. Any city that implements a ban should make it effective immediately for their own City facilities. A phased in approach would be effective for restaurants and other food service operations with enough flexibility to accommodate the smaller "Mom and Pop" operations if needed.

8.5 Friends of the Los Angeles River

Friends of the Los Angeles River is a non-profit organization "founded in 1986 to protect and restore the natural and historic heritage of the Los Angeles River and its riparian habitat." According to the Friends of the Los Angeles River, packaging is one of the biggest solid waste disposal problems. Food packaging, especially from take-out restaurants/establishments is a special problem that affects both public health and the health of the LA River.

8.6 American Chemistry Council

Founded in 1872, the American Chemistry Council (ACC) represents companies that use chemistry to make products such as oil, plastics, including plastic bags and foam food packaging, and medicine. The over 130 member companies "have committed to implement a set of goals and guidelines that go above and beyond federal regulation on health, safety, security, and the environment."⁸²

⁸² <http://www.americanchemistry.com> Accessed April 2008.

The ACC provided numerous documents on life cycle analysis of EPS, anti-litter educational campaigns and financial sponsorship of Keep LA Beautiful and CA State Parks, and various other legislative and policy studies.

ACC is working closely with end market consumers of clean EPS such as Timbron (Stockton, CA) and Packaging Development Resources (Santa Ana, CA). Timbron sources CLEAN EPS from the City, which is processed by the Allan Company. Timbron manufactures building products from clean EPS. They do not have a washing system and can only tolerate minimal contamination. Timbron is working with four MRFs in the western United States to help them sort and bale the best (cleanest) material, which they receive in densified bales. They accept poultry trays, coffee cups, white foam and protective packaging but cannot use food service containers due to both economic and health reasons. According to ACC, about 25 percent of protective packaging (rigid EPS, computer packaging) is recycled.

Packaging Development Resources accepts EPS school lunch trays from the San Diego and Burbank Unified School Districts and is working with the LA Unified School District on a recycling program.

ACC does not "subsidize" these companies because that would be a false solution. However, the ACC does provide technology, knowledge, machinery, technical support and assistance in sourcing EPS scrap.

The plastic packaging industry opposes product bans because in their experience, bans often don't work. An independent analysis by the Cascades Policy Institute conducted ten years after the 1989 Portland, OR EPS foam foodservice ban includes findings why the ban should be repealed from a "bad public policy" perspective - cost, unintended consequences, negative impact on jobs, and environmental "myths" vs. "data/research" on polystyrene foam vs. other materials. The plastics industry and their customers are not supportive of "take-back" programs because of the complex logistical issues.

The industry would be more amenable to help build the recycling infrastructure if the threat of bans went away. Members of the ACC are discussing legislative options, fee systems, educational programs and other strategies where local governments and industry could collaborate on workable solutions instead of bans.

8.7 Moore Recycling Associates

Patty Moore, President of Moore Recycling Associates is a technical consultant to the American Chemistry Council and also manages the on-line resource www.plasticbagrecycling.org for California. This website provides technical assistance to consumers, businesses, recycling coordinators, recyclers and retailers on how and where to recycle plastic film bags. According to Ms. Moore, bans are the easy

answer. But the alternative products have their own shortcomings when it comes to recyclability, energy use, and other environmental impacts, including water use.

Ms. Moore recognizes that plastic bags and EPS are visible everywhere and the public relates to the litter issue. She also feels it is unfair that plastic products are universally maligned when there is evidence that paper and other packaging products contribute as much or more to environmental degradation through energy use in the production and shipping and post-use production of methane gas in landfills. Ms. Moore believes that waste reduction through reuse, rather than choosing one type of waste over another, is a much better solution. This would mean encouraging reusable items whenever possible. (e.g., to-go cups, cutlery and other food service items, retail bags, shipping materials and boxes, beverage bottles). This however, would require fundamental changes in our current system which is a much more difficult thing for politicians and policymakers to tackle.

Ms. Moore stated that the ACC's position on plastic bag recycling is that curbside should not be encouraged unless the collection and processing systems are in place to deal with them properly, especially at the MRF. She recommended that program managers encourage the expansion of retail drop off programs. These drop-off programs can also handle other plastics such as toilet paper wrap, newspaper bags, etc. Drop-off programs can handle large volumes but obviously people need to make an effort.

There has been real success for both bags and EPS in drop-off programs. One example is the informal polystyrene peanut take back programs at UPS stores, Mailboxes Etc. Plastic bags collected from drop-offs are primarily going to TREX to be made into plastic lumber. Neither TREX nor Epic Plastics have a wash line so material has to be clean or it is unusable. Most curbside plastic bags are going to China but this market may go away in the very near future because according to Ms. Moore, China has made a clear public policy decision not to take our waste. From the hauler and MRF point of view, their preference is not to have EPS or plastic bags as part of a commingled recycled stream due to cross contamination concerns. EPS food service recycling works very well in schools, cafeterias and institutional facilities where collection is controlled and the dirty trays/containers can be scraped/cleaned prior to collection.

Self-selection away from EPS food service items is already happening except where cost is the major issue (small take-out restaurants and schools). A ban might hurt the small retailers and facilities with limited funds. You won't see EPS in any high-end restaurants or markets because these businesses know that their customers do not want it and they can afford the more expensive alternatives. The food service industry recently surveyed Californian's about EPS and found people's attitudes to be quite negative towards the material.

9.0 CONCLUSION

Single-use carryout plastic bags and foam food packaging currently comprise over 30 percent of trash in the surrounding waterways, do not biodegrade. Additionally, plastic bags and EPS have a low recovery rate at MRFs, can disrupt recycling systems, and pose risks to aquatic life that ingest the plastic and foam. Reducing the use and disposal of these bags and food packaging can help the City comply with the TMDL requirements, zero waste goal, anti-littering campaigns, and GHG reduction goal. In developing a comprehensive City single-use, carryout plastic bag and foam food packaging policy, staff should consider the input of the grocery, plastic industry, and environmental stakeholders; the impact of any policy on smaller grocery stores, pharmacies, and restaurants; the needs of low-income community members; the implementation costs to the City; and the expected results and unexpected consequences. A hybrid policy implemented in a phased approach, identifying measureable goals, tailored to the specific product, will allow the City to reduce consumption of these products and increase diversion rates; while capturing those materials that reach the stormwater system. A product-specific strategy must be developed that addresses the unique characteristics, uses, and alternatives for single-use, carryout plastic bags and foam food packaging.

9.1 Recommendations

9.1.1 *Single-use, Carryout Plastic Bags*

The existing plastic bag recycling market is still developing, but has the potential to become a viable market for clean, dry plastic bags and other plastic film (thin plastic sheeting or wrapping materials). Currently, plastic bags can provide a low recovery rate if they are contaminated. Collecting plastic bags at the grocery store separates them from other recyclable streams and increases the probability of a clean supply. The City is 10 months into the "New to the LA Blue" program, which promotes plastic bag recycling. The City is working closely with its MRFs to assess the impact of this program on the plastic bag recycling rate. While the City's campaign and AB 2449 will increase the number of plastic bags collected for recycling, more time is needed to assess the results. Many stakeholders support giving the grocery store recycling program more time before determining its success.

A combination of promoting recycling of clean plastic bags and imposing a cost to consumers for use of single-use paper and plastic bags could support the three goals of the City. A market strategy would work in reducing consumption of plastic bags without having to replace these bags with a less desirable alternative. There are viable, reusable alternatives, which are easy and relatively inexpensive to provide to consumers: durable plastic and fiber bags. Although another alternative is single-use compostable bags, this replacement would not necessarily reduce consumption or litter impact of single-use plastic

bags. Regarding compostable bags, they could only have a positive impact if the City had a fully established curbside food scrap collection program and sufficient permitted composting capacity in place. Without this infrastructure, it is unlikely that the bags would be composted; instead, the bags would contaminate plastic bag recycling programs, be a potential litter issue, or end up in a landfill and the City already provides for recycling of plastic bags. Imposing the fee on all single-use, carryout bags, would help influence consumers to switch to reusable alternatives; but before a decision on imposing a fee is implemented, comparably priced reusable alternatives would need to be identified. However, AB 2449 currently prevents the City from imposing a fee on single-use, carryout plastic bags. Therefore, the City should continue with its promotional programs and evaluate the results after the first year; while supporting legislation to repeal AB 2449 and place a statewide fee on single-use, carryout bags. If, after AB 2449 expires, the State does not assess a statewide fee on single-use, carryout bags, the City should consider requiring retailers to charge a fee on these bags.

9.1.2 Foam Food Packaging

A market for recyclable, clean foam, including food packaging, is developing; and primarily includes non-food related packaging foam. According to the American Chemistry Council, about 25 percent of protective packaging (rigid EPS, computer packaging) is recycled.⁸³ However, most foam food packaging is too contaminated or disintegrated to recycle when collected through a curbside program. It is not clear that it is a viable product for a curbside recycling program. The City should continue to educate residents that clean foam can be recycled in the City's curbside program; and model zero waste behavior by banning foam food packaging at City facilities and events. Through an internal program, the City can test the market for alternative products. Implementing the ban on a smaller scale will provide the opportunity to estimate the impact, benefits, costs, and complications of a citywide ban. At the same time, the City should develop a pilot program to collect food scraps and compostable paper and plastics from residents. This pilot program will require the creation of external infrastructure necessary to accommodate compostable products. During the pilot program, the City should begin the phased implementation of a foam food packaging ban:

Phase 1 Implementation of a foam packaging ban in all City facilities. Work with the General Services Department (GSD), Environmental Affairs Department (EAD), and other city departments (including proprietary) to monitor the program, alternatives, and results. BOS to work with GSD and the City Facilitates Recycling Program (CFRP) on outreach to all city employees. .

Begin educating restaurants that a ban will be in effect within three years. Provide information about alternative products and costs. Educate residents about the Pilot Food

⁸³ Interview with American Chemistry Council

Scraps Composting Collection Program. Collect data on compliance issues, infrastructure needs, complaints, quantities collected, and contamination levels.

Phase 2 Notify restaurants of the future requirement to eliminate foam food packaging. Ensure composting collection infrastructure and list of distributors of biodegradable and recyclable food service containers are in place and begin marketing campaign to residents and businesses.

Phase 3 Enforce foam food packaging ban, based on responses to complaints.

Likely alternatives to the foam food packaging include compostable and degradable paper and plastic containers. Assuming that the infrastructure is already in place, the City would be prepared to manage these types of products in the waste stream. Based on lessons from the internal City facilities ban, the City would be able to design a better implementation program to reduce the complaints and violations, and suggest cost effective, environmentally sound alternatives. The phased approach provides restaurants enough time to find a viable alternative product and use the rest of the foam food packaging they already had in stock.

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