Attachment "A" to CMR:158:08

Analysis of the Issues Regarding Single-Use Retail Carryout Bags

CITY OF PALO ALTO

March 2008

Executive Summary

This report presents the issues of single-use carryout bags. The City of Palo Alto's Zero Waste Operational Plan and Climate Protection Plan both call for actions to reduce waste, and to prevent pollution and greenhouse gas emissions with upstream solutions.

Council concern about the proliferation of plastic retail carryout bags and their impact on the environment dates back 20 years. In 1988, the City Council directed a task force to look into this problem. The task force concluded that paper was the better environmental choice for retail carryout bags due to its compostable and recyclable nature, and found that plastic bags were an "unnecessary use of non-renewable resources". [1] As a result, an ordinance was enacted requiring all retailers in Palo Alto to offer paper carryout bags, while allowing plastic bags as an alternative. Unfortunately, Palo Alto's ordinance was not effective in stemming the increased use of plastic retail carryout bags.

The California Integrated Waste Management Board determined in 2006 that plastic retail carryout bag use in California has increased to 20 billion bags per year. Large grocery chains have provided recycling containers for plastic bags since the early 1990's, yet the current rate of recycling is less than 5 percent.[2] An exact comparison was not available, but the paper industry estimates that at least 50 percent of all paper is recycled.[3] According to the 2006 Palo Alto Waste Composition Study, 442 tons of Kraft paper (the type of paper used to make paper bags) and 345 tons of plastic bags were landfilled in 2006.[4] While Kraft paper and plastic bags represent less than 1 percent of the total tonnage landfilled, both are recyclable.

Single-use carryout bags are a source of litter impacting Palo Alto and the wider environment. According to the Santa Clara Valley Urban Runoff Pollution Prevention Program, 60 percent of the litter found in Bay Area creeks is plastic. While paper has been noted in land-based litter studies such as San Francisco's recent report of 2007, "biodegradable" material, which would include paper, only comprises 12% of the litter found in Bay Area creeks. One Los Angeles River clean up found that plastic film and bags constituted 45 percent of the litter collected by volume. Litter collection for beaches, state highways, cities and counties costs the state $303.2 million each year.[5]

The collective problem of plastics in the marine environment affects the world beyond Palo Alto. Palo Alto land-based debris, including litter (mostly bags, packaging and single-use disposable products) is conveyed through storm drains to local creeks, into San Francisco Bay and into the Pacific Ocean.[6] The North Pacific Gyre, an area in the ocean approximately 1,000 miles off of the California Coast, harbors an enormous accumulation of plastic debris. Studies conducted by the Algalita Marine Research Foundation indicate that plastic does not completely biodegrade in the marine environment as paper does, instead breaking down into smaller and smaller pieces, accumulating toxins and harming marine animals when it is mistaken for food. Due to the global impact of plastic bags, AB 2449 was signed into law in 2007. This legislation cites the following as reasons for the law: the use of over 12 million barrels of oil to produce plastic bags, the deaths of thousands of marine animals through ingestion and entanglement, the billions of bags that end up as litter each year and the fact that plastic breaks into toxic bits that foul soil, waterways and the food web. The law requires supermarkets and retail pharmacies meeting certain criteria to offer reusable bags, to make a plastic bag recycling bin available and to track collection of the plastic bags.

Also in 2007, the governors of Washington, Oregon and California collectively passed a resolution calling for source reduction of plastic marine debris.[7]

Cities and entire countries have taken various actions to reduce paper and plastic carryout bag usage through consumer education, voluntary store actions, plastic bag bans and charging a fee on plastic bags. Germany levies fees on all single-use bags, regardless of type. Ireland's implementation of a fee in 2002 resulted in an approximate 90% reduction in plastic bags in the first year of the fee.[8] Eleven cities in Alaska, San Francisco and Oakland have banned plastic bags and more cities, such as Santa Monica, Berkeley, San Jose and Fremont are considering taking action. California jurisdictions cannot levy fees on certain plastic bags, however, because AB 2449 precludes this action. Oakland, a city that has banned plastic bags, was sued by the Alliance for Plastic Bags on the basis that the ban was subject to review under the California Environmental Quality Act, contrary to the opinion of the City of Oakland Attorney's Office. A court decision is expected in March or April 2008. Some jurisdictions are considering instituting fees on any single-use carryout bag a store distributes, except for plastic. The recently introduced AB 2058[9] attempts to move beyond AB 2449 by requiring retail stores meeting specified criteria to reduce plastic bag use with phased reduction benchmarks, increased recycling requirements and the allowance of stores to charge a $0.15 per bag fee.

Paper and bio-plastic (compostable) carryout bags have been supported as alternatives by some jurisdictions because of their recyclability and compostability, respectively. Paper bags are universally accepted in curbside recycling programs. Recycled content paper bags made from 40 percent post-consumer and 60 percent post-industrial paper are readily available for stores to stock as carryout bags, which supports the curbside collection of paper. Jurisdictions with food scrap collection programs, such as San Francisco and Oakland, have included compostable bio-plastic bags as alternatives to plastic bags. However, the common goal for all jurisdictions that have instituted regulations surrounding single-use carryout bags, regardless of type, is to support reusable bags as the preferred carryout bag choice. Reusable carryout bags conserve resources while reducing litter, waste to landfills and greenhouse gas emissions. One reusable bag replaces hundreds of single-use bags, requires only slightly more energy to produce and is unlikely to become litter and contribute to the problem of marine debris[10]

A survey of shoppers' carryout bag patterns at seven Palo Alto grocery stores and five pharmacies was conducted in early 2008. The grocery store survey indicated that 9.6 percent of shoppers used reusable bags, 47.4 percent used plastic single-use bags, 34.7 percent used paper single-use bags and 8.4 percent opted for no bag. The pharmacy survey indicated that 2.2 percent of shoppers used reusable bags, 72.6 percent used plastic single-use bags, 0.4 percent used paper single-use bags and 24.8% opted for no bag.

Staff at Palo Alto grocery stores Country Sun Natural Foods, Piazza's and Whole Foods have advised Palo Alto staff that they have discontinued the purchase of plastic carryout bags for their stores. All Palo Alto grocery stores and major pharmacies (e.g. Walgreens, Longs) offer reusable carryout bags for sale. The City of Palo Alto Public Works Recycling Program has conducted education campaigns, including the distribution of reusable bags, since the 1990's. A local BYOBag campaign is currently being coordinated with retailers to take place from April-December 2008, and the Recycling Program will be collaborating in a Bay Area regional education campaign in April.

Introduction

Plastic carryout bags were first introduced by retail stores in the United States in 1975 and began to be distributed to customers at the point of sale in supermarkets in 1977. Today these bags are ubiquitous in the marketplace because they are light-weight, strong, inexpensive and convenient. They became so prolific in our environment so quickly that ten years after they first were introduced in grocery stores, the City of Palo Alto considered banning them. In 1988, the City Council directed a task force, *War on Waste*, to analyze this problem. The task force concluded that paper was the better environmental choice for retail carryout bags due to its compostable and recyclable nature, and found that plastic bags were an "unnecessary use of non-renewable resources".[11] As a result, an ordinance (PAMC 5.35) was enacted requiring all retailers in Palo Alto to offer paper carryout bags while allowing plastic bags as an alternative. Unfortunately, Palo Alto's ordinance was not effective in stemming the increased use of plastic retail carryout bags, not all retail stores complied with the ordinance and there was no enforcement of the ordinance.

There are four primary types of retail carryout bags distributed at grocery, pharmacy, food service and other retail stores;

- Plastic- derived from petroleum
- Paper- derived from wood
- Bio-plastic- derived from corn starch or corn starch/petroleum mix
- Reusable bags- made from thick plastic (at least 2.25 mils thickness), plastic woven to resemble cloth, or cloth (e.g., cotton, jute, recycled #1 plastic bottles)

To assess current usage patterns of carryout bags in the City of Palo Alto, a survey of Palo Alto grocery stores and pharmacies was conducted. In January and February 2008, shoppers were observed upon their exit from the store and the type of carryout bag noted: plastic bag, paper bag, reusable bag or no bag. Grocery store surveys were conducted during weekday lunch, weekday after work and Saturday morning at Andronico's, Country Sun Natural Foods, JJ&F Market, Mollie Stone's, Piazza's, Safeway, and Whole Foods. Pharmacy surveys were conducted late weekday mornings at Longs and Walgreens. Table-1 and Table-2 summarize the surveys.

Table-1
Survey of Carryout Bag Use at Palo Alto Grocery Stores*
January 2008

*Piazza's, Whole Foods, Country Sun Natural Foods, Mollie Stone's, Andronico's, Safeway, JJ&F

Carryout Bag Type	Number of Bags Observed	Percentage of Total
Reusable Bags	352	9.6%
Plastic Bags	1,747	47.4%
Kraft Paper Bags	1,277	34.7%
No Bags	308	8.36%

Table-2
Survey of Carryout Bag Use at Palo Alto Retail Pharmacies*
January 2008

*Longs, Walgreens

Carryout Bag Type	Number of Bags Observed	Percentage of Total
Reusable Bags	6	2.2%
Plastic Bags	196	72.6%
Paper Bags	1	0.4%
No Bags	67	24.8%

All Palo Alto grocers and retail pharmacies offer reusable carryout bags for sale. Palo Alto grocers offer an incentive for each use. The most common type of reusable bag offered is an inexpensive polypropylene bag ("green bag") that is made of plastic but looks like cloth. The size of the polypropylene bags is similar to that of a paper carryout bag. All Palo Alto grocers and retail pharmacies offer a reusable bag branded with the store logo and/or name. Table-3 summaries the types of reusable bag(s) offered and the incentive provided.

Table-3
Reusable Carryout Bags Available
Palo Alto Grocers and Retail Pharmacies
January 2008

Store	Type	Cost (ea.)	Incentive
Andronico's	polypropylene	$0.99	$0.05 rebate per bag for any reusable bag, $0.10 for each Andronico's bag
Country Sun Natural Foods	polypropylene, jute, nylon	$1.00 and up	$0.05 rebate for any reusable bag, including produce bags.
JJ&F	polypropylene	$1.49	$0.05 rebate
Mollie Stone's	polypropylene	$1.00 $1.99 wine bag	$0.05 rebate, wine bag ($1.99) is free with purchase of six bottles of wine
Piazza's	polypropylene	$2.19	$0.05 rebate
Safeway	polypropylene	$0.99	$0.03 rebate
Whole Foods	polypropylene, plastic #1	$0.99- $1.19	$0.05 rebate or donation to charity
Longs	polypropylene	$0.99	None
Walgreens	polypropylene	$0.99	None

Issues Associated with Plastic Bags

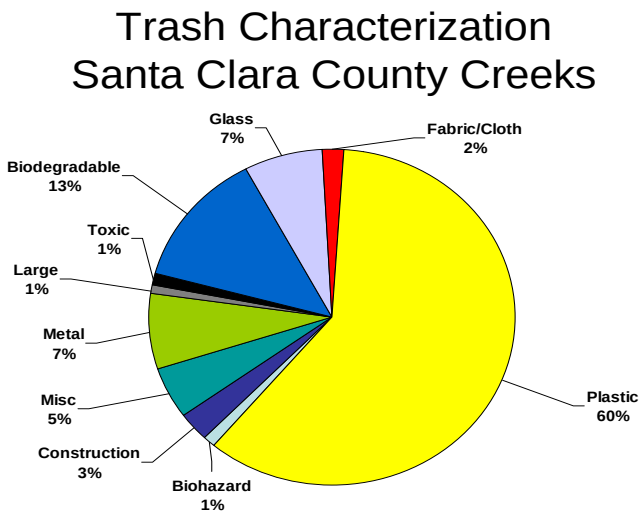
Plastic carryout bags are made in a number of different sizes and thicknesses and are typically manufactured from either high density polyethylene (HDPE – plastic #2) or from low density polyethylene (LDPE – plastic #4). The LDPE bags are thicker and are generally used by department stores and other commercial retail outlets. The HDPE bags are typically thinner, cheaper and are used much more widely by supermarkets, pharmacies, convenience stores and restaurants. These bags are termed "single-use" bags because they are designed and intended for one-time use for customers to carry their purchases from the store, followed by disposal or recycling. Due to their thin construction they are not durable enough for repeated carryout use.

The California Integrated Waste Management Board (CIWMB), in 2006, estimated that Californians' plastic retail carryout bag use has increased to 20 billion per year. Large grocery chains have provided recycling containers for plastic bags since the early 1990's, yet the current rate of recycling is less than 5 percent.[12]

According to the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), 60 percent of the litter found in Bay Area creeks is plastic. Plastic bottles, bags and Styrofoam pellets were the single most common and abundant types of trash surveyed and removed. While paper has been noted in land-based litter studies, "biodegradable" material, which would include paper, only comprises 12% of the litter found in Bay Area creeks. Litter collection for beaches, state highways, cities and counties costs the state $303.2 million each year.[13]

Figure 1, compiled by SCVURPPP, illustrates the problem with plastics in Santa Clara County creeks.

FIGURE 1



Percentage of Litter Types Observed in Santa Clara County Creeks (35 sites)

Single-use carryout bags are a component of litter impacting the San Francisco Bay. A recent survey of 26 creeks around the Bay collected 25,000 pieces of trash during 93 site visits. The worst sites tended to be located at the bottoms of watersheds that receive runoff from an entire water or pipe shed, indicating that streams are the likely main pathway of floatable plastic to the marine waters, and that trash levels are increasing.[14]

Palo Alto must comply with Federal clean water laws to eliminate toxic substances from flowing into waterways, including storm water runoff and individual water bodies, such as rivers, lakes, streams and wetlands. Planning documents designed to ensure adequate water quality are known as "Total Maximum Daily Loads" or TDMLs. Trash has been found at high levels at some sites within San Francisco Bay Area watersheds, creeks and the Bay and it is anticipated that new, more stringent requirements will be instituted. These new requirements could substantially increase the City of Palo Alto's costs for compliance with its storm water discharge permit. TMDLs for trash have already been adopted in Southern California, and may well be prepared for the San Francisco Bay Area, requiring further action to control trash.

The collective problem of plastics in the marine environment affects the world beyond Palo Alto and the San Francisco Bay. According to estimates, plastic bags take 10 to 20 years to break down into tiny plastic particles.[15] Palo Alto land-based debris, including litter, (mostly bags, packaging and single-use disposable products) is conveyed through storm drains to local creeks, into San Francisco Bay and into the Pacific Ocean.[16] The North Pacific Gyre, an area in the ocean approximately 1,000 miles off the California Coast, harbors an enormous accumulation of plastic debris. Studies conducted by the Algalita Marine Research Foundation indicate that plastic does not completely biodegrade in the marine environment as paper does, instead breaking down into smaller and smaller pieces. Their research found that plastic pieces outnumber plankton six to one in the North Pacific Gyre and found an alarming number of plastic bags in the center of the Gyre. In one instance, they observed and recovered floating semi-submerged plastic bags over more than 10 miles of the sea's surface before the concentration of floating plastic bags decreased.[17]

Whether plastic bags photo degrade on land or in the ocean, the remaining plastic particles are not digestible by animals. In the ocean, the small plastic pieces accumulate bacteria, pesticides and other toxins which may be transferred to the marine animals that mistakenly ingest them as food. This bioaccumulation of toxins travels up the food chain to reach dangerous levels.[18] In addition, marine wildlife such as sea turtles and whales mistake plastic in the water for jelly fish or other food. It has been documented that plastic bags can choke animals or restrict food absorption, leading to injury or death. Despite millions of dollars spent on mandated cleanup, plastic debris in the ocean is actually increasing.[19]

Plastic bags are recyclable; however, very few are actually recycled. Large grocery chains have provided recycling containers for plastic bags since the early 1990's, yet the current rate of recycling is less than 5 percent.[20] The local recycling infrastructure for plastic bags is weak or nonexistent. This is largely due to the lack of manufacturer responsibility for the plastic bag product, including 1) logistics of collection, 2) sorting difficulties, 3) high contamination rates (e.g., materials other than plastic bags being mixed with the bags) that reduce the quality of the recycled plastic resin produced, 4) the low quality of plastic used in the bags, and 5) the lack of markets to make new products from the plastic bags. Film plastics, of which plastic bags are a subset, are collected at the

City of Palo Alto Recycling Center and Stanford Recycling Center drop-offs; however, the specific quantity of plastic bags is unknown because film plastics also include plastics such as clothes packaging bags, pallet wrap, shrink wrap, bubble wrap and more.

Plastic bags are not accepted in curbside collection in Palo Alto because:

- The bags are soiled by the time they reach the sorting facility which makes them undesirable to recyclers. These bags must then be landfilled.
- The bags jam sorting equipment, causing mechanical breakdowns which increase the cost of processing for all recyclables.
- There is a lack of markets for the collected film plastic to be made into new products.

Plastic Bag Costs and Alternatives

The primary alternatives to PE plastic carryout bags in Palo Alto are single-use paper carryout bags and reusable carryout bags made from cloth or durable plastic. All three of these options are available in Palo Alto stores. Currently no Palo Alto retailers are distributing compostable (starch-based or starch/petroleum-based) carryout bags. The costs of plastic bags and the alternatives vary and are listed below in Table-1.

Table-4
Bags Distributed in Palo Alto
(Costs provided by Palo Alto Grocers)

Type of Carryout Bag	**Approximate cost per bag**
Polyethylene Plastic	1 to 5 cents
Paper (6 of 7 grocers use paper bags w/handles)	5 to 15 cents
Reusable (cloth or plastic)	99 cents to $1.49
Compostable Plastic	No Palo Alto stores currently distribute for carryout

Issues Associated with the Alternatives to Polyethylene Plastic Carryout Bags

The primary environmental impacts of carryout bags are related to:

- Extraction/processing or growing/harvesting of resources;
- Manufacturing process;
- Transport from the manufacturer to the wholesaler/retailer;
- Patterns of use by consumers;
- End-of-life: landfill, recycling or litter; and
- Impacts on natural ecosystems and the marine environment

The end of life impacts of paper bags are much lower than for plastic bags because they degrade faster in the environment and have less impact as litter both on land and in the

marine environment Paper bags are also easily recyclable in Palo Alto's curbside recycling program.

The end of life impacts for compostable plastic bags is mixed. These bags can be composted in jurisdictions with food scrap collection programs; however, Palo Alto's programs currently do not accept compostable plastic. Additionally, compostable plastic bags are a problem for recyclers when they contaminate film plastic (e.g., plastic bags, pallet wrap, shrink wrap) recycling programs because they are easily mistaken for plastic bags. Compostable plastics and film plastics are incompatible in the recycling process. And like polyethylene plastic bags, compostable plastic bags are designed for single use and have properties similar to polyethylene plastic bags that contribute to their likelihood to become litter, ultimately ending up in the marine environment. While they degrade more rapidly than polyethylene plastic in natural ecosystems, they still negatively impact marine life.

A study, published in 2002 by the Australian Department of the Environment and Heritage, evaluated the life cycle environmental impacts of plastic carryout bags and alternatives. They assessed the life cycle of eleven carryout bags including two types of HDPE single-use bags, two types of LDPE single-use bags, a cotton bag, a reusable woven HDPE bag, a reusable woven Polypropylene (PP) bag, a Kraft paper bag, a solid PP basket, and two types of compostable plastic bags (starch-based, starch+synthetic polymer). The study did not assess cloth bags made from Eco-Spun (100% post-consumer #1 plastic bottles), and the cotton bag was not made from organic cotton.

The study concluded that reusable bags cause the least impacts, from greenhouse gas emissions to litter. Additionally, the study found that compostable plastic bags and polyethylene plastic bags produced similar greenhouse gas emissions. The study determined that paper bags consumed more energy and resources to manufacture initially; however, bags containing higher amounts of recycled materials substantially reduce the impacts of these bags.[21]

Governmental Actions Regarding Plastic Bags

California State Law

AB 2449 (Public Resources Code, Chapter 845) was enacted to encourage the use of reusable bags by consumers and retailers and to reduce the consumption of single use bags. The law became effective July 1, 2007. The law applies to all supermarkets[22] and those retail establishments with over 10,000 square feet of space which include pharmacies. The requirements for compliance with the law include:

- The operator of a store, as defined, must have at least one recycling bin that is clearly marked, visible, and accessible to customers
- Plastic carryout bags provided by the store must be marked in a manner visible to the consumer: "Please Return to a Participating Store for Recycling."
- The applicable store must maintain records describing collections, transport and recycling of plastic bags collected for a minimum of three years
- The operator of the store must make reusable bags available for purchase within the store.
- Manufacturers of plastic carryout bags shall develop educational materials to encourage reducing, reusing and recycling plastic bags and make those available to the applicable stores.

Local jurisdictions are specifically precluded from adopting any of the following additional regulations upon an applicable store:

- Imposing a plastic carryout bag fee
- Additional reporting requirements and
- Requiring a store to collect, transport or recycle plastic bags if the store is in compliance with this law.

Along with AB 2449, AB 258 became law in 2007. AB 258 added to Division 7 of the Water Code provisions that seek to stop plastic pellets (from which plastic carryout bags are made) called "Nurdles" from entering the waters of the state as well as the oceans by requiring the State and Regional Water Quality Control Boards to implement a program for control of the discharge of these pellets by January 1, 2009.

Additional legislation has also been introduced. AB 2058 would build upon the provisions of AB 2449 by creating recycling benchmarks and allowing stores to charge a fee of up to 15 cents per plastic bag given to consumers. Stores would be prohibited from dispensing single-use plastic carry-out bags to their customers unless they could demonstrate that they have reduced/recycled at least 35 percent of plastic bags by the end of 2010, and 70 percent by the end of 2012.

City and County of San Francisco

San Francisco banned certain single-use plastic carry-out bags in April 2007. San Francisco's Ordinance, in effect since November 2007, requires that certain stores offer only compostable bags, 100% recyclable paper bags (must include 40% post consumer paper), or reusable bags. Compostable bags offered must meet American Society for Testing Materials (ASTM) standards for compostability, and must include specific labeling to identify the bag as compostable.

The ordinance findings included the following reasons in support of the ban:

- Duty to protect environment
- Citywide goals of 75% landfill diversion by 2010 and zero waste by 2020
- Expansive use of plastic bags and diversion into landfill
- Plastic bags are difficult to recycle and contaminate compost
- Plastic bags create significant litter problems
- Plastic bags have significant environmental impacts each year: felling of over 14 million trees, use of over 12 million barrels of oil for bags in U.S., as well as death of over 100,000 marine mammals
- Governments of several countries have imposed bans

The ordinance follows the lead of State Law (AB 2449), applying only to supermarkets with $2M or greater in sales and pharmacy chains with five or more locations within San Francisco. The ordinance applies to approximately 50 grocery stores and as of January 2008, 95% of these stores were in compliance. A recent phone interview with San Francisco's staff found they have conducted a survey following the effective date of the Ordinance. The following was occurring:

- 30% of patrons were using reusable bags.

- Only 3 of the 50 San Francisco stores covered by the Ordinance were offering compostable plastic bags.

City of Oakland

The City of Oakland adopted an ordinance similar to San Francisco's. Oakland's ordinance, applies to all retail businesses grossing $1M or more in sales (about 300 businesses). The Coalition to Support Plastic Bag Recycling filed a lawsuit on August 3, 2007 against Oakland.

The lawsuit, A Verified Petition for Writ of Mandate under the California Environmental Quality Act (CEQA), seeks to preclude the enforcement of the Ordinance or to invalidate the ordinance, alleging that the ordinance will result in adverse environmental impacts. The lawsuit argues the following:

- Restricting plastic bags while allowing compostable plastic bags will result in contamination of the existing process for recycling plastic bags.
- The ordinance will cause an increase in the use of paper bags, which will increase greenhouse gas emissions and water pollution because paper bags generate more pollutants and require more energy to produce and recycle than plastic bags.
- Respondents have abused their discretion by ignoring CEQA's mandate to evaluate environmental impacts.

County of Los Angeles

The County of Los Angeles prepared a study entitled, "An Overview of Carryout Bags in Los Angeles County", dated August 2007. The Board decided to allow plastic manufacturers one year to: 1) work on increasing the recycling rates at supermarkets, 2) educational campaigns on reduction of plastic bag use, and 3) increase use of reusable bags. If supermarkets do not achieve a 35% reduction and a 70% reduction in consumption by 2010 and 2013 respectively, the Board would then draft an ordinance banning the use of plastic bags within County jurisdictions. The Board also passed a Motion to seek to repeal AB 2449, in order to allow a fee to be imposed on plastic bag use.

Worldwide

- Ireland: In 2002, instituted the "PlasTax" or a fee for every plastic carryout bag due to visible litter throughout Ireland. The fee applies to all plastic carryout bags distributed by retailers, including bio-plastic bags as they were not seen as an environmentally preferred alternative. Plastic carryout bag usage was reduced by 90%, or over 1 billion bags in one year. The tax proceeds are put into waste recycling and litter programs.[23]
- Bangladesh: Banned plastic bags in 2003 when they found that the bags had blocked drainage into a river exacerbating flooding during monsoons in that region. They rely almost exclusively on reusable jute bags.
- Coles Bay, Tasmania: Banned plastic bags in 2003, stopping the use of 350,000 plastic bags in the first twelve months. Host to whale migration along its eastern seaboard, the community determined to reduce their waste and protect the whales when a Bryde's whale died on Cairns beach after ingesting 6 square meters of plastic, including plastic bags.
- France: Corsica banned plastic bags in 2003. Plastic bags were replaced with reusable and paper bags.

- London, England: 33 Councils in London proposed a plastic bag ban in 2007, with a potential fee, citing marine endangerment, litter, decreasing petrochemical reliance/waste and the need to encourage reuse. The bill was submitted to Parliament and a vote is expected in 2008.
- China: A measure effective 6/1/08 will effectively ban ultra-thin plastic bags and pose a compulsory charge on all other plastic carrier bags.

Key Findings

- Single-use plastic carryout bags contribute substantially to litter of waterways both in the Bay Area and worldwide. Federal, State and Local government's efforts to address the problem over several decades have failed to reduce the build-up of plastic debris in the marine environment.
- Single-use plastic carryout bags do not degrade in the marine environment for many years and have been found to substantially affect marine life.
- Even with the emphasis on recycling of plastics in the last several decades, the plastic carryout bag recycling rate remains at approximately 5%.
- Reusable carryout bags are considered worldwide to be the best option to reduce waste and litter, protect wildlife and conserve resources. Reusable bags have lower associated greenhouse gas emissions. They are readily available and are affordable for the consumer.
- Plastic bag bans and per bag fee assessments have been enacted by a number of communities around the world. Bans and fee assessments have dramatically reduced the use of plastic bags.

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