



CENTRAL CONTRA COSTA
SOLID WASTE AUTHORITY

PLASTICS IN THE ENVIRONMENT

**BACKGROUND INFORMATION ON BANS OF SINGLE-USE PLASTIC
CARRY BAGS AND EXPANDED POLYSTYRENE FOAM FOOD CONTAINERS**

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INTRODUCTION

Lightweight plastics such as single use carry bags and expanded polystyrene foam (EPS) comprise a high percentage of litter and debris, which negatively impacts our environment, especially our marine environments. In February 2009, the San Francisco Bay Regional Water Quality Control Board declared 26 Bay Area waterways as “trash impaired.” In order to comply with the Municipal Regional Water Permit Litter Mitigation requirements; cities and counties will be required to reduce trash in waterways by 40 percent over the next five years, and 70 percent by 2018.

These measures can be expensive, and thus, a burden to municipalities with already strained budgets. Some California cities and counties are therefore looking to reduce the amount of litter in their waterways by regulating the problem materials at the source.

The issue of plastic film (thin single-use bags) was brought to the Board in an earlier report. The Board directed staff to monitor how other jurisdictions were dealing with this commodity and report at a later time. With the recent focus of State and federal regulators on this fraction of the waste stream, it is appropriate to bring the issue back to the Agenda.

SINGLE-USE PLASTIC BAGS

ISSUES – PLASTIC BAGS

Film plastics are used for many different applications; however, one of the most prevalent is single-use retail carry bags. These types of bags range from the heavier type, used by clothing and merchandise retailers, to the very thin ones that are used by groceries and dry cleaners. It has been these light weight bags that have come under fire recently by local governments, environmental organizations, and the media.

Plastic grocery sacks have some advantages over paper bags. They are less expensive for retailers to buy, are lighter and thus cost less to transport, and they require less storage space at the retailer’s facilities. Although some experts believe that the environmental impacts of manufacturing plastic bags is actually less than those of paper bags, several considerations need to be kept in mind. Paper bags are made of kraft paper, which easily lends itself to recycling and will degrade over time. Furthermore, most paper grocery bags are actually made from recycled paper, which then lowers the overall environmental footprint for their manufacture. According to the Grassroots Recycling Network (GRRN), “The energy and other environmental impacts embodied in a plastic grocery bag is somewhat less than in a paper grocery bag. But paper is accepted in most recycling programs while the recycling rate for plastic bags is very low.”¹

Plastic bags are a significant component of litter in the environment, primarily due to their durability and light weight. Even when disposed of properly, plastic bags are often blown out of trash receptacles and are easily carried by wind and water to become

entangled in vegetation, clog storm drains and contribute to free floating plastic debris in the planet's marine environment.² Marine animals easily mistake polystyrene for food. This issue is highlighted by the recent media attention regarding a floating "garbage patch" twice the size of Texas in the northwest Pacific Ocean. This issue was first brought to light by Charles Moore, an oceanographer and founder of the Algalita Marine Research Foundation. He states: "Unlike many discarded materials, most plastics do not biodegrade; they "photo-degrade;" a process whereby sunlight breaks them into progressively smaller pieces, all of which are still plastic polymers. In fact, the degradation eventually yields individual molecules of plastic, but these are still too tough for most anything—even such indiscriminate consumers as bacteria—to digest. And for the past fifty years or so, plastics that have made their way into the Pacific Ocean have been fragmenting and accumulating as a kind of swirling sewer in the North Pacific subtropical gyre."³

The California Water Quality Control Board (CWQCB) regulates the amount of pollutants that can be found in the States' waterways. In years past, they were usually concerned with chemical pollutants such mercury and lead. But, because the City of Los Angeles had grave issues with solid waste pollution, much stricter regulations were enacted. Los Angeles contends that plastics make up approximately 20% to 25% of their litter captured in storm drains. And the costs for cleaning up our waters are exorbitant. San Francisco spent approximately \$8.5 million annually cleaning up plastic bags from their streets, storm drains and beaches.⁴ Some municipalities are attempting to cut down on this trash, at the source, by implementing regulations that will curtail single-use plastic bag generation.

RECYCLING EFFORTS – PLASTIC BAGS

In 2007, the State of California enacted legislation (AB 2449), mandating that retailers provide recycling containers for plastic retail bags at large grocery stores and big-box retailers.

However, the program has shown little in the way of increasing recycling rates and decreasing plastic bag litter. According to Heal the Bay and the California Integrated Waste Management Board, it is estimated that there is only a 5 to 10-percent capture rate for plastic bags. One reason for limited recycling success may be that the programs are not promoted. Although some stores do place the recycling container at their outside doorway; others place recycling containers in an area where they are not readily visible to the public. Convenience is also a factor for low plastic bag recycling rates. Even the most adept recyclers forget to bring their bags back to the retailers, especially when the program is not promoted. Also, separately collecting and transporting these bags, for most people, is simply not as convenient as utilizing their residential recycling cart.

To enhance recycling, a few solid waste jurisdictions in California have implemented curbside recycling of plastic retail bags. For example, Concord, San Juan Capistrano and Sonoma County encourage residents to put their plastic bags inside a plastic bag and place them in their curbside recycling cart; with the idea that these plastic "pillows" could

then be pulled from the sorting line at the processing plant. San Jose, however, has been attempting to slowly shut down its curbside bag recycling program because of the extreme expense in dealing with them: 1) the costs to process them is much greater than their value on the open market; 2) plastic bags that are not captured at the sort line often get wrapped around processing equipment; forcing recyclers to shut the equipment down. Moreover, these lightweight bags are easily blown around the area of the recycling centers contributing to community litter problems.

ALTERNATIVES TO PLASTIC BAGS

Whether paper bags are a viable alternative for plastic at checkout counters is arguable. While it is true that paper, unlike plastic, being of an organic nature, will eventually degrade in the environment; that process can take time. As stated earlier, experts disagree which material has an environmentally preferable life-cycle. It should be noted that paper bags are commonly made from a percentage of post consumer recycled fiber while plastic is manufactured from virgin materials and are not made with any recycled materials.

Biodegradable plastic bags are touted as being the best of both worlds; lightweight and organic. However, these “bio-bags” are much more expensive (5 to 10 cents each) than regular plastic (1 to 4 cents each) and, since they are difficult to differentiate from regular plastic, they pose problems for municipal composting and recycling programs.

According to most experts, promoting reusable shopping bags, whether cloth or heavy plastic; seems to be the best choice for the environment. Although this alternative is attractive in theory, the reality is more complex. Many people forget their reusable bags; either at home, or in the car. To increase awareness, some public and private organizations have begun a concerted effort to educate and remind consumers to bring their reusable bags with them. The City of Oakland has begun a “Bring Your Own Bag” campaign which is promoted through their website and garbage bill messages. Private web-based retailers also sell “reminder” kits that have the message “Grab Your Bags” as door hangers and steering wheel covers. And in Los Angeles, they have begun a “Got Your Bags?” promotion with Albertsons grocery stores; which includes window displays, employee buttons, and stencils at the front door to remind consumers to use reusable bags. Furthermore, although reusable bags are not costly per se, the cost may deter some people from using them.

VOLUNTARY RETAILER COOPERATION – PLASTIC BAGS

In 2008 Walmart announced that it would cut the amount of plastic carry-out bags by one-third by 2013. Walmart is working with the Environmental Defense Fund to carry out this effort, which was rolled out in January 2010 in three Northern California stores.

Additionally, Walgreens has announced that it will voluntarily eliminate plastic bags at three of its Palo Alto stores; as has Whole Foods. And Trader Joes has always offered only paper bags.

LOCAL POLICY EFFORTS – PLASTIC BAGS

As mentioned above, voluntary programs for the reduction and elimination of single-use plastics by retailers are an important first step. However, regulating plastic bag use may be required. Those regulations can come in various forms of fees or bans.

At the state level, California's AB 2449 mandates retail collection of plastic bags, but also prohibits fees associated with plastic bags. However, some municipalities are dissatisfied with the lack of retailer cooperation and low recycling rates of plastic bags; and in response, have banned, or plan to ban, the distribution of plastic bags at retailers.

In 2007, San Francisco supermarkets failed to meet agreed upon targets for reducing plastic bag consumption by consumers under a voluntary program. The City and County, which was spending approximately \$8 million per year for cleaning up bags, adopted a "bag-ban" ordinance on March 22, 2007. The first of its kind, the ordinance bans the distribution of non-biodegradable plastic carryout bags. The San Francisco ordinance requires all supermarkets (with gross annual sales of more than \$2 million) and all retail pharmacy chains with at least five stores under the same ownership within the City to provide their customers with one or more of the following: 1) biodegradable carryout bags (that include the words "green cart compostable" and "reusable" and display a solid green line encircling the bag; 2) paper carryout bags (that do not contain old growth fiber, are 100% recyclable and contain at least 40% post consumer recycled content); 3) reusable bags made from cloth or from durable plastic greater than 2.25 mils thick. The ordinance went into effect on November 20, 2007 and has not been met with resistance.

The City of San Jose has proposed an ordinance that would potentially ban single-use plastic bags and place a fee on paper bags, thereby potentially negating the basis for lawsuits. San Jose is also taking the step of proactively engaging community stakeholders in discussions about plastic bag reduction, in advance of a potential City Council adoption of an ordinance. Retailers, special interest groups, environmental groups and individuals were encouraged to dialogue with the City. This process has been both lengthy (May 2008 till present) and expensive (estimated \$650,000 for the entire completed project). San Jose is potentially partnering with the City of Los Angeles to draft a formal EIR.

The City of Berkeley is also proposing to reduce single-use plastic and paper checkout bags by introducing an ordinance very similar to San Jose's; wherein plastic bags are banned and there is a fee associated with recycled content paper bags. Their proposed ordinance does not apply to plastic or paper bags used within stores to contain produce or bulk items. Purchases made with foods stamps or other government provided programs would be exempt from any fee.

RESISTENCE TO LOCAL POLICY

Whether fees or bans, regulating single use plastic bags is usually met with resistance from consumers and/or special interest groups. In July 2008 Seattle's city council passed an ordinance imposing a 20-cent fee on plastic carry bags. But, Seattle voters rejected the fee, by referendum. The "tax" was defeated 58% to 42%, thereby overturning the City Council's decision.

The City of Oakland adopted a ban similar to San Francisco's on July 17, 2007. In August 2007, the City of Oakland was sued by the Coalition to Support Plastic Bag Recycling; which argued that the City failed to complete an environmental impact report (EIR - for paper bag manufacturing and usage) as required by the California Environmental Quality Act (CEQA), before adopting its ordinance. In response to the lawsuit, the City of Oakland has agreed not to enforce its ordinance until an adequate EIR is completed.

In 2008, the City of Manhattan Beach passed a plastic bag ban and was also met with a lawsuit by Save the Plastic Bag Coalition. Their ordinance is currently on hold until EIR requirements are met.

Palo Alto's bag ban has also been the subject of a similar legal battle in March 2009. In 2008 Palo Alto banned plastic carry bags at supermarkets with retail sales of \$2 million or more annually; with the intention of expanding the ban to other retail outlets over time. The City of Palo Alto settled the lawsuit by agreeing not to pursue other retailer bans until after an EIR had been completed.

The small town of Fairfax in Marin County was also threatened with a lawsuit. Instead of adopting local regulations, the town used the voter initiative process to ban single-use plastic bags.

In response to actual lawsuits, or threats of litigation, non-profit Green Cities California commissioned a Master Environmental Review (MEA) that will aid local jurisdictions in preparing required Environmental Impact Reports. The MEA concludes that there are no significant overall environmental advantages between the manufacturing processes of single-use plastic bags, paper bags and biodegradable plastic bags. However, there is a substantial advantage in producing reusable plastic bags.⁵

EXPANDED POLYSTYRENE FOAM (EPS) FOOD CONTAINERS

ISSUES - EPS

Expanded polystyrene (e.g. Styrofoam), especially food packaging materials, are another large contributor to unsightly litter and water pollution. Like the aforementioned plastic bags; EPS is light, durable and inexpensive. Additionally, its insulating properties make it a favorite for prepared food take away containers. But, like bags, its lightweight nature often means it winds up in storm drains and eventually the Bay.

RECYCLING EFFORTS - EPS

Whereas plastic bags have potential for being recycled, EPS foam food container recycling is very limited because: 1) its light weight makes transportation for recycling costs prohibitive, and 2) the inherent contamination, both clinging food waste and food related items (e.g. straws, plastic cutlery), make processing costs exorbitant. According to Chris Pearson of the Pace Butler website: “Some recent advances in technology allow recyclers to accept used food packaging; however, these innovations are currently only available in some big cities.”⁶ Too, this is at an additional cost. EPS has a very low recycling rate. According to a 2004 study by the California Integrated Waste Management Board, of the 377,580 total tons of polystyrene produced in the state, only 0.8% is recycled. Of that, only 0.2% (310 tons) of polystyrene food service packaging is recycled.

ALTERNATIVES TO EPS FOOD-WARE

One of the advantages of EPS, its light weight, is also the major reason that municipalities are banning it. Like single-use plastic bags, EPS is a major contributor to litter and degradation of the marine environment.

Currently, viable alternatives to EPS are limited to paper (usually reinforced with a thin plastic or wax coating), rigid plastics, and new “bio-products” such as those made of cornstarch. And, a newly introduced product, made from 100% recycled content, has been endorsed by the Green Restaurant Association. All alternative products also have some disadvantages, including higher cost.

VOLUNTARY RETAILER COOPERATION - EPS

Many restaurants and food retailers in California have voluntarily stopped using polystyrene packaging, in order to enhance their “green” image: Burger King, McDonalds and Wendy’s, among others. Furthermore, Whole Foods stores are now using paper carry-out containers for their prepared food made from 100% recycled content. Notwithstanding these admirable efforts, there is still a lot of EPS being used at food oriented businesses.

LOCAL POLICY EFFORTS – EPS

According to Californians Against Waste; EPS food-ware bans are more prevalent than bags because there is less formal opposition by special interest groups and more consumer interest in using alternatives.

The following municipalities have taken steps to ban EPS: Alameda, Berkeley, Calabasas, Carmel, Emeryville, Fairfax, Malibu, Millbrae, Newport Beach Monterey, Oakland, Orange County, Pacific Grove, Richmond, Palo Alto, Pittsburg, San Bruno, San Francisco, Santa Cruz County and all its cities, Santa Monica, South San Francisco and Ventura County.

Staff examined Richmond's process for implementing an EPS food ware ordinance and found that a great deal of community and stakeholder engagement has taken place prior to drafting their ordinance. Their efforts included: one-on-one outreach to restaurants (phone and in-person), and community outreach events. Information obtained from these efforts include: consumers are willing to pay 10 to 50-cents more for restaurant meals to ensure that EPS is not used.

Although EPS bans may mean less environmental impacts, there may be unintended consequences for its replacement. For example, some heavily-marketed substitutes for EPS food containers are made from corn-based plastic (e.g. bioplastic), which is claimed to be compostable. However, if a community does not have a commercial composting program in place for biodegradable discards, they will surely in up in the landfill. Even if there are compost programs available, bioplastics do not easily break down in a conventional compost setting. Therefore, it is suggested that jurisdictions first take steps to ensure there is adequate infrastructure for dealing with EPS alternatives when they are discarded.

STATE LEGISLATION EFFORTS

The regulatory actions mentioned above have been implemented on a local government level which, by virtue, leads to inconsistencies from jurisdiction to jurisdiction. Most agree that a more effective way to regulate both plastic bags and EPS food ware is on a state level.

Last year, two bills were introduced to the legislature that called for a 25-cent fee to be charged for each plastic bag. Furthermore, 2009's AB 1358 (Hill) called for the ban of EPS food packaging. All these bills failed to pass in 2009.

In 2010, three bills related to single-use plastic packaging are being considered:

- **AB 1998 (Brownley)**: bans single-use plastic bags and requires stores to make reusable bags available for fee and charge a fee for paper bags. The bill also bans the use of expanded polystyrene food packaging.

- AB 2138 (Chesbro): prohibits a food provider from distributing disposable food service packaging or a single-use carryout bag, unless the packaging or bag are compostable or recyclable.
- SB 228 (DeSaulnier): requires manufacturers or suppliers of compostable plastic bags to submit a yearly report to the State and prohibits compostable bags from displaying any type of recycling symbol.

AUTHORITY CONSIDERATIONS

The State of California is increasing the amount regulation around non-point source pollution and litter in our waterways. Although these are areas that are handled by our member agency municipalities, decreasing litter and protecting our marine environment are also important goals for the Authority.

Our agency may wish to take proactive measures in Central Contra Costa County by banning EPS food ware, and/or single-use plastic bags. Staff suggests that if the Board wishes to address this issue, like San Jose and Richmond, consideration should be given to stakeholders and the community by engaging them prior to any action. Additionally, the Authority might explore the potential for joining with other jurisdictions in Contra Costa County, or elsewhere, to share in research and costs for implementing such measures.

As a preliminary step; Authority staff may want to work with the CCCSWA member agencies' clean-water staff to understand what percentage of State mandated litter cleanup is comprised of single-use plastic bags and EPS food ware. Trash audit findings could determine whether proceeding with potential bans are warranted.

POTENTIAL ECONOMIC IMPACTS TO CCCSWA MEMBER AGENCIES

According to the City of Richmond, California; banning either plastic bags and/or EPS food ware would decrease their cost for installing trash capturing devices by 20% (\$1 million) and additional costs (\$24,000) for annual maintenance.⁷

Currently, some of our member agencies are exploring whether a litter fee associated with solid waste rates would be a viable way of funding State of California litter mandates. This has the potential to affect the Authority's rate structure, and would further raise rates. It is suggested that by banning both EPS and single-use plastic bags, costs for litter abatement could be decreased, perhaps negating such a litter fee.

Definitions:

1. “EPS food ware” – expanded polystyrene (plastic blown with air) used in the restaurant industry to hold prepared foods and beverages.
2. “Checkout bags” means bags (both plastic and paper) provided by retailers to consumers at the point of sale to hold customers’ purchases. This does not include bags used to contain loose items prior to purchase, such as bulk items and produce.
3. “Reusable bag” means any bag with handles that is specifically designed and manufactured for multiple reuse that is at least 2.25 mils thick.

End Notes:

¹www.grn.org/resources/bag_reuse.html

² Perkins, Craig, Director - Environmental and Public Works Management, City of Santa Monica, Staff Report

³ Moore, Charles. Retrieved December 9, 2009 from: www.mindfully.org/Plastic/Ocean/Moore-Trashed-PacificNov03.htm

⁴www.greenecoservices.com/taxpayer-cost-of-plastic-bags

⁵ ICF International. Prepared for Green Cities California. (2009), Master Environmental Assessment on Single Use and Reusable Bags

⁶ <http://www.pacebutler.com/blog/styrofoam-recycling-tips/>

⁷ Lindsey, Bill. (2009), Agenda Report – Food Packaging Policies. Retrieved December 14, 2009 from: <http://www.ci.richmond.ca.us/DocumentView.aspx?DID=5133>