COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

GAIL FARBER, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

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November 22, 2011

TO Each Supervisor

FROM Gail Farber
Director of Public Works

BOARD MOTION OF SEPTEMBER 21, 2010, ITEM 29
EXPANDED POLYSTYRENE FOOD CONTAINERS - REPORT ON THE FEASIBILITY OF IMPLEMENTING A RESTRICTION AT FOOD ESTABLISHMENTS AND RETAIL STORES IN UNINCORPORATED COUNTY AREAS

On September 21, 2010, following comprehensive studies and stakeholder discussions, your Board adopted a prohibition on the purchase and use of expanded polystyrene (EPS) food containers at all County operations. Your Board also directed the Department of Public Works and County Counsel to report back, within 12 months of implementing the prohibition at County operations, on the feasibility of implementing a restriction on the use of EPS food containers at food service establishments and retail stores in the County unincorporated areas. The Board further directed Public Works to specifically look at appropriate infrastructures to handle alternative materials as part of its feasibility study, and provide quarterly updates to the Board.

The attached report summarizes Public Works' findings, conclusions, and recommendation in response to your Board's instruction. The report was developed following extensive investigation, review of case studies, and consideration of stakeholder feedback. Public Works staff has met regularly with the stakeholders' Working Group over the past year and received valuable input from them. This Working Group consists of representatives of EPS manufacturers, manufacturers of alternative food container products, restaurants and other retailers, environmental organizations, other public agencies, and members of the public.

The report finds no legal barriers to your Board establishing a prohibition of EPS food containers in the unincorporated County areas Approximately 43 cities and counties in California have adopted ordinances prohibiting the use of EPS food containers at retailers, and more cities are considering similar measures Developing and implementing such an ordinance, including compliance with the California Environmental Quality Act, if needed, may cost up to $1 million if an Environmental Impact Report (EIR) is required, and take up to 18 months to complete A Statewide prohibition would be most effective in reducing the negative impacts of EPS litter which are widespread, running across jurisdictional boundaries due to its lightweight nature

Upon consideration of all the information gathered, stakeholder feedback, the estimated effectiveness of an unincorporated area prohibition, and other potential measures to reduce the negative environmental impact of EPS food container litter, Public Works developed a recommendation for consideration by your Board, consisting of three components

1) *Pursue the passage of a prohibition of EPS food containers at a Statewide level*

   A Statewide prohibition would be the most effective measure to reduce EPS food container litter in the County. Senate Bill 568 (Lowenthal), already supported by the County, is currently pending in the State Legislature after passage in the State Senate earlier this year

2) *Partner with the industry to establish a comprehensive program to reduce litter, including EPS food container litter, in the region*

   This comprehensive program would combine efforts from industry, restaurants, nonprofits, environmental organizations, and municipalities through the County's existing Working Group The focus of these efforts would be to reduce the prevalence of EPS food container litter, while also reducing other forms of litter The program would consist of an integrated strategy that incorporates public education, litter collection and management, EPS recycling, composting infrastructure, enhanced enforcement of anti-litter laws, extended producer responsibility, and conversion technologies/waste-to-energy. This program is discussed in more detail in Chapter 7 of the attached report.

3) *Consider a ban in unincorporated County areas if measures 1 and 2 above are not found to be successful*

   Lastly, if the State Legislature fails to adopt legislation addressing EPS litter, and the comprehensive program is not determined to be successful, your Board may consider adoption of a prohibition in the unincorporated areas of the County.

These potential measures are discussed in greater detail in the attached report. Should you have any questions, please contact me or your staff may contact Pat Proano of Environmental Programs Division at (626) 458-3500

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A3509-5 Cover Memo Nov 2011 (2).doc

Attach

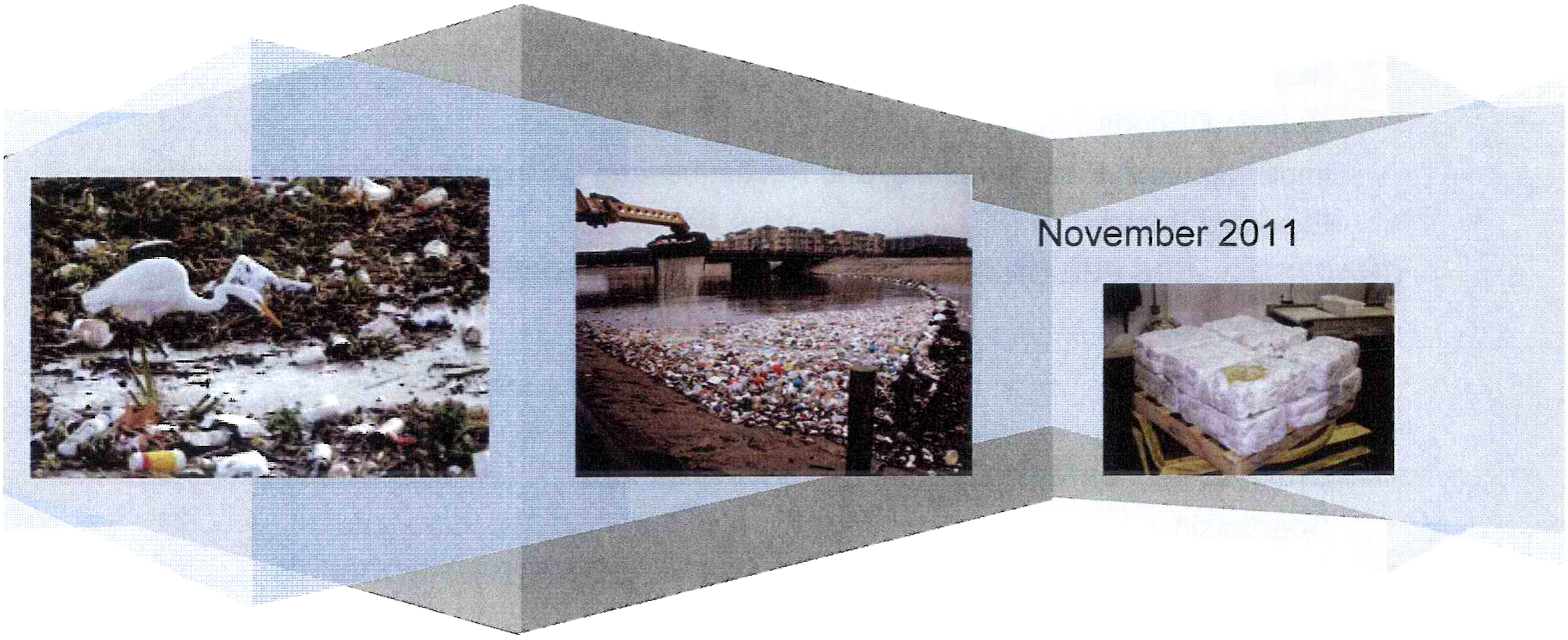
cc: Chief Executive Office
County Counsel
Internal Services
Office of Sustainability
Public Health
Sanitation Districts of Los Angeles County

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

Expanded Polystyrene Food Containers in Los Angeles County

PART TWO: Feasibility of Implementing a Restriction of Expanded Polystyrene Food Containers at County unincorporated area retailers

A STAFF REPORT TO THE COUNTY OF LOS ANGELES BOARD OF SUPERVISORS



November 2011

"To Enrich Lives Through Effective and Caring Service"

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EPS REPORT TO THE BOARD OF SUPERVISORS

On September 21, 2010, the County of Los Angeles Board of Supervisors adopted a prohibition on the purchase and use of expanded polystyrene (EPS) food containers at all County operations The Board of Supervisors also directed the Department of Public Works (DPW) and County Counsel to report back on the feasibility of implementing a restriction on the use of EPS food containers at food service establishments and retail stores in the unincorporated County areas (UCAs) The Board further directed Public Works to specifically look at appropriate infrastructures to handle alternative materials as part of its feasibility study, and provide quarterly updates to the Board This report summarizes Public Works' findings, policy options, and recommendations in response to the Board's direction.

Findings Regarding the Feasibility of Extending the Prohibition

- Legal Barriers. No legal barriers to adopting an EPS prohibition were identified, and many jurisdictions have adopted prohibitions through local ordinances without legal challenges The County would need to determine what level of review is necessary for compliance with the California Environmental Quality Act (CEQA), if any, which may or may not require the development of an environmental document.

- Case Studies. We reviewed case studies of at least 53 jurisdictions in California that have restricted EPS in some form, including Los Angeles County's restriction at County operations Of these, 43 have prohibited retailers from utilizing EPS Also, it is important to note the following

    - Enforcement efforts are typically limited
    - There is little information regarding the potential financial impact on businesses or consumer preference
    - Some ordinances incorporate hardship provisions that would allow a business to apply for an extension or waiver We did not find a record of any businesses requesting such an extension

- Alternative Products. Alternatives to EPS (paper and other compostable products, aluminum, plastics including recyclable plastics, etc.) are readily available, although generally they are more expensive The environmental benefit of these alternatives is maximized if they are recycled or composted

- Economic Impact: An EPS prohibition may result in additional costs to businesses of up to $3,000 to $5,000 per year An economic analysis would be required to validate this estimate

- Development, Implementation, and Enforcement. Cost to fully comply with CEQA, complete an economic study, develop a draft ordinance, and implement an educational campaign is estimated at up to $1,000,000 Enforcement costs

are unknown, but are expected to entail development of a public-driven reporting system, minor inclusion of food establishment inspection for the EPS policy by County Public Health inspectors, and monitoring and processing of violations and fines.

Other Key Findings

- EPS prohibitions in other jurisdictions within California have significantly decreased the amount of EPS litter in the litter stream, although some studies show that alternative products have replaced the prohibited EPS in the litter stream Moreover, the Board of Supervisors can only enforce an Ordinance in the UCAs, which constitute approximately 10 percent of the Countywide population.

- An EPS prohibition would impact the UCAs Adoption of similar prohibitions by a majority of the cities within the County would be necessary in order to substantially reduce the prevalence of EPS litter in Los Angeles County A Statewide EPS prohibition would be most effective and provide for a more consistent implementation of the prohibition.

- Some residential and commercial areas of the County have access to composting for food scraps and compostable food containers Public Works is working to expand this access, and also encourages residential backyard composting through our Countywide Smart Gardening Program.

- Curbside recycling of recyclable food containers is widely available to most residents and businesses in the County Thirty-two cities allow EPS food containers to be deposited in the recycling bin at curbside However, most material recovery facilities (MRFs) do not process EPS and instead landfill the material

Background

The EPS Staff Report Part I and subsequent report developed by the Responsible Purchasing Network on behalf of the County (see Appendix A) studied in depth the negative environmental impacts of EPS food containers, and provided the basis for the Board of Supervisors decision to adopt the restriction of EPS food containers in County operations

The Los Angeles County Expanded Polystyrene Stakeholders Working Group (Working Group), consisting of representatives of EPS food container manufacturers, manufacturers of alternative food containers, restaurants and retailers, public agencies, environmental organizations, and the general public, has been meeting for over a year to discuss the negative impacts of EPS food container litter and how to mitigate those impacts.

At the request of the Working Group, this EPS Staff Report Part II examines a number of potential "elements" identified by the Working Group through regular meetings and

discussion These "elements" are actions that may be considered as part of a comprehensive effort to reduce EPS litter The Working Group has researched these elements (in addition to a ban) to assess their effectiveness in reducing the negative impact of EPS litter as well as other forms of litter, in order to develop a more comprehensive recommendation to the Board Each of these elements is summarized below, and described in more detail in the report:

EPS Prohibition

The adoption of a restriction (ban) on EPS at food service establishments in the UCAs would greatly reduce EPS litter and directly affect behavior of food container purchasers. Depending on how it is implemented, vendors may be inclined to purchase more sustainable biodegradable and/or recyclable products and the number of vendors doing so would influence the extent of the positive environmental impacts of such a ban Although a restriction on EPS would significantly reduce the amount of EPS in the litter stream, it is likely to result in an increase of alternative products in the litter stream However, such alternatives would be less prone to becoming litter than EPS, and may not be as damaging to the environment and wildlife as EPS

In order to implement a restriction on retailers, environmental documents in compliance with CEQA, if any, may be needed to assist with efficient policy implementation An ordinance would need to be developed and adopted A public education and outreach campaign is recommended to inform residents and affected retailers regarding the prohibition Outreach would also reduce the costs for ongoing enforcement If an EIR is determined not to be required, costs would be substantially reduced

The EPS restriction adopted by the Board of Supervisors could only be enforced in the UCAs Since restaurants within cities would still be able to purchase EPS food containers, this may disproportionally impact restaurants in the UCAs, while hampering the effectiveness of a County Ordinance since EPS litter could easily blow out of incorporated cities into unincorporated communities and stormwater infrastructure maintained by the County Therefore, adoption of similar restrictions by a majority of the cities within the County would substantially enhance the effectiveness of the EPS litter reduction efforts A Statewide EPS prohibition would be even more effective and more consistent for retailers implementing the prohibition

Disposable Container Fee

A fee on all disposable food containers, or specifically on EPS, would aim to curb the littering of such containers in much the same way that fees on single-use bags and bottles discourage their littering Manufacturers and retailers purchase disposable products upfront but are not responsible for the litter costs associated with the products, which are currently shouldered by taxpayers Although a fee structure on disposable food container products has not been implemented, "bottle bills" passed in the 1970s and the recent plastic bag fees in Ireland and Washington D C were reviewed These cases indicate that placing fees on disposable items can significantly influence consumer purchasing and littering behavior The benefits and effectiveness of a deposit-based fee structure could spark interest in proper disposal of these products

and could reduce their amount in the litter stream However, the passage of Proposition 26 in November 2010, placed additional restrictions and requirements on the adoption of such fees

Diversion of Alternative Products at End of Life

Two common methods of landfill diversion are recycling and composting Recycling of alternative products is common at material recovery facilities (MRFs) and recyclers, but depending on the material, the recycled products lose some of their value due to contamination issues Materials placed into recycling carts are very susceptible to contamination. Different materials and products as well as different collection, separation, and recycling methods can play a role in the level of contamination After the materials are processed through the facilities, recyclers need to find ways to manage the material in the most cost-effective manner The aim is to have most of the processed materials sold for use in the manufacture of new recycled-content products However if materials are too contaminated, they may be sold to markets overseas as mixed plastics or sold to local waste to energy facilities for energy recovery

There is also a growing effort to expand local capacity for composting organic materials, including compostable food containers Residents have strong concerns regarding odor from nearby composting facilities. In response, the composting industry has conducted studies and are developing methods of odor reduction to divert more organic material away from landfills. Municipalities within the State have instituted residential and commercial composting systems and policies with overall good results, and even better results in restaurants

Composting and recycling of alternative products further enhance their life-cycle environmental benefits. However, only materials that have been properly collected can be recycled or composted Therefore, these diversion methods would have limited or no effect on litter

EPS Recycling

Recycling of EPS products has increased in recent years, mainly due to industry partnering with schools for tray recycling and encouraging some cities to accept EPS in their curbside recycling programs However, the overall recycling rate of EPS, and particularly EPS food containers, is still very low, at approximately one percent of all EPS sold in the marketplace This is due to the relatively low market value of collected EPS, the challenges associated with separating EPS materials from the waste stream (especially EPS food containers which are likely to have higher contamination from food) and the higher cost associated with collecting, sorting, and transporting EPS, which often requires potentially expensive densifying machines to minimize the volume of collected EPS materials As a result, most MRFs are not separating EPS food containers, instead shipping them to landfills for disposal along with other unrecyclable residual waste

EPS recycling at large venues and institutional facilities, such as schools, has been far more effective, since such facilities can separately collect large volumes of EPS

materials, making densifiers cost effective and providing a mechanism to minimize contamination It is important to note that, as with recycling and composting of alternative products, EPS recycling will improve the life-cycle impact of EPS products, but will not significantly impact the volume of EPS ending up as litter, since EPS placed in a recycling bin has approximately the same chance of becoming litter as EPS placed in a trash bin.

Education

Public Works manages and implements litter prevention and waste reduction programs throughout the County Free consultations are offered to businesses in the UCAs, and staff participate at large events such as the County Fair to interact with and educate the public. Mass media methods are also used to educate the public, which includes the internet, radio, television, and newspaper Industry has also helped to educate the public.

The California Restaurant Association has teamed up with DART Container Company and started a recycling education campaign, reaching out to approximately 700 restaurants in the cities of Pasadena and Los Angeles to encourage customers to place their EPS food containers in their curbside recycling cart

Personal outreach has shown to be far more effective than distributing literature alone However, public education alone is not sufficient to significantly reduce the prevalence of EPS food container litter

Litter Collection and Management

The County spends millions of dollars every year on litter reduction measures and litter prevention programs. Public Works continues to install screens in catch basins throughout the UCAs as well as installing and instituting measures to meet Federal clean water regulations Other equipment and signage continues to be developed to prevent litter and debris from finding its way into the ocean Litter prevention, maintenance, and mitigation is an ongoing effort, where costs have increased from $18 million in 2005-2006 to $24 million in 2009-2010 to maintain public road rights-of-way and flood control infrastructure

Currently the County has plans to increase the reach of the catch basin insert, street level screens, and cleanout frequency Upstream solutions are needed to couple the end-of-pipe infrastructure already in place EPS litter places a significant strain on these litter maintenance efforts, due to the use of EPS products by retailers, its propensity to become litter, durability and persistence of EPS once littered, its very high buoyancy, and the difficulty in capturing EPS material once littered

Waste Conversion Technologies

The use of conversion technologies or waste-to-energy facilities for the management of EPS has some potential, since these technologies are very flexible and therefore can accept a variety of feedstock, including contaminated EPS, unrecyclable plastics, and

other residual waste streams These technologies are capable of recovering energy and other beneficial products from materials that might otherwise be discarded, and in general do not need materials to be separated prior to processing

However, as is the case for EPS recycling, EPS materials can be converted only if they are properly placed in the appropriate containers, which is not the case with litter Therefore, as a result, it is not anticipated that conversion technologies and/or waste-to-energy facilities would play a significant role in mitigating the negative environmental impacts of EPS food container litter

Policy Options Considered by the Working Group

After careful consideration of these elements, the following four broad Policy Options were developed for further consideration

- Statewide Prohibition – Actively pursue passage of a Statewide prohibition on the use of EPS at food service establishments This option would be most effective since it would be uniformly applied and enforcement costs would not be borne by the County

- County Prohibition (Unincorporated Areas) – Partially or fully prohibit EPS food containers at certain food service establishments in the UCAs Would need to develop a draft ordinance, determine whether compliance with CEQA is required and whether an EIR is needed, conduct an economic study, conduct an educational campaign, and develop an enforcement plan May cost up to $1 million (not including enforcement cost)

- Voluntary Efforts – Would potentially cost hundreds of thousands or millions of dollars, depending on scale of implementation and level of support from industry Effectiveness of voluntary efforts would depend heavily on how comprehensive they are and how many resources are devoted by the industry and other partners

- Status Quo – Under this option, no additional funds would be required This is not a "do nothing" option, but rather a commitment to continue efforts currently being implemented, including

    - Litter prevention
    - Public education
    - Litter collection and infrastructure
    - Recycling, composting, and other waste diversion strategies, including EPS recycling

Recommendation for Consideration

Although there was broad agreement among the members of the Working Group regarding a number of issues as well as support for many of the elements discussed above, consensus could not be reached by the Working Group on a comprehensive

recommendation In general, industry representatives remained strongly opposed to a prohibition, while environmental organization representatives strongly favored a prohibition

There was recognition by the Working Group that EPS food containers contribute disproportionately to the litter problem and that reducing the prevalence of these containers should be a priority There was also recognition that no single element discussed by the Working Group is expected to be as effective as a prohibition in significantly reducing the volume of EPS food containers that become litter However, DPW believes that some of these elements can be incorporated into a more comprehensive effort that may achieve comparable results to a prohibition in addition to contributing to an overall reduction in litter Also, an Ordinance prohibiting EPS may have a negative economic impact on businesses in the UCAs if a Statewide prohibition or prohibitions in other jurisdictions are not widely adopted

Therefore, based on our research and evaluation of case studies and upon consideration of the feedback from the Working Group, DPW recommends pursuit of the following combined strategy·

1) *Pursue the passage of a prohibition of EPS food containers at a Statewide level*

   A Statewide prohibition would be the most effective measure to reduce EPS food container litter in the County Senate Bill 568 (Lowenthal), already supported by the County, is currently pending in the State legislature after passage in the State Senate earlier this year

2) *Partner with the industry to establish a comprehensive program to reduce litter, including EPS food container litter, and otherwise enhance the environment in the region*

   This comprehensive program would combine efforts from municipalities, industry, and environmental organizations through the County's existing Working Group The focus of the efforts would be to reduce the prevalence of EPS food container litter, while also reducing other forms of litter The program would consist of an integrated strategy that incorporates public education, litter collection and management, EPS recycling, composting infrastructure, enhanced enforcement of anti-litter laws, extended producer responsibility, and conversion technologies/waste–to-energy This program is discussed in more detail in Chapter 7

3) *Consider a prohibition in the UCAs if measures 1 and 2 above are not found to be successful*

   If the State Legislature fails to adopt legislation addressing EPS litter, and the comprehensive program is not determined to be successful, your Board may consider additional measures, including a prohibition in the UCAs

CHAPTER 1

PROHIBITION ON RETAILERS IN UNINCORPORATED AREAS

On September 21, 2010, following comprehensive studies and stakeholder discussions, the County of Los Angeles Board of Supervisors adopted a prohibition on the purchase and use of expanded polystyrene (EPS) food containers at all County operations The Board of Supervisors also directed the Department of Public Works and County Counsel to report back, within twelve months of implementing the prohibition on the purchase and use of EPS food containers at County operations, on the feasibility of implementing a restriction on the use of EPS food containers at food service establishments and retail stores in the County unincorporated areas, including recommended changes to County code If determined to be feasible, an implementation plan and schedule would also be included in the report. The Board further directed Public Works to specifically look at appropriate infrastructures to handle alternative materials as part of its feasibility study, and provide quarterly updates to the Board

The EPS Staff Report Part I and subsequent report developed by the Responsible Purchasing Network on behalf of the County (see Appendix A) studied in depth the negative environmental impacts of EPS food containers and provided the basis for the Board of Supervisors decision to adopt the restriction of EPS food containers in County operations. Both of these reports were received and filed by the County Board on September 21, 2010 Since the County Board adopted the policy to restrict EPS food container usage in County operations, staff has conducted additional research in determining the feasibility of expanding this restriction to food service establishments and retail stores in the unincorporated areas Public Works has directly engaged key stakeholders in developing a recommendation to the Board

Findings Regarding the Feasibility of Extending the Prohibition

- Legal Barriers No legal barriers to adopting an EPS prohibition were identified, and many jurisdictions have adopted prohibitions through local ordinances without legal challenges The County would need to determine what level of review is necessary for compliance with the California Environmental Quality Act (CEQA), if any, which may or may not require the development of an environmental document.

- Case Studies. We reviewed case studies of at least 53 jurisdictions in California that have restricted EPS in some form, including Los Angeles County's restriction at County operations Of these, 43 have prohibited retailers from utilizing EPS Also, it is important to note the following

    - Enforcement efforts are typically limited

- There is little information regarding the potential financial impact on businesses or consumer preference
- Some ordinances incorporate hardship provisions that would allow a business to apply for an extension or waiver We did not find a record of any businesses requesting such an extension

- Alternative Products. Alternatives to EPS (paper and other compostable products, aluminum, plastics including recyclable plastics, etc.) are readily available, although generally they are more expensive The environmental benefit of these alternatives is maximized if they are recycled or composted

- Economic Impact: An EPS prohibition may result in additional costs to businesses of up to $3,000 to $5,000 per year An economic analysis would be required to validate this estimate

- Development, Implementation, and Enforcement: Cost to fully comply with CEQA, complete an economic study, develop a draft ordinance, and implement an educational campaign is estimated at up to $1,000,000 Enforcement costs are unknown, but are expected to entail development of a public-driven reporting system, minor inclusion of food establishment inspection for the EPS policy by County Public Health inspectors, and monitoring and processing of violations and fines

Methodology Used

Litter studies, municipal ordinances, results at County operations, and reports were reviewed and analyzed to assess the feasibility of implementing a prohibition of EPS food containers at food service establishments and retail stores in the unincorporated areas of the County of Los Angeles Municipal staff were contacted to assess results of food container ordinances Retail food vendors were also contacted to assess current food container policies Meetings were held with impacted stakeholders, such as food container industries, restaurants and retail food providers, consumer advocacy groups, environmental organizations, waste management agencies, local government, and the public, to provide a forum to discuss plans and methods to eliminate or reduce EPS food container litter

The EPS Staff Report Part I (see Appendix A) included a discussion of various jurisdictions that have adopted EPS restrictions as case studies for the prohibition of EPS in County operations In addition to jurisdictions initially identified, three more jurisdictions in the County of Los Angeles (six total) as well as five new jurisdictions in the rest of Southern California and 32 more jurisdictions in Northern California (37 total) have been identified Overall, at least 53 municipalities in California have adopted policies relating to EPS food containers Of these, 43 have ordinances that apply to retail food vendors in their jurisdictions Besides these jurisdictions, restaurants, stadiums, and universities have voluntarily reduced or eliminated EPS food container purchase and use A more detailed description of these efforts is included in the Case Studies section of this report (Appendix B)

Litter Studies

The EPS Staff Report Part I (see Appendix A) included a discussion of various litter studies that provided background regarding the disproportionate impact of EPS food containers Additional litter studies on EPS litter have been found since the initial report. Following are key findings from these additional studies

- *San Francisco Litter Audit*

  On June 1, 2007, San Francisco adopted an ordinance prohibiting disposable food service ware made of foam polystyrene from being used at restaurants, retail food vendors, City facilities, departments and agencies, franchises, and events, and by contractors and vendors doing business with the City/County The ordinance also required affected food providers to use biodegradable or compostable disposable food service ware instead

  Between 2007 and 2008, the amount of EPS cups in litter fell from 1.13 percent to 0 78 percent by quantity, while the amount of paper cups increased from 1 82 percent to 2.41 percent[1]

- *Clean Water Action / Clean Water Fund Study*[2]

  To identify opportunities for reducing San Francisco Bay trash at the source, Clean Water Action and Clean Water Fund initiated the "Taking Out the Trash" project, which provided a snapshot of litter in the area. From October 2010 through April 2011 with the help of the cities, local schools, and community groups, data on street litter was collected in the following four cities Oakland, Richmond, San Jose, and South San Francisco From the data gathered, the overall results were reported by quantity

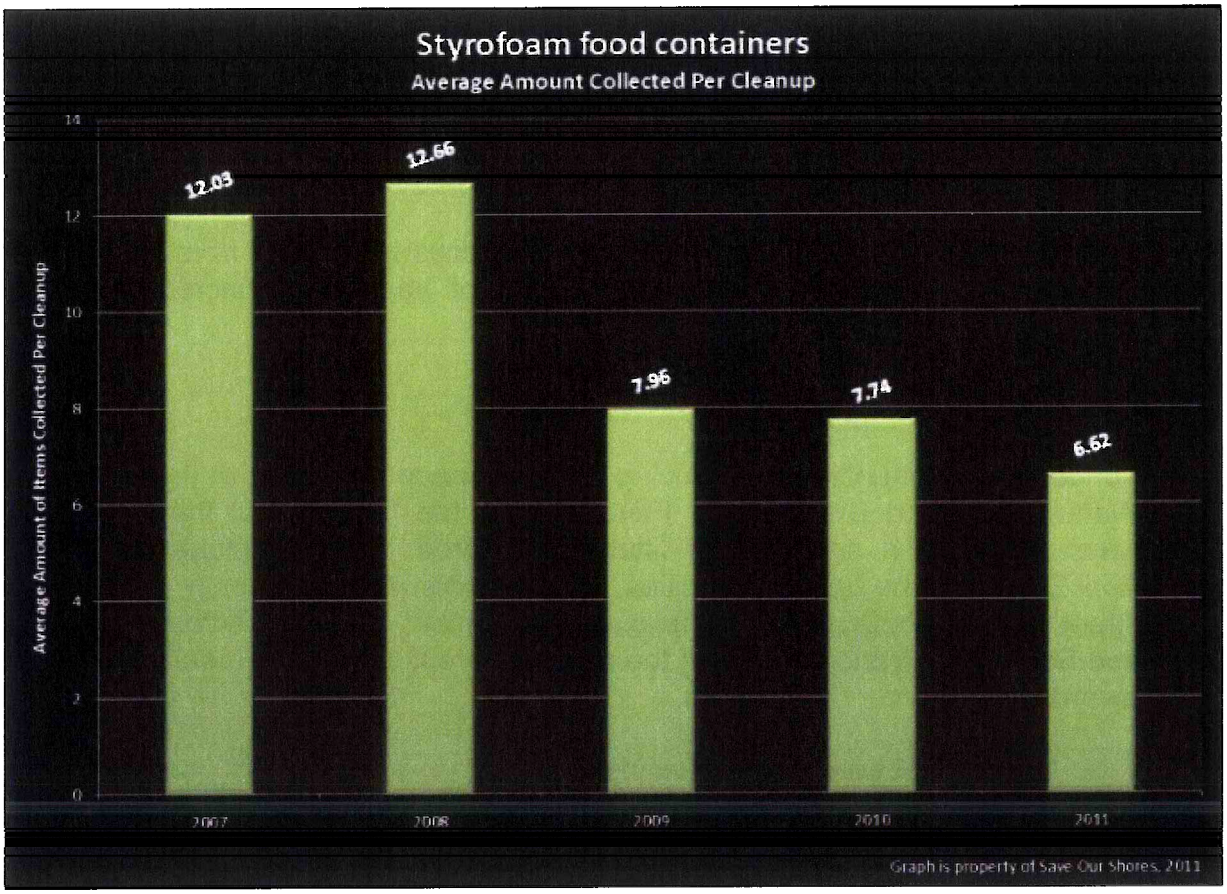
  - 48 percent was food packaging
  - 19 percent was beverage packaging
  - 9 percent was tobacco packaging
  - 9 percent was other packaging
  - 15 percent was non-packaging

[1] The City of San Francisco Streets Litter Re-Audit 2008, July 4, 2008
http://sfenvironment.org/downloads/library/2008_litter_audit.pdf
[2] Clean Water Action/Clean Water Fund "Taking Out the Trash" Project and PowerPoint Presentation.
http://www.cleanwateraction.org/programinitiative/taking-out-trash-california-0

- *Save Our Shores*

  As shown on Figure 1, the average amount of EPS food containers collected from beach and river cleanups in Santa Cruz, Monterey, and San Mateo Counties increased slightly from 2007 to 2008 However, starting 2009, after several product prohibitions were passed, the amount collected dropped considerably and has been gradually decreasing since

Figure 1



- *Heal The Bay*

  Heal the Bay conducted regular debris cleanups at Tower 27 at Santa Monica Beach. The most recent cleanup during calendar year 2010 found EPS as the third most common type of litter, amounting to 1,061 pieces picked up, and found general plastic items as the most littered item, amounting to 4,115 pieces.

- *Surfrider Foundation Waste Characterization Studies*[3]

  The South Bay Chapter of the Surfrider Foundation, in partnership with the Algalita Marine Research Foundation and local high schools, conducted waste characterization studies of the accumulated plastic trash found on beaches in the Redondo Beach vicinity near storm drain outlets throughout the school years 2009-2011

  Of all the plastic trash collected in the studies, it was found that by quantity:

  - 55 percent was food-related plastic
  - 40 percent was foam
  - 20 percent was food-related foam

  The Surfrider Foundation will continue its annual review of the waste characterization study data along with study protocols in an effort to make future waste collection studies more useful in educating students and the public.

Industry Concerns

Representatives from the restaurant industry have raised concerns regarding the impact of a prohibition due to the difficult economic climate. A report published by the Cascade Policy Institute[4] noted a significant increase in the use of alternative products as a result of the EPS prohibition in Portland, Oregon. The report did not cite the overall cost impact to the operation and maintenance costs to run the businesses. Any additional costs from the purchase of alternative food containers would have to be absorbed by the restaurant, or more likely passed on to consumers. Although the cost per unit increase would be a few cents per item, restaurant industry representatives state this would nevertheless impose a significant burden on restaurants due to the small profit margins of small "mom and pop" restaurants and their customers' sensitivity to price increases.

An EPS prohibition may result in additional costs to businesses of up to $3,000 to $5,000 per year. This is a rough estimate, assuming a business that is utilizing only EPS food containers, at a rate of approximately 200-300 food containers per day, with a cost increase of approximately $0.05 for each food container. This impact would be less for businesses that utilize some non-EPS products or can find more cost-competitive alternative products. A more detailed economic analysis would be

[3] Surfrider Foundation PowerPoint Presentation to the LA County EPS Working Group, May 24, 2011.
[4] Cascade Policy Institute, "Foam and Failure: Why Portland's Obsolete Polystyrene Foam Ban Should Be Repealed" Hardy, M. October 2006.

required to determine the accuracy of this estimate and whether this increase would create a significant economic burden to businesses

Retailer Efforts

Many businesses have voluntarily transitioned away from EPS takeout food containers The reasons for this include customer preference, environmental stewardship, and company image Some businesses have reported that switching to alternative products has yielded unexpected benefits, such as extra storage space, positive press coverage and customer loyalty

Municipal Efforts

A study presented to the City Council of Santa Barbara[5] evaluating the merits of prohibiting EPS in the City's food service sector concluded, among others, that banning EPS is the right thing to do, but stressed the importance of having an organics collection system in place to properly manage compostable food containers

According to a report conducted for the City of Milpitas[6], although limited outcome information is available, high compliance rates in cities with prohibitions were found as well as increasing availability of alternative products. The report also suggests phasing implementation by product type to help businesses comply given limited availability of some products According to the report, although alternative containers do cost more than polystyrene, they are available for most applications where food service polystyrene is currently used Some product types are more available in alternative materials than others The report suggests that jurisdictions can help businesses reduce cost impacts by identifying local suppliers and establishing a purchasing co-op for small businesses.

The City of Santa Cruz ordinance was adopted by their City Council without developing an environmental document as a result of receiving no objection Although initial discussions with businesses met with some resistance, the California Restaurant Association (CRA) directly contacted the City about not opposing the ordinance[7] City staff continued to work with the CRA to educate local businesses about the ordinance and compliant alternative products They found that consumer education was most important in implementing their EPS food container prohibition Once customers started asking for the changes, the businesses started to make the transition Their ordinance contains a clause for retailers who are fined to be allowed to substitute payment of the fine with proof of purchase (receipt) of the legal food containers in the amount equal to the fine To date, the City has not written any warnings or given citations, and has received no complaints.

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[5] City of Santa Barbara Council Agenda Report. March 11, 2008 and PowerPoint Presentation to the Solid Waste Committee. October 1, 2007. http://santabarbara.granicus.com/MetaViewer.php?view_id=6&clip_id=869&meta_id=59116; http://www.santabarbaraca.gov/CAP/MG66007/AS66011/AS66026/AS66032/AI69305/DO70344/DO_70344.PDF; http://www.santabarbaraca.gov/CAP/MG67285/AS67289/AS67304/AS67310/AI75593/DO75604/DO_75604.PDF

[6] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

[7] City of Santa Cruz City Council Agenda Report for January 22, 2008 meeting, http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=9068

The County of Los Angeles Department of Public Works cafeteria vendor reported that purchasing alternative food containers impacts two percent of its overall expenses As reported, local vendors of alternative products may also be used to possibly lower cost impacts to affected retailers Public Works staff conducted an evaluation of the prohibition of EPS food containers at County operations. All affected departments were contacted, and those that completed the transition to alternative products reported they have not experienced a significant financial or operational impact A table of the status of the remaining Departments still in the process of transitioning away from EPS (due to long term contracts) is included in the Case Studies summary (Appendix B)

In general, jurisdictions that have passed EPS food container prohibitions affecting retail food vendors have offered and provided free consulting services and hosted meetings with supplier representatives to affected businesses to assist them to find alternative products in compliance with the ordinances that still meet their business needs Most of the jurisdictions were found to rely primarily on resident complaints for enforcement, rather than on inspection staff Some new affected businesses were caught unaware of the ordinance until they received warnings. Some business owners claimed that the language barrier prevented them from complying, while others ordered their alternative products too close to the effective date of the ordinance

To offset potential cost impacts, the City of Santa Monica sent outreach material to retail food service establishments with lists of alternative product vendors[8] The website of the cities of Santa Monica and Richmond[9] cite retailer successes (both large chain and independent) in finding alternative food container products for a variety of needs including hot soups and beverages.

Many jurisdictions also included a provision to request an extension or waiver from a prohibition in the case of economic hardship Although no records were found of any businesses that applied for such a waiver, further promotion of such a provision could ensure that businesses with a potentially significant impact take advantage of it as needed

The County may also mitigate the costs of complying with a prohibition by allowing impacted businesses to apply for a one time grant to offset the costs of purchasing replacement products. Funds would be provided up to a certain limit based on receipts for purchases of alternative food containers showing significantly higher costs than equivalent EPS food containers Costs for implementing such a grant can be limited by capping the total funding available and/or the total number of participants that may apply Based on results in other jurisdictions, it is expected that few businesses would request a waiver or grant.

Through the County Recycling Market Development Zone Grant Program, local manufacturers of alternative recycled-content food container products may be able to receive funding to accelerate their operations A specified percent of the Utility User

[8] http://www.smgov.net/uploadedFiles/Departments/OSE/Business/LATimes_PolyBan_Article2008.pdf
[9] http://www.smgov.net/Departments/OSE/Business/Container_Ban_Successes.aspx; http://www.ci.richmond.ca.us/index.aspx?nid=1824

Tax may be discounted for those retailers that use no EPS products at all and/or use alternative products.

Implementation Plan, Schedule, and Recommended Changes to County Code

Implementing a prohibition on the use of EPS food containers at retailers in the unincorporated areas of the County would require several steps.

- Environmental Documents in Compliance with the California Environmental Quality Act - An Initial Study may need to be completed to assess the potential environmental impact of a prohibition and determine if further environmental assessment is necessary This process may take as little as 2-3 months, and up to 18 months if a full Environmental Impact Report (EIR) is completed However, it is possible that a categorical exemption may apply, which would not add time to the process. As a result, costs to complete this process range from as low as $50,000 up to $500,000

- Development and Adoption of an Ordinance - This can be completed in 3-4 months, and can occur concurrently with compliance with CEQA. It is expected to cost up to $100,000 in staff time to develop

- Public Education Campaign - Public education is important to the successful implementation of a prohibition Other benefits, such as increasing awareness of County residents and obtaining buy-in from businesses, are discussed in more detail in Chapter 5 It may also help reduce the costs for ongoing enforcement, which is expected to be minimal if existing inspections are conducted by the County Department of Public Health through their current Facility Rating program To complement retailer outreach and increase awareness of EPS food container litter impacts, Public Works could conduct public outreach, which may potentially reduce littering from consumer use Consultants may be used to complete these outreach efforts, which may take up to one year A public education campaign could be implemented concurrently with the environmental review process and/or leading up to and shortly following the implementation date of the ordinance Costs for such a campaign range from $150,000 to $400,000 or more

If the Board of Supervisors were to pursue adoption of an ordinance prohibiting the use of EPS food containers, Public Works would recommend incorporating the following provisions within the ordinance

- As with the restriction at County internal operations, a prohibition applied to retail vendors should focus on EPS food containers, such as cups, clamshells, bowls, plates, and serving trays. Because they are less prone to littering by the public, some containers may be exempted, such as raw meat trays, coolers, and ice chests

- Since the majority of EPS food containers consumed in the County are distributed at food service establishments rather than at retail stores, the prohibition should apply to food service providers, such as restaurants, retail food

vendors, and caterers Food vendors at large venues and events may also be included in the policy

- If food vendors at large venues and events are made subject to the ordinance, such venues may be suitable to implement an on-site EPS collection and recycling program Similar to provisions in the restriction of EPS food containers at County operations, providing this option will ensure EPS food containers do not end up as litter and also further reduce the life cycle environmental impacts of EPS food containers

- The prohibition can be phased in to allow for easier compliance and more effective outreach efforts targeted to various types of food service providers. To obtain buy-in from more food service providers, a six-month grace period may be included to those who can provide supporting documentation of recent purchases of old inventory This will allow time for food providers to use up their current stock of EPS food containers and purchase alternatives

- It is recommended that the ordinance provide exemptions due to a locally declared emergency or for immediate preservation of public peace, health, or safety

- With proper planning and effective outreach to affected stores and residents, costs for enforcement can be maintained at a minimum The implementation of the Single-Use Carryout Bag Ordinance, adopted by your Board in November 2010, could serve as a model for the implementation of this ordinance

- To obtain contact information and a baseline of EPS usage to evaluate reduction in EPS usage, and to prepare retail food vendors to comply with the ordinance, a survey of affected retail food vendors should be conducted before the effective date of the ordinance

Expected Results

Expanding the EPS restriction to retail food establishments in the unincorporated County areas would greatly reduce EPS litter and directly affect behavior of food container purchasers Vendors would purchase more sustainable biodegradable and/or recyclable products, which would also positively impact consumer behavior

Although an EPS prohibition may reduce the negative environmental impacts of EPS litter, it would reduce purchasers' choices in food container products An exemption for those instituting EPS recycling service could avoid limiting the viability of EPS recycling efforts, which currently only collect a small fraction of the total EPS sold in the marketplace (see Chapter 4 for additional information regarding EPS recycling)

A prohibition on EPS products is expected to impact retailer operations due to the higher cost of alternative products with similar performance characteristics to EPS food containers Although costs may initially increase, over time the market may be

expected to normalize as more retailers demand alternative products, and as other jurisdictions adopt similar prohibitions

A Statewide EPS prohibition would be a more effective approach compared to a County EPS prohibition A County prohibition would mainly impact the unincorporated areas of the County Since the unincorporated areas of the County consist of numerous communities that are spread throughout the County, including many small islands surrounded by cities, the increase in prices resulting from a prohibition on EPS may cause businesses located in the unincorporated areas to be placed at a competitive disadvantage compared to businesses in adjacent cities. Due to the lightweight nature of EPS, food containers from neighboring communities can easily be blown or carried into unincorporated areas, undermining the benefits of a prohibition As detailed in the Case Studies (see Appendix B), there are currently four cities in the County that have adopted an EPS prohibition impacting retailers To effectively reduce EPS litter in the region, cities would need to adopt similar regulations A Statewide EPS prohibition would be most effective and provide for a more consistent implementation of the prohibition

CHAPTER 2

EXPANDED POLYSTYRENE FEE ON DISPOSABLE FOOD CONTAINERS

Introduction

Manufacturers and retailers only pay the up-front costs for production or utilization of single-use food containers However, they are not financially responsible for the costs for their disposal or the cost of litter abatement. Instead, these costs fall to consumers, and especially in the case of litter impact, to local governments Two potential methods to reduce Expanded Polystyrene (EPS) food container litter is the implementation of either a deposit/return system or some form of a fee, charge or minimum pass through charge If crafted correctly to account for Proposition 26 concerns, it may be possible that funds collected from an EPS food container charge could be used to prevent and/or mitigate the environmental impacts of EPS food container litter Depending on who is charged and the amount of the charge, the increased cost of EPS food containers may make alternative food containers more cost competitive and encourage more retailers to voluntarily switch

However, case studies regarding such a policy do not exist for most types of food packaging, due to the lack of implementation by jurisdictions of either a single-use food container deposit/return system or a waste fee structure To offset the lack of data, an analysis was made on other types of products with either a deposit/return arrangement or a waste fee structure implemented by local jurisdictions

Case Studies

In the 1970s, Oregon and several other States including California introduced "bottle bills" as a way to reduce the hazards, clean-up costs, and waste of discarded glass containers (mostly from beverages) These laws mandate that consumers pay a deposit when they purchase specified items, which will be returned when the container is returned [10] The Oregon law is credited with reducing beverage container litter and increasing their recycling, with return rates of up to 90 percent. The Oregon Department of Environmental Quality reports that roadside litter of discarded items covered by the laws was reduced from 40 percent to 6 percent since the "bottle bill" was introduced in 1971 [11]

In March of 2002, the Republic of Ireland became the first country to introduce a plastic bag fee, or PlasTax. Primarily designed to rein in and control litter of single-use plastic carryout bags produced by the rampant consumption of 1 2 billion plastic shopping bags

[10] Oregon Liquor Control Commission "*Bottle Bill & Redemption Center Info*". http://www.oregon.gov/OLCC/bottle_bill.shtml#About_the_Bottle_Bill

[11] Ibid. http://www.oregon.gov/OLCC/bottle_bill.shtml

per year, the fee resulted in a 94 percent drop in consumption within weeks[12], and approximately 1 billion fewer bags were consumed annually resulting in a dramatic decrease in single-use plastic bag litter The purpose of the fee was to change consumer behavior, moving consumer habits from consumption to reducing and reusing Individuals were charged approximately $0.24 per plastic bag consumed at checkout, Ireland's Environment Minister made it illegal for retailers to pay the plastic bag fee on behalf of customers Retailers saved money since they were able to stock a smaller quantity of bags (in Ireland, an annual average of $50 million was spent on single-use plastic bags before the fee[13]) Many retailers benefitted from increased reusable bag sales. Compliance was straightforward where retailers kept simple records on purchases and receipts, and the government monitored retailer compliance and collected revenue In its initial year, approximately £9 6 million (roughly $16 7 million) were raised from the fee and used in a Green Fund established to benefit the environment [14] The Irish EPA reported that these dramatically lower levels of plastic bag use and litter were being maintained [15]

Similarly, the 5-cent tax on plastic bags in Washington D C implemented in January 2010 has already proven to have a significant impact in reducing the consumption of single-use plastic carryout bags The District of Columbia Office of Tax and Revenue estimated that affected establishments issued about 3 3 million bags in January 2010, which was a significant 86 percent decrease from the estimated 22 5 million bags issued per month in 2009[16] The reduced demand has directly translated to less pollution in rivers and streams While significantly reducing plastic waste, the tax simultaneously generated $150,000 in revenue in its first month of implementation, which will be used to clean up the Anacostia River [17]

Single-use food containers or more specifically EPS food containers may be sold with a "deposit" to be refunded when the package is returned to the vendor As with bottles and cans, financial reward could spark interest in the proper disposal of these products on the part of consumers and provide income to others who retrieve littered food containers It would also increase the costs of single-use food containers, thus having a salutary effect on reduced consumption There are significant implementation challenges, due to the brittleness of EPS containers and their proper collection

Benefits of Fee

A charge on disposable single-use food containers, or on EPS food containers specifically, could be utilized to reduce the consumption of EPS food containers and decrease the amount of litter associated with such products It can combat litter and enhance the current disposal maintenance infrastructure This includes litter collection along roads and in flood control facilities, vehicular street sweeping, trash disposal from

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[12] Elisabeth Rosenthal, "By 'bagging it,' Ireland rids itself of a plastic nuisance," *NY Times*, January 31 2008 http://www.nytimes.com/2008/01/31/world/europe/31iht-bags.4.9650382.html

[13] "How Viable is a Plastic Bag Tax?, " *Environmental News Network*

[14] Sara Ruch, "Breaking the Plastic Habit," *Organic Gardening*, November 2007 January 2008, 68.

[15] R. Mulhall 2009. Waste Policy: Prevention and recovery. Letter to the City of San Jose, Environmental Services Department. http://www.sccgov.org

[16] Tim Craig, "D .C. bag tax collects $150,000 in January for river cleanup" *Washington Post*, March 30, 2010 http://www.washingtonpost.com/wp-dyn/content/article/2010/03/29/AR2010032903336.html

[17] Ibid.

trash receptacles, catch basin cleanouts, stormwater pollution prevention outreach programs, capital improvement projects, and implementing best management practices.

Although a fee may help offset the more than $24 million per year the County of Los Angeles Department of Public Works spends on clean-up activities such as those previously mentioned, the provisions of California Proposition 26 (Prop 26) may cause difficulty in implementing this new fee Prop 26, passed by voters in 2010, broadens the definition of taxes to include payments traditionally considered to be fees or charges As a result, local proposals to increase government revenues may require approval by local voters [18]

Evaluation of Fee Methods

Due to the nature of a deposit/return fee structure on single-use food containers, implementation of such a structure would only be ideal in a closed system affecting the entire State, similar to that of California's Beverage Container Recycling Program If the deposit/return fee structure is not applicable to the entire State than the jurisdiction or entity providing the rebate might also have to contribute for returned single-use food containers originating outside its boundaries Given that the market for this material is weak and EPS single-use containers have a tendency to break up into smaller pieces when handled by machinery, the jurisdiction would also have to supplement the cost of collection, transportation, cleaning, densifying, and recycling of these materials Considering the magnitude of the litter problem, such a program designated and operated in only the unincorporated areas in the County of Los Angeles would not be productive or financially sustainable

A fee-based structure can target EPS food containers, or more broadly to all disposable single-use food containers If a fee targets all single-use food containers, consumers need to be made aware of the negative environmental impacts of these disposable products. If a fee targets solely EPS single-use food containers, the fee would promote equity and give consumers a choice to use EPS single-use food containers or alternatives A fee-based structure on either all single-use disposable food containers or specifically EPS single-use food containers imposed on the manufacturer/retailer would streamline the process However, in order to affect a positive change in consumer behavior, the fee would need to be imposed directly on the consumer, rather than the retailer or manufacturer Otherwise, consumers may not be aware of the fee or the reasons it is imposed Consumers are more likely to notice a direct request to pay extra for each single-use food container used, stimulating a change in consumer behavior by providing a choice for consumers to either pay the fee, use an alternative, or bring their own containers

Given the provisions of Prop 26, implementing any type of new fee that would be directly administered by the County would be difficult. Furthermore, a fee implemented in one jurisdiction creates the potential to encourage residents to shop in adjacent jurisdictions to avoid the fee. Thus a fee-based structure implemented on a Statewide basis would be far more effective

[18] Colin Sullivan, " Calif.'s Little-Noticed Prop 26 Squeaks Through in Dead of Night" *The New York Times*, November 3, 2010 http://www.nytimes.com/gwire/2010/11/03/03greenwire-califs-little-noticed-prop-26-squeaks-through-59912.html

Conclusion

The recommended approach to implementing a fee to address the negative impacts of EPS food container litter would be a fee imposed directly on the consumer imposed on a Statewide basis Funds collected would be disbursed to local governments, authorized regional organizations, or non-profit entities comprised of stakeholders, to mitigate litter, expand public education efforts, and enhance alternative waste disposal programs Such an effort would require the passage of Statewide legislation

CHAPTER 3

INFRASTRUCTURE TO MANAGE ALTERNATIVE PRODUCTS

Life-Cycle Analysis

In July 2008, the Department of Public Works completed a preliminary analysis of prohibiting the purchase and use of Expanded Polystyrene (EPS) food containers at all County operations. To supplement the findings of Public Works' analysis, the County contracted with the Responsible Purchasing Network (RPN) to serve as a consultant to further quantify the impacts of phasing out EPS food containers

Compared to the Franklin Lifecycle Assessment (LCA), which focused on the manufacture of food containers, the LCA conducted by University of California, Berkeley professor, Dr Arpad Horvath, with Mikhail Chester, as part of the research for RPN, found that end-of-life disposal of food containers is a significant factor in determining emissions footprint. The LCA studied the following three end-of-life options for food containers composting, recycling, and landfill disposal

The RPN report[19] found that for each end-of-life strategy, there are alternative food containers with equal or lesser greenhouse gas (GHG) emissions throughout their life cycle than EPS Not only does EPS have an equal or greater negative life cycle impact, it also presents additional unique issues related to local litter, water pollution, wildlife, and human health The RPN report concluded that biodegradable and recyclable products are more environmentally friendly compared to EPS products, therefore County operations were recommended to eliminate the purchase and use of EPS food containers

Recycling

Recycling helps substitute virgin material with secondary feedstock at the manufacturing stage The historical focus of residential recycling dating back to the 1990's has been to keep material out of landfills The key to achieving the environmental and economical benefits of recycling is to keep material circulating and used for as many different product lives as possible [20]

The lifecycle analysis performed by RPN determined that recyclable single-use alternative products have lower GHG emissions than EPS products. Alternative products may be produced from materials that would otherwise be considered waste, and, therefore, no additional GHG emissions result from their production

[19] EPS Food Containers Alternative Products Analysis and Lifecycle Assessment, RPN Final Report 10/2009

[20] Container Recycling Institute. Understanding economic and environmental impacts of single-stream collection systems. December 2009.

Recycled products, such as paper and plastic cups, are often made from 10 percent to 50 percent post-consumer material There are some disposable containers made of other recyclable materials that are more valuable in the recycling market, such as aluminum tin Recycling from residents and commercial businesses has been in place and available in the unincorporated County areas for many years

- *Residential Recycling*

  Most cities and their haulers offer recycling as part of their curbside collection service In an effort to increase recycling volumes and reduce high recycling collection costs, most cities and their haulers have transitioned from the traditional source-separated or dual-stream recycling system to the single-stream recycling system as part of their curbside collection service In the source-separated system, separate recycle bins are provided for different recyclable materials Waste haulers providing single-stream recycling typically provide residents with one cart for collecting all recyclable materials together Waste haulers collecting from the County Garbage Disposal Districts and unincorporated area franchises all use the single-stream collection method Automated trucks pick up the containers and deliver material to material recovery facilities (MRFs) for processing This single-stream method increases efficiencies for haulers by collecting more material with less labor and less distance traveled [21] It also reduces the number of employees, improves route efficiency, and reduces workers' compensation cost, and also encourages residents to place more material in one cart to simplify the system These materials are usually more contaminated than material collected in a dual-stream system The contaminated material, which is eventually thrown in the trash for landfill disposal, reduces the value of the collected recyclables Contamination also creates problems at paper mills, leading to equipment failure, lost productivity, and expensive repairs This then results in a cost increase for the processors and recyclers, and affects the ability of the recycler to produce quality end products [22]

  A study in Pennsylvania showed that even as single-stream collection matured, a higher percentage of contaminants were found and rejected in the incoming streams at single-stream MRFs (3 7 percent) than at dual-stream MRFs (1 8 percent) [23]

  A study conducted in 2002 by Eureka Recycling compared five different collection methods and found that single-stream systems collected 21 percent more material than the baseline source-separated curbside collection method The Eureka study did not recommend a single-stream system because the low collection cost benefits were outweighed by the increased processing and recycling cost, and lower material revenues.[24]

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[21] Container Recycling Institute. Understanding economic and environmental impacts of single-stream collection systems. December 2009.

[22] Ibid.

[23] R.W. Beck and Dan Krivit & Associates, City of Roseville Recycling Pilot Program Summary. Ramsey County. Minnesota, December 2005

[24] Eureka Recycling, A comparative Analysis of Applied Recycling Collection Methods in St. Paul, May 2002

- *Commercial Business Recycling*

  Depending on business needs, most haulers offer a variety of bin sizes to contain recyclable material for pick-up Containers contaminated by food must usually be washed prior to recycling, increasing processing costs[25] Rigid recyclable alternatives, such as crystalline polystyrene, are easier to wash than foam, such as expanded polystyrene Training of clients' employees and customers are usually available upon request. Some recyclers even provide clients with onsite roll-off compactors, onsite baling, and direct shipment to end-users

The food container and foodservice industries have also extended efforts to increase the recycling infrastructure Rock-Tenn Company has nine paper mills that produce recycled paper, all located in the midwest to eastern United States Their mills collect recycled paper and accept a small amount of poly-coated paper mixed with uncoated paper Third party haulers deliver collected paper from all over the nation, including from California Most of the company's recycled paper product is made from old corrugated boxes, newspaper, and phone books

Although Starbucks Coffee Company represents approximately one percent of the carryout cup market in the Country, the company is working to reduce their disposable cup consumption In 2009, San Francisco, California, and Ontario, Canada stores began an in-store recycling program to test bin design to reduce contamination In Seattle, Washington as a response to a city-mandated recycling ordinance, they are working with a number of paper mills to test what kind of processes can handle poly-coated cups

While expanding recycling of alternative products will further enhance their lifecycle environmental benefits compared to EPS when recycled, these efforts will not independently reduce the amount of EPS ending up as litter

Composting

Composting is the natural decomposition of organic material like leaves, twigs, grass clippings, and food scraps Composting helps to keep the high volume of organic material from breaking down in landfills producing methane, and instead turns it into a useful product Compostable food containers can be more sustainable and carbon neutral[26], and can be derived from potato, corn, wheat, sugarcane, or tapioca sources, and are suitable for hot and cold applications, as detailed in the 2008 staff report. These products are capable of undergoing decomposition, where the compost developed from commercial facilities can be used as an organic feedstock or soil amendment. Food contamination of compostable food packaging is not an issue

[25] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

[26] Green Packaging GP (Tapioca Bake Ware), http://www.greenerpackage.com/renewable_resources/tapioca-based_bakeware_compostable_biodegradable
Smithsonian.com Corn Plastic, http://www.smithsonianmag.com/science-nature/plastic.html
Clean Techies, biodegradable, renewable, sustainable, carbon neutral and – compostable! potatoes or wheat or sugar beats http://blog.cleantechies.com/2009/06/19/biopolymers-biodegradable-renewable-sustainable-carbon-neutral-and-compostable/

Although large scale commercial composting facilities can handle more material and potentially produce a more consistent product than onsite or home composters, they may be faced with regulatory issues [27]

In regards to public concern over emissions, ozone potential, and odor produced from composting operations, CalRecycle and other agencies have conducted studies[28] In 2002, the CIWMB (now CalRecycle) completed emissions tests on greenwaste composting designed to evaluate emission reductions that could be achieved by controlling feedstock mixtures and aeration techniques[29] The tests were conducted at Tierra Verde Industries in Irvine, and indicated that ammonia emissions were extremely low and should not be a concern for greenwaste composting The emissions from the woody blend were lower than the grassy blend In 2006, emissions-reducing best management practices were tested in Modesto, California[30] Compared to a pair of commercial inoculants, the pseudo-biofilter was more effective and reduced emissions by about 75 percent during the first two weeks This is significant because the Modesto study suggests that roughly 80 percent of all emissions occur during the first two weeks of composting

Food and other organic materials can be diverted from the waste stream by establishing a composting program that provides organic materials for landscaping operations or local farms Compostable food containers, such as those made from paper or bioplastics, which are contaminated with food, can be composted along with food scraps, requiring no pre-washing [31] Materials to be composted in commercial composting facilities can be collected via one or few location site pick-ups per client or through a residential curbside collection program The feasibility of these collection options are based on factors such as volume and control of the source environment. Collection bins are usually provided at pick-up sites by the composting facility company

- *Methods*

  Onsite composting is an attractive, simple method of managing organic wastes at home or other small enclosed locations. It has the advantage of being readily adaptable to fit location size, funds, and goals. Some municipalities such as the County of Los Angeles, Santa Monica, City of Los Angeles, and City of San Diego encourage onsite residential composting

  There are at least 36 jurisdictions in California that have a collection program for composting food waste, nine of which are located in the County of Los Angeles

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[27] http://www.calrecycle.ca.gov/Organics/HomeCompost/

[28] CalRecycle Air Emissions Reduction from Composting and Related Facilities webpage, http://www.calrecycle.ca.gov/organics/Air/default.htm; CalReycle. Composting Air Emissions PowerPoint presentation: January 25, 2011 http://www.calrecycle.ca.gov/organics/Air/AirEmissions.pdf

[29] Best Management Practices for Greenwaste Composting Operations: Air Emissions Tests vs. Feedstock Controls & Aeration Techniques. CalRecycle. October 21, 2008, http://www.calrecycle.ca.gov/Publications/Organics/2008016.pdf

[30] Emissions Testing of Volatile Organic Compounds from Greenwaste Composting at the Modesto Compost Facility in the San Joaquin Valley. CalRecycle. October 2007 http://www.calrecycle.ca.gov/Publications/Organics/44207009.pdf

[31] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

Of the 36 composting programs, 29 accept compostable food containers, 3 of which are located in the County of Los Angeles

The City of Santa Monica, like most cities that accept composting material, does not accept currently available compostable plastic because of their low decomposition rate. There are businesses located in Fontana and Riverside that have their compostable plastic processed by a local composting facility

There are few municipalities with the infrastructure to operate and maintain a large scale composting facility. Factors such as volume, types of acceptable material, onsite land availability, location, availability of labor, and local demand for compost will directly determine the feasibility of composting facilities. Location and space can determine the size and material used for composting. Composting facilities close to residential neighborhoods have to consider the impact operations will have on daily life. The biggest complaint from most residents is odor. To address this issue most facilities will choose not to accept dairy products and other material that may create offensive odors. Green waste is usually the preferred material for composting facilities located near residential areas.

If available, the ideal place for commercial composting is on existing landfills. This provides the ideal space and location for composting facilities. Composting profit margins are typically low. It takes a significant amount of time, equipment, and manpower to handle the amount of material and to produce a consistent product. Most municipalities consider composting as a way to divert organic waste from landfills and turn it into a useful product that helps improve the environment. Labor costs associated with waste sorting can be reduced by providing clearly marked compost bins to improve the waste separation system. Paper food containers are accepted by commercial composters because they are biodegradable.

Co-sponsored by the County of Kern, the Mt. Vernon Recycling and Composting Facility was opened in an effort to divert recyclable yard and wood material from the landfills. By turning the green waste received at the facility into useable material, such as compost and mulch, much-needed space at area landfills is saved for future use. In 2007, it was estimated that the green waste facility received over 200,000 tons of recyclable organic material [32]

The long-range plan of the Sanitation Districts of Los Angeles County includes utilization of two state-of-the-art composting sites. The Inland Empire Regional Composting Facility in Rancho Cucamonga is an entirely enclosed composting facility recently developed in a joint venture with the Inland Empire Utilities Agency. The Westlake Farms Biosolids Composting Facility in Kings County will compost Sanitation Districts' biosolids with the Central Valley's agricultural waste and urban green waste. This facility is scheduled to be operational in 2013 [33]

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[32] City of Bakersfield Department of Public Works website, http://www.bakersfieldcity.us/cityservices/pubwrks/solidwaste/greenwaste_recycling.html

[33] Sanitation Districts of Los Angeles County website, http://www.lacsd.org/about/default.asp

Composting food containers, especially those made of or coated with plastic has been a major problem for composting facilities In order to produce high quality compost, contamination must be kept to a minimum Many composting programs do not accept coated paper because the coating may or may not be compostable Both consumers and composting facilities cannot easily and readily identify paper products that are coated with compostable coating and plastic products that are compostable per ASTM Standard D6400 This often leads to unacceptable materials being placed in compost bins and contamination to resulting compost. Contamination leads to low quality compost and increases labor hours due to sorting and removal of material before and after the composting process More uniform design and labeling of compostable products is key to solving this problem

- *Composting from the Business Sector*

In Santa Barbara food scraps are the largest single element in the business sector's waste stream Almost 13,000 tons of food and other compostable waste generated by food serving businesses are disposed of in Tajiguas Landfill This represents over 30 percent of the total waste generated and landfilled by the business sector of Santa Barbara [34] Food waste creates large amounts of methane gas within a very short time when landfilled Methane gas is one of several gases and is 23 times more potent than carbon dioxide.[35]

To divert the food waste from landfills, the City of Santa Barbara implemented a pilot Food Scraps Recovery and Composting Program in 2007 The program included Cottage Hospital, City College, the Santa Barbara Zoo, and local restaurants and coffee shops By March 2008, over 120,000 pounds (60 tons) of food waste had been collected and taken to a certified composting facility near Santa Maria Plastic food containers are not acceptable in this facility [36] The collected food waste is combined with other organic material and used to produce compost which is then sold to local farmers

To expand on the business food scraps collection program, the Single-Family and Multi-Unit Residential Organics Collection Program was developed The Single-Family and Multi-Unit Residential Organics Collection Program captured food scraps from residents, which enhanced the benefits of organic material diversion from landfills and produced quality compost for the local agricultural community in north Santa Barbara County and San Luis Obispo County

In the September 30, 2008, City of Santa Barbara Council Agenda Report, it was reported that since April 2007, over 420,000 pounds (or 210 tons) of food scraps were diverted from landfill disposal. This resulted in a GHG emission drop comparable to removing 125 Toyota Prius cars off the road Since then, the City

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[34] City of Santa Barbara Council Agenda Report of March 11, 2008 Meeting. http://www.santabarbaraca.gov/CAP/MG66007/AS66011/AS66026/AS66032/AI69305/DO70344/DO_70344.PDF

[35] Ibid.

[36] http://www.santabarbaraca.gov/Recycling-Trash/pdf/Foodscraps_Brochure.pdf

has reported that about 2,700 tons of food scraps are currently being collected annually from approximately 150 retail food establishments

On Earth Day 2009, Stater Bros Markets® rolled out a composting program in partnership with Community Recycling and Resource Recovery, Inc., to all 166 store locations The program collects the organic waste, such as produce trim and cull, as well as waxed cardboard, wooden crates, and paper The items from the individual locations are collected at their distribution center, and picked up by the composter [37]

Assembly Bill 2176 (Chapter 879, Statutes of 2004) was enacted to create and encourage planning and implementing waste reduction, recycling, and composting programs at large venues and events [38] Event organizers of the Governor's Conference on Women and Families, an annual conference held at the Long Beach Convention Center attracting nearly 12,000 participants, sought ways to improve solid waste diversion The conference diversion goal was to generate zero waste A major aspect of the program was the development of a "Great Taste, Less Waste" lunch box that was pre-planned to include compostable bags, serving ware, and food The material was collected in compostable bags and taken to a processor, where they were mixed with green waste then transported to a composting facility All other recyclable items were collected and recycled Unrecoverable material went to a waste-to-energy facility In 2005 over nine tons of materials were collected and diverted In 2008 the collected amount doubled to 18 tons Due to request from the City and facility users, the Convention Center is considering options to introduce a year-round food recovery program The City has switched to compostable serving ware, and expanded its collection programs to include beverage containers and waste paper [39]

The 2008 Indio International Tamale Festival was a two-day festival featuring tamale and other various food vendors from Southern California In collaboration with California Bio-Mass and Burrtec, the City of Indio initiated a "zero-waste" system that utilized green waste and recycling collection at the event eliminating the need for landfill hauling service They used a dual-receptacle system that included one container for recyclables and another container for green waste This program diverted 15 46 tons of organics from the landfill to a compost facility [40]

The Indian Wells Tennis Center and Garden not only recycles bottles, cans, cardboard, and paper products, it also has one of the State's model food scrap composting programs Each year it hosts the largest tennis event in the United States The small city population grows to over 200,000 for the 14-day event During that time, more than 58 tons of waste materials are produced The tennis

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[37] Stater Bros. Markets Press Release, http://www.staterbros.com/getdoc/27907ee3-2b3f-406a-8ae0-8d8a85f33b60/PR_Composting.aspx

[38] CalRecycle. Report to the Legislature: Large Venue and Event Waste Reduction, Recycling, and Composting Programs. October 2009.

[39] Ibid.

[40] Ibid.

center has a goal of collecting 70 percent of post-consumer food scraps and a 90 percent kitchen recovery rate. The program has reduced disposal cost by 18 percent. Food scraps are hauled to the California Bio-Mass Agricultural Products Production & Research Facility and later returned to the tennis garden as soil amendment for the flowers.[41]

- *Composting in the City of Los Angeles*

  California law (AB 939) required all cities and Counties to reduce the amount of waste they send to landfills by 50 percent by the year 2000. The City of Los Angeles met and surpassed that goal and has adopted the further goal of reducing landfilled waste by 70 percent by the year 2015.[42]

  One of the largest single components of the City's waste stream is greenwaste (grass and tree trimmings, leaves, garden waste and other vegetable material). The Bureau of Sanitation operates three mulching/composting facilities: the Harbor Yard Trimmings Facility in San Pedro, which uses the contents of the Bureau-collected residential green bins in the Harbor area, the Griffith Park Composting Facility, which uses greenwaste from Griffith Park, biosolids from the Hyperion Wastewater Treatment Plant and animal waste from the Los Angeles Zoo, and the Lopez Canyon Environmental Center, which uses greenwaste collected by the City's Bureau of Sanitation and tree trimmings generated by private contractors to mix with horse manure collected from nearby residents. The mulch and compost produced by these three facilities is a high-quality product given away free of charge to community gardens, City residents, businesses, and farmers.

  The City of Los Angeles' RENEW LA Five-Year Milestone Report[43] states that there are over 8,000 restaurants in the city. Since approximately 70 percent of restaurant waste is organic and recyclable, the City Bureau of Sanitation implemented a pilot commercial Food Waste Recycling Program in April 2004, which was expanded to full scale in April 2007. As of June 2011, about 1,000 restaurants are participating in the Food Waste Recycling Program. It is estimated that 33,000 tons of compostable organic material including food and non-recyclable paper products are being diverted annually to composting facilities in Victorville and Lamont, which are just outside of Los Angeles County, as well as to the City's mulching facilities. The City also encourages their permitted private waste haulers to recruit other restaurants into the program. The haulers offer training to restaurant staff on how to properly separate organic food waste. The Restaurant Food Waste Recycling Program reduced greenhouse gas emissions by 32,400 tons per year in the pilot program and about 284,800 tons each year when the program went full scale.

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[41] Ibid.

[42] City of Los Angeles Bureau of Sanitation Recycling website, http://www.lacitysan.org/solid_resources/recycling/services/ab939.htm

[43] Smith, Grieg. RENEW LA Five-Year Milestone Report: A Resource Management Blueprint for the City of Los Angeles. June 2011. http://cd12.lacity.org/stellent/groups/electedofficials/@cd12_contributor/documents/contributor_web_content/lacityp_013244.pdf

The City of Los Angeles also initiated a Foodwaste to Green Curbside Cart pilot program to divert residential food waste from landfill by having the material placed in the residential curbside green cart initially intended for only green (yard) waste The pilot residential food waste program includes approximately 8,700 homes The one year pilot program resulted in 68 tons of food scraps and 24 tons of soiled paper products diverted from landfills As a result, the City implemented a citywide program in 750,000 households This program could divert food waste at a rate of 92 tons per year and at a rate of 7,931 tons per year at full scale [44] 85 percent of the diverted materials from the green carts in this program are shipped to composting facilities outside the County, and the remaining is sent to the City's mulching facilities.

Expected Effects

Alternative products that are recyclable include paper, plastic, and metal products not contaminated with oil or grease and are already widely accepted through curbside programs Contaminated or non-recyclable alternative products must be manually sorted and discarded If organic or compostable, they may be sent to a composting facility Composting reduces the cost of hauling material to landfills. Diversion methods agreed to and further developed by impacted stakeholders, such as recycling and composting of alternative products are viable methods that would enhance the impacts of a retailer prohibition. Other California cities[45] were recommended to offer food scrap and container composting to businesses and residents in conjunction with an EPS prohibition Recycling and composting of alternative products has several benefits. They divert waste from landfills, reduce the negative environmental impacts of these items, reduce the use of new material to make products, and help create useful products at a lower cost

Priorities would need to be rearranged to focus and intensify development of a comprehensive infrastructure to divert alternative products from landfills Implemented in conjunction with increases to the landfill tipping fee and/or subsidies to other forms of waste disposal may promote the use of alternative single-use food containers that would have a more sustainable life cycle To accomplish this, recycling and composting service may be required of haulers and recyclers servicing the residents (both single-family homes and multi-family complexes) in the unincorporated areas, if not currently mandated to do so Jurisdiction agreements with various waste haulers can include bringing a specific minimum percentage of waste to composters As the City of Berkeley has done, restaurants and retail food vendors can be required to establish separate waste receptacles for each type of recyclable food packing generated on the premises. This would ensure that the alternative materials are recycled or composted and not mixed with materials to be sent to landfills

Although recycling and composting alternative products will not reduce EPS litter, it is the next best method to reducing usage in handling properly disposed solid waste

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[44] Ibid.

[45] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

CHAPTER 4

RECYCLING OF EPS FOOD CONTAINERS

Material Recovery Facilities (MRFs) separate materials delivered using a variety of mechanical and manual sorting systems Their main objective is to maximize diversion of recyclables from the waste stream, while reducing cost and maximizing revenue from those materials targeted for recovery The most commonly recovered materials include plastic containers, paper, aluminum cans, and cardboard because they are easy to collect, have an available market, and provide the most revenue without costly specialized sorting machinery

Due to static cling and their ability to break apart easily, Expanded Polystyrene (EPS) products placed in co-mingled recycling carts are easily contaminated Disposed EPS food containers are typically soiled by the food they were used for and contaminate other recyclables in the recycling cart. For many years recyclers did not accept EPS Any EPS received usually was disposed of with the trash that eventually was placed in landfills. According to a study[46] reported in April 2011, food contamination and the low density of EPS pose challenges to cost-effective collection, transport, and recycling of waste EPS food containers

Municipal Curbside Collection

For one municipal curbside program that used to collect EPS in the late 1990s, they found that winds scattered EPS onto streets when bins were tipped, compacting trucks broke up EPS into pieces and scattered it when the truck emptied, and at the MRF, front end loaders and spinning screens broke up the EPS, which with its beads and peanuts contaminated the paper and glass to be recycled

As a result of tremendous efforts from industry, there are 32 cities in the County of Los Angeles that currently offer EPS recycling to their residents, where about a dozen cities collecting EPS actually have the material recycled into manufactured recycled-content products or sold to other EPS buyers Through research and contacts with waste haulers, MRFs, recyclers, and city representatives, we have found that of the 32 cities that allow their residents to deposit EPS food containers in their recycle bins, EPS material from 17 of the cities eventually go to recyclers that do not separate them and is landfilled The EPS material from the remaining 15 cities go to 8 recyclers that process EPS, but reportedly food containers are not being separated and recycled at this time due to the following factors

- High cost to separate EPS food containers since they are difficult and labor intensive to quickly separate

[46] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

- The material is often contaminated with food residue
- The material is very lightweight and therefore requires a large volume in order to aggregate sufficient quantities to market.
- A small percentage of the recycling stream contains EPS food containers.
- Special equipment is required to compact it for storage and shipping

In an effort to more readily identify and separate EPS food containers, one of the cities offering curbside recycling is encouraging their residents to clean out excess food and place the EPS food containers into clear plastic bags before placing them into the recycle bin This would facilitate an increase in the quantity of materials collected, however presents a challenge to encourage participation by residents due to the additional steps involved Studies of MRF sorting lines that separate EPS would be needed to determine how much of the EPS food container waste is being separated and if there are ways of increasing its diversion. Packaging EPS is often the primary material recycled since it is solid EPS which results in greater weight and density, when compared to food containers which are designed to contain food or beverages

Large Venues and Institutions

In order to be successful, EPS collection sites must produce significant quantities of uniform EPS food containers that are relatively clean and entirely separated from other materials for collection. In certain applications this system can provide for the collection and recycling of EPS food containers.

Large venues and institutions, such as school cafeterias, have had greater success in implementing EPS recycling programs, especially those focused on meal trays There are case studies (see Appendix B) showing that such recycling programs can be highly successful Some reasons for their success may be attributable to some of the following factors.

- There are typically larger quantities of EPS materials, making collection more economical
- Stations can be organized to facilitate separate collection of the EPS food containers
- The cost of a densifier can be more readily justified due to the larger volumes.
- In the case of schools, children are supervised which may help to ensure proper disposal of meal trays at collection areas Similar situations may be the case in other institutions
- In the case of a school district, a central warehouse can be utilized to facilitate collection of EPS materials Similar situations may be the case in other institutions

According to the City of Los Angeles RENEW LA Five-Year Milestone Report[47], there are markets to recycle EPS, such as Timbron, who manufactures building material, and NEPCO, who manufactures picture frames

[47] Smith, Grieg. RENEW LA Five-Year Milestone Report: A Resource Management Blueprint for the City of Los Angeles. June 2011.
http://cd12.lacity.org/stellent/groups/electedofficials/@cd12_contributor/documents/contributor_web_content/lacityp_013244.pdf

Six school districts in Los Angeles County and four in the rest of Southern California have been found participating in an EPS meal tray recycling program Over 1 million EPS lunch trays are being recycled through this collaborative effort, involving Dart Container Corporation, waste haulers, foodservice distributors, and others [48] These school lunch tray recycling programs have been established and operated as follows

- Education of students about cleaning and stacking trays
- Development of condiment stations or other types of control to help ensure less condiment is spilled onto trays
- Development of a dump station to remove tray contents, where students are taught to turn their tray upside down and knock it against the rim of the trash receptacle and wipe off excess condiments with napkins
- Repacking of trays into their original carton, where a sealed bag may be required to maintain a clean environment for storage
- Set up of a storage area for the used trays awaiting transportation to the recycling facility
- Transportation of used trays to recycling facility

In addition to diverting EPS waste from landfills, the lunch tray recycling program allows school districts to save a significant amount of money Long Beach Unified School District estimates saving $1 million a year through this recycling effort.[49] Savings are attributed to the lower cost of EPS versus alternatives as well as a decrease in waste hauling expenses At Westwood Elementary in Stockton, EPS litter was reduced so much that they were able to reduce the number of trash collection days from 5 days to 4 days per week.

Dart currently provides EPS drop-off containers at their manufacturing facilities. In addition, they have recycling centers in Michigan, Pennsylvania, Florida, and Ontario, Canada, capable of reprocessing 12 million pounds of EPS annually Dart heat densifies the collected EPS material into plastic pellets. The processed plastic pellets are sold to EPS manufacturers like NEPCO, who reprocess the pellets into useful products, such as picture frames, lumber, egg cartons, building insulation, toys, and office desk products. Dart has recently installed a wash and dry facility to accept soiled EPS at their plant in Corona, California [50] P&R Paper Supply, Incorporated delivers EPS trays from six school districts within the County of Los Angeles for recycling to the Corona plant.[51]

EPS is used to produce food containers and merchandise packaging Collecting and processing waste EPS is difficult and expensive Two key requirements for making EPS recycling cost effective are separation of foam products from other recyclables, and maximum consolidation of the collected material into the least amount of space Proper collection and sorting at the collection point is essential for an efficient recycling process Most collected foam material is co-mingled with other recyclables that often

[48] http://culvercity.patch.com/articles/recycled-trays-balance-cost-with-sustainability
[49] PR News Wire: http://www.prnewswire.com/news-releases/1000000-per-month-california-serves-up-new-milestone-in-foam-school-lunch-tray-recycling-123131653.html
[50] Dart Container Website, retrieved on August 9, 2011, http://www.dart.biz/web/products.nsf/pages/index.html
[51] P&R Paper Supply Service, contact with Lindsey Maiberger on August 11, 2011

leads to contamination Compacting and compressing collected material into the least amount of space is achieved with a densifier There are two types of densifiers typically used, which are the thermal densifier that heat compresses the material and the hydraulic densifier that uses pressure Densifiers are expensive to rent or own One recycler located in the County reported that their densifer cost $40,000 to purchase and install at client sites, but were able to sell the recycled EPS for only about 20 cents per pound According to SF Recology, it costs $42 to process 100 pounds of EPS into a recycled bale that is sold for no more than $25.[52] The high cost of special washing and drying equipment to process dirty-contaminated material is expensive Foam Zone, Incorporated provides hauling of industrial quantities of clean block EPS within a 60-mile radius of its recycling facility in San Bernardino County, California Material may also be dropped off at their facility Foam Zone turns the packaging blocks into packaging peanuts.[53] The company recycles an average of three million cubic feet of EPS per year Depending on customer needs, they may use any of three methods to process EPS pressure densifying, regrinding, and cubing Almost all of their recycled material is sold as recycled EPS product.

NEPCO recycles EPS and manufactures EPS densifying machines for various needs and size of business Their facility heat densifies the collected EPS, forming them into pellets The recycled EPS pellets are sold to companies manufacturing recycled-content products such as picture frames As part of their buyback program, NEPCO can schedule hauling of densified EPS blocks from customers of their EPS densifying machines [54]

Expected Results

A tremendous effort is being made from various stakeholders to inform and educate the community about the benefits of recycling EPS by residents, businesses, schools, and government agencies. Although progress continues, the infrastructure needed to collect, sort, and process EPS into new products is currently not in place to significantly impact the negative effect EPS has on the environment.

Recycling EPS from MRFs and most recyclers is not an economically feasible option at this time The purchase of equipment, space, and labor to install and operate an EPS recycling and processing unit is far greater than the revenues collected from the final product, since the demand and market for recycled EPS is low Densifiers and compressors at many local MRFs have been subsidized by a large EPS manufacturer Recycled EPS pellets currently can be used to manufacture a small number of products, many of which are not typically recycled at their end of life

Although the technology exists to recycle EPS, soiled EPS is rarely collected and recycled due to difficulty with cleaning the material Recyclable material is typically discarded by recyclers if they are soiled Thus, municipal collection of EPS costs taxpayers and provides no benefit with recyclers refusing to invest in equipment to clean soiled EPS The high cost of equipment, labor, training, and high contamination rate of

[52] Sue Vang of Californians Against Waste, letter dated October 26, 2011
[53] Foam Zone Inc. Website, retrieved on August 9, 2011 http://www.foamzoneinc.com/index.php?customernumber=925962177329352&pr=Home_Page&=SID
[54] NEPCO website, retrieved on August 9, 2011 http://www.nepco21.com/

EPS food containers result in a low profit margin or even a loss in profit for facilities that recycle EPS

At this time, efforts to recycle EPS food containers are low to non-existent in most communities. Municipalities lack the infrastructure to collect, sort, wash, and process EPS, especially soiled EPS food containers. As a result of the low demand and market value of recycled EPS, the infrastructure needed to address the growing use of EPS and resulting litter problem has not yet been developed. Currently, recycling EPS is not a feasible alternative at this time for most municipalities. Since food containers are not generally targeted for EPS recycling by local haulers and recyclers doing business in the County of Los Angeles, the alternative rigid plastic food containers would stand a better chance at being diverted from landfill disposal.

Increasing recycling outlets for EPS will recover some additional material, although most recyclers that accept EPS from municipalities discard EPS for landfill disposal due to contamination. Until more recyclers develop the infrastructure to sort, wash, and process EPS material, curbside collection of EPS food containers are likely to have a low to moderate ability to meet the County's objectives. A take-back program with a confirmed EPS recycler for collection at enclosed large venues and events may fare better for the future of recycling EPS food containers.

CHAPTER 5

EDUCATION

Current County Outreach Efforts for Litter Mitigation

The Los Angeles County Department of Public Works is responsible for various programs to promote litter prevention and waste reduction To promote environmentally friendly practices, various methods are employed, such as public education, bag exchange programs, and participating in targeted grass roots campaigns including community fairs.[55]

Pubic Works coordinates and implements events throughout the County to educate and promote environmentally friendly practices, such as recycling To further enhance educational outreach, Public Works joined the Los Angeles County Fair's "Going Green - A World of a Difference" exhibit This major event has an audience of over 1 4 million people Another successful partnership included the City of Los Angeles and Universal Studios Hollywood at the Eco-Green event.[56]

Currently, Public Works spends more than $24 million per year on clean-up activities which includes litter prevention and education efforts In its part to offset Expanded Polystyrene (EPS) food container litter specifically, the County restricted the purchase of EPS food containers at County operations. Additionally, the County continues to examine opportunities to recycle EPS products in an effort to promote recycling where health, safety, and economic considerations favor recycling over alternative products [57]

Current Industry Outreach Efforts for EPS Litter Mitigation

In an effort to combat litter, the EPS manufacturing industry with the help of the California Restaurant Association (CRA) has enabled restaurants, customers, and the youth through public education campaigns to promote recycling of EPS food containers through established residential curbside programs Industry's effort to promote EPS recycling is carried out through a partnership with non-profit environmental organizations, various jurisdictions, and school districts Their partners include but are not limited to Los Angeles Conservation Corps' River Corps Program, Keep LA Beautiful, Keep California Beautiful, and Friends of the Los Angeles River

An example of industry's public education campaigns to promote EPS recycling is its engagement with local school districts in the collection, transportation, and recycling of EPS lunch trays This partnership with local school districts helps educate and instill proper behavioral pattern in school children on suitable ways of disposing EPS food

[55] "2007-2009 Biennial Report County of Los Angeles Department of Public Works" County of Los Angeles Department of Public Works. http://dpw.lacounty.gov/general/biennialReport2007_09.pdf
[56] Ibid.
[57] Ibid.

service ware[58] As noted in the case studies summary (Appendix B), there are currently six local school districts within the Los Angeles County that have an EPS lunch tray recycling program

Another example of industry's environmental outreach efforts is the voluntary program developed by the CRA and the Plastic Foodservice Packaging Group in which 750 restaurants in the cities of Pasadena and Los Angeles have joined to increase residential recycling of EPS This is done by directly engaging and educating its customers on the proper disposal of EPS food containers through flyers and posters displayed at restaurant doors and near cash registers[59]

Public Education to Promote Litter Mitigation

Given the magnitude and scale of single-use container litter, along with other types of littered products, an education component must be incorporated to any option the Board of Supervisors chooses to implement regarding EPS food containers. An independent study[60], reported in April 2011 found that although more expensive, an active outreach approach is usually also more effective than providing only written information Similarly, providing informational materials to all affected parties is more effective than targeting only businesses or only consumers Education and outreach were identified as key to increasing recycling in the business sector To maximize the impact on the City's diversion rate, the City of Santa Barbara had staff provide technical assistance to large malls, big box stores (e.g., Office Max, Staples), hotels, and banks After two months of store outreach, over 151 business contacts were made and 115 businesses increased their recycling capacity [61] The County's outreach efforts towards restaurant owners and the general public to bring awareness of the negative environmental impacts of littered EPS food containers would need to be expanded This can be done through a media campaign, including television, radio, newspaper, and social media

An example of such an educational outreach campaign is the outreach efforts of the City of Los Angeles through its RENEW LA Plan In 2007, the City established the Recycling Ambassadors Program which trained employees to go door-to-door in areas of the City with the poorest participation in the Blue Bin recycling program Their mission was not only to encourage participation, but to educate the residents on the proper materials to put in the blue, green, and black bins. As a result of this program, contamination levels in the Blue Bins in the South Los Angeles waste collection district dropped markedly, making the sorting of this material much more productive while increasing the levels of diversion and the value of the materials collected [62]

In 2007, the Los Angeles City Council passed a "Pay-As-You-Throw" program to incentivize waste reduction The City partnered with RecycleBank® to offer a Recycle

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[58] "Tray Recycling Helps School District Save Money and Teach a Lesson". Culver City Patch, June 3, 2011. http://culvercity.patch.com/articles/recycled-trays-balance-cost-with-sustainability

[59] conversation with Vanessa Rodriguez, representative of the CRA, on August 17 2011.

[60] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

[61] City of Santa Barbara Council Agenda Report of September 30, 2008 Meeting. http://www.santabarbaraca.gov/CAP/MG67285/AS67289/AS67304/AS67310/AI75593/DO75604/DO_75604.PDF

[62] "RENEW LA: A Resource Management Blueprint for the City of Los Angeles." City of Los Angeles, June 2011.

Rewards pilot incentive program that rewards residents for proper Blue Bin recycling The pilot program is available without charge to 15,000 single-family homes along selected routes in the West Valley and North Central collection areas of the City Neighborhoods in the pilot areas include Chatsworth/Northridge, East Hollywood/Los Feliz, Highland Park, and Lincoln Heights.[63]

These are two examples of outreach programs which the City of Los Angeles has conducted in educating a segment of its residence on the recycling of EPS food containers Without industry involvement, outreach efforts to educate the public on the harmful impacts of littered EPS food containers will face implementation costs that will be borne by public agencies, and will also have to operate with a long-term perspective by the County Previous efforts in changing consumer behavior have failed to take hold right away, therefore a new campaign may take years to effect change

Increased outreach targeting restaurant owners along with the general public is supported by the EPS industry as well as by environmental organizations This will help enhance other EPS litter reduction plans by increasing exposure and participation of industry, restaurant owners, and the general public.

A multi-tier, multi-language mass media educational campaign to combat EPS food container litter may financially constrain the County of Los Angeles, depending on the scope, frequency, and type of campaign As previously indicated DPW spends millions of dollars annually to carry out numerous programs for public outreach and combating litter A public education outreach campaign is integral in the success of other options being considered for implementing EPS litter reduction, but will fall short in meeting the County objectives if implemented without the financial and active support of environmental organizations, the EPS manufacturing industry, and the CRA. Given the restrictions of the State of California's Proposition 26, implementing any type of new fee that would be directly administered by the County would be difficult

Eighteen years prior to prohibiting EPS food containers, the City of Santa Cruz had a voluntary polystyrene reduction program [64] In 1991, a survey of Santa Cruz businesses (52 percent response rate) reported that 66 percent of businesses did not use EPS products. Therefore, it was recommended that the voluntary compliance program continue with increased public education However, in later years despite extensive public outreach and the decreased use of polystyrene by some businesses, Santa Cruz found that the reductions were not significant compared with their goals, and that polystyrene was a growing part of the waste and litter streams According to Figure 1 in Chapter 1, there was more than a 60 percent decrease in beach litter after implementation of the Santa Cruz ordinance Unless incentives such as lower product costs and better performance exist for alternative products, then businesses that do not have a strong desire to protect the environment would not be compelled to voluntarily give up polystyrene products

[63] Ibid.
[64] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26. 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf

Thus educational outreach efforts on disposable single-use food containers or on EPS food containers specifically would also have to be implemented by either the retailer or manufacturer within a voluntary extended producer responsibility program

The CRA has 16,000 member restaurants[65] in Los Angeles County alone, which would expand the number of restaurants in the County who could voluntarily join in the educational program to increase residential curbside EPS recycling

Similarly, the EPS food container manufacturing industry would have to voluntarily expand its efforts in educating its customer base along with the general public on the harmful effects of littered EPS food containers and benefits of disposal through residential curbside recycling programs While the County may consider directing its contracted waste haulers to accept EPS through curbside programs, industry must also assist and help expand its anti-litter campaign, and EPS recycling operations and markets with MRFs, recyclers, and industry

Outreach Efforts Restricting EPS Food Service Ware

With the increased distribution of alternative disposable products, the litter stream may also in turn change to reflect an increased amount of littered alternative products. This would be one significant objective for incorporating a public and retailer outreach campaign to support an EPS prohibition Aside from increasing litter awareness to change consumer behavior, retailers would be educated in the positive environmental impacts of sustainable and biodegradable materials, to encourage the purchase of products made from these materials

Interviews by a consultant[66] found that cities that replaced a voluntary program with a prohibition noted that a significantly larger number of businesses switched from polystyrene to alternatives after compliance became mandatory In cities researched, voluntary reduction programs achieved lower compliance rates than mandatory prohibitions while still requiring an extensive investment in education and outreach

Examples of such education and outreach include media campaigns, which may be conducted using television, radio, newspaper, and social media An additional aspect of this outreach is the capability to work collaboratively with environmental and special interest groups, such as the foam food container industry, retail food vendors and businesses, community members, government, and neighborhood organizations, to convey a unified message The County can help educate the public, restaurant owners, and suppliers on the long-term environmental benefits of reusable food containers and/or alternatives to EPS food containers and its proper disposal The County assists businesses in recycling by providing free consultations through the Business Recycling Program

Informational resources can be provided at a lower cost than more active outreach involving phone calls and site visits Thus, prior to any restriction on EPS food

[65] conversation with Vanessa Rodriguez, representative of the California Restaurant Association, on August 17 2011
[66] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf, http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_d.pdf

containers, the County can provide signage, flyers, and other outreach materials to inform stores of the impending restriction of EPS food containers. While most chain restaurants are already using alternative products, given the volume and popularity of such chain restaurants, it is crucial that the County reach out to the chain restaurants to ensure that they are in compliance with the prohibition

Based on consultant interviews of businesses that may be affected by a polystyrene prohibition in Milpitas, small businesses would most benefit from outreach [67] The County would be wise to also accommodate a majority of its resources aiding and educating small food service businesses to comply with the EPS restriction To assist businesses, the County could provide a list of local suppliers that offer approved alternative products The list should include local vendors, which may reduce the cost of shipping, thus lowering economic barriers to an EPS food container prohibition

Because small food establishments may have limited access to bulk suppliers, the County may establish a purchasing co-op or assist a third party non-profit in establishing a purchasing co-op GreenTown Los Altos, a grassroots environmental group in the City of Los Altos, has established a co-op through which businesses that purchase alternatives from a certain supplier receive a 25-percent discount on their purchase [68] Bulk purchasing will help independent small food establishments be more cost effective which would help them to compete with chain restaurants

The County may also provide staff or hired contractors to provide technical assistance to businesses in making the transition to using alternative food container products, including selecting the most appropriate and cost-effective alternatives The County may also expand its Business Recycling Program to include this type of technical assistance to affected Program members

Enforcement of any EPS food container restriction is also crucial In the past the threat of fines for noncompliance has given teeth to the jurisdictional prohibitions [69] Site visits by County inspectors or non-compliance complaints by citizens received through a customer service hotline or website will help verify and ensure continued compliance

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[67] Ibid.
[68] "GreenTown Co-op Helps Restaurants Eliminate Styrofoam," GreenTown Co-op. http://greentownlosaltos.org/wp-content/uploads/About_GreenTown_CoOp.pdf
[69] Cascadia Consulting Group. "Expanded Polystyrene Food Service Take-Out Container Study" for the City of Milpitas. April 26, 2011. http://www.ci.milpitas.ca.gov/_pdfs/commissions/rsrac/2011/042611/item_c.pdf

CHAPTER 6

LITTER MAINTENANCE

Background on the County's Storm Drain System

The storm drain system begins with catch basins located in the roadways and other large runoff areas, i.e. parking lots, etc. Many of these storm drains have been significantly upgraded to keep the litter in the roadways, and prevent it from entering the storm drain system. Street sweepers are utilized to collect this refuse. However, trash does find its way into the catch basins during major rain events and most of this trash comes from the curb and gutters along the streets. In addition to intentional littering, litter ends up at the curb and gutter due to improper waste disposal, scavengers, and by being windblown from other areas. Residential carts that are left out in the street prior to pick-up and public trash receptacles are especially susceptible to scavengers. Placing lockable lids on these trash and recycle carts could deter scavengers, but would significantly increase service fees due to retrofitted carts and equipment used in disposal operations. The number of public trash receptacles along roadways and the frequency of emptying them are dependent on the historical fill rate of specific receptacles and the organization responsible for their maintenance, which has been found to vary from municipal agencies, transportation agencies, businesses, business districts, and other organizations. Public trash receptacles are costly to maintain due to the required frequency of disposal. Placing locking lids with a small opening could help reduce the frequency of disposal but this type of receptacle is more expensive to purchase and maintain. Receptacles with a lid or closing mechanism (i.e. a swinging door) would be effective in keeping animals out of them, although lids with smaller openings or hood-shaped lids would not offer the same deterrent.

Many best management practices (BMPs) have been put in place for preventing construction litter from even arriving into catch basins. BMPs are conducted by County Road Maintenance, Flood Maintenance, and Construction staff as well as County contractors during construction and maintenance activities on County roadways and flood control facilities to prevent litter and debris from their activities entering into the storm drain system. Best management practices include damming around catch basins, placing barriers at site entrances and exits as well as at retention areas.

There are nine watersheds within Los Angeles County. The County and incorporated cities have identified those catch basins and storm drains each separate jurisdiction will monitor and maintain.

The County maintains and inspects 4,289 catch basins within the Los Angeles River Watershed, and plans to retrofit each catch basin with a connector pipe screen (CPS) at all capture devices by September 2016. As of 2011, 55 percent of these catch basins have been retrofitted.

Full capture devices, such as CPS, are installed in catch basins determined to be impaired under the Clean Water Act. Currently the County has installed or contracted to install over 14,000 catch basin inserts at County-maintained catch basins throughout all the watersheds in the County Each catch basin is inspected at least once during the dry season, monthly during the storm season, and as-needed due to resident complaints Overall, a minimum of 5,440 catch basins now have street level screens, or automatic retractable screens, which prevent litter and debris from entering the catch basin during low flow events[70] Since 2003, the County has spent over $9.2 million installing catch basin screens and inserts within all the watersheds in the County

These allow for a greater chance that the debris and litter will be captured by street sweepers Public Works sweeps the streets of the unincorporated areas at least once a week, which complies with requirements of their National Pollution Discharge Elimination System (NPDES) permit. Catch basin stenciling has become popular, and the County has painted over 75,000 catch basins with the phrase "No Dumping-Drains to Ocean "

Continuous diversion systems work by spinning debris, thus creating a centripetal force that moves the litter and debris to the center of the device and the water is able to exit under a gate which traps the floating material These systems are relatively new and very expensive Catch basin inserts are installed only to certain heights within the catch basin basket to allow overflow of stormwater into the connecting pipe during times of sudden peak flow as in flash flood events The primary intent of catch basin inserts are to prevent material flowing into the storm drains, but these inserts often cause the catch basin baskets to become filled with debris and litter This captured debris is removed from the baskets at a rate dependant on the debris capture history of specific catch basins.

For material that is windblown out from the streets and end up in open flood control channels, there is a system of booms and nets to capture them at the end of the channel The material collected in the booms and nets as well as in the catch basins and through street sweeping operations is generally not recyclable due to the large amount of contamination

Not all material is captured by these systems Some material bypasses these capturing devices and makes it through the flood control systems onto the beaches or into the oceans Once on the beach or in the ocean, this litter either floats further out to sea and becomes a part of a "garbage patch" caught in a gyre, or is washed back up on shore where it litters the beach Still other material that never makes its way into the flood control system remains in the environment This increases maintenance costs by constantly requiring someone to patrol for escaped litter The Department of Beaches and Harbors rakes the beach as well as provides on-foot litter patrol each and every day This required vigilance towards trash cleanup comes at a significant cost as the County's beach maintenance has a normal annual operating budget of $7 million [71]

[70] Excel spreadsheet provided by Flood Maintenance Division, "Trash Insert Counts.xlsx" August 17 2011.
[71] County of Los Angeles Department of Beaches & Harbors, "Beach & Marina Maintenance FACT SHEET" Accessed on July 13, 2011, http://beaches.lacounty.gov/wps/portal/dbh/!ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3hXAwMDd3-3YCMDbwNDA08jPxM3d8dAAyAbKB-JLB9saWbgGWzgaBli4GZkEGJAQHc4yD6c-v2dzfDKg80HyRvgAI4G-n4e-bmp-

Large Venues and Public Areas

Large venues and public areas usually possess well-defined boundaries and have distinct periods of high and low visitations These sites include parks and beaches heavily patronized during the summer and on weekends, and museums, concert halls, and sports complexes with specific schedules The large influx of people often using disposable food packaging presents a challenge for sustainable waste management practices If these large amounts of waste are not handled correctly, they can easily become litter, which makes them much more difficult and costly to mitigate This situation is especially challenging at parks and beaches where there are vast open spaces, and often times constant winds, marsh lands, brush and shrubs or other environmental elements that make collection difficult. The County of Los Angeles maintains over 25 miles of beachfront, with 3,000 covered trash receptacles in service, averaging one bin per 44 feet of beachfront. The beaches also have 32 sets of locking recycle bins, which are strategically placed near popular concession stands According to County Beaches and Harbor, these locking recycling bins are very expensive to purchase and fix, and are often tampered with by scavengers and vandals The trash receptacles and recycling bins are maintained by the County seven days a week, all year round

Open space public areas may also benefit from trash receptacles and recycle bins with lockable lids, and from trash compactor units Currently, Public Works maintains over 1,300 public trash receptacles, where they are emptied between 2 to 12 times each week as well as on an as-needed basis Many of these receptacles have some kind of cover that reduces the chance of blow-away litter and keeps rainwater from entering the basket. Uncovered baskets are locked to nearby permanent posts to ensure stability as well as to prevent scavenging Trash compacting units can replace conventional trash receptacles to reduce the frequency of pick-up These units are also lid locking which helps to prevent scavenging Compacting bins are similar in size to conventional trash receptacles and can be solar-powered, thus reducing the amount of energy required to operate They can also be remotely connected to a command center that can organize and optimize collection schedules These compactors are expensive to purchase initially but offer the possibility of reduced operating costs over the long term

Some large venues have the advantage of being enclosed with a limited number of entrances and exits Litter can be contained more easily in this situation with a much higher density of receptacles strategically placed around concession stands, common areas, and exits This concept of strategically placing trash and recycling receptacles has been in use for a number of years at County beaches and parks Unfortunately the nature of outdoor facilities is that of continuous open space and limited physical boundaries, which make litter propagation a problem.

Expected Results

Although the effectiveness of implementing these disposal and litter reduction methods offers improved litter mitigation and prevention over the current activities, the cost burden would be substantial In addition the County may already be implementing the best available practices and infrastructure (i.e Beaches and Harbors already empties trash receptacles daily).

Trash compactor units are one of the latest technologies However, more research into their lifespan, durability, and replacement and maintenance costs is required Because of the compaction performed by these units, there is a higher percentage of recyclables placed in the bins that may not be sorted out at Material Recovery Facilities and thus will not be diverted from landfill disposal Therefore, these units can lower diversion from landfills since waste may not be able to be separated from recyclables once placed in the unit itself Recyclables would need to be sorted prior to being placed into the trash compactor unit. There are also commercially available compacting units for specific recyclable material Public Works is considering purchasing a number of these bins for use in high foot-traffic, high litter areas Upgraded trash receptacles, including lidded or compacting, are generally effective against fly-away litter However, replacing those that become vandalized or damaged could become expensive, and the investment may not significantly reduce Expanded Polystyrene (EPS) litter

Installing more litter capture devices, such as catch basin screens, inserts, street sweeping, and nets/booms in flood channels, may reduce the amount of litter flowing into the ocean, but as these are designed for low rainfall events (peak flow resulting from a one-year one-hour storm), the effectiveness against a moderate or heavy rainfall would be low Also, installation requires heavy initial investment and increased ongoing maintenance resulting in increased maintenance costs The County is responsible for meeting all of the trash Total Maximum Daily Load (TMDL) requirements regardless of EPS prohibitions A restriction on EPS, which makes up as much as 17 percent of the litter stream, would reduce the amount of that litter material in the storm drain system

Increasing the frequency of catch basin cleanouts will not guarantee that all the material would be captured and may be very costly Increasing the frequency of street sweeping and trash collection would increase the amount of material captured and decrease the probability that EPS would be flushed into catch basins and other open channels, but it would also increase the noise and air pollution, road stress from the vehicles, and traffic congestion as well as costing more taxpayer money

The current system of catch basin screens, inserts, cleanouts, and street sweeping, though extensive, does not solve the problem of EPS litter entering the storm drain system Pump station forebays and downgrades from catch basins are often filled with floating EPS, which highlights some of the main issues of relying solely on the above mentioned litter capture practices Relying on BMPs to solve the EPS litter issue will not keep small particles and other litter from not being captured As EPS breaks into smaller and smaller pieces it becomes more likely to float over an insert screen or possibly flow through an opening in the screen Insert screens have 5mm diameter holes which allow for the passage of water, but block large-sized litter These screens

also allow litter pieces smaller than 5mm diameter to pass through the screen, while material of almost any size can pass over the screen during a large rain event. It has been well documented that plastic particles smaller than 5mm have been found on beaches around the world [72]

Heavy rains can easily overwhelm the flood control system and allow floating litter to escape over the insert screens Even after fully complying with TMDL/NPDES regulations, the system may not capture all of the littered EPS, as they are designed to be most effective during light rain events The combination of catch basin inserts and street level screens are effective in preventing litter and debris from flowing into the drain pipes, and downstream towards the ocean during low flow periods but are not effective during high flow periods. Similar to the catch basin screens, nets at the end of flood channels are not as effective during large runoff events and once overwhelmed/filled with material they will not capture any more material

EPS is a substantial portion of the litter stream which, together with other litter, can clog the flood control system and increase maintenance costs. Increasing the frequency of emptying and inspecting the catch basins would result in reduced trash in the catch basins but at a significant cost. Currently the County has plans to increase the reach of the catch basin insert, street level screens, and cleanout frequency Upstream solutions are needed to couple the end-of-pipe infrastructure already in place, especially for products that are disproportionately present in the litter stream compared to the waste and recycling streams

EPS litter places a disproportionate strain on these litter maintenance methods, due to the rampant use of EPS products by retailers, its propensity to become litter, durability and persistence of EPS once littered, its very high buoyancy, and the difficulty in capturing EPS material once littered EPS food containers are widely used because they are inexpensive and provide adequate insulation For some restaurants with a carryout service, EPS is the only product used Other restaurants have switched to alternative products for environmental reasons, customer preference, and business image

[72] Kershaw, P et. al. (2011). Plastic Debris in the Ocean. UNEP Year Book 2011: Emerging Issues In Our Global Environment, United Nations Environment Programme, Nairobi, Kenya. http://www.unep.org/yearbook/2011/pdfs/plastic_debris_in_the_ocean.pdf

CHAPTER 7

FINDINGS AND RECOMMENDATIONS

Findings Regarding the Feasibility of Extending the Prohibition

- Legal Barriers No legal barriers to adopting an EPS prohibition were identified, and many jurisdictions have adopted prohibitions through local ordinances without legal challenges The County would need to determine what level of review is necessary for compliance with the California Environmental Quality Act (CEQA), if any, which may or may not require the development of an environmental document.

- Case Studies. We reviewed case studies of at least 53 jurisdictions in California have restricted EPS in some form, including Los Angeles County's restriction at County operations Of these, 43 have prohibited retailers from utilizing EPS Also, it is important to note the following:
  - Enforcement efforts are typically limited.
  - There is little information regarding the potential financial impact on businesses or consumer preference
  - Some ordinances incorporate hardship provisions that would allow a business to apply for an extension We did not find a record of any businesses requesting such an extension

- Alternative Products. Alternatives to EPS (paper and other compostable products, aluminum, plastics including recyclable plastics, etc.) are readily available, although generally they are more expensive The environmental benefit of these alternatives is maximized if they are recycled or composted

- Economic Impact: An EPS prohibition may result in additional costs to businesses of up to $3,000 to $5,000 per year An economic analysis would be required to validate this estimate

- Development, Implementation, and Enforcement. Cost to fully comply with CEQA, complete an economic study, develop a draft ordinance, and implement an educational campaign is estimated at up to $1,000,000 Enforcement costs are unknown, but are expected to entail development of a public-driven reporting system, minor inclusion of food establishment inspection for the EPS policy by County Public Health inspectors, and monitoring and processing of violations and fines

Other Key Findings

- EPS prohibitions in other jurisdictions within California have significantly decreased the amount of EPS litter in the litter stream, although some studies

show that alternative products have replaced the prohibited EPS in the litter stream Moreover, the Board of Supervisors can only enforce an ordinance in the unincorporated County areas (UCAs), which constitute approximately 10 percent of the Countywide population

- An EPS prohibition would impact the UCAs Adoption of similar prohibitions by a majority of the Cities within the County would be necessary in order to substantially reduce the prevalence of EPS litter in Los Angeles County A Statewide EPS prohibition would be most effective and provide for a more consistent implementation of the prohibition

- Some residential and commercial areas of the County have access to composting for food scraps and compostable food containers Public Works is working to expand this access, and also encourages residential backyard composting through our Countywide Smart Gardening Program

- Curbside recycling of recyclable food containers is widely available to most residents and businesses in the County Thirty-two cities allow EPS food containers to be deposited in the recycling bin at curbside However, most material recovery facilities (MRFs) do not process EPS and instead landfill the material

Policy Options Considered by the Working Group

After careful consideration of these elements, the following four broad Policy Options were developed for further consideration

- Statewide Prohibition – Aggressively pursue passage of a Statewide prohibition on the use of EPS at food service establishments. This option would be most effective since it would be uniformly applied and enforcement costs would not be borne by the County

- County Prohibition (Unincorporated Areas) – Partially or fully prohibit EPS food containers at certain food service establishments in the UCAs Would need to develop a draft ordinance, determine whether compliance with CEQA is required and whether an EIR is needed, conduct an economic study, conduct an educational campaign, and develop an enforcement plan May cost up to $1 million (not including enforcement cost)

- Voluntary Efforts – Would potentially cost hundreds of thousands or millions of dollars, depending on scale of implementation and level of support from industry Effectiveness of voluntary efforts would depend heavily on how comprehensive they are and how many resources are devoted by the industry and other partners

- Status Quo – Under this option, no additional funds would be required This is not a "do nothing" option, but rather a commitment to continue efforts currently being implemented, including

- Litter prevention
- Public education
- Litter collection and infrastructure
- Recycling, composting, and other waste diversion strategies, including EPS recycling

Recommendation for Consideration

Although there was broad agreement among the members of the Working Group regarding a number of issues as well as support for many of the elements discussed above, consensus could not be reached by the Working Group on a comprehensive recommendation In general, industry representatives remained strongly opposed to a prohibition, while environmental organization representatives strongly favored a prohibition

There was recognition by the Working Group that EPS food containers contribute disproportionately to the litter problem and that reducing the prevalence of these containers should be a priority There was also recognition that no single element discussed by the Working Group is expected to be as effective as a prohibition in significantly reducing the volume of EPS food containers that become litter However, Public Works believes that some of these elements can be incorporated into a more comprehensive effort that may achieve comparable results to a prohibition in addition to contributing to an overall reduction in litter Also, an ordinance prohibiting EPS may have a negative economic on businesses in the UCAs if a Statewide prohibition or prohibitions in other jurisdictions are not widely adopted

Therefore, based on our research and evaluation of case studies and upon consideration of the feedback from the Working Group, Public Works recommends pursuit of the following combined strategy:

1) *Pursue the passage of a prohibition of EPS food containers at a Statewide level*

   A Statewide prohibition would be the most effective measure to reduce EPS food container litter in the County Senate Bill 568 (Lowenthal), already supported by the County, is currently pending in the State legislature after passage in the State Senate earlier this year

2) *Partner with the industry to establish a Comprehensive Program to reduce litter, including EPS food container litter, and otherwise enhance the environment in the region*

   This comprehensive Program will combine efforts from municipalities, industry, and environmental organizations through the County's existing Working Group The focus of the efforts would be to reduce the prevalence of EPS food container litter, while also reducing other forms of litter The Program would consist of an integrated strategy that incorporates public education, litter collection and management, EPS recycling, composting infrastructure, enhanced enforcement of anti-litter laws,

extended producer responsibility, and conversion technologies/waste-to-energy A more detailed discussion of this Program can be found further below

3) *Consider a prohibition in the UCAs if measures 1 and 2 above are not found to be successful*

If the State Legislature fails to adopt legislation addressing EPS litter, and the comprehensive program is not determined to be successful, your Board may consider additional measures, including a prohibition in the UCAs

Program Implementation--Responsibilities

Stakeholders would share responsibilities in implementing the Program As identified below, the number of asterisks designates the party that is anticipated to be primarily responsible for carrying out and/or funding a particular component:

* = The County would take the lead on this component, with assistance and in-kind support, as appropriate, from industry and other stakeholders.
** = Industry and the County would collaborate on funding/implementing this component, with participation from other stakeholders as appropriate.
*** = Industry representatives would be primarily or wholly responsible for carrying out/funding this component.

Key Components

A. *Public Education Program****

i) Anti-litter, including EPS food containers in particular
ii) Promoting environmentally-friendly alternatives, including reusable containers as well as recyclable and biodegradable products
iii) Recycling of EPS, as applicable, as well as recycling and composting food containers rather than disposing or littering them

B *Litter collection and management*

i) Additional infrastructure to accelerate compliance with water quality, trash, and litter regulations and mitigate litter (e.g catch basin inserts, additional trash and recycling receptacles, upgraded receptacles that have lids or other means of preventing litter, and collection of these receptacles)**
ii) Additional litter cleanup events in beaches, parks, communities and other unincorporated area locations***

C. *EPS recycling****

i) Provide or subsidize the purchase or lease of densifiers to MRFs willing to recycle collected EPS materials
ii) Increase the market value for recovered EPS material (e.g by offering a premium for recycled EPS feedstock)

iii) Comprehensive recycling infrastructure at large venues, restaurants and retail food vendors (including collection bins and bags, printed outreach material, and forms for documenting volumes collected/recycled)

D *Composting infrastructure*[*]

i) Encourage the development of additional composting facilities in the County
ii) Facilitate additional opportunities for residents to compost, including curbside collection and backyard composting
iii) Encourage residents to participate in composting to the extent feasible, educate the public about what items are and are not compostable

E *Enforcement*[**]

i) Provide additional funding to enforcement agencies to enhance their focus on littering, and provide sufficient resources to enable agencies to issue citations to litterbugs
ii) Promote this enhanced enforcement to ensure residents are aware of the potential financial consequences of littering (in addition to other negative consequences)

F *Extended Producer Responsibility*[***]

i) Take responsibility for managing EPS products at the end of their useful life, ideally through collection for recycling or other beneficial use
ii) Promote future redesign of EPS products to be less persistent in the natural environment, less prone to become litter, and/or less likely to be mistaken for food by wildlife

G *Conversion Technologies*[**]

i) Provide incentives to divert unrecyclable plastics, including contaminated EPS or EPS without local recycling, opportunities, to conversion technology facilities or waste to energy facilities rather than landfilling

H *Litter Characterization Studies and Evaluation of the Program*

i) Initiate a baseline characterization study for litter in public areas (e.g roads, parks, and beaches) and within DPW stormwater infrastructure[*]

ii) Conduct yearly follow up studies to establish trends for litter[***]
iii) Conduct surveys to evaluate the success of the outreach campaign[***]

Measurement of Success

The Program would be considered a success if it can achieve a similar reduction in the prevalence of EPS food containers being littered to a prohibition This is estimated to be a 35 percent or more reduction in EPS food containers identified in waste characterization studies from litter collected in roadways in the unincorporated County areas within 18 months Additional measures of success would also be taken into consideration when evaluating the success of the program, including but not limited to

1 Reduction in overall litter, including litter in other public areas and litter within DPW stormwater infrastructure
2 Effectiveness of the public education efforts to raise awareness and bring about changes in consumer or retailer behavior/purchasing patterns
3 Participation in the Program by industry representatives, including EPS manufacturers and distributors as well as restaurants and food vendors
4 Increase in diversion of EPS food containers to recycling and other beneficial uses
5 Additional litter prevention infrastructure beyond that required by State and Federal regulations

Industry Commitment

At the time of this report, industry representatives reviewed the proposed recommendations above and agreed to commit the following resources to supporting this effort:

- Keep California Beautiful (KCB) is attempting to establish a major anti-littering public education campaign in Southern California and is eager to partner with the County in this effort. They have a established a target of assembling $1 million in funds to implement this campaign, although at this time the majority of the funds have not been committed by KCB partners The Plastics Foodservice Packaging Group (PFPG) will provide some funding towards this effort, and direct the funds towards focusing the campaign in Los Angeles County, and on EPS food containers in particular

- Within 90 days of initiating the comprehensive program, PFPG would deposit $150,000 in to an escrow account to support sustainable programs to reduce litter and increase recycling This money would be used by the County, with input from the working group, to assist in the funding of activities to address EPS litter including - a litter characterization survey, litter collection and management, clean ups, recycling and/or enforcement. Assessment of progress/investment with the County would be conducted within 18 months regarding these programs

- PFPG and California Restaurant Association (CRA) will develop a joint program to provide outreach to the over 1,500 restaurants in Los Angeles County with a targeted public education campaign focused on reducing EPS and foodservice litter and promoting recycling of EPS and other foodservice materials as appropriate PFPG and CRA would also promote the public education campaign

through business, civic and community organizations and partners throughout the County This outreach will be quantified for the working group Approximate cost is estimated at over $50,000

- PFPG and the American Chemistry Council (ACC) would continue its financial support of local non-profit groups including FoLAR, Los Angeles Conservation Corp River Corp Program, Keep Los Angeles Beautiful in their education and cleanup efforts Support in 2012 is estimated at $55,000

- PFPG would support and promote voluntary programs to manage EPS products at the end of life, such as take-back, recycling, education of customers and end users, and promotion of material collection via using recycled materials in new products. Efforts would be reported to the working group