

<b>REQUEST FOR COUNCIL ACTION</b> CITY OF SAN DIEGO	CERTIFICATE NUMBER (FOR COMPTROLLER'S USE ONLY)
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TO: CITY COUNCIL	FROM (ORIGINATING DEPARTMENT): Environmental Services	DATE: 8/25/2016
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SUBJECT: Expanded Polystyrene (EPS) Food Container Recycling Study

PRIMARY CONTACT (NAME, PHONE): Angela Colton,(858) 573-1287	SECONDARY CONTACT (NAME, PHONE): Chelsea Klaseus, (858) 492-5087
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**COMPLETE FOR ACCOUNTING PURPOSES**

FUND					
FUNCTIONAL AREA					
COST CENTER					
GENERAL LEDGER ACCT					
WBS OR INTERNAL ORDER					
CAPITAL PROJECT No.					
AMOUNT	0.00	0.00	0.00	0.00	0.00

FUND					
FUNCTIONAL AREA					
COST CENTER					
GENERAL LEDGER ACCT					
WBS OR INTERNAL ORDER					
CAPITAL PROJECT No.					
AMOUNT	0.00	0.00	0.00	0.00	0.00

COST SUMMARY (IF APPLICABLE):

**ROUTING AND APPROVALS**

CONTRIBUTORS/REVIEWERS:	APPROVING AUTHORITY	APPROVAL SIGNATURE	DATE SIGNED
Liaison Office	ORIG DEPT.	Sierra, Mario	08/29/2016
	CFO		
	DEPUTY CHIEF	Gomez, Paz	09/29/2016
	COO		
	CITY ATTORNEY		
	COUNCIL PRESIDENTS OFFICE		

PREPARATION OF:     RESOLUTIONS     ORDINANCE(S)     AGREEMENT(S)     DEED(S)

Informational Item only

STAFF RECOMMENDATIONS:  
This is an information item only. No action is required by the Committee or Council.

**SPECIAL CONDITIONS (REFER TO A.R. 3.20 FOR INFORMATION ON COMPLETING THIS SECTION)**

COUNCIL DISTRICT(S):	ALL
COMMUNITY AREA(S):	ALL
ENVIRONMENTAL IMPACT:	N/A
CITY CLERK	N/A

INSTRUCTIONS:	
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**COUNCIL ACTION**  
**EXECUTIVE SUMMARY SHEET**  
CITY OF SAN DIEGO

DATE: 8/25/2016

ORIGINATING DEPARTMENT: Environmental Services

SUBJECT: Expanded Polystyrene (EPS) Food Container Recycling Study

COUNCIL DISTRICT(S): ALL

CONTACT/PHONE NUMBER: Angela Colton/(858) 573-1287

**DESCRIPTIVE SUMMARY OF ITEM:**

This is an informational item to present the findings of an Expanded Polystyrene (EPS) food service container study regarding the benefits and concerns of adding EPS food service containers to the City's residential curbside recycling program.

**STAFF RECOMMENDATION:**

This is an information item only. No action is required by the Committee or Council.

**EXECUTIVE SUMMARY OF ITEM BACKGROUND:**

On July 13, 2015, City Council adopted the City's Zero Waste Plan (ZWP). The ZWP lays out potential diversion strategies to achieve 75% diversion rate by 2020 and 90% diversion rate by 2035. It also provides a foundation for ongoing incremental improvements towards ensuring compliance with current state diversion requirements and achieving the goal of "zero waste" by 2040. In addition to considering the opportunities, technologies and associated costs that are available at the time of implementation, staff must ensure that each one of the strategies is developed with a sustainable funding mechanism that will allow for a continuance of existing programs.

One diversion strategy identified in the ZWP is adding materials to the City's curbside recyclable materials collection program as markets develop for those materials. Staff routinely reassesses market conditions and periodically adds materials to the curbside recycling program for City serviced residences. Staff committed in the ZWP to studying the benefits and concerns of including Expanded Polystyrene (EPS) food service containers in the City's recycling program. Included in this process are IMS Recycling Services, Inc. and Allan Company, who are under contract with the City as the City's contractor (Contractor) to process, transport and market the City serviced curbside recyclable materials. In order to add new materials to the program, the City must first negotiate the impacts of the proposed changes with the Contractor and then amend the contract's terms, if an agreement can be reached.

In December 2014, dimensional EPS packaging was added to the City's curbside recyclable materials collection program. Based upon material characterization studies conducted at the facilities where the City's recyclable materials are processed, staff estimates that residents placed approximately 46 tons of dimensional EPS packaging in their curbside recycling containers in 2015. Before dimensional EPS packaging was accepted through the curbside recycling program, the overall EPS generation was documented by the City's 2012-2013 Waste Characterization Study which reported that EPS (including packaging as well as food service containers) accounted for 0.5% or 1,569 tons out of 306,601 tons of disposed City serviced residential solid waste annually. This shows EPS is a minimal component of the overall disposed waste stream.

The City hired HF&H Consultants, LLC (HF&H) to determine the benefits and identify any possible concerns if EPS food service containers were added to the City's curbside recycling program. HF&H conducted a study of jurisdictions and processors of EPS food service containers and reported their findings (see attached report). HF&H's research confirmed that clean EPS food service containers are recyclable. HF&H also observed that these containers are too often not clean when placed in curbside recycling containers; may contaminate and reduce the value of other recyclable materials; are operationally challenging; are costly to recover through curbside recycling programs; and account for a small portion of the EPS waste stream. HF&H also noted that the City's existing contracted processing facilities would likely require additional labor time, and significant structural and equipment-related upgrades in order to meet the best practices for recovering and recycling EPS food service containers.

The Contractor expressed the same concerns identified in HF&H's findings, and stated that accepting EPS food service containers would require substantial additional labor and facility upgrades. Based upon these concerns, the Contractor would need to perform further analysis, including a time and motion study to identify all cost impacts of processing this material, prior to considering an amendment to their contract with the City. The Contractor's initial estimate for the cost impacts of processing EPS food service containers is an approximate \$5 per ton increase. Applying that cost estimate to the City's annual recycling tonnage would reduce annual revenues to the City by approximately \$290,000 under its contract with the Contractor.

Staff will not be adding EPS food service containers to the City's curbside recycling program at this time due to the identified concerns related to capital investments, additional staff, unknown negative impact on existing recyclables processing, and the financial impact to the City's revenue from the recyclables. The agreement with the Contractor runs through June 30, 2019. Staff will reevaluate adding EPS food service containers to the City's curbside recycling program when conducting the procurement process for the development of the next contract.

**CITY STRATEGIC PLAN GOAL(S)/OBJECTIVE(S):**

Goal 3: Create and sustain a resilient and economically prosperous City  
Objective 4: Prepare and respond to climate change  
Objective 5: Enhance San Diego's global standing

Goal 2: Work in partnership with all of our communities to achieve safe and livable neighborhoods  
Objective 4: Foster services that improve quality of life

**FISCAL CONSIDERATIONS:**

There is no cost associated with this item because this is an Informational Item, and Expanded Polystyrene (EPS) food service containers will not be added to the City's curbside recycling program at this time. In the event this material is added in the future, staff anticipates there would be a fiscal impact to the City.

**EQUAL OPPORTUNITY CONTRACTING INFORMATION (IF APPLICABLE):** N/A

PREVIOUS COUNCIL and/or COMMITTEE ACTION (describe any changes made to the item from what was presented at committee): N/A

COMMUNITY PARTICIPATION AND PUBLIC OUTREACH EFFORTS:

Discussions about recycling EPS food service containers came up during Zero Waste Stakeholder meetings which included a wide range of groups and individuals, including residents, businesses, military, haulers, recyclers, and trade groups and associations.

KEY STAKEHOLDERS AND PROJECTED IMPACTS: N/A

Sierra, Mario

Originating Department

Gomez, Paz

Deputy Chief/Chief Operating Officer



# City of San Diego

## Expanded Polystyrene Food Container Recycling Study



{Photo Source: DiscoverSD}



HF&H Consultants, LLC

June 30, 2016

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June 30, 2016

Kenneth Prue  
Recycling Program Manager  
City of San Diego  
9601 Ridgehaven Court  
Suite 320, MS 1103B  
San Diego, CA 92123

**Subject: Expanded Polystyrene Food Container Recycling Study – Report**

Dear Mr. Prue,

HF&H Consultants, LLC (HF&H) is pleased to submit this Expanded Polystyrene Food Container Recycling Study Report for your review and comment. This report summarizes the analysis that was conducted to provide information regarding recycling expanded polystyrene food containers.

Very truly yours,  
HF&H CONSULTANTS, LLC

Robert C. Hilton, CMC  
Vice President

Lauren Barbieri  
Project Manager



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## SECTION 1: SUMMARY AND RECOMMENDATION

Through the course of conducting this study, HF&H observed many perspectives on the topic of using and recycling expanded polystyrene (EPS) food containers. Key findings include:

- Clean EPS is recyclable.
- EPS food containers placed in curbside recycling containers are often not clean.
- Food-soiled EPS food containers placed in curbside recycling containers may contaminate, and reduce the value of other recyclables.
- EPS food service containers are operationally challenging and costly to recover through single stream recycling programs.
- EPS that is not recycled is disposed in landfills or littered.
- EPS does not degrade in landfills, nor in the environment.
- EPS is harmful to the environment and wildlife when littered.
- None of the public agencies surveyed through this process indicated that recycling EPS food containers led to a reduction in EPS litter.
- EPS food containers make up only a small portion of the EPS waste stream.
- It is unclear whether healthy markets for recycled EPS food service containers exist.
- Accepting EPS food containers through the curbside recycling program will likely reduce the amount of recyclable commodities revenue the City would otherwise receive.

Based on these findings, HF&H recommends that the City of San Diego not accept EPS food containers through the residential curbside recycling program.

## SECTION 2: BACKGROUND AND PURPOSE

### Background

The City of San Diego has a long history of overseeing and providing solid waste collection service within the City limits. With the passing of the People's Ordinance in 1919, the City set a precedent for defining the culture of waste management in the City, and has maintained a philosophy of responsible waste management practices with a focus on high quality customer service and cost effectiveness for nearly a century. The City has provided municipally-managed solid waste collection service since the adoption of the People's Ordinance, and is today among the largest municipally-managed solid waste departments in the State of California.

While customer service and maintaining low costs are priorities, the City has also recently established significant environmental goals through the adoption of a Zero Waste Plan in 2015. The City has maintained a stable rate of waste diversion from landfill disposal of approximately 67% since 2010 and, through the Zero Waste Plan, set goals of achieving 75% diversion by 2020, 90% diversion by 2035, and "zero waste" by 2040.

The City currently holds an agreement with Allan Company and IMS Recycling Services Inc. for processing and recovery of recyclable materials collected by City crews. The agreement contains revenue sharing arrangements, which make it financially beneficial to the City to minimize recyclables contamination and keep processing costs as low as possible, while maintaining high levels of recovery and diversion from landfill disposal. The current revenue structure takes into account the processors' costs of recovering an agreed-upon set of recyclable material types (i.e., various plastics, paper products, and metals). As such, the addition or subtraction of materials from that agreed-upon list will necessarily impact the cost of material recovery, and ultimately, the share of materials revenue that the City may receive.

As with any large waste management operation, decisions regarding the future of collection must be carefully considered, and changes must be focused on long term success and program sustainability. A key factor in long term program success is customer participation, which relies heavily on the City's ability to educate its residents and drive behavior change, a process that can take years to take hold and dramatically loses effectiveness if the messaging is frequently changed. The purpose of this study is to provide the City with preliminary guidance and information regarding the possibility of adding expanded polystyrene (EPS) food service containers to the list of acceptable recyclable materials collected through the City's current programs.

## Study Process

In 2015, the City of San Diego engaged HF&H Consultants (HF&H) to assist the City in its assessment of the potential for and issues surrounding expansion of the City's curbside recycling program to include EPS food service containers. HF&H worked with City Staff to develop detailed surveys designed to collect information from jurisdictions and EPS processors and manufacturers throughout California regarding their experiences developing programs and policies to manage EPS food service containers. HF&H and City staff then selected and contacted several target agencies throughout California to participate in the survey.

The original goal of the process was to obtain completed surveys from six public agencies and six EPS food service container processors and manufacturers. However, significant resistance to participate in the survey process from both local agencies and processors/manufacturers prevented HF&H from obtaining quality results from the 12 intended survey respondents. As a result, HF&H focused efforts on obtaining completed surveys from the southern California recyclers currently accepting EPS food containers from the curbside recycling programs of the agencies surveyed, and bolstered our research by engaging in discussion with representatives from the food container manufacturing industry (Dart Container Corporation, and the Foodservice Packaging Institute). HF&H and City staff agreed to expand the data collection and reporting to be inclusive of both survey results and information obtained through research and review of available literature on the subject. In addition to conducting a literature review, HF&H engaged in information-gathering (non-survey) discussions with various industry stakeholders.

Interpreting available information on the topic of recycling EPS posed a challenge to providing an unbiased assessment of the option to recycle EPS food service containers, as much of the available information is generated by groups with competing external motives. For example, one resource lauding the highly recyclable nature of EPS food service containers is an affiliate of Dart Container Corporation, a manufacturer of EPS products that has a significant financial interest in ensuring that EPS food service containers continue to be purchased and used (and not banned). Similarly, the primary available resource claiming that healthy markets for post-consumer, recycled EPS exist, is a study commissioned by the Foodservice Packaging Institute, a trade association of food container producers. Additionally, many

resources discussing the recyclability of EPS do not clearly distinguish between EPS packaging (which is rarely food-soiled, generated in higher volumes, and less likely to be blown and littered) and EPS food service containers (which do tend to be food-soiled, are generated in small volumes, and as such are prone to being littered). HF&H has therefore avoided presenting many of the “back-and-forth” arguments that exist on the topic, and has instead, where practical, focused on providing a high-level summary of the relative pros and cons of using and recycling EPS food service containers.

The goal of the data collection and report are to help the City gain an objective, preliminary understanding of the potential advantages and disadvantages, as well as potential operational implications of expanding the City’s curbside recycling program materials to include EPS food containers.

## SECTION 3: USING & RECYCLING EPS FOOD CONTAINERS

### What is EPS?

Polystyrene is a synthetic thermoplastic derived from the petrochemical benzene and commonly used for a variety of every day purposes. Polystyrene often comes in the form of a rigid, brittle plastic, such as those found in disposable cutlery, razors, and compact disk cases. Expanded Polystyrene (EPS), however, comes in a somewhat different form. EPS is typically found in the form of a foam, which is extremely light, but also tough, and easily formed. EPS is commonly used as disposable food service ware (including trays, cups, plates, and take-out “clam shells”), protective packaging, and building materials. This study will focus specifically on Expanded Polystyrene food service containers, as distinct from Expanded Polystyrene that is used in protective packaging (e.g., packaging “peanuts”, dimensional or formed blocks, etc.).

**Figure I: Examples of EPS Food Service Containers**  
(source: *homeforfoam.com*)



### Why Do We Use EPS?

EPS food service containers have a wide range of uses, and the drivers behind the decision to use EPS in food service may come from many sources. As such, the challenges and benefits of using EPS food containers are often presented relative to other available alternatives, for example, compared to reusable options or single-use containers made from other materials. Use of EPS generally, and EPS food service containers specifically, has been a topic of significant debate in recent years, with public agencies, environmental organizations, recyclers, and manufacturers of EPS products all representing varying opinions. HF&H conducted a review of available literature and publications from such groups, and summarize our findings in **Figure II**, and more fully present them through the remainder of this section.

**Figure II: Advantages and Disadvantages of Using EPS Food Service Containers**

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>● <b>Performance</b> <ul style="list-style-type: none"> <li>+ Convenient</li> <li>+ Efficient insulator</li> <li>+ Inexpensive</li> </ul> </li> <li>● <b>Human &amp; Environmental Safety</b> <ul style="list-style-type: none"> <li>+ Sanitation, control and limit exposure to pathogens</li> </ul> </li> <li>● <b>Recyclability</b> <ul style="list-style-type: none"> <li>+ Recyclable when clean</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● <b>Performance</b> <ul style="list-style-type: none"> <li>- Low-cost alternatives exist</li> </ul> </li> <li>● <b>Human &amp; Environmental Safety</b> <ul style="list-style-type: none"> <li>- Derivative of styrene, a known carcinogen</li> <li>- Possible leaching into food when heat and fats or acids are present</li> <li>- Low density allows products to be blown by wind and littered</li> <li>- Toxic to wildlife when consumed</li> <li>- Contributes to beach and waterway litter</li> <li>- Does not degrade in landfills or environment</li> </ul> </li> <li>● <b>Recyclability</b> <ul style="list-style-type: none"> <li>- Not recyclable when food soiled</li> <li>- May contaminate other recyclables</li> <li>- Costly to recover</li> <li>- Marketability unclear</li> </ul> </li> </ul>

## Are EPS Food Service Containers Recyclable?

### Recyclability

There is significant debate regarding the practical issues associated with trying to collect and recycle EPS food containers. All EPS, as well as non-foam polystyrene, is identified by the resin identification code (RIC) #6. According to Home for Foam, a coalition supporting the growth of foam recycling, “foam #6 is a thermoplastic that can be recycled over and over again.”<sup>1</sup> The EPS Industry Alliance reported in its 2013 EPS Recycling Rate Report that, “more than 125 million pounds of EPS was recycled during calendar year 2013. This figure includes 72.8 million pounds of post-commercial and post-consumer packaging and 54.5 million pounds of post-industrial recovery.”<sup>2</sup> The report continues to say that, “expanded polystyrene (EPS) foam packaging is an excellent material for recycling.”<sup>3</sup> There is strong evidence to suggest that EPS packaging is indeed a recyclable material, with a history of successful recycling activity. However, these claims do not specify what portion (if any) of the EPS recycled came in the form of food service containers such as plates, cups or trays, as opposed to protective packaging. Moreover, the EPS Alliance website clearly states that EPS food service containers are among the materials that “ARE NOT accepted at EPS recycling centers,”<sup>4</sup> (emphasis not added).

Over the past several years, several other large California public agencies have conducted studies to gain understanding of whether or not EPS food containers are recyclable. In a report to the San Jose City Council, then Council member (current Mayor) Sam Liccardo said of their own research on the topic, “our own material recycling facilities (MRFs)... Allied Waste and Green Team testified before the Transportation

<sup>1</sup> HomeForFoam.com: “Foam 101”.

<sup>2</sup> EPS Industry Alliance, “2013 EPS Recycling Rate Report,” 2014 (pg. 1).

<sup>3</sup> EPS Industry Alliance, “2013 EPS Recycling Rate Report,” 2014 (pg. 6)

<sup>4</sup> EPSPackaging.org, EPS Industry Alliance, “Recycling Resources for Consumers: Collection Guidelines.”

and Environment Committee about the infeasibility of recycling food contaminated EPS in late 2011.”<sup>5</sup> A 2011 study performed by the Los Angeles County Department of Public Works, reports that:

*“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.*
- *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.*
- *Contamination.”*<sup>6</sup>

Nonetheless, there are multiple Southern California materials processing facilities that accept EPS packaging and food service containers from curbside recycling programs. However, as referenced in the above quote, there are significant labor-, and capital-intensive operating requirements associated with recycling EPS food service containers at traditional materials processing facilities. In a 2015 publication, Moore Recycling Associates Inc. outlines the following operational best practices for recovering and recycling EPS:

*“Steps for a successful and profitable MRF operation:*

- *Remove Foam PS in the pre-sort area.*
- *Install chutes on the sorting line to feed a temporary storage area next to the grinder.*
- *Use a large capacity grinder for swift processing: this reduces labor time and costs. Grinding can be labor-intensive so it is important to maximize efficiency.*
- *Use an air delivery system to blow ground foam through tubes to a large canvas storage hopper attached to the top of a densifier (avoid melting material as this uses significant energy and emits undesirable odors).*

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<sup>5</sup> City of San Jose Council member Sam Liccardo, Memorandum to the Mayor and City Council, “Actions Related to the Phase-Out of Expanded Polystyrene Foam Food Ware,” February 22, 2013

<sup>6</sup> County of Los Angeles, 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” (pg. 31-32).



- *To reduce labor costs, incorporate a switch that automatically activates the densifier when the hopper is full.*
- *Purchase a densifier that requires minimal labor and with lower throughput than the grinder. This reduces equipment costs and machine operations should be largely labor-free.*
- *Allocate sufficient storage space for densified and palletized Foam PS to ensure the ability to generate full truckloads.*
- *Cover palletized material that is stored outside to prevent moisture and photodegradation.”<sup>7</sup>*

It is critical to note that the City’s existing contracted processing facilities would likely require additional labor time and significant structural and equipment-related upgrades in order to meet the best practices outlined above.

## **Contamination**

A key difference between the two categories of EPS discussed in this report (packaging vs. food service containers) is that, while all EPS is recyclable when clean, EPS food containers are often contaminated with food and beverage residue. Such contamination makes the EPS not only difficult (or impossible) to recycle, but also contributes to contamination of other otherwise recyclable materials in the waste stream such as paper and cardboard, which lose value as recycled commodities when they become wet or food soiled. The Foodservice Packaging Institute states that, “to address this concern, two studies were conducted, to learn whether food service packaging (such as take-out containers or pizza boxes) set out for recycling were more contaminated than food contact packaging (such as peanut butter jars or pasta boxes) that has traditionally been accepted at single stream material recovery facilities. DSM Environmental Services, Inc., conducted the studies in Boston, MA (Sept-Oct 2013) and Delaware (July 2014).”<sup>8</sup> The results of the studies concluded that overall, food service packaging items recycled through curbside collection programs had comparable levels of food residue to those found in food contact packaging, which are widely accepted in traditional residential recycling programs. It should be noted that these studies do not specify explicitly that EPS food containers were among the food service packaging items sampled. It should also be noted that this statement conflicts the findings of the Los Angeles County study referenced above, where “the material is often contaminated with food residue,” was one of six factors listed as reasons why food containers (both EPS and non-EPS) are not being separated and recycled.

The City of San Diego currently receives a flat rate payment from its contracted materials processors for each ton of recyclable material delivered to each processor’s facility by the City collection crews. However, the payment is structured such that residue and contaminated materials are excluded from the calculated payment. For example, if the City delivers 100 tons of materials collected through the curbside recycling program to the processing facility, but ten of those tons are not suitable for recycling and must be disposed in a landfill, the City will only be compensated for 90 tons. As such, the City has a significant financial interest in ensuring that the materials collected through the curbside recycling program are as

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<sup>7</sup> Moore Recycling Associates, Inc., “PS Foam Recycling Works at MRFs” - Spotlight: EDCO Disposal, July 2015.

<sup>8</sup> Foodservice Packaging Institute (FPI), “Food Residue in Foodservice Packaging Recycling: Overview of FPI Food Residue Studies,” October 2014.

free from contaminants as possible, particularly if the contaminants may also compromise the recyclability of other materials.

### **Marketability**

Once EPS food service products are recovered from the waste stream, there are varying, and somewhat inconclusive, opinions on whether market conditions exist to support the recycling activity. In an interview with Dart Container Corporation, a representative stated that EPS processors can expect to be able to sell processed EPS to end-users for \$0.08 - \$0.10 per pound<sup>9</sup>, and, in a 2014 memorandum to the Foodservice Packaging Group, the Berkeley Research Group reported that “overall, industry expectations for increasing end-use demand for recycled EPS are positive”. However, a California environmental group asserts that, “NEPCO, maker of picture frames, and Timbron, maker of architectural molding, are the only known companies that use reclaimed EPS to make their products. Both companies stated in letters circulated by Dart {Container Corporation} that they can only use EPS that is clean, i.e., free of contaminants and food residue,”<sup>10</sup> (emphasis not added). It should be noted that HF&H was unable to verify whether Timbron is still in business.

In addition to the flat rate payments described in the previous section, the City of San Diego also receives a calculated share of the revenues from processing and marketing recyclable materials generated in the City through the City’s contracted processors. Under the current processing contract, the City receives a 50% share of recycling revenues beyond an agreed-upon threshold. The City’s share of recyclables revenue is calculated by first calculating the “Aggregate Ton Value,” or weighted average per-ton value of materials delivered to the facilities each month, taking the composition of the materials stream, and actual market prices into account. The agreed-upon per-ton threshold (referred to as the “Revenue Sharing Threshold”) is then subtracted from the Aggregate Ton Value, and 50% of remaining revenues are shared with the City. Therefore, low market values of materials collected through the curbside recycling program will not only result in a lower revenue share, they may also prevent the City from receiving any revenue share, in the event that the Aggregate Ton Value drops below the Revenue Sharing Threshold. In other words, the market price of each material type collected through the curbside recycling program has an impact on the overall revenue sharing calculation.

### **Other Environmental Impacts**

Many environmental groups have spoken out against the continued use of EPS in recent years, stating that the process of manufacturing EPS, and its light-weight nature causes it to contribute heavily to energy consumption, greenhouse gas emissions, and litter problems, where it may have detrimental impacts to waterways and wildlife. In 2012, one California-based environmental advocacy group reported that foam was found to be 43% of the litter identified on one Southern California beach, and that it accounted for 71% of the plastics found polluting two Southern California rivers.<sup>11</sup> In a report to the Los Angeles County Department of Public Works, another environmental organization reported that not only are birds, turtles, and other riparian wildlife known to swallow EPS fragments, organisms as small as zooplankton may also

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<sup>9</sup> Michael Westerfield, Corporate Director of Recycling Programs, Dart Container Corporation, March 17, 2016

<sup>10</sup> Clean Water Action, California, “Recycling Food Service Foam Containers: Foam Food Service Ware is Not Easily Recycled.” Foam Recycling Fact Sheet, August, 2012.

<sup>11</sup> Clean Water Action, California, “Recycling Food Service Foam Containers: Foam Food Service Ware is Not Easily Recycled.” Foam Recycling Fact Sheet, August, 2012.

be impacted by EPS litter in their habitats.<sup>12</sup> However, supporters of continued EPS food container use contend that the inefficiencies of EPS alternatives may in fact lead to increased waste, beyond that generated by EPS itself. For example, one organization states that such inefficiencies lead paper cup users to use multiple cups, or require corrugated cardboard sleeves, to achieve the same results as a single EPS cup, therefore generating more waste than EPS users.<sup>13</sup> A key difference between EPS and paper-based products, however, is that paper products biodegrade in both marine and land environments eventually, and EPS products do not. In fact, industry sources readily concede that EPS simply “does not biodegrade significantly.”<sup>14</sup>

## SECTION 4: SURVEY OF AGENCIES AND PROCESSORS

HF&H worked with City staff to develop surveys that were distributed to: (i) several cities throughout California; and, (ii) recycling facilities accepting EPS food containers throughout Southern California. Several key findings of the survey of jurisdictions are presented in **Figure III**, below. It should be noted that it was not the intent of the survey activity to represent an exhaustive, statewide assessment, but rather, to obtain immediately-relevant information from agencies that are comparable to the City, either based on size or geography.

### Survey of Local Agencies

**Figure III: Survey of California Agencies on EPS Recycling**

	EPS Ban	Accepts EPS in Curbside Recycling	Experienced Problems with Recycling EPS Food Containers	Advise Other Agencies to Accept EPS Food Containers in Curbside Recycling
City of Los Angeles	No	Yes	Yes	Not currently
City of Long Beach	No	Yes	Yes	No
City of Rancho Cucamonga	City Facilities only	Yes	No	Yes
City of La Mesa	No	Yes	No	Yes
City of San Francisco	Yes	No	n.a.	n.a.
City of Oakland	Yes	No	n.a.	n.a.

**City of Los Angeles** – Prior to 2008, the city accepted EPS food containers through the residential curbside recycling program, and was successfully marketing processed, post-consumer EPS to Timbron, an architectural molding manufacturer. However, according to the City Project Manager for Residential Recyclables, during the economic downturn, generators were placing less clean, EPS packaging in their curbside recycling carts, increasing relative levels of EPS food containers that were often soiled with food residue, in the overall EPS stream. This shift in waste composition reduced the quality of the end product

<sup>12</sup> Responsible Purchasing Network, “Responsible Purchasing Guide for Food Containers for the County of Los Angeles,” presented to the County of Los Angeles Department of Public Works on September 21, 2010.

<sup>13</sup> FoamFacts.com: “Foam vs. Paper.” Foam Facts is an affiliate of Dart Container Corporation.

<sup>14</sup> FoamFacts.com: “FAQ,” Foam Facts is an affiliate of Dart Container Corporation

to the point that Timbron stop buying the processed EPS generated from the city's residential program. Today, EPS packaging and food service containers are still accepted through the curbside program, but the Project Manager indicated that the EPS food service containers that are placed in curbside collection containers are often contaminated, and therefore not recycled. The Project Manager stated that EPS food containers present a challenging "grey area" for recycling program managers and policy makers. He said that since most of the EPS food service containers that are placed in curbside recycling containers are contaminated with grease and oil, which is "extremely difficult to separate from the EPS materials" (i.e. rinse clean), until processes exist to overcome this obstacle, he would not advise that other agencies attempt to recycle them through curbside programs. He added, however, that if, "food could be packaged differently so the grease and oil don't seep into the materials," then he would happily advise other agencies to accept it through curbside recycling programs.<sup>15</sup>

**City of Long Beach** – Prior to 2012, the city was considering not only an EPS food container ban, but also a plastic bag ban. While the plastic bag ban passed, the EPS food container ban did not, and instead, the city implemented a pilot program for collecting EPS in the residential curbside recycling program. The pilot program has since become a permanent program; however, the program has faced many challenges including lack of resident participation, contamination (stating that most of the EPS food containers that are collected are not suitable for recycling), and other challenges related to material processing. According to the City Recycling Specialist, the EPS food containers "often get broken up into pieces in transport or processing. These small pieces of EPS may contaminate other material streams such as glass and paper. Also, because EPS is lightweight, and recycled materials are sold by weight, EPS generally must be densified before transportation to end markets. Densifiers are known to be expensive to purchase, and staff- and time-intensive to run. Additionally, it has become clear that there are very limited end markets for post-consumer grade EPS." Because of this experience, the City Recycling Specialist stated that she would not recommend that other agencies accept EPS food containers through curbside recycling programs.<sup>16</sup>

**City of Rancho Cucamonga** – In 2007, as many agencies were considering EPS bans, the city passed a ban on EPS food container use at city facilities and events; however, did not extend the ban city-wide. At the time, the city did not have a program in place to recycle EPS packaging or food containers. According to the City Environmental Programs Manager, Dart Container Corporation worked with the city's contracted materials processor (Burrtec) to install an EPS densifier at their local material recovery facility in response to a request from the business community for an EPS recycling program. Once the densifier was installed, Burrtec informed the city that residents and businesses were permitted to place both EPS packaging and EPS food containers in curbside recycling containers. The city has not experienced any negative impacts resulting from this change. In fact, the City Environmental Programs Manager stated that being able to recycle EPS food containers is preferable to disposing of other single-use EPS alternatives, because food soiled paper products are not accepted through their current green waste collection program.<sup>17</sup>

**City of La Mesa** – The City of La Mesa simply began accepting EPS food containers through the curbside recyclables program because their contracted materials processor (EDCO) informed city staff that they could accept it. According to city staff, as long as the EPS is clean and not food-soiled, the EPS is being

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<sup>15</sup> Interview with Michael Lee, Project Manager for Residential Recyclables, City of Los Angeles, March 31, 2016.

<sup>16</sup> Survey from Leigh Behrens, Recycling Specialist, City of Long Beach, May 10, 2016.

<sup>17</sup> Interview with Linda Ceballos, Environmental Programs Manager, City of Rancho Cucamonga, April 18, 2016.

recycled, and as such, she has no reason to advise other agencies against accepting EPS food containers in curbside recycling programs.<sup>18</sup>

### Survey of Processing Facility Operators

**EDCO Materials Processing Facility, Lemon Grove (San Diego County)** – HF&H spoke with the Director of Recycling at EDCO Disposal, the owner and operator of the material recovery facility processing EPS generated from La Mesa and other agencies in the San Diego Area. The EDCO facility has an EPS densifier on site, and according to the Director of Recycling, the facility has experienced no operating problems related to accepting EPS, and has always been able to successfully market the EPS once it has been densified. The Director of Recycling stressed that the vast majority of EPS processed at the facility comes in the form of packaging, and that EPS food containers may only be recycled at the facility if they are clean and not food-soiled. When questioned further about challenges related to processing EPS food containers, the Director of Recycling indicated that the quantities of EPS food containers delivered to the facility are so marginal, it is difficult to pin-point any resulting impacts at all, positive or negative, with the exception of increased labor costs. While he did not quantify the resulting labor impacts, the Director of Recycling did state that accepting EPS is “not a cheap program,” but that they “probably break even” on it. When asked if he had advice for other agencies considering accepting EPS through curbside recycling programs, he stated that public education and outreach regarding the availability of the recycling program, and the need to wash EPS food containers before placing them in the recycling containers, is critical to program success.<sup>19</sup>

**Burrtec Materials Processing Facility, Fontana (San Bernardino County)** – HF&H also surveyed the General Manager of the Burrtec Waste Industries Material Recovery Facility and Transfer Station Divisions regarding their experience with recycling EPS food containers. The Burrtec processing facility in Fontana accepts and processes the materials generated in Rancho Cucamonga, as well as other agencies in and around San Bernardino County. Burrtec is also a sister company to EDCO Disposal. According to the General Manager, the Burrtec facility began recycling EPS because they received grant money to assist with installation of densifying equipment and identified that there was, and continues to be, a stable end-use market available for processed EPS. The General Manager reported to HF&H that the community has been pleased with the availability of EPS recycling at the facility and that the only significant challenge that the facility has faced regarding EPS is the difficulty of finding EPS food containers within the residential recycling stream, stating that the majority of the EPS that they recover comes in the form of packaging. The General Manager recommends that other agencies accept EPS food containers through curbside recycling programs. However, he also stressed that agencies should, “understand that collecting the EPS is labor intensive—a lot of activity for little recovery (weight). The cost for processing and handling outweighs the revenue. The grant money was paramount in the decision to install the equipment,” referencing that the grant funding to install densifying equipment at the facility has made this program possible.<sup>20</sup>

HF&H also attempted to interview management at other Southern California recycling facilities that accept EPS food containers from residential curbside recycling programs; however, they declined to participate in the study.

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<sup>18</sup> Interview with Erin Buellers, Management Analyst, City of La Mesa, April 27, 2016.

<sup>19</sup> Interview with Bob Hill, Director of Recycling, EDCO Disposal, May 6, 2016.

<sup>20</sup> Survey from Richard Crockett, General Manager Material Recovery Facility and Transfer Station Divisions, Burrtec Waste Industries, May 9, 2016.

The Cities of San Francisco and Oakland enacted bans in 2007 and 2006, respectively, and have not considered repealing the bans since. As further discussed below, other agencies, such as the County of Santa Cruz and the incorporated cities within that county, have expanded their bans of EPS food service containers to prohibit the sale of a broader range of EPS products (e.g., coolers, shipping boxes, pool/beach toys, etc.) in their communities in an effort to reduce the environmental and wildlife impacts of marine and land litter.

### Banning EPS Food Containers

The environmental, health and safety, and waste management challenges that EPS food containers present have led many agencies in California and across the United States to consider banning EPS food containers from being used and/or sold in their jurisdictions. The City of Berkeley was the first such agency to do so nearly 30 years ago in 1988. Such bans come in a variety of forms, with many differentiating factors, implementation and outreach strategies, and enforcement mechanisms. Examples of California agencies that have enacted EPS bans include:

Berkeley - 1988	Huntington Beach - 2005	San Clemente - 2011
Calabasas - 2008	Laguna Beach - 2008	San Francisco - 2007
Carpenteria - 2009	Malibu - 2005	San Jose - 2014
Dana Point - 2012	Manhattan Beach - 2013	Santa Cruz Co. - 2007/2012
Gonzales - 2015	Newport Beach - 2008	Santa Monica - 2007
Greenfield - 2015	Oakland - 2007	West Hollywood - 1990
Hermosa Beach - 2012	Ojai - 2014	

Agencies have cited a number of reasons for enacting such bans, all generally coming to the conclusion that the numerous negative (or possibly negative) direct and/or indirect impacts of using EPS food containers simply outweigh the relative benefits. A primary concern among those banning EPS food containers is the potential financial impact on the restaurants and business that provide EPS food containers to their customers. While low-cost alternatives to EPS food containers have become more and more available, several agencies have structured their bans to include some flexibility for businesses to use EPS if there is no affordable alternative.<sup>21</sup> For example, the Oakland ordinance defines “affordable” as “purchasable by the Food Vendor for same or less purchase cost than the non-Biodegradable, non-Polystyrene Foam alternative.”<sup>22</sup> A second concern in banning EPS food containers in local agencies is that it will adversely affect the producers of EPS foam. However, supporters of EPS bans contend that such losses will be offset, or even surpassed, by increased numbers of jobs related to manufacturing alternative, non-EPS food containers.

It should be noted that it is not the intent of this report to provide an opinion on whether or not the City of San Diego should enact such a ban.

<sup>21</sup> Full Board Agenda, Board of Supervisors, City and County of San Francisco, Regular Meeting, November 14, 2006.

<sup>22</sup> City of Oakland Municipal Code, Chapter 8.07.010.