



Agenda Report

TO: CCCSWA BOARD OF DIRECTORS

FROM: LOIS COURCHAIINE, PROGRAM MANAGER

DATE: MAY 21, 2010

SUBJECT: REPORT ON EXPANDED POLYSTYRENE RESTAURANT TAKE-OUT FOOD PACKAGING ALTERNATIVES

SUMMARY

During the April 2010 Board meeting, staff presented information on plastic bags, expanded polystyrene (EPS) take-out food ware, and waste stream problems that surface with the wide use of these commodities. Board members requested that additional information, in a number of areas, be brought to them in subsequent meetings. Among the requested information was alternatives to EPS food take-out food packaging.

This report highlights information on EPS and four alternative product types used for food service and take-out that are widely available. Although staff research was extensive, it was not exhaustive. Most of the information contained in this report was found from internet research. Staff also conducted research by phone and in person and included obtaining samples of the alternatives (see attachment A; samples will be available at the May Meeting).

Four different but commonly used food take-out containers were examined for comparison. They were boxes, plates, cups, and bowls. While staff attempted to compare like items across categories (e.g. 9" paper plates to 9" EPS plates), some product types do not readily lend themselves to certain food or beverage applications. For example, clear recyclable plastic cups are not suitable for hot beverages. However, in all types of containers, alternatives to EPS do exist.

RECOMMENDED ACTION

1. This report is intended to provide the Board with information and points for potential discussion. No Board action is requested at this time.

DISCUSSION

Expanded polystyrene (e.g. Styrofoam) contributes to land-based litter and water pollution after it enters waterways. Because expanded polystyrene (EPS) is light, durable and inexpensive, it is often the preferred material for disposable food packaging. Additionally, its insulating properties make it a favorite for prepared food and beverage take-away containers. However, its lightweight nature means it can be blown around in the environment where it winds up in creeks, streams and storm drains and eventually into the Bay on its way to the oceans. During this journey it breaks up into smaller and smaller pieces, but never really degrades as do organic products.

RECYCLING EPS

Concerns around recyclability of EPS foam food containers are centered on its light weight which makes transportation of most collected material to recycling processors cost prohibitive. More importantly, it is impossible to clean, even in an industrial re-manufacturing setting, because food scraps, grease and oil tend to cling making the re-manufacturing into clean new products impossible. Further, large amounts of associated items, such as straws, paper napkins, etc. add to contamination problems. For these reasons EPS has a very low recycling rate as only the uncontaminated EPS packing materials can be easily recycled (if it can find its way to the re-processing facility). According to a 2004 study by the California Integrated Waste Management Board, of the 377,580 total tons of polystyrene produced in the state, only 0.8% is recycled. Of that, only 0.2% (310 tons) of polystyrene food service packaging is recycled.

ALTERNATIVES TO EPS FOODWARE

Currently, viable alternatives to EPS are limited to paper (usually reinforced with a thin plastic or wax-like coating), recyclable plastics, and new “bio-products” such as those made of cornstarch. All alternatives have some disadvantages, including higher cost as indicated by the tables below. Cost differences are between 29% for some plastic alternatives and 242% for some paper alternatives; with biodegradable products at 57% higher cost than EPS.

COST COMPARISON of EPS and ALTERNATIVE PRODUCTS
(Pricing based on per item cost)

Item	Expanded Polystyrene (EPS)	Recyclable Plastics (#1-5) (Polypropylene)	Bagasse (Sugar Cane Waste)	Bio Plastics (PLA) (Corn/Soy Based)	Paper Products (Recycled)
Box / Lid	\$.11	\$.09	\$.12	\$.12	\$.34
Plate	\$.04	\$.07	\$.09	\$.13	\$.33
Cup	\$.09	\$.11	\$.16	\$.15	\$.12
Bowl	\$.02	\$.09	\$.04	\$.05	\$.13
Average of all items	\$.07	\$.09	\$.10	\$.11	\$.24

Although cost of the product itself can be seen as a factor in purchasing restaurant takeout containers, there are also other factors to consider, which are included within the discussion of each alternative container type.

Paper Products (Made from Recycled Content)

Paper take-out containers are a popular alternative to EPS. Usually lined with a plastic, wax-like, or bio-plastic coating, they are widely available and do not engender the negative public perception as EPS may. **Most paper food ware is compostable in our commercial composting programs when added to the green-waste carts and shredded along with the yard waste. Home composters can also include some paper based products but should shred this material to allow for quicker and more complete composting.**

According to staff research, paper food ware is the most expensive alternative to EPS. Although paper may be preferable because it is “biodegradable,” the environmental impacts from the manufacturing process can be seen as approaching that of EPS when manufactured from virgin wood pulp. On the other hand, paper used in food take-out packaging is most often made of some percentage (often 100%) post consumer recycled

fiber; accordingly, these paper products comprise a market for recycled paper.

Recyclable Plastics (Polypropylene #1-5)

While more expensive than EPS, research shows that recyclable plastic has the lowest unit cost of the three EPS alternatives (plastic, bio-products, paper). At restaurants where patrons use disposable food containers “on-property,” the use of EPS could impact their garbage costs; in a good way. Using recyclable food containers, such as plastics #1-5, could likely decrease garbage costs; by aggressively recycling the used containers (and other recyclables) the business’s garbage bin could be down-sized at a reduced cost. Restaurant patrons may not readily recognize that plastics used at restaurants in food service are commercially recyclable, and therefore if widely used, great effort would have to be placed on educating the public. For example, making brightly colored, well signed, recycling containers available at fast food restaurants, along with verbal prompting from employees would be beneficial.

Furthermore, when used as take-out containers, plastic products would have to be clearly marked as recyclable to increase the probability of their winding up in residential recycling carts. Public perception of these products may play a role in their purchase by retailers. Plastic alternatives are viewed by some as being just as bad as EPS because they do not degrade. However, emphasizing the recyclability of plastic alternatives could eliminate this concern. When plastics are shipped to processors they are ground into confetti-like particles which are washed providing a clean raw material for re-manufacture into new products. A drawback to plastic take-out containers is that they do not provide insulating properties as does EPS. No information was found regarding recyclable plastic coffee cups.

Bioplastics - PLA (Corn/Soy Based)

Bio-plastics are the “new wave” of disposables in today’s foodservice industry. Bio-plastics, also known as PLAs, are made from renewable, raw materials usually from corn or soy plants. They are intended for use as non-toxic, disposable alternatives to styrofoam and other non-biodegradable products. According to manufacturers, bio-plastics are just as sturdy, nonabsorbent, and cut-resistant as plastic, but are not tolerant of high temperatures. Many restaurant owners believe that using bio-plastic products enhance the image of the company within the community. These products do not provide insulation of their contents which EPS does.

Unlike regular plastics, bio-plastics are not manufactured from hydrocarbons. **Therefore, even though they look and feel the same as regular plastics, they cannot be recycled in the same system.** PLA closely resembles P.E.T. plastic (Polyethylene Tetraphalate, as used in soft drink and water bottles) and in large quantity can contaminate the residential or commercial recycling stream at the processing facility. **To allow the re-manufacture of the plastics when post consumer material is used all the material must be composed of the same polymer.**

If introduced into the composting system of wind-row technology as is used for CCCSWA green waste they do not degrade as quickly as other organic materials. **Special composting programs would need to be developed in order to accommodate PLA in our recycling stream.**

Critics of bio-plastics maintain that shifting agricultural focus from food crops to packaging products will have the unintended consequence of raising the cost of the these same crops when they are marketed as food (similar to arguments around the use of corn as bio-fuel). Critics also contend that, because bio-plastics require heat to degrade they usually remain intact if they find their way into the marine environment.

Bagasse (Sugar Cane Waste)

Bagasse is a product made from sugar cane stalk waste, and is therefore a renewable resource. It has an appearance similar to paper egg carton material and can hold both hot and cold food. However, information on cups for hot drinks was not available; the material has a tendency to become pliable when in contact with hot liquids. Bagasse's insulation properties also make it a popular choice as an alternative to EPS. **According to manufacturers, bagasse will degrade in commercial compost settings in 30 days and 90 days as well as a home composting system.** This material while very "green" does cost somewhat more than EPS.

Conclusions

Although EPS is often seen as environmentally problematic, its alternatives are all more expensive. However, while the added cost may prove to be a hardship to some, many retailers are already using a variety of replacement products as described herein both in our service area and throughout the Bay Area. For example, many large fast food restaurant chains are using coated paper alternatives. And more "up-scale" food retailers are using poly lined craft paper containers. A few restaurants are using Bagasse food take-out container products. Alternatives do exist and are being used more and more by food retailers where EPS bans have been implemented and by those who have embraced the "green ethic."

ATTACHMENT

- A. Expanded Polystyrene and the Alternatives flyer