PRODUCT STEWARDSHIP INSTITUTE

Sustainable Solutions to Protect Our Environment

Marine Debris & Plastic Source REDUCTION TOOLKIT

February 2015

FOR COLLEGES & UNIVERSITIES

Prepared by the Product Stewardship Institute, Inc. (PSI) with funding from the U.S. Environmental Protection Agency (EPA) Region 9

Marine Debris & Plastic Source Reduction Toolkit for Colleges & Universities

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Grant Number 00T98301WS

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Acknowledgements

PSI prepared this toolkit for the EPA Region 9 Marine Debris Team as part of our project requirements under Grant 00T98301WS. We would like to thank the many individuals from the University of California campuses at Santa Barbara, San Diego, and San Francisco, as well as the University of California Office of the President, who contributed their time, effort, and expertise to this project. We would also like to thank the following organizations for their contributions: Plastic Pollution Coalition, California Product Stewardship Council, Clean Water Fund California, and As You Sow. Finally, we would like to thank the County of Santa Barbara Public Works Department, San Diego Environmental Services Department, and San Francisco Department of the Environment for their input on source reduction policies.

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Did you know?

According to the Ocean Conservancy, six of the top 10 contributors to marine debris are single-use, or disposable, plastic products. They include food and beverage container caps and lids, beverage bottles, plastic bags, food wrappers, flatware (i.e., cups, plates, and cutlery), and drinking straws. Known as "food service ware," such single-use plastic utensils and containers pose a threat to marine environments because they do not fully break down or decompose. When littered, or caught by the wind, these items get washed into stormwater drains that empty into streams, rivers, bays, and other waterways.

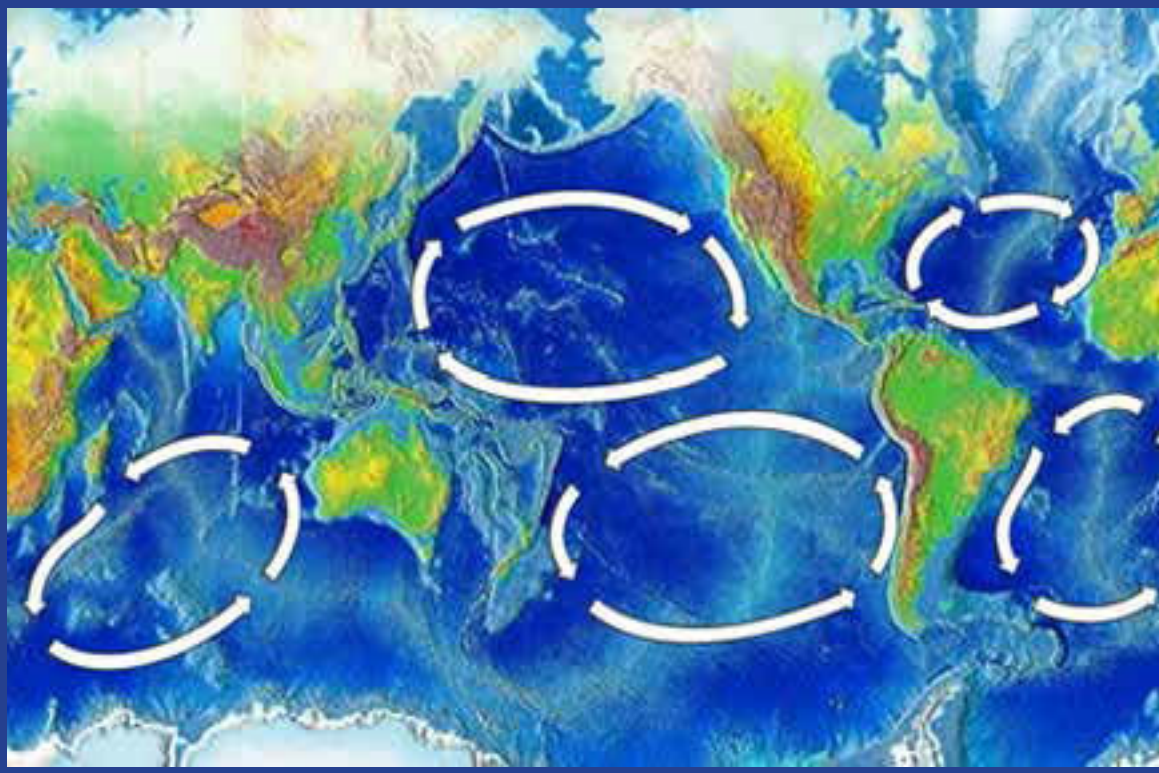
Believe It When You "Sea" It

Over the years, plastic food service ware products have contributed to the formation of what is known as the Great Pacific Garbage Patch—an enormous swath of floating plastic debris and plastic particles in the Pacific Ocean. Also known as the Pacific Trash Vortex, this "island" of plastic is caused by large currents that meet and form a whirlpool-like system, known as gyres. The Great Pacific Garbage Patch is formed by one of five large gyres and poses a major environmental health problem that continues to grow. In fact, since the discovery of the Great Pacific Garbage Patch, similar trash vortices have been found in four other ocean gyres, including the North Atlantic Gyre and the Indian Ocean Gyre. Plastics have also been carried by similar currents into the Great Lakes.

Marine debris can impact aquatic species and habitats in a number of ways. As debris accumulates, light levels may be reduced in underlying waters, thereby depleting oxygen levels. These changes can undermine the ability of both open water and benthic (ocean bottom) habitats to support life.[1] Animals may also mistake these floating pieces of plastic for food, which, when ingested, cause severe bodily damage and lead to eventual starvation. According to the National Oceanic and Atmospheric Administration, more than one-third of sea bird species ingest plastic.

Also, while plastics do not degrade, they do break down into smaller pieces. These pieces then act like sponges, absorbing chemical contaminants in the water around them, such as polychlorinated biphenyls (PCBs), chlorinated pesticides like dichlorodiphenyltrichloroethane (DDT) and other toxins. When animals ingest these plastic pieces, mistaking them for food, these toxic compounds then enter their bodies and, in turn, make their way up the food chain—all the way to humans.

The problem is far more profound than just a few patches of unsightly litter on local shorelines. Marine debris affects our ocean and its food chains, which sustain human life.



1 USEPA, 2011. Marine Debris in the North Pacific: A Summary of Existing Information and Identification of Data Gaps, http://www.epa.gov/region9/marine-debris/pdf/MarineDebris-NPacFinalAprvd.pdf

What This Toolkit Is About

Many plastic food service ware items originate on college and university campuses—in cafeterias, snack rooms, cafés, and eateries with take-out dining options. That's why we created this Campus Plastic Source Reduction Toolkit. The toolkit was piloted at three University of California (UC) campuses—Santa Barbara (UCSB), San Diego (UCSD), and San Francisco (UCSF)—but we designed each of these steps to be replicable and easily implemented by other colleges and universities around the country. By following the steps in the toolkit, you can help your college or university reduce plastic waste through source reduction—the process of minimizing the amount of plastic used. Together, we can cut down on plastic waste and reduce the amount of marine debris polluting the planet's oceans and waterways.

This toolkit is made up of four distinct steps. It is important that you follow these steps in the order that they are presented here, as each step lays the foundation for the next.

STEP 1: Determine Your Campus's Plastic Footprint – Using the Plastic Footprinting Tool, identify the types and sources of disposable plastic currently procured by and used on your college or university campus.

STEP 2: Create a Source Reduction Plan – Develop and carry out a campus-wide plan to reduce or eliminate the use of disposable plastic items and promote the use of reusable alternatives.

STEP 3: Change Your Campus's Procurement Practices – Identify alternative, less environmentally impactful products and help your campus ensure environmentally preferable procurement.

STEP 4: Establish Source Reduction Policies – Implement campus-wide (and even municipal) policies that encourage source reduction.

Before You Get Started . . .

There are a few basic considerations that will help you embark on your plastic source reduction journey:

1. If your campus has student-led environmental groups, tap into them. Student bodies can wield the power that's needed to effect campus-wide change. Identify and assemble student leaders who can carry out the necessary activities on campus.
2. Appoint a faculty advisor to oversee the student group's activities and offer practical guidance. A faculty advisor also helps to legitimize the students' work.
3. Assemble a team of key campus staff—for example, food service professionals, maintenance staff, procurement managers, and executive leaders (e.g., the Office of the President)—who can facilitate cross-campus communication and ensure that their respective departments' source reduction responsibilities are carried out.

With your foundational elements—a student group, a faculty advisor, and an inter-departmental team of campus staff—now in place, you can advance to the first step of the toolkit, ***Determine Your Campus's Plastic Footprint***.

Good luck!

STEP ONE

Determine Your Campus's Plastic Footprint

Use the Plastic Footprinting Tool to identify the types and sources of disposable plastic currently procured by and used on your campus

The Plastic Footprinting Tool is intended to help you jumpstart your plastic source reduction initiative by clearly defining the "problem" so that you can then develop and execute an action plan to solve it. Collecting data will allow you to analyze the current amount of single-use plastic food service ware used on campus.

At its most basic level, the Footprinting Tool is a survey, or a series of questions, to help you collect data from various campus sources (namely, purchasing departments and facilities staff). It includes background information on your campus's plastic source reduction efforts and waste management infrastructure, and inventories the disposable plastics purchased and used on campus. This is where the cross-departmental team of campus staff will come in handy, as team members should be able to facilitate data gathering within each of their respective departments. The Footprinting Tool also includes on-the-ground visual inspections and observations around campus.

Completing the Footprinting Tool will provide you with the information needed to identify opportunities to reduce disposable plastics as you advance to Step Two, Create a Source Reduction Plan. To begin, fill out each of the informational fields in the pages that follow. If you wish to use a different document to collect and house the information—for example, a spreadsheet—you may do so, but be sure to provide the data in the format(s) specified below to ensure consistency and comparability.

Section I: Background Information

Basics About Your Campus

1. Name of school:

2. Type of school (i.e., public/private, 4-yr/2-yr, undergrad only/graduate students etc.):

3. Number of enrolled students (undergraduate and graduate):

4. Number of faculty and university staff:

Recycling & Composting Opportunities

1. Does your campus have a recycling program? If so, are materials collected together (i.e., single stream), or are there separate bins to collect different materials (e.g., different bins for plastic, glass, paper, and metal)?

2. Does your campus have a composting program? If so, can the program accept compostable food service ware, such as cups, plates, and cutlery? *Are there any limitations on the types of compostable food service ware your composting program will accept (e.g., certified biodegradable by Biodegradable Products Institute (BPI), only noncoated paper, etc.)?*

3. What materials can be recycled on campus? Fill out Table 1, below.

Table 1: Materials Recycled on Campus

MATERIAL TYPE	RECYCLED ON CAMPUS?	LOCATION OF RECYCLING BINS *(if known)*
#1 PET (polyethylene terephthalate)* water/soda bottles, clamshells, cups, food jars, etc.		
#2 HDPE (high density polyethylene)* Milk jugs, detergent bottles, etc.		
#3 PVC (polyvinyl chloride) containers, clamshells, etc.		
#4 LDPE (low density polyethylene) shopping bags, container lids, shrink wrap, etc.		
#5 PP (polypropylene) yogurt containers, takeout containers, bottle caps, etc.		
#6 PS (polystyrene) rigid food service containers & cups, clamshells (except foam), etc.		
#6 EPS foam (expanded polystyrene or Styrofoam™)		
# 7 "Other"		
Glass bottles*		
Office paper*		
Cardboard*		
Aluminum cans*		
Steel cans*		
Other – please specify:		

**These materials are the most widely recycled, but check signage on campus recycling bins to fill out list of accepted items.*

Summary of Existing Efforts on Campus

1. **Does your university have a sustainability, waste diversion, and/or zero waste plan? If so, either attach the plan or provide a URL below, and describe any past, current, or future actions that have resulted or will result in the reduction of disposable plastic items used, or that increase recycling efforts for disposable plastics. To whom have these results been reported?**

2. **What barriers have you encountered or do you anticipate encountering when implementing sustainability initiatives? Please describe.**

3. **Which student groups work to reduce disposable plastics on campus? Which student groups are involved in broader, but relevant, sustainability initiatives? Which university staff or faculty are involved in sustainability efforts and might provide input on a plastic source reduction plan for your campus?**

4. **Has your campus conducted events in the past that aim to reduce the use of disposable plastic, or to otherwise increase awareness of the link between disposable plastics as sources of marine debris? If so, please describe the event(s) and indicate whether the goals were achieved (e.g., obtaining signatures, distributing reusable water bottles or bags, etc.).**

5. **Does your campus have any upcoming events planned that aim to reduce the use of disposable plastic, or to otherwise increase awareness of the link between disposable plastics and marine debris? If so, please describe the event(s) and the goals.**

6. **Please share if there are other policies, protocols, or other aspects of your university structure that are relevant to this plastics source reduction project. These may include municipal or local ordinances impacting your campus.**

7. **Is your campus required to develop a stormwater management plan? If yes, please describe best management practices to contain trash from the student union or other food service settings. (The facilities department and/or the environmental health and safety department should be able to help you answer this question.)**

8. **Does your campus keep track of the amount and type of plastic debris that gets caught in storm drains? If yes, please review the reports and record the amount and type of plastic litter debris here.**

Initial Review of Sources of Plastic

To assist your review, we recommend identifying each of these sources on a campus map.

1. ***Not including*** **eat-in dining halls, what options do students and others on campus have for purchasing beverages, snacks, or meals to go? Include all eateries owned and managed by the university, as well as the eateries owned by private vendors leasing space on campus. Use Table 2, below, to record your answers.**

Table 2: On Campus Eateries Offering Takeout/To-Go Options

TYPE	NUMBER	NAME
Cafés/Takeout dining facilities *(managed by university)*		
Other fast food restaurants *(run by private companies)*		
Coffee shops *(managed by university)*		
Other, e.g., library, food cart *(managed by university)*		

2. **Are there vending machines on campus?** *Circle the description that best represents your campus.*

Beverages only **Snacks only** **Both** **Other:**

3. **Estimate how many vending machines exist on campus.** *Highlight the one that best represents your campus.*

1-5 **6-10** **11-15** **15+**

4. **Are there cafés, fast food restaurants, or other take-out eateries *off campus* (but within walking distance) that students frequent? If so, please list the 5 closest and/or most visited options below:**

5. **How many drinking fountains or hydration stations—retrofitted drinking fountains that provide easy access for filling water bottles—that can accommodate a refillable bottle are on your campus? (If possible, please mark their locations on a campus map.)**

Section II: Which disposable plastics are used on campus?

Visual Inventory: Disposable Plastic Found on Campus

In this next step, you will collect information by walking around your campus and making observations, particularly in and around the food service locations that offer takeout/to-go options. This exercise will help you identify and visualize which disposable plastics items are most frequently used, verify the location of recycling bins that you identified in Table 1, and help you make the connection about where they come from.

Based on your visual inventory, fill out the table below to indicate which disposable plastic items appear most around campus. If you can, determine what the source(s) of the items may be. For example, do the items (e.g., plastic straw or cutlery) originate from a café or library on campus, or do consumers bring them onto campus from an off-campus location (e.g., cups from a nearby fast food restaurant)?

Take pictures of commonly found plastic items that have been disposed of, or that are littered around campus, and note where you found them.

RECOMMENDED ACTIVITY *(Optional):* Consider noting your findings on a map of the campus, indicating the location of dining facilities, recycling bins, and stormdrains. This can assist you in identifying source reduction opportunities.

Table 5: Visual Inventory of Plastics Disposed of on Campus

DISPOSABLE PLASTIC FOOD SERVICE ITEM	FOUND ON CAMPUS?	POTENTIAL ON-CAMPUS SOURCE(S)	POTENTIAL OFF-CAMPUS SOURCE(S)	WHERE WAS PICTURE TAKEN?
Bottles + Cups				
Plastic water bottles				
Other plastic bottles (e.g., juice, soda)				
EPS (expanded polystyrene foam) cups				
Other plastic cups (e.g., SOLO cups)				
Plastic lids + bottle caps				
Take-Out/To-Go Containers + Utensils				
EPS (expanded polystyrene foam) plates				
EPS (expanded polystyrene foam) "clam shells"				
Other rigid plastic "clam shells"				
Other plastic food containers				
Plastic cutlery (spoons, forks, knives, etc.)				
Straws				
Miscellaneous				
Plastic grocery/retail bags				
Plastic wrappers				
Plastic sandwich/ snack bags				
Other plastic wrap				
Plastic stirrers				
Other plastic items (explain)				
Compostable or Other Biodegradable plastics				
Cups				
Plates + takeout containers				
Utensils				

Surveying Stormwater Catch Basins

Observing which items get trapped in stormwater catch basins after a rain storm on campus, and whether these items originate from campus eateries, is also important for determining the types of litter that become marine debris. If you find that disposable plastic food service ware is indeed a major source of accumulated trash in stormwater catch basins, you will want to target these items in Step Two when you develop your campus' Source Reduction Plan. If these items are not a major source of debris found in catch basins following storms, this should also be noted.

1. **How many stormwater catch basins are there near the student union or other campus eateries? Please note them on your campus map and describe the type of litter found in or near these basins. (You may want to take pictures to document your findings.)**

Section III: Which disposable plastics do we buy, use, and throw away on campus?

Procurement Inventory: Sources of Disposable Food Service Plastic

There are many sources of disposable plastic waste, both on-campus and off-campus. This procurement inventory is designed to focus on university-managed eateries, in part because students and staff can have the most direct impact in these locations. However, private vendors operating fast food restaurants on campus can also contribute to disposable plastic waste. Therefore, any purchasing or procurement data that can be obtained from private vendors leasing space on campus is valuable for establishing a baseline of on-campus disposable plastic sources.

To obtain measurable data on the sources of disposable plastic items procured by the university, you must work directly with the university staff responsible for purchasing on behalf of the campus-managed eateries that offer take-out/to-go options.

Although disposable plastics purchased for campus-managed eateries are of particular interest to this project, disposable items used for events, meetings, and other activities on campus are also important. Ideally, these data should also be captured in the inventory as separate categories. Depending on how procurement responsibilities are divided, you may need to reach out to staff in the food service, operations/logistics, conference planning, and/or sustainability departments.

Once you have identified the appropriate contact(s), set up a meeting to discuss this initiative and collect data on disposable plastic food service items purchased by the university. To do so, fill out the table below. The quantitative data you collect and note here will enable you to complete the plastic footprint of your campus, and will complement the qualitative observations you make in other sections of this tool. Since one of the purposes of this Plastic Footprinting Tool is to enable college and university campuses across the U.S. to compare their results and collectively reduce their environmental impacts, it is important to record the data consistently using the units specified in the chart.

DISPOSABLE PLASTIC FOOD SERVICE ITEMS	PURCHASED BY THE UNIVERSITY (YES/NO)?	IF PURCHASED BY THE UNIVERSITY, BY WHICH DEPARTMENT?	# OF ITEMS PURCHASED PER YEAR	TOTAL COSTS PER YEAR	DESCRIPTION OR PRODUCT AND VENUE IN WHICH USED/SOLD
Bottles + Cups					
Plastic water bottles					
Other plastic bottles (e.g., juice, soda)					
Expanded polystyrene foam cups					
Other rigid plastic cups (e.g., SOLO cups)					
Plastic cup lids					
Take-Out/To-Go Containers + Utensils					
Expanded polystyrene foam plates					
Other rigid plastic "clam shells"					
Other plastic take-out container bottoms					
Other plastic take-out container lids					
Plastic cutlery (spoons, forks, knives, etc.)					
Straws					
Miscellaneous					
Plastic grocery/ retail bags					
Plastic film wrap (e.g., Saran Wrap™)					
Plastic sandwich/ snack bags					
Other plastic wrap					
Plastic stirrers					
Other plastic items (explain)					

Section IV: What does this information mean for our campus?

Once the sections above have been completed, answer the following questions:

1. Based on the visual inventory and your observations of disposable plastics found on campus, which three to five items are most commonly found?

2. Based on data obtained from the procurement inventory, what are the top three to five disposable food service plastic items that are purchased (based on number of items)?

3. Based on your visual inventory and procurement inventory, which three to five items are most widely used and may be of primary concern on your campus?

4. List potential on-campus sources of these items.

5. Based on what you know now, what are the top three to five disposable plastic items you want to focus on in the next 12 months? Please explain.

Congratulations!

You've just completed Step One of the Campus Plastic Source Reduction Toolkit! You've identified and quantified the most common sources of disposable plastics on your campus, and are now ready to move on to Step Two, *Create a Plastic Source Reduction Plan,* which will help you identify opportunities for reducing and eliminating certain plastic food service ware items on campus. It will also set the stage for inspiring behavior change among students so that they consistently choose reusable or less impactful alternatives.

Turn the page to advance to Step Two.

STEP TWO

Create a Source Reduction Plan

Using data from the Plastic Footprinting Tool, custom-build a plan to minimize the use of disposable plastic on your campus.

Now that you've completed Step One, Determine Your Campus's Plastic Footprint, you should have enough data to be able to create a customized action plan for reducing plastic on your college or university campus at the source. That's what Step Two is all about. Within these pages, you'll find opportunities for reducing your campus's use of disposable plastic food service ware items while increasing its use of durable, reusable products or less impactful alternatives. These opportunities might include:

- Eliminating the use of unnecessary plastic packaging and single-use plastic items;
- Switching from single-use products to reusable items; and
- Substituting single-use products with other products that are less likely to end up in waterways.

Turn the page to get started!

Where do I begin?

To help get you started thinking about a Source Reduction Plan for your campus, we have developed a series of guidelines to keep in mind. These guidelines should help you stay focused and on track to deliver real and lasting results:

- **Reducing the use of plastic is the goal of this Source Reduction Plan**. While many types of materials contribute to the waste stream, this plan focuses exclusively on reducing plastic, since, as we mentioned, plastic makes up more than half of all marine debris.
- **Make recommendations consistent with the solid waste management hierarchy**. Source reduction and reuse of materials are the preferred approaches for curbing all waste, including marine debris. In the context of plastics source reduction, actions at the top of the hierarchy include reducing the use of, or banning, items such as plastic straws and plastic bags, and using reusable food service ware.

- **Recommend products consistent with local solid waste management infrastructure.** When source reduction actions cannot be immediately implemented, substitution with compostable or recyclable materials is the next best option—but only if the appropriate infrastructure to recover those materials exists. Therefore, the food service ware options available depend on the end-of-life management systems (recycling or composting) in place. Check with your solid waste vendors before making any changes—for example, some recyclers will accept plastic clamshells for recycling; others will not accept any food service packaging with food residue. Hence, the "recyclable" pizza box may end up with other trash if there's cheese on it, while the plastic salad clamshell might be recyclable. Similarly, some compostable plastics may not be compatible with your local composting system even though the product is labeled compostable and/or biodegradable. Importantly, compostable plastics are not recyclable and will, in fact, contaminate the stream rendering recyclable plastics unusable. So, you should choose an approach – either targeting recyclable or compostable food service ware – after careful consideration and discussion with those who manage your recycling and composting programs. If the infrastructure does not exist to recycle or compost these alternative food service ware products, reuse is the best option to avoid these materials winding up in the marine environment where they will contribute to marine debris.
- **Recommend products that have proven successful.** Early program successes can pave the way for implementing additional product changes, while failures, which may arise from using unproven product prototypes, may make campus decision-makers more wary of making future changes. To ensure a relatively seamless transition to new food service ware products, we suggest that your campus consider alternative products that have been tested in a food service environment and in the targeted end-of-life management system (i.e., recycling or composting). If you choose to test out prototypes, proceed with caution and make sure the campus community understands it is a trial.
- **Prioritize local solutions, when possible.** Where available and feasible, you should recommend local alternatives to the most common disposable plastic items. We recognize that developing alternatives to disposable plastics is an emerging industry and that locally sourced materials may become more common in the future. Nonetheless, keeping a low carbon footprint for all recommendations is a priority, where possible.
- **Price-competitive solutions are a priority**. Identifying scalable alternatives that are cost-competitive is important for obtaining support from the campus administration and other stakeholders.
- **Use targeted initiatives to rapidly decrease plastic disposal.** Developing procurement policies and criteria may seem daunting, and the process may take a while—especially if your campus has long-

term, multi-year procurement contracts that must expire before changes can be made. To jumpstart the attainment of your plastic source reduction goals, try launching one or more targeted initiatives, such as:

- ✓ Promoting the use of refillable bottles and launching "bring your own cup" campaigns to reduce single-use bottled water, coffee cups and other single-use containers on campus. A well-developed system of strategically placed hydration stations or retrofitted drinking fountains that provide easy access for filling water bottles (e.g., in high traffic pedestrian areas and residence halls), and signs indicating hydration station locations, also supports refillable bottle initiatives. Further information about hydration stations can be found in the Resources section on page 49.
- ✓ Developing a program that limits or eliminates the purchase of disposables for campus meetings and special events. **UCSD's Reusable Dishware Program**[2] provides reusable dishware for student organization events free-of-charge. This and similar programs can be expanded to reduce the waste footprint of other campus events.
- ✓ Implement a returnable container system. Many campuses offer a reusable clamshell container system that can be used for take-out dining. Diners initially receive a free or low-cost container for take-out use; however, once used, customers return the container to a central area (e.g., dining hall or food court) to be washed. In turn, they receive a token to use the next time they get a take-out meal. The Resources section on page 49 provides additional information about implementing these systems.

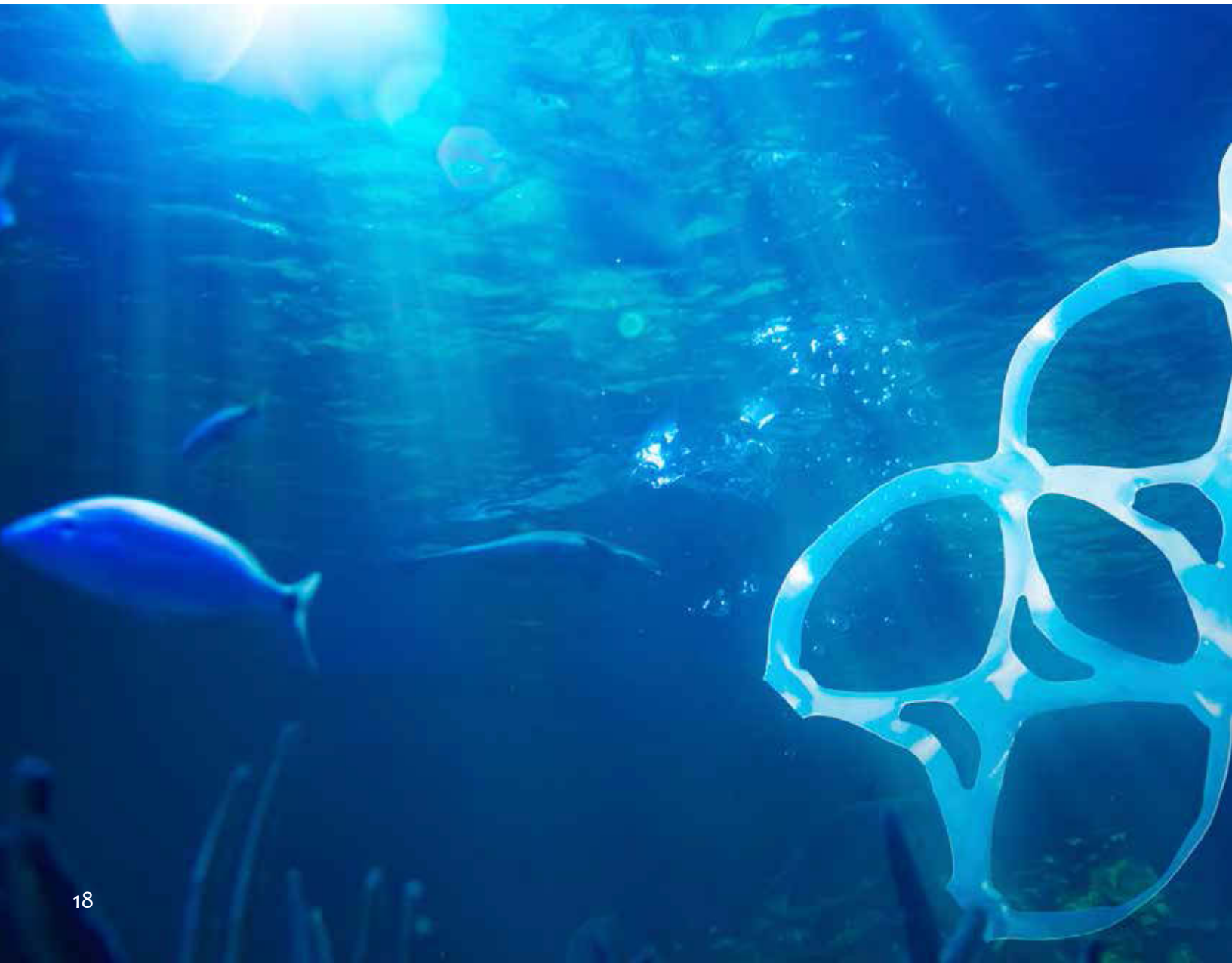
Review the Best Management Practices in the Resources section, too, for additional source reduction ideas.

2 http://studentsustainability.ucsd.edu/resources/reusable-dishware-program/

Okay, I understand the guidelines. Now what?

We suggest using the data and information gathered from Step 1 to create your Source Reduction Plan as follows:

1. **What were the top three to five sources of disposable plastic on campus that you identified in Step One, *Determine Your Plastic Footprint?*** Whether they include eating utensils, single-use water bottles, packaging, or some other type of plastic, these three to five campus-specific "priority products" will be the focus of your Source Reduction Plan. Consider a balance between strategies related to procurement and targeted initiatives and campaigns to rapidly decrease use of disposable plastics.
2. **What are your campus' existing waste management infrastructure and waste reduction initiatives?** How can your source reduction plan complement initiatives already underway? Many colleges and universities, as well as the cities and towns in which they're located, have already undertaken environmental initiatives that deal with plastic product procurement and use. It is important to understand what these initiatives are to ensure that your source reduction recommendations are complementary and not duplicative. You will also need to understand what kind of waste management infrastructure your campus operates within so that your source reduction recommendations are relevant. For example, if your campus uses composting facilities, you might recommend replacing disposable plastics with commercially compostable food service ware. (Note that Step Four of this Toolkit, *Implement Source Reduction Policies,* helps you



refine existing policies, or create new ones, to support your source reduction efforts.)

3. **What clear actions can you take to cease the use of certain disposable plastic products on campus?** For each priority product you identified from the Plastic Footprinting Tool, can your campus eliminate its use or switch to products that can be reused, recycled, or composted? You'll want to prioritize these alternative product options based on their feasibility, availability, and cost. To maximize the likelihood of success, your campus should pilot one or more options before doing a full-scale roll out.

4. **What are your source reduction goals and how will you measure progress?** Establish results-oriented goals, such as reducing plastic straw purchases by 50 percent, and be sure you have the necessary baseline data (number of plastic straws currently being purchased, for example) to measure your progress.

5. **How will you educate campus staff, faculty, students and visitors about your source reduction activities?** There are many ways to educate your campus' stakeholders about green purchasing. Many campuses begin by educating their procurement and sustainability staff when building their source reduction team. The Association for the Advancement of Sustainability in Higher Education (AASHE) coordinates campus sustainability resources across North America, providing case studies, policies, and blogs. AASHE's website has links to webinars and presentations that staff may find useful for developing a common understanding and language about green procurement. Campuses can also include information during freshman orientation, provide interactive campus maps directing visitors to public water fountains or hydration stations, and offer peer-to-peer education.

   Peer-to-peer education effectively promotes sustainability initiatives at UCSB and UCSD. Plastic Solutions, a student-led group at UCSB, has sponsored a number of events that heighten awareness of plastic source reduction including "Day Without a Bottle" in 2013, which rewarded students who pledged to refuse single-use bottles with free reusable bottles. Meanwhile, six MBA students at UCSD launched "***Kill the Cup***," a social outreach campaign to influence student behavior and increase the use of reusable coffee mugs at campus eateries. The 8-week campaign, which ran from April 1 to May 26, 2013, resulted in nearly a 70 percent increase in the number of cups of coffee bought with reusable containers. This program has now become a nationwide initiative.[3]

3 http://www.killthecup.com/our-story.html

Source Reduction Plans in Action: Case Studies

To help you understand how to assimilate the data you've collected from the Plastic Footprinting Tool and from the various steps described above, and to demonstrate how these data help formulate a Plastic Source Reduction Plan, the following case studies offer three examples of campus-wide plans. Using our Plastic Footprinting Tool, the University of California (UC) campuses at Santa Barbara (UCSB), San Francisco (UCSF), and San Diego (UCSD) identified their own priority items and then used the data to develop and execute their own customized Plastic Source Reduction Plans. Each campus was additionally allocated $3,200 from this USEPA-funded project to implement targeted initiatives that reduce single-use water bottles. PSI worked with each campus to develop plans for implementing these initiatives.

Because each campus has its own population size and unique circumstances (summarized below), each plan is also unique. However, because the University of California Office of the President (UCOP) set goals for each of the 10 UC campuses to divert 75 percent of their waste by June 30, 2012, with the ultimate goal of becoming zero waste by 2020, each campus has been striving to reduce and/or divert its waste from landfills. We are providing their one-of-a-kind Plastic Source Reduction Plans here as case studies, so you can learn from them and replicate them, as appropriate, on your own campus.

UCSB	UCSF	UCSD
• Comprised of five schools that offer undergraduate and graduate degrees. • Approximately 31,783 faculty, staff, and students make up the total population including: - 18,989 undergraduate students - 2,938 graduate students - 1,054 faculty - 8,802 staff • Single-stream recycling (accepting all plastic resins #1 - #7, except polystyrene foam) collected throughout campus. • Composting bins are located throughout campus, primarily in the dining halls and the University Center (UCen). • Diverted 70 percent of its municipal solid waste in 2012.	• Comprised of four professional schools (no undergraduate programs) • Approximately 27,324 faculty, staff, and students make up the total population including: - 3,137 students enrolled in degree programs - 1,670 residents (physicians, dentists and pharmacists in training) - 2,483 faculty - 20,034 staff • Single stream recycling (plastics #1 through #7 – except #4 (LDPE) collected throughout campus. • Compost bins are located within central areas of office suite and all café/dining areas • Diverted 60 percent of its municipal solid waste in 2012.	• Comprised of six undergraduate colleges, five academic divisions, and five graduate and professional schools. • Approximately 56,423 students, staff, and other employees make up the campus community - 22,676 undergraduate students - 5,618 graduate students - 765 residents - 2,483 faculty - 24,881 staff • Single-stream recycling (accepting all plastic resins #1 - #7) collected throughout most of campus, although some areas have separate collection bins for different materials (e.g., mixed paper, plastic, glass). • Diverted 66 percent of its municipal solid waste in 2012.

Source Reduction Plan Case Study #1

University of California, Santa Barbara (UCSB)

Situated on the Pacific Coast, the University of California Santa Barbara (UCSB) campus spreads over 1,000 acres. UCSB is located a few miles west of the City of Santa Barbara and south of the Santa Ynez Mountains. Isla Vista is a densely populated community (less than two square miles) adjacent to UCSB, where students living off campus make up the majority of residents. In addition to its wide-ranging undergraduate degree programs, UCSB also has two graduate schools—the Bren School of Environmental Science and Management, and the Gevirtz Graduate School of Education. The University Center (UCen) is home to a range of programs and services on campus, including the independent food retail establishments leasing space on campus, referred to in this plan as private vendors.

Dining at UCSB

UCSB students and other campus users have to access to a wide range of dining options throughout the campus, but many are concentrated in the UCen. The university manages several eateries, convenience stores, and coffee carts that offer to-go options. In addition, 10 private food vendors, including retail chains, lease space on campus.

The following list includes all dining options available to students and staff on the UCSB campus that offer food and beverages to-go.

OWNED AND OPERATED BY UCSB	PRIVATE VENDORS LEASING SPACE ON CAMPUS
Eateries with to-go options • **Coral Tree Café** • **Courtyard Café** • **Nicolettis (at the Ucen)** • **Romaine's (at the Ucen)** • **Route 217 (at the Ucen)** Convenience stores • **The Arbor** • **The Corner Store** • **The Store at Buchanan** Coffee/snack carts • **Buchanan (coffee cart)** • **Nicoletti's coffee carts (2)**	• **Die Bretzel (pretzel cart)** • **Domino's Pizza (at the Ucen)** • **Jamba Juice (at the Ucen)** • **Panda Express (at the Ucen)** • **Subway (The Arbor)** • **Wahoo's Fish Taco** • **Woodstock's (at The Arbor)** • **Yoshinoya (at The Courtyard Café)** • **The Faculty Club**

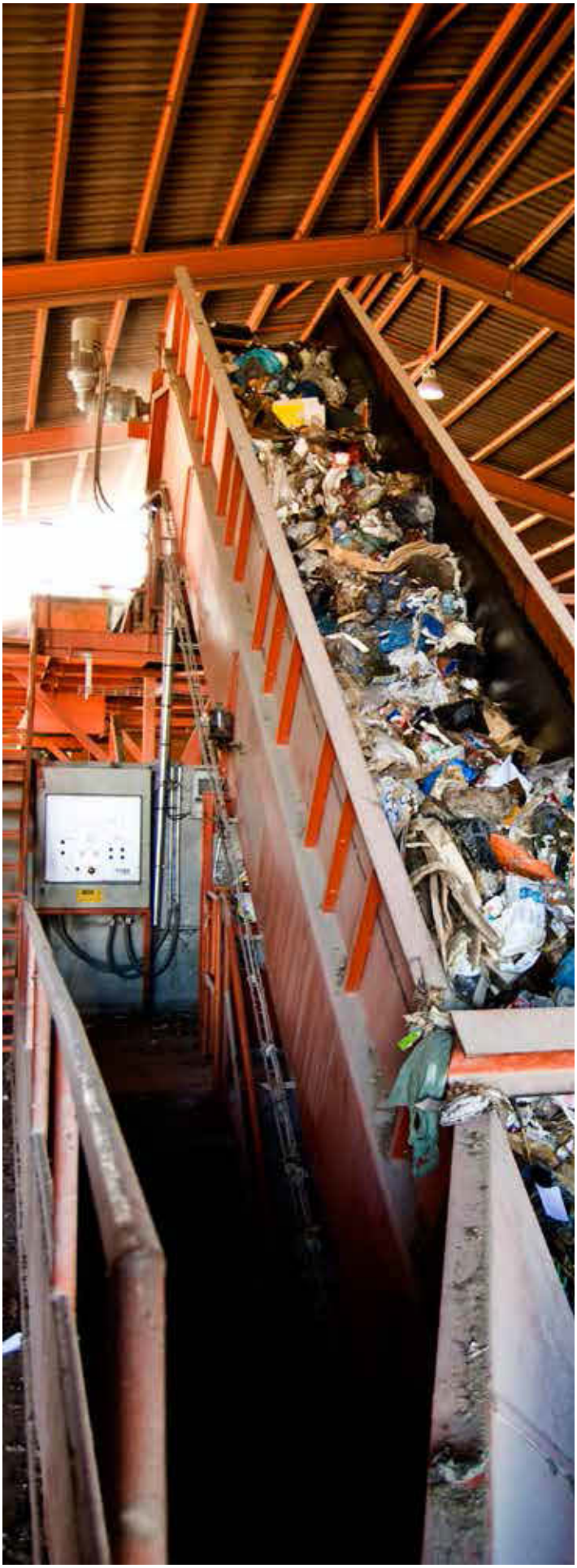
Campus Priority Products

Using the Plastic Footprinting Tool, PSI worked with Plastic Solutions at UC Santa Barbara, a student-driven organization aiming to reduce plastic pollution and raise awareness on campus, to identify the quantity and types of disposable plastic packaging purchased for campus-managed UCen eateries, coffee shops, and all campus catering services from September 2012 to June 2013. From this initial baseline information, we identified the five most prevalent disposable plastic food service items purchased.

UNIVERSITY CENTER EATERIES: ***Data collected include campus-managed eateries, coffee shops, and campus catering services for the 10 month "school year" (September 2012 to June 2013).***

TYPE of PLASTIC WARE	QUANTITY (pieces/school year)
Plastic lids	**425,000**
Plastic cutlery	**272,000**
Plastic straws	**174,300**
Plastic water bottles	**112,003**
Plastic bags	**36,550**

*Since these data were collected, the UCen has changed its procurement practices by providing compostable cutlery, containers, cups, and lids at its campus-managed eateries. Therefore, strategies presented in this plan include opportunities for increasing reusables as well as encouraging private vendors to implement procurement changes.



Waste Management Infrastructure

UCSB has a single-stream recycling program that accepts a wide range of materials, including all #1 through #7 plastic resins (excluding expanded polystyrene foam, or Styrofoam™). Over 100 outdoor four-bin receptacles (known as "Big Berthas" (see image below) for collecting recyclables, office pack (or mixed paper), compost, and trash are located on campus. UCSB has also purchased 43 Big Belly brand solar compactors—receptacles that electronically compact waste, recycling, and compostables directly inside the bin and notify facilities management staff when they need to be emptied. UCSB contracts with MarBorg Industries, a waste management company, to handle all of its waste and recycling. Partnering with MarBorg and Engel & Gray, a commercial composting facility in Santa Maria, California, UCSB initiated a program to collect pre- and post-consumer food scraps, as well as post-consumer compostable food service ware. All of the UCen eateries, as well as a number of the private vendors leasing space on campus, collect food scraps in their kitchens. In addition, UCSB has strategically placed compost bins near eateries around campus. Each month, about 40 tons of material are diverted for composting at UCSB. Since Engel & Gray operates on a 90-day composting cycle, the commercial composting facility is able to accept and fully break down compostable food service ware.

UCSB students are actively involved in managing recycling and compost activities on campus. Associated Students (AS) Recycling, a sub-group of the student government organization on campus, employs students to collect recycling and compost for the outdoor bins. These "route riders" use bicycles equipped with carts to visit the four-bin systems every day, and they visit the Big Belly solar compactors when needed. AS Recycling also leads a number of on-campus compost initiatives, including the "Grounds to Grounds" coffee composting and vermicompost (worm composting) program.

Waste Reduction and Management Initiatives

PROMOTING REUSABLE TO-GO CONTAINERS

In 2011, UCSB purchased clamshell containers produced by G.E.T. enterprises and began piloting an "eco-clamshell" container initiative at the Coral Tree and Courtyard Café, two UCen eateries on campus. Clamshell containers consist of two halves joined by a hinge that enable the containers to be opened and closed. Students can purchase a reusable clamshell container for $5 and then return it to Coral Tree or Courtyard Café, where they will be given a clean container to use on their next visit. However, despite signage at the participating eateries, students use the service relatively infrequently (it is more common among UCSB staff). This is perhaps because the containers do not seal tightly enough to prevent spillage. UCSB is considering whether to extend the pilot to two additional UCen eateries. In addition to promoting reusable to-go containers, the UCen offers discounts on coffee to students who bring their own mugs.

PROMOTING REUSABLE WATER BOTTLES

As of December 2014, UCSB has 36 hydration stations positioned throughout campus. The stations, which are free to anyone on campus who wishes to use them, offer two options – one handle dispenses filtered water and another handle dispenses reverse-osmosis water, which can filter out smaller particles.

Plastic Solutions at UCSB is currently promoting the use of UCSB Hydration Stations as an alternative to purchasing single-use plastic water bottles through various education and outreach initiatives. In addition to the recent installation of more stations, Plastic Solutions is leading an ongoing educational campaign about the health and environmental impacts of single-use plastic water bottles.

For example, the group hosted a "Day Without a Bottle" event on April 1, 2013, which provided free reusable bottles to students who pledged to refuse single-use bottles. And, as part of the 2014 Earth Week activities, the group constructed a visual display of single-use plastic water bottles on campus, and hosted a screening

of the documentary, ***"Plastic Paradise,"***[4] which describes the role of plastics in creating the Great Pacific Garbage Patch.

Plastic Solutions at UCSB continues to work on several initiatives related to plastic single-use water bottles, including:

1. Organizing a reusable water bottle giveaway for incoming freshman as part of a campaign highlighting the benefits of "going reusable" and using the hydration stations. This project aims to create a campus culture that views sustainable actions as "cool" and the use of reusables as the social norm.
2. Obtaining approval from appropriate campus entities to create signage that better advertises and promotes the hydration stations.
3. Collecting data on the number of water bottles purchased at campus-managed locations (UCen) and tallying the amount of water bottles "saved" from using hydration stations.
4. Increasing membership in the organization to help expand the reach of these initiatives.

4 http://plasticparadisemovie.com

DISPOSABLE PLASTIC REDUCTION AND LEASING LANGUAGE FOR PRIVATE VENDOR TENANTS

Beginning in 2013, the UCen made a significant shift in its procurement practices to replace conventional disposable plastic food service ware with compostable alternatives for all of its eateries on campus. UCSB had previously worked to establish the food scraps and composting program with Engel & Gray and MarBorg Industries. Once it was determined that Engel & Gray's composting facility was capable of processing compostable food service ware, UCen made the switch to compostable cups, lids, cutlery, containers and other food service ware at all nine UCen eateries. The switch to compostables enabled UCSB to easily educate diners with a simple message – all food scraps and food service ware go to the collection bin labeled "compost."

Additionally, the UCen recently established a progressive policy requiring all private food vendors leasing space from the UCen to provide compostable food service ware. The UCen added the following sustainability language to all leasing contracts, effective as of 2013:

"As the campus is aggressively involved in issues of sustainability, the selected vendor will be required to use the provided bins for pre-consumer kitchen waste and

provide compostable bags for this purpose. In addition, all customer disposable wares must be compostable. BPI [Biodegradable Products Institute] certification will be required for all compostable products selected by the Vendor." (UCen lease agreement language for private food vendors.)

Yoshinoya, a retail food chain that finalized a new contract with the UCen in the summer of 2013, became the first private vendor that had to comply under the new policy. As of fall 2013, some of its to-go food service ware items were compliant (e.g., clamshell container), but Yoshinoya was still using non-compostable plastic bags, bowls, fountain drink cups, and lids. University staff members have since met with Yoshinoya to ensure that the company's future purchasing complies with the new requirements. In addition, UCen is reminding existing private vendor tenants that they must comply with the new policy if they wish to renew their contracts.

DISPOSABLE PLASTIC REDUCTION AND THE GREEN BILL

AS Recycling, developed and approved what's known as the "Green Bill"—a guiding document on sustainable practices regarding purchasing, waste reduction, energy use, and transportation. Student organizations can go through a Green Bill Certification process to demonstrate that their practices comply with the Green Bill. The purpose of the certification program is to raise awareness and encourage sustainable initiatives within the AS community. The following guidelines are relevant to purchasing and using food service ware for university-funded events and AS activities:

- No student funds can be used to purchase polystyrene foam service ware products.
- Single-use plastic water bottles cannot be purchased for use in meetings, offices, and small events.
    - Plastic water bottles can only be purchased for events occurring outdoors that expect more than two hundred (200) people.
- Use of water coolers and cups should be used when possible, and are preferred.
- Purchase of reusable goods (e.g., such as bottles, plates, cups, and utensils) should be encouraged and promoted
- 50 percent of utensils used within AS meetings and events must be compostable

Campus Sustainability Goals

The first UCSB Campus Sustainability Plan (CSP) was approved by the Campus Planning Committee in April 2008. The UCSB CSP was updated in May 2013 and includes action items in 11 functional areas of the campus, including food, procurement, and waste. Goals relevant to plastic source reduction include switching from traditional food service ware to compostable food service ware and expanding the campus food waste compost program in collaboration with MarBorg Industries, UCSB's contracted waste management company.

Existing Municipal Ordinances and Programs

SANTA BARBARA COUNTY GREEN BUSINESS PROGRAM CERTIFICATION

At UCSB, all the UCen managed eateries, convenience stores, and coffee shops are certified through the ***Santa Barbara County Green Business Program***.[5] Besides meeting mandatory compliance with public health and environmental regulations, restaurants must implement a minimum number of improvements across a menu of options in five categories, including solid waste reduction and recycling, environmentally preferable purchasing, energy conservation, water conservation, and pollution prevention. As part of its overall waste reduction and sustainability efforts, all of the UCen eateries are Green Business certified by Santa Barbara County. UCSB's Courtyard Café & Coral Tree Café, for example, implemented a 10-cent discount to customers who bring their own re-usable mugs, cups, and/or to-go containers as a component of its certification program. UCen staff are also approaching the private food vendors on campus to encourage their tenants to also become Green Business certified.

Plastic Bag Ban

The City of Santa Barbara passed a plastic bag ban in October 2013. The ordinance prohibits stores from providing single-use plastic carryout bags to customers at the point of sale and requires customers to pay 10-cents for each paper bag that the stores provide. The stores may retain the 10-cent charge on paper bags to help them offset costs of complying with the ordinance. UCSB is not located in the City of Santa Barbara and, therefore, is not technically covered by the ordinance. However, student and other community stakeholders are currently building support for the plastic bag ban to be implemented on campus. While a statewide ban on plastic bags was enacted in 2014, a legal challenge has halted implementation. UCSB can, however, proceed to ban bags in its own right.

5 http://www.greenbizsbc.org/

photo credit: Aberration Art.

PLASTIC SOURCE REDUCTION OPTIONS FOR UCSB

Plastic lids, cutlery, straws, water bottles, and bags are the disposable plastic items that UCSB purchases in the largest quantities each year (based on UCen procurement data from September 2012 through May 2013, reported above and collected using the Plastic Footprinting Tool). UCSB concurrently launched an initiative to replace these items with compostables, as they can be collected in the campus composting program, and composting is higher on the solid waste management hierarchy than disposal.

Therefore, the options discussed below focus on plastic source reduction that is achievable through the increased use of reusable items (most preferred), along with the use of recyclable and compostable items, where reuse is not possible (less preferred). The options also emphasize encouraging existing private vendors to voluntarily reduce disposable plastic service ware use. (UCSB will require existing vendors to use only compostable items as a condition of renewing their lease, but the private vendors are not required to implement the change prior to the expiration of their current lease.)

LIDS

UCSB-operated eateries replaced single-use plastic cups and lids with compostable cups and lids. However, single use cups and lids can be replaced with reusables. Options include:

OPTION 1: Provide reusable dishware for dine-in customers, including lidless cups. This option would not only reduce plastic lids, but would also reduce other plastic food service ware used on campus. This option would work well with UCSB's existing "ask first" policy—asking customers whether their purchases are "for here" or "to go."

OPTION 2: Encourage eat-in rather than take-out. UCSB could increase seating areas, where feasible, to encourage customers to eat-in. This would complement Strategy 1.

OPTION 3: Encourage use of reusable mugs/ cups. UCSB currently offers discounts to students using reusable drink containers for coffee. Similar discounts could be offered for other types of drinks (e.g., fountain drinks) that are typically served with disposable lids.

OPTION 4: Encourage private vendors to purchase compostable alternatives before they are required to do so. New private vendors are required to purchase and use compostable items. However, current leasers are not required to switch to compostables

until their lease expires. This strategy would encourage vendors to make the substitution earlier, which would result in less disposable plastic use, as well as a reduced risk of contamination when plastics are erroneously disposed of with compostables.

OPTION 5: Provide plastic lids upon request only. This will help prevent situations where customers receive plastic lids that they may not need, want, or even use.

UCSB rejected Option 1 due to a lack of space and capacity for on-site dishwashing. Therefore, Option 2 (encourage dine-in) is unlikely to provide any benefit as reusables would not be available to dine-in patrons. The campus opted to pursue Options 3 and 4 for reducing the number of disposable lids used on campus through a mixed approach, encouraging reusables and compostables, as these strategies leverage current campus initiatives. UCSB may consider Option 5 in a future school year.

CUTLERY

UCSB has replaced its disposable plastic cutlery with compostable alternatives. While compostables are preferable to disposables, reducing single-use cutlery is the preferable option. Options for reducing plastic cutlery include:

OPTION 1: Encourage reusable cutlery. UCSB could implement a reusable cutlery program for take-out dining. The University of Vermont has promoted the use of "sporks," a single utensil that combines the functionality of a spoon, knife, and fork, by offering a discount to customers who use them.[6] Other reusable cutlery sets come equipped with an easy-to-carry case that clips on to backpacks or other carriers.

OPTION 2: Provide compostable cutlery upon request only. UCSB could make compostable cutlery available only upon request and work with private vendors to do the same.

UCSB will consider these options in a future school year.

STRAWS

UCSB uses over 174,000 plastic straws each school year. Options for reducing their use include:

OPTION 1: Ban plastic straws on campus. This option would immediately reduce the amount of disposable plastic used on campus.

OPTION 2: Reusable straws. Reusable straws, made from metal, bamboo, or glass, are an option to disposables.

OPTION 3: Use compostable straws. Straws made from paper or compostable plastics are another option for UCSB.

UCSB will consider options for eliminating or reducing the use of straws in a future school year.

WATER BOTTLES

OPTION 1: Increase outreach and promotion of UCSB hydration stations. UCSB has slashed the number of single-use water bottles purchased on campus by 54 percent, eliminating an estimated 60,000 bottles, by promoting reusable bottles and installing hydration stations. Continuing education and awareness campaigns about the campus's hydration stations are important, particularly as new students arrive on campus. UCSB has installed 36 stations already; campus leaders should promote the positive impacts

6 http://www.uvm.edu/ecoreps/projects-and-activities/past-projects/eco-ware-sporks, accessed January 28, 2015.

of these stations to further increase their use. Plastic Solutions will be installing eye-catching promotional signage around campus, including stickers on the hydration stations themselves, using U.S. EPA grant funds that PSI allocated to them for this project.

OPTION 2: Reduce single-use plastic water bottles in UCSB athletics. Reusable water bottles are currently prohibited in UCSB's stadium. A policy change could be implemented to allow guests to enter the stadium with empty reusable water bottles to be filled at on-site hydration stations.

OPTION 3: Provide no-cost or low cost refillable bottles. Providing free or low-cost water bottles encourages the use of hydration stations. These reusable, refillable bottles can be given away as part of a hydration station promotional campaign. Or, they can be included as part of a welcome package for new students, faculty, and staff, along with information about the location of hydration stations and UCSB's efforts to reduce plastic waste on campus in general.

UCSB is implementing Option1 and will consider Option 2 in a future school year. Currently, funding is not available for Option 3.

BAGS

Plastic bags are a significant source of marine debris. Options for reducing their use include:

OPTION 1: Ban single-use plastic bags on campus. UCSB has been holding meetings for campus and other community stakeholders to discuss whether the City of Santa Barbara's plastic bag ban will be implemented on campus. Regardless of the outcome of these meetings, UCSB could adopt a plastic bag ban on campus that meets or exceeds the scope outlined in the City of Santa Barbara's ordinance.

OPTION 2: Encourage use of reusable bags. Campus-managed eateries and private vendors could sell reusable bags at point of sale. As part of an introductory campaign to promote their use, UCSB could offer reusable bags at highly discounted rates, or even for free, for a limited time.

During Earth Week events in 2014, Plastic Solutions spoke with students about the benefits of using reusable bags and the importance of refusing single-use plastic bags. Plastic Solutions also handed out reusable bags (repurposed from giveaways from previous events and other surplus bags) to students who were interested in learning more.

OPTION 3: Offer single-use bags by request only. UCSB could work with vendors to implement a "by request only" policy, offering disposable bags to customers only when they request one. This policy could be reinforced with an education and awareness campaign promoting reusable bags.

UCSB implemented Strategies 2 and 3 while awaiting the outcome of discussions of the bag ban, as described in Strategy 1.

TO-GO CONTAINERS

UCSB is currently piloting a reusable plastic food container ("eco-clamshell") initiative at two campus-managed eateries. Challenges with this program—including the container's inability to contain liquids, inadequate program promotion, and a lack of convenient options for returning the "used" containers—have resulted in underuse.

Pilot alternative reusable to-go containers. Reusable to-go container systems have been implemented successfully at other campuses (See the Resources section on page 49 for further information.) UCSB could benchmark their current pilot to these systems to identify opportunities for purchasing leak-proof containers and implementing convenient container take-back options.

SOURCE REDUCTION PLAN RESULTS

✓ **54% Decline in Water Bottle Sales:** Each school year, Plastic Solutions at UCSB selects one source of single-use disposable plastics, and develops a targeted campaign to reduce or eliminate the specific plastic. During the 2013 – 2014 school year, plastic water bottles were the focus of Plastic Solutions efforts, which led to a 54 percent decline in water bottle sales and eliminated an estimated 60,124 bottles.

✓ **97% Reduction in Plastic Bags:** As of spring 2014, UCSB eateries reduced their annual plastic bag use from 36,550 to 1,000 bags, eliminating 35,500 plastic bags by providing single-use plastic bags upon request only.

Source Reduction Plan Case Study #2

University of California, San Francisco (UCSF)

Located in the heart of San Francisco, UCSF consists of two main campuses—Parnassus, or "West Zone" (which includes the Medical Center) and Mission Bay, "or East Zone"—and is spread out over 24 sites. UCSF is the only campus in the UC system that is focused exclusively on health sciences; it therefore has a unique mix of students, staff, and visitors to campus. UCSF also does not have any undergraduate students.

Dining at UCSF

There are two major dining options at the UCSF campus: (1) the Medical Center, where all food service (e.g., the Moffit Cafe) is campus-managed and where there are no independent vendors; and (2) the University, which features only independent food retail establishments, or private vendors.

Medical Center staff manages all in-patient food service, catered events, and two express cafés offering items to-go. It is important to note that the Medical Center is a separate institution that has its own contracts and reporting procedures and is therefore not incorporated into the UCSF Campus Recycling Program. As a result, staff at the Medical Center, and not the UCSF Recycling Program Coordinators, handle their own procurement processes.

Although there is no staff position focused solely on waste reduction, recycling, and compost efforts, the

Medical Center's Hospitality Services Department regularly communicates with the two Recycling Coordinators managing the Campus Recycling Program.

The following eateries at UCSF are operated by private vendors leasing space on campus:

MISSION BAY CAMPUS: EAST ZONE	PARNASSUS CAMPUS: WEST ZONE
• Café 24	• Café Bellini (Millberry Union)
• Caffe Terzetto	• Caffe Terzetto Express (coffee cart)
• Carmelina's Café	• Café Society Espresso (coffee truck)
• Peasant Pies	• Carmelina's Taqueria (Millberry Union)
• The Pub	• Jamba Juice (Millberry Union)
• Publico	• Palio Café (Millberry Union)
• Subway	• Panda Express (Millberry Union)
• Food trucks (various)	• Subway (Millberry Union)
• The View Cafe and Catering (Laurel Heights)	

NOTE: There are also two Starbucks locations that are not part of the UCSF campus, but are located just outside the campus and are frequented by students, staff, and faculty.

UCSF's source reduction strategies, further described below, focus on cutlery, plastic lids, bottles, straws, and plastic bags.

Campus Priority Products

Using the Plastic Footprinting Tool, UCSF Recycling Coordinators identified the quantity and types of disposable plastic packaging purchased for the Moffitt Café at the Medical Center, as well as for six private fast food vendors that lease space on campus. The data, collected during summer 2013, are as follows:

MOFFITT CAFÉ

TYPE of PLASTIC WARE	QUANTITY (pieces/school year)
Plastic cutlery	2,377,600
Plastic lids	1,831,740
Compostable Cups	1,148,600
Plastic juice & soda bottles	996,986
Plastic straws	530,000
Plastic water bottles	121,216

NOTE: Data collected include campus-managed cafeteria, in-patient food service, and events/ meetings catered by the Café.

PRIVATE VENDORS

TYPE of PLASTIC WARE	QUANTITY (pieces/school year)
Plastic grocery bags	441,050
Plastic lids	430,000
Plastic cutlery	375,000
Plastic juice & soda bottles	56,556
Plastic water bottles	32,198

NOTE: Data collected from six of the private vendors and carts on campus. Vendor names withheld to maintain confidentiality.

WASTE MANAGEMENT INFRASTRUCTURE

UCSF contracts with Recology, a materials management company that the City of San Francisco also uses, to provide recycling, composting, and waste management services. The single-stream recycling program accepts a wide range of materials, including plastic resins #1 through #7, although expanded polystyrene (known more commonly by the brand name Styrofoam) and plastic grocery bags are not accepted. Recology also accepts a range of materials for its composting facility in Vacaville, California.

UCSF runs a unified recycling, composting, and discard campaign to educate the campus community on how to properly sort materials, all while using signage that is consistent with the City of San Francisco's. The campus also developed a 10-minute educational video,[7] which is featured on its *Living Green* website, and is used in staff trainings.

Now that UCSF is equipped with composting bins and universal signage throughout campus, the Recycling Coordinators and Medical Center staff are working together to purchase compostable food service ware for the Medical Center.

Waste Reduction and Management Initiatives

PROMOTING REUSABLE WATER BOTTLES

UCSF has access to high quality tap water that comes from the Hetch Hetchy Reservoir. Through a grant from the San Francisco Public Utilities Commission, UCSF has installed two hydration stations—one on the Parnassus campus (in the Millberry Union) and one on the Mission Bay campus. In addition, a few department offices have purchased ***Quench***, a water filtration unit that sits on a countertop and connects to a sink. Other offices have water cooler units that use large, refillable plastic water jugs.

All of these options reduce the need to purchase single-use water bottles and encourage staff to use reusable, refillable ones; however, water purification systems have less of an environmental impact than refillable water coolers because they do not require the regular transportation of heavy, plastic water jugs. Additionally, while UCSF's ***Living Green*** website calls attention to the hydration stations, there remains a significant opportunity to increase awareness about them among faculty, students, and staff.

7 http://sustainability.ucsf.edu/1.172

Campus Sustainability Goals

SUSTAINABILITY STEERING COMMITTEE (SSC)

UCSF's SSC supports initiatives of ten workgroups comprised of student, staff, and faculty representatives that focus on a range of approaches to reduce greenhouse gas emissions and improve overall campus sustainability. ***UCSF's 2011-2012 annual report***[8] highlights the workgroups' goals, achievements, and challenges. Three workgroups have missions that overlap and/or align with the goal of this Source Reduction Plan to reduce the use of disposable plastics in food service settings:

> ***Procurement Workgroup:*** Focused on incorporating best purchasing practices that are economically viable and environmentally preferable. With a grant from the U.S. EPA, UCSF is working with UC Berkeley to develop a software tool to flag third-party certified green products in "BearBuy"— an online purchasing system developed by UC Berkeley— to encourage procurement of environmentally preferable office supplies.
>
> ***Sustainable Food Workgroup:*** Focused on the UCOP sustainable food policy that campus and Medical Center food service operations shall strive to earn third-party "green business" certifications for sustainable dining operations. UCSF is working to incorporate UCOP guidelines for sustainable food service practices into all new leases and lease renewals with private vendors.
>
> ***Zero Waste Workgroup:*** Focused on incorporating best practices in recycling, composting, and re-use at UCSF facilities. With the exception of two sites, all campus buildings have compost bins within central areas of office suites and all café/dining areas have composting services on site.

Existing Municipal Ordinances and Programs

SAN FRANCISCO FOOD SERVICE WASTE REDUCTION ORDINANCE

The City and County of San Francisco passed the Food Service Waste Reduction Ordinance in 2006 to reduce marine debris and other environmental impacts, as well as to minimize the potential health impacts of polystyrene, which contains carcinogenic chemicals that can leach into food or drinks. The Ordinance:

- prohibits the use of polystyrene (Styrofoam™) "to-go" containers by all establishments serving food in San Francisco; and
- requires food vendors and restaurants to use only compostable or recyclable to-go food service ware.

All private food vendors leasing space on the UCSF campus must comply.

The San Francisco Department of the Environment (SF Environment) clearly defines the specifications for compostable food service ware:

> *"Compostable plastic products must be clearly labeled 'Compostable' (sticker or printing) in a green color or within a green band in order to distinguish the product from conventional plastic. Cutlery must be embossed with the word 'Compostable' on each piece. Compostable plastics must meet ASTM D6400 standards for compostable plastics. The Biodegradable Products Institute maintains a list of certified compostable products that meet the ASTM standard: BPIworld.org."* —SF Environment

SAN FRANCISCO MANDATORY RECYCLING AND COMPOSTING ORDINANCE

In 2009, San Francisco passed a first-in-the-nation Mandatory Recycling and Composting Ordinance requiring all residents and businesses to participate in the City's recycling, composting, and disposal program. Under the ordinance, residents are issued three color-coded containers, and residential and commercial property managers are required to provide these containers to their tenants, along with program information. SF Environment also trains vendors on how to properly segregate materials at the "back of the kitchen" through its vendor café program. . UCSF uses the three container system throughout campus and also takes advantage of the vendor café training program. Consistency with San Francisco's program ensures a seamless transition for handling solid waste materials on or off campus.

SAN FRANCISCO CHECKOUT BAG ORDINANCE

The City and County of San Francisco banned single-use plastic checkout bags at grocery stores and pharmacies in 2007. The Ordinance was expanded in 2012 to cover all retail locations beginning October 1, 2012, and all food establishments beginning October 1, 2013. Stores must replace single-use plastic checkout bags with:

- "Compliant" checkout bags, which include certified compostable plastic bags;
- Paper bags that have at least 40 percent post-consumer recycled content; or
- Reusable checkout bags that consumers can purchase at the point-of-sale.

Stores must charge their customers a minimum of 10 cents for each compliant checkout bag that the store

8 Annual Sustainability Report FY11-12 http://sustainability.ucsf.edu/what_ucsf_is_doing_2/annual_report_fy11_12

supplies, and this charge must be displayed separately on the customer receipt. (The 10-cent fee does not apply to on-site purchases of reusable bags.) The plastic bag ban applies to all private food vendors and the Medical Center, including the Moffit Café at UCSF.

PLASTIC SOURCE REDUCTION OPTIONS FOR UCSF

Plastic cutlery, lids, juice and soda bottles, straws, and bags are the disposable plastic items purchased in the largest quantities each year. UCSF's Moffitt Café has launched an initiative to replace these items with compostables, as the infrastructure for composting exists, and composting is higher on the waste hierarchy than disposal. In addition, compostables enable UCSF to streamline its messaging – leftover food and food service ware are both placed in the composting bin. Options discussed below focus on plastic source reduction that is achievable through the increased use of reusable items (most preferred), along with the use of recyclable and compostable items, where reuse is not possible (less preferred).

CUTLERY

Of all disposable plastic food service ware items, plastic cutlery is purchased in the greatest quantities at the Moffitt Café, and it is the third most commonly purchased disposable plastic item for private vendors at UCSF. The following options would help reduce UCSF's plastic cutlery use:

OPTION 1: Encourage reusable cutlery. The Moffitt Café could eliminate virtually all of its disposable cutlery by switching to reusable cutlery and, for take-out dining, offer an incentive to customers using reusable utensils.

OPTION 2: Use compostable cutlery.

Moffit Café is pursuing compostable cutlery, since a composting infrastructure already exists on campus, and since the café is already purchasing compostable plates. Strategy 2 also requires minimal education, as all compostable cutlery and plates get collected in the same container along with leftover food. Once UCSF's existing cutlery supplier contract ends in 2015 or 2016, the Medical Center also plans to switch to using compostable cutlery.

Option 1 is currently not viable as the cafeteria does not have sufficient space for on-site dishwashing. If the university has plans to renovate the cafeteria in the future, these plans should include the addition of on-site commercial dishwashers.

UCSF's recycling coordinators are trying to facilitate a change to compostable cutlery with the private on-campus vendors. The coordinators have collected samples of disposable plastics currently used by the vendors, identified similar items purchased by multiple vendors (such as plastic cups), and using the purchasing power amassed by more than 12 vendors, trying to negotiate more favorable pricing on behalf of the vendors.

LIDS

Plastic lids are the second most widely purchased disposable plastic food service ware item for both Moffitt Café and private vendors. The following options would help reduce plastic lid use:

OPTION 1: Expand use of reusable mugs/cups. Through UCSF's "Bring Your Own Cup" (or B.Y.O.C.) campaign, participating retail vendors that lease space on campus offer discounts on coffee to customers using reusable containers or mugs. Customers can purchase any larger drink size, up to 16 ounces, for the same price as a small-sized drink. This program could be expanded to all vendors and to other types of drinks (e.g., fountain drinks).

Private Retail Vendors Offering Coffee Discounts to Customers Through UCSF's "Bring Your Own Cup (B.Y.O.C)" Campaign:

Café 24	Lunch Stop
Café Bellini	Moffit Long Hospital Eateries
Caffe Terzetto	Palio Café
Caffe Terzetto Express	Peasant Pies
Carmelina's Café	The Pub
The Daily Grind	The View
Jamba Juice	920 Express

OPTION 2: Provide plastic lids upon request only. This option reduces plastic waste since customers would receive a lid only if they asked for it.

OPTION 3: Purchase compostable alternatives. Compostable lids are an alternative to disposable lids and, if used with compostable cups, can easily be collected with other compostable food service ware collected on campus.

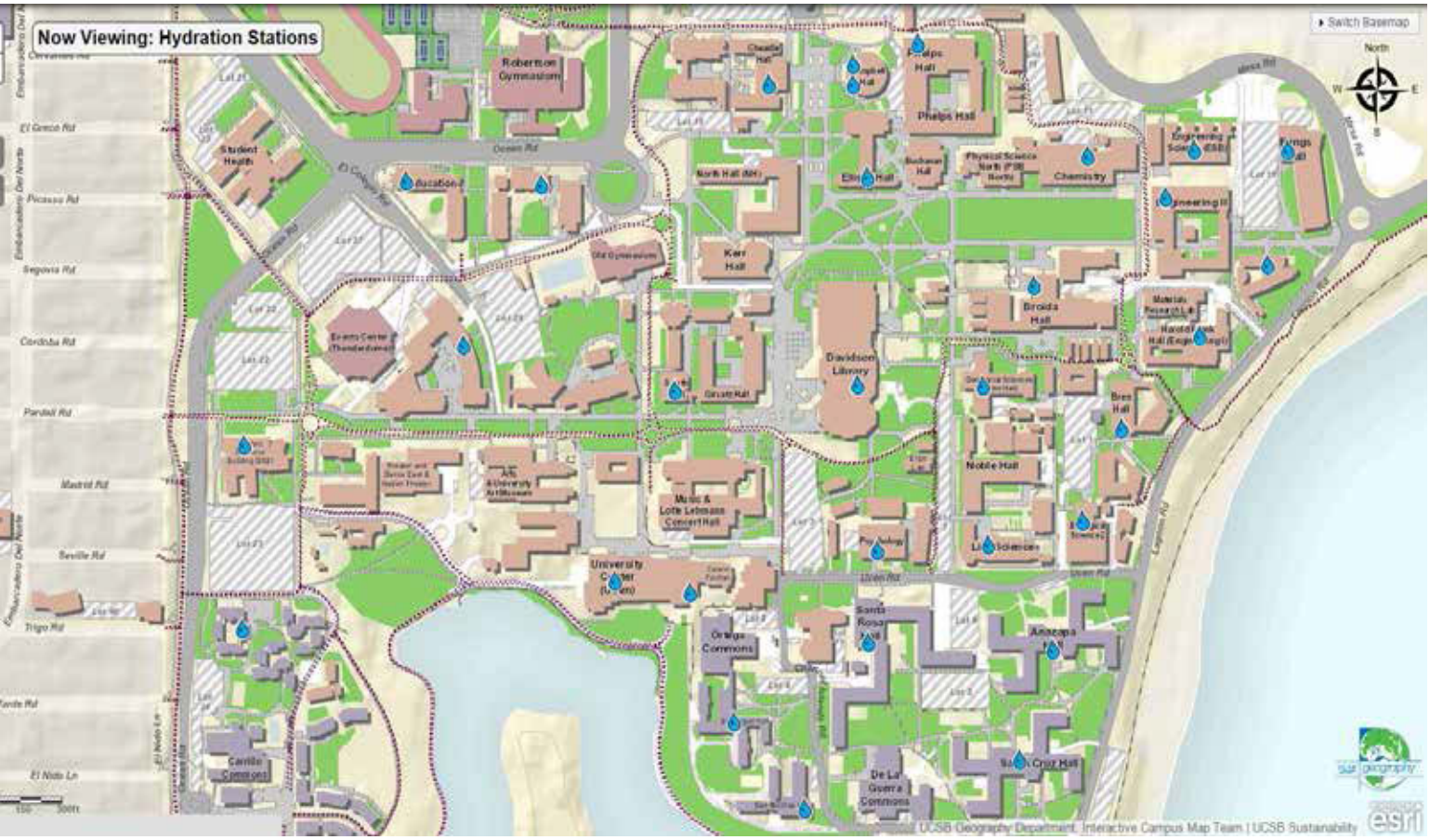
The Medical Center has decided to pursue Strategy 3 to coincide with its switch to compostable cups.

STRAWS

Moffitt Café uses over 500,000 plastic straws each year. Options for reducing their use include:

OPTION 1: Ban plastic straws on campus. This option would immediately reduce the amount of disposable plastic used on campus.

OPTION 2: Reusable straws. Reusable straws, made from metal, bamboo, or glass, are an option to disposables.



OPTION 3: Use compostable straws. Paper or compostable plastic straws are another option compatible with UCSF's recovery infrastructure.

Unfortunately, banning straws altogether is difficult to accomplish in a medical environment, where they are often used to prevent the spread of germs. Therefore, we recommend that the Medical campus switch to compostable straws as soon as existing food service ware vendor contracts expire.

BAGS

As of 2013, plastic grocery bags were the single most-purchased plastic food service ware product among private vendors at UCSF. However, as mentioned earlier, the City and County of San Francisco expanded an ordinance banning single-use plastic checkout bags in 2012 that impacts UCSF's campus vendors. For example, the on-campus Subway restaurant is no longer using plastic sandwich bags; instead, it has purchased paper bags (branded with Subway's logo) and provides them only upon request. See the Resources section on page 49 for a list of vendors providing recyclable or compostable bags.

Given that vendors are already in compliance with the City and County ordinance, this Source Reduction Plan does not provide additional source reduction strategies for bags.

PLASTIC BOTTLES

More than 1 million single-use plastic bottles containing juice, soda, or water are purchased by Moffitt Café and another 88,000 are purchased from private vendors. UCSF recently initiated a healthy eating campaign that encourages the campus community to drink water rather than sugary beverages. This campaign provides an opportunity to simultaneously educate the UCSF campus about the benefits of using refillable water bottles. The following strategies would help reduce UCSF's disposable plastic bottle use:

OPTION 1: Promote use of existing hydration stations. As of January 2014, two hydration stations are installed on UCSF's campus; however, only one of these is in a high-traffic location. Outreach and signage would provide greater visibility and promote tap water as an alternative to bottled water. For example, Portland State University's Campus Sustainability Office provides maps identifying locations of hydration stations (see below), and UC Santa Barbara has an interactive online map[9] identifying hydration station locations.

OPTION 2: Install additional hydration stations. Installing additional hydration stations in key locations (i.e., in buildings where the vending machines are located) will increase convenience for

9 http://map.geog.ucsb.edu

and use by students, faculty, and staff. Alternatively, existing water fountains can be retrofitted with water spouts to accommodate reusable water containers.

OPTION 3: Provide no-cost or low cost refillable bottles. Providing free or low-cost water bottles encourages the use of hydration stations. These reusable, refillable bottles can be given away as part of a hydration station promotional campaign. Or, they can be included as part of a welcome package for new students, faculty, and staff, along with information about the location of hydration stations and UCSF's efforts to reduce plastic waste on campus in general. Providing refillable water containers for purchase at Moffitt Café and at private vendor locations at UCSF would help, as well—as would implementing and/or supporting initiatives to restrict or ban the use of disposable water bottles on campus.

UCSF is implementing options 1 and 2. PSI project funding from U.S. EPA enabled UCSF to add goose-neck water spouts to existing fountains to accommodate refillable bottles. Due to the early success and attention of the first few water filling stations, UCSF's Chancellor agreed to invest $17,500 in additional water spouts throughout campus over the next year. UCSF should draw attention to the new spouts with signage and, once the additional spouts have been installed, develop campus maps denoting their locations.

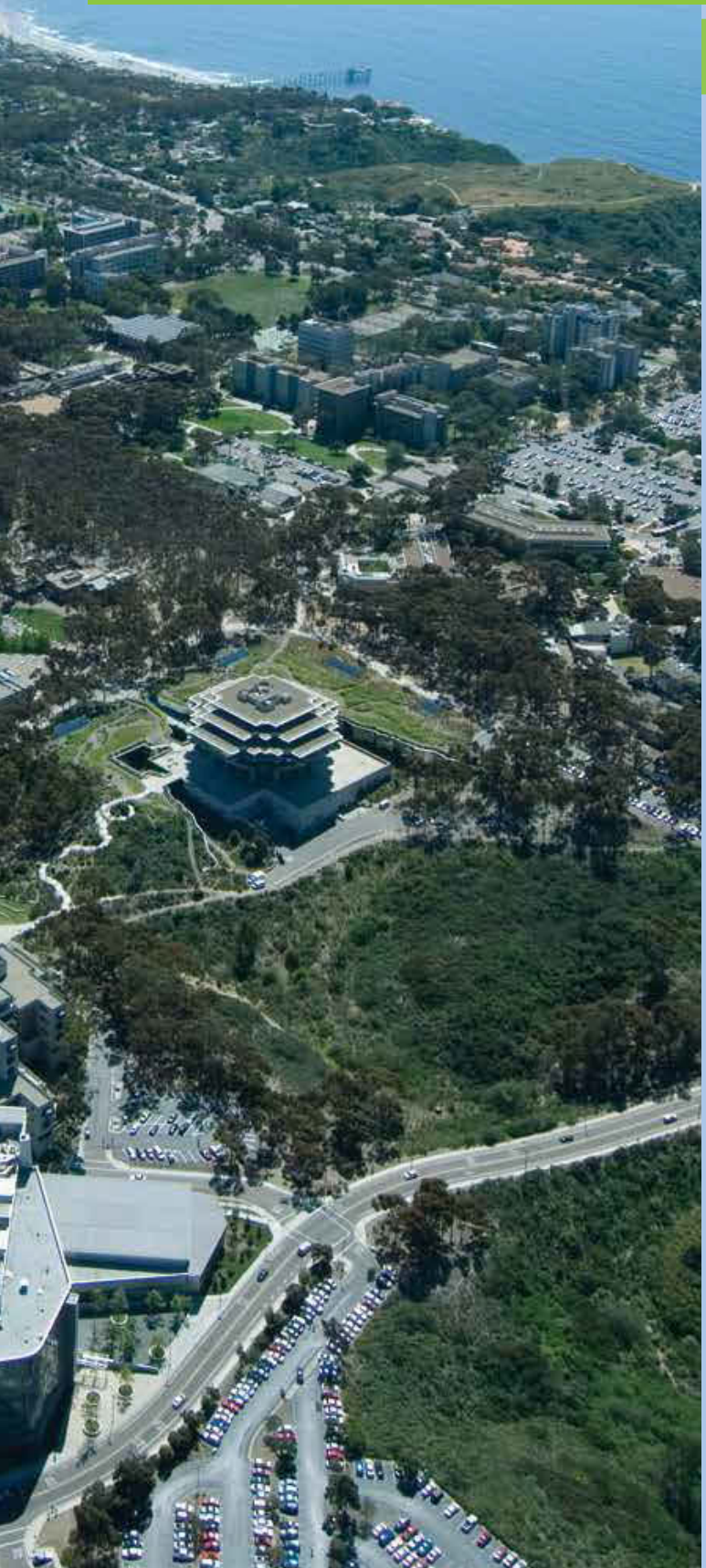
SOURCE REDUCTION PLAN RESULTS:

UCSF implemented the following source reduction and substitution strategies over the course of this project:

- ✓ **In Summer 2014,** UCSF retrofitted four existing water fountains installed in high-traffic locations on the Parnassus campus and installed five water fountains on the Mission Bay campus. Project funding from U.S. EPA enabled UCSF to add goose-neck water spouts to existing fountains to accommodate refillable bottles (see picture). The early success of these water filling stations enabled UCSF to obtain $17,500 from the UCSF chancellor to install additional water spouts throughout campus over the next year. It is too early to measure the impact of the water fountains, but by Summer 2015, UCSF should take stock of the number of disposable plastic bottles purchased on campus to determine the fountains' influence on disposable bottle use.
- ✓ **The Moffitt Café** will be substituting disposables with compostable cutlery by July 1, 2016, replacing 2,377,600 pieces of disposable plastics with compostable plastic each year.
- ✓ **As a purchaser** of large quantities of food service ware, the Medical Center has amassed enough purchasing power to negotiate more favorable pricing for compostable products. Unfortunately, UCSF's smaller on-campus private vendors do not have this negotiating power. For this reason, UCSF's Recycling Coordinators are working with compostable food service ware supplier World Centric to identify products that all vendors can use. By combining their purchases, private vendors may be able to negotiate a lower price for compostable products in the same way that the Medical Center does.

Source Reduction Plan Case Study #3

University of California at San Diego (UCSD)



Located a few miles north of the City of San Diego in La Jolla, California, the University of California San Diego (UCSD) spreads over 1,200 acres of coastal woodlands. The campus is within walking distance of the Pacific Ocean. Each of the six undergraduate colleges has its own buildings grouped together and provides on-campus housing. The University Centers, made up of the Price Center (PC) and the old student center, are the main student hubs and are centrally located in the heart of the campus. The PC is home to a range of amenities, including fast food restaurants and other eateries, the campus bookstore, a movie theater, and office space for student organizations and faculty.

Dining at UCSD

The Department of Housing, Dining, and Hospitality (HDH) provides a wide range of dining options for students spread throughout campus. There are eat-in restaurants (e.g., The Bistro, Café Ventanas) that also offer food to-go, smaller cafés and coffee shops, as well as six Place and Markets (P&Ms), which are convenience stores with a deli, fresh produce, and a coffee bar. Every HDH dining facility, with the exception of Foodworx and Goody's, uses durable food service ware, as the kitchens have on-site dishwashing.

In addition to the eateries managed by HDH, 26 independent food retail establishments, referred to

in this plan as private vendors, lease space on campus. Many of these private vendors are retail chains that are located in the food court in Price Center.

The following list includes all dining options available to students and staff on the UCSD campus:

OWNED & OPERATED BY UCSD	PRIVATE VENDORS LEASING SPACE ON CAMPUS
Restaurants/dining facilities with to-go options • Café Ventanas • Canyon Vista • Club Med • The Faculty Club[10] • Foodworx • OceanView Terrace • Pines • Roots • The Bistro (at the Strand) • The Food Co-op (student run co-operative) • General Store (student run convenience store) *Place and Markets (P&M)* • Earl's P&M • Goody's[11] P&M • John's P&M • Roger's P&M • Sixth P&M • The Village P&M *Coffee shops and cafés* • Fairbanks coffee (5 locations on campus) • Muir Woods • Perks	• Art of Espresso Café • Bella Vista Social Club and Caffé • Bombay Coast (Price Center) • Burger King (Price Center) • Come On In! Café • Croutons (Price Center) • Cups Outdoor Café • Espresso Roma Café (Price Center) • Hi Thai (Student Center) • Home Plate • Incredi-Bowls (food truck) • Jamba Juice (Price Center) • Panda Express (Price Center) • Peet's Coffee & Tea • Porters Pub • Round Table Pizza (Price Center) • Rubio's (Price Center) • Santorini Greek Island Grill (Price Center) • Shogun (Price Center) • Subway (Price Center) • Sunshine Market (Price Center) • Tapioca Express (Price Center) • Yogurt World (Price Center) • Zanzibar Café (Price Center) • Café Olé (coffee cart)

Campus Priority Products

Using the Plastic Footprinting Tool, PSI worked with UCSD student interns and sustainability staff to obtain procurement data on disposable plastic food service ware. The following data, collected in December 2013, represent two sources of annual purchasing: eateries run by UCSD's Housing, Dining and Hospitality department (restaurants, residential dining facilities, P&Ms, and catering operations) and a sampling of private fast food vendors (four establishments) that lease space on campus. From this information, we identified the most prevalent disposable plastic items purchased.

HOUSING, DINING, AND HOSPITALITY

TYPE of PLASTIC FOOD SERVICE WARE	QUANTITY (pieces/school year)
Plastic cups	19,141,915 pieces
Plastic lids (including lids for containers)	16,218,722 pieces
Plastic cutlery	5,880,100 pieces
Plastic clamshells and other plastic food containers	4,288,605 pieces
Plastic straws	921,327 pieces

Note: Data collected include campus-managed restaurants, residential dining facilities, P&M, and catering operations.

10 The Faculty Club does offer food in to-go containers but provides very little single-use plastics. The vast majority of customers dine-in.

11 Goody's can be considered as two locations, an eatery upstairs and a P&M downstairs.

PRIVATE VENDORS

TYPE of PLASTIC FOOD SERVICE WARE	QUANTITY (pieces/school year)
Plastic lids (including lids for containers)	156,016,400
Plastic cups	120,012,000
Plastic stirrers	105,004,000
Plastic straws	100,774,400
Plastic cutlery	29,902,500
Plastic bags	1,896,500
Compostable or biodegradable utensils	1,325,097

Note: Data collected include sample of 4 out of 26 private vendors and carts on campus.

WASTE MANAGEMENT INFRASTRUCTURE

UCSD has a single-stream recycling program that accepts a wide range of materials, including all #1 through #7 plastic resins (excluding plastic films such as plastic bags, food wrappers, etc. and expanded polystyrene foam). There are still some locations on campus that have separate collection bins for different materials (e.g., mixed paper, plastic, and glass). In 2012, UCSD installed 50 Big Belly solar-powered compacting trash and recycling receptacles in high-traffic areas around campus, replacing the existing containers. These receptacles electronically compact waste inside the bin and also notify facilities management staff when they need to be emptied. This has resulted in the following benefits: a 90 percent reduction in weekly collections and trash liner use; a 56 percent reduction in greenhouse gas emissions associated with collection; and the elimination of animal intrusions.

Since 2011, UCSD has also participated in the commercial food scraps composting program, run by the City of San Diego's Environmental Services Department (ESD). UCSD employees separate pre-consumer food scraps in each of the 10 kitchens/prep stations and in the six P&Ms on campus. The food scraps, along with lawn trimmings, are sent to Miramar Greenery, where compost certified by the U.S. Composting Council is produced. UCSD piloted biodegradable cups made from corn; however, the cups were not compatible with Miramar Greenery's 10-week composting process, as they did not degrade within this time frame. ESD tested compostable cutlery made from PLA plastic and wood; these materials did not degrade within this time frame, either. Based on these results, ESD decided not to accept any type of compostable product at the Miramar Greenery with its routine collection. UCSD subsequently decided to purchase only #1 and #5 recyclable plastic food service ware to avoid contamination and create a consistent message to students to place the disposable plastic items in the recycling.

Waste Reduction and Management Initiatives

REDUCING SINGLE-USE PLASTIC WATER BOTTLES

In 2013, UCSD's Department of Housing, Dining, and Hospitality (HDH) decided to eliminate water bottles from all of the on-campus dining facilities in an effort to decrease the amount of water bottles the department purchases. The P&Ms, as well as the privately owned vendors on campus, are the only options that patrons have for purchasing bottled water. As an alternative, each of the dining halls has a hydration station conveniently located both inside and outside the building.

To promote the use of the 50 hydration stations located across the campus, HDH has been providing on-campus residents with free reusable water bottles with some of the locations printed on the bottle. In total, HDH distributes 11,000 reusable water bottles to campus

residents each year. The other UCSD hydration station locations can be found online.[12]

PROMOTING REUSABLE CUPS

HDH provides a 20-cent discount on coffee and all fountain drinks to students at campus-managed eateries if they bring their own reusable cup or mug. Currently, HDH is promoting this initiative aggressively all over campus by placing advertisements at the register in all P&Ms. In addition, in 2013, six MBA students at UCSD launched "Kill the Cup," a social outreach campaign to influence student behavior and increase the use of reusable coffee mugs at HDH eateries. The 8-week campaign, which ran from April 1 to May 26, 2013, was a success, resulting in nearly a 70 percent increase in the number of cups of coffee bought with reusable containers. In fact, it prevented an estimated 1,300 disposable cups from entering landfills while reaching more than 8,500 campus community members through social media. The following vendors participate in the program:

VENDOR AT UCSD	OFFER DISCOUNT FOR "BRING YOUR OWN"	DISCOUNTS FOR REFILLS FOR STORE-BOUGHT CUPS
Bombay Coast	No	Yes – 2 free refills
Burger King	No	Yes – free refill
D'Lush	Yes, for coffee – charge as a 12 oz.	Yes, for coffee – $1 refill
Hi-Thai	No	Yes - $.50 refill
Panda Express	No	Yes – free refill
Rubio's	No	Yes – free refill
Subway	Yes – charge as a small	Yes – free refill

TOBY'S SPOT REUSABLE DISHWARE PROGRAM REUSABLE CONTAINER PILOT

Toby's Spot was a program at UCSD that allowed students to take food to-go using durable plates, bowls, glasses, and silverware from each of the six dining halls. When they were done eating, students would return the reusable dishware to one of the Toby's Spot drop-off sites, located throughout the different housing areas on campus. Each drop-off site consisted of a roll-around cart containing bins in which to place soiled dishware for washing and reuse. This program eliminated the need to use disposable plastic food service ware and provided a convenient option for students on the go. However, the program ended because of various operational challenges, including the frequent loss or misplacement of the reusable dishware, maintenance costs, and animal intrusions in the uncovered carts.

UCSD POLICY ON DISPOSABLE POLYSTYRENE

As UCSD moves toward its zero waste goal for 2020, the campus is requiring all vendors within the University Centers (Price Center and the Student Center) to eliminate polystyrene foam and other disposable polystyrene plastic products. UCSD's policy, which was first implemented in 1989, only allows the use of these products if no other alternative is available. Currently, none of the private vendors located in Price Center or the Student Center carries any disposable polystyrene products.

Campus Sustainability Goals

UCSD CLIMATE ACTION PLAN

UCSD developed a Climate Action Plan in 2008 to outline steps to meet the UC zero waste goal by 2020. The following actions, identified in 2008, relate to reducing the plastic footprint at UCSD, either directly or indirectly:

- Improve the single-stream recycling program by updating and homogenizing containers and signage

12 http://hdh.ucsd.edu/sustainability/hydration.asp

- Improve waste reduction efforts
  - Education efforts may also focus on reducing waste through encouraging the use of durable, re-usable products whenever possible
- Develop a campus-wide composting program
- Supply new water fountains and water distribution stations to reduce the need for bottled water
- Evaluate tools for improved data collection and record keeping and implement the new record keeping program
- Increase education of all staff, students, and faculty regarding the recycling program

EDUCATIONAL CAMPAIGN – GREEN GUIDE

The **Green Guide**[13] is a small booklet that is given to on-campus residents when they move in. The booklet educates readers about daily activities that promote sustainability, what HDH is doing to become more sustainable, and what sustainability initiatives exist on campus currently. It covers various topics, including consumption, energy, food, recycling, compost, donating, e-waste, and transportation.

Existing Municipal Ordinances and Programs

PROPOSED PLASTIC BAG BAN

The City of San Diego previously introduced legislation that would ban plastic bags and require most stores to assess a 10-cent surcharge for customers who ask for a paper bag. The plastic bag ban proposal passed the City Council's Rules and Economic Development Committee in October 2013 and was awaiting an economic impact report. This study was deferred when California's governor passed a state-wide ban of single-use carryout bags in September 2014. However, implementation of this ban is uncertain as an alliance of plastics manufacturers is trying to overturn the ban.

PLASTIC SOURCE REDUCTION OPTIONS FOR UCSD

Options discussed below focus on plastic source reduction that is achievable through the increased use of reusable items (most preferred), along with the use of recyclable items, where reuse is not possible (less preferred). UCSD's options for compostable food service ware are limited by Miramar Greenery's inability to accept these items. Therefore, UCSD has pursued recyclables, which enables the campus to use a simple message – if it's plastic, recycle it.

CUPS

Plastic cups were purchased by HDH more than any other product, and were a "Top 5" most-purchased item among private vendors who provided procurement data.

> ***Encourage use of reusable mugs/cups by offering discounts.*** HDH provides a 20-cent discount on coffee and all fountain drinks to students at campus-managed eateries if they bring their own reusable cup or mug. Currently, HDH is trying to promote this initiative aggressively all over campus by placing advertisements at the register in all P&Ms. While a few of the private retail vendors on campus also offer drink discounts for reusable mugs/cups, this information is not as well advertised. UCSD could encourage vendors to more prominently feature their discounts, and HDH could partner with the vendors to launch a campus-wide reusable discount program. As the success of the "Kill the Cup" student-led initiative demonstrates, education and outreach is critical, and social media can be an effective tool for reaching students to encourage behavior change.

UCSD is implementing this strategy.

LIDS

Plastic lids were the second most-purchased disposable plastic item in HDH, and a "Top 5" most-purchased item among private vendors who provided procurement data. Options for reducing beverage lids include:

> ***OPTION 1: Encourage use of reusable mugs/cups by offering discounts.*** As noted above, HDH provides a 20-cent discount on coffee and all fountain drinks to students at campus-managed eateries if they bring their own reusable cup or mug. Only a few private vendors extend a similar discount. UCSD could encourage vendors to more prominently feature their discounts, and HDH could partner with the vendors to launch a campus-wide reusable discount program. In eight weeks, the student-led "Kill the Cup" initiative reduced coffee cup use by 70 percent. A financial incentive combined with a social media campaign can be an effective tool for reaching students to encourage behavior change.
>
> ***OPTION 2: Provide plastic lids upon request only.*** This will help prevent situations where customers receive plastic lids that they may not need, want, or even use.

UCSD decided to implement Option 1, as it complements the strategy the campus is using to reduce the use of cups.

13 http://hdh.ucsd.edu/sustainability/docs/GreenGuide.pdf

CUTLERY

UCSD uses recyclable plastic cutlery. While recyclables are preferable to disposables, reducing single-use cutlery is the preferable option. Options for reducing plastic cutlery include:

OPTION 1: Implement a reusables program. UCSD could offer an incentive to customers using reusable utensils.

Option 2: Provide recyclable plastic cutlery upon request only. HDH dining facilities provide durable food service ware for students eating on-site, but students may also purchase items to-go. UCSD could make recyclable plastic cutlery available only upon request and work with private vendors to do the same.

UCSD decided to implement Option 2, as this option is the best fit with the campus' ongoing initiative to encourage the use of recyclable plastic.

CLAMSHELLS AND OTHER FOOD CONTAINERS

Recyclable plastic clamshells and other food containers were the second most-popular type of items purchased by HDH. Options for reducing these containers include:

OPTION 1: Encourage eat-in rather than take-out. HDH dining facilities provide durable food service ware for customers eating on-site. Therefore, by providing a comfortable environment, and/or by increasing the size of seating areas, UCSD could encourage more customers to dine in. In addition, UCSD should continue to implement an "ask first" policy—asking customers whether their purchases are "For here?" or "To go?"—as this prompts customers to consider whether they really need to take their purchases off-site.

OPTION 2: Purchase reusable to-go containers. UCSD could consider re-implementing an improved Toby Spots program, or purchasing reusable "eco-clamshell" and/or other to-go containers. Reusable to-go containers, such as the one pictured here, have proven to be a viable option at a number of universities across the country. They work best in conjunction with container return sites located at dining facilities or at kiosks that track user activity via tokens or university identification cards. Significant education and outreach is also essential to program success. (Further information about these containers can be found in the Resources section on page 49.)

photo credit: WebstaurantStore.com

The campus decided to implement Strategies 1 and 2. Beginning Fall 2014, the Oceanview Terrace eatery will be pilot testing the Ozzi container system,[14] which links reusable containers with a reverse-vending machine. When a customer is finished with their meal, they place their emptied container in the machine's slot and receive a token. Containers are collected from the machines and washed. The token is redeemable for another container the next time the customer wishes to purchase a to-go meal. UC Merced was one of the first campuses to test this system and received California Higher Education Sustainability Committee award for "Best Innovative Waste Reduction Program." Since the original pilot, UC Merced has expanded the program to four campus locations.

A campus-wide reusable container system is likely to yield the largest plastic source reduction impact at UCSD. HDH currently uses over 4 million single-use clamshells a year, plus single-use plastic lids for other take-out containers. Further reductions are achievable by combining reusable cutlery with the reusable container.

STRAWS

Plastic straws were the fifth most prevalent type of disposable plastic purchased by HDH, and one of the "Top 5" items among private vendors who provided procurement data. Options for reducing their use include:

OPTION 1: Ban plastic straws on campus. This option would immediately reduce the amount of disposable plastic used on campus.

OPTION 2: Reusable straws. Reusable straws, made from metal, bamboo, or glass, are an option to disposables.

OPTION 3: Provide straws upon request only. Getting HDH and private vendor customers to stop and think about whether they need a straw could result in a simple, but long-term, behavior change that will reduce plastic straw waste.

UCSD may pursue strategies 1 and 2 in the future, but for now, the campus has deemed straws less of a priority than other products, and is therefore not addressing them at this time.

14 See http://www.agreenozzi.com/ for further information.

PLASTIC BAGS

Plastic bags are a significant source of single-use plastic in marine debris. Although it is uncertain whether the state-wide ban will be overturned, UCSD could implement the following options:

OPTION 1: Ban single-use bags on campus. UCSD previously banned polystyrene foam packaging for food service ware. This provides precedence for implementing an on-campus ban of single-use bags.

OPTION 2: Encourage use of reusable bags. UCSD sells reusable bags at its Place & Markets and the campus bookstore and does not provide plastic bags to customers at the campus-managed eateries. However, most, if not all, of the private retail vendors are still giving plastics bags away to customers with their purchases. UCSD could work with private vendors to require or otherwise encourage them to stop providing plastic checkout bags to their customers. This initiative could begin as a pilot that encourages private vendors to take proactive steps to reduce waste and comply with a potential future city-wide or even state-wide plastic bag ban.

OPTION 3: Offer single-use bags by request only. UCSD could work with vendors to implement a "by request only" policy, offering disposable bags to customers only when they request one. This policy could be reinforced with an education and awareness campaign promoting reusable bags.

UCSD is working with vendors to eliminate plastic bags.

SOURCE REDUCTION PLAN RESULTS:

UCSD implemented the following source reduction strategies over the course of this project:

- ✓ **UCSD negotiated** with on-campus Subway restaurants to eliminate plastic sandwich bags and plastic straw sleeves by summer 2014, thereby eliminating over 1 million sandwich sleeve bags each year and saving the franchisee approximately $14,000 per year.
- ✓ **As of June 2014,** two additional hydration stations have been installed in the Scripps Institution of Oceanography building. Each hydration station will eliminate approximately 60,000 disposable water bottles per year.
- ✓ **A group of students** is submitting a proposal to UCSD's "Green Grants" to implement an "eco-clamshell" or reusable container initiative on campus.

The following list of plastic source reduction options represent practical, effective means of further reducing plastic use on campuses:

For dine-in eateries:

- ✓ Use reusable cups, plates, glassware, and cutlery
- ✓ Offer straws only on request, and only use paper straws
- ✓ Do not use single-serving packaging (for example, serve milk or cream for coffee in a pitcher rather than in single-use servings)
- ✓ Offer beverage stirrers only on request, and only use wood stirrers
- ✓ Use compostable or recyclable, and preferable non-plastic packaging for sending leftovers home

For take-out eateries:

- ✓ Participate in a reusable container system (as described in the next few pages)
- ✓ Offer discounts to customers bringing their own cups and cutlery
- ✓ Do not use single-serving packaging (for example, serve milk or cream for coffee in a pitcher rather than single-use servings)
- ✓ Offer straws only on request, and only use paper straws
- ✓ Offer beverage stirrers only on request, and only use wood stirrers
- ✓ Ensure that any disposable packaging used is compatible with the local waste infrastructure
- ✓ Eliminate expanded polystyrene (Styrofoam™) products
- ✓ Offer non-bottled tap water
- ✓ Eliminate plastic bags

Campus Water Bottle Filling Stations

HYDRATION STATIONS

"Hydration stations" are a modified water fountain installation that provides users a means of easily refilling a water bottle from tap water sources. Hydration stations can provide unfiltered or filtered water, and it can also be chilled. Some stations come with a feature that shows how many disposable water bottles have been eliminated from the waste stream by using the station. Hydration stations can either be bought new or retrofitted onto an existing water fountain. Brands offering either option include Oasis and Elkay.

Hydration stations, including those made by these two manufacturers, typically offer optional filtration features to improve the quality and taste of water served. Filtering the water increases station maintenance costs as the filters are expensive and must be replaced regularly depending on use. For example, heavily used stations such as those at exercise facilities need to have filters changed once a month, on average, whereas less frequently used stations need filters changed quarterly.

Elkay filters cost $72 each and can filter 3,000 gallons before replacement is necessary. The process of changing the filters is fairly easy and takes about 30 minutes per station. In total, filter replacement can cost up to $1,200 per year for a highly utilized station; for a less utilized station, replacement costs are around $400 per year.

Advantages

- Eye-catching and popular
- Elkay hydration stations have "Bottle Replacement" counter feature
- Filtered models are available
- High refill rates (Elkay fills at 1.5 gallons per minute)

Disadvantages

- Costly ($1,200+)
- Some retrofits possible only with a certain type of installed water fountain

Recommendations

- Don't use the filters unless there is a complaint about the taste of the tap water.

GOOSENECK FIXTURES

Gooseneck fixtures are an elongated spout that is affixed to water fountains to provide water bottle filling capability. Users typically press a small lever located at the base of the spout to activate water flow. The length of the neck enables tall containers such as water bottles to be filled while being help upright. Gooseneck fixtures are featured on some water fountain models or can be added to a preexisting water fountain. Costs vary depending on installer, but costs range $400 to $500 for the fixture and labor for installation.

Advantages

- Lower cost compared to hydration stations ($400-500)
- Can be added to any existing water fountain

Disadvantages

- Less distinct visually
- No additional features compared to drinking fountain
- Low refill rate (average of .4 gallons per minute)

Recommendations[15]

- An easy-to-read map can help show where water can be obtained on the campus (on school website and physical map of campus)
- Water fountains and hydration stations should be cleaned and sanitized regularly as users are reticent to use stations that appear dirty.
- Promote hydration stations to ensure their widespread use:

15 See http://www.aashe.org/events/webinars/2013-empowering-procurement for example.

- Highlight hydration stations in school newspaper, university websites, email alerts.
- Promote reusable water bottles through student games/lotteries/giveaways.
- Distribute brochures, flyers, and fact sheets.
- Encourage use at new student orientation events.
- Organize "tap water challenges" where students taste-test tap and bottled water to reduce stigma regarding tap water palatability.

- Provide a means for students to obtain reusable bottles at low cost or for free.
  - Organize reusable water bottle give-aways on campus.
  - Offer high quality reusable water bottles for sale at campus bookstore, other retailers.
- Display colorful signage above a refilling station to promote use and awareness; signage should feature interesting facts about water bottle waste and related topics to raise awareness.
- Install signage on or next to filling stations to demonstrate use.
- If there are complaints about the taste of the tap water, consider adding a filter to the water fountain.

Reusable To-Go Containers

Many campuses offer a reusable clamshell container for take-out dining. These one-piece containers are made up of two halves joined by a hinge that allows the container to open and close. Containers may be distributed to the campus community for free or at low-cost. Diners initially receive their meal in the reusable container at a campus eatery. After finishing their meal, customers return the clamshell to a central area (such as a dining hall or food court). In exchange for returning the container, the customer receives a token or other form of credit (credit may be stored on a swipe card). The reusable containers are then collected, cleaned, and sanitized, and made available for future use at participating eateries. The token is redeemed the next time the customer purchases a take-out meal, and most programs also offer a discount for using the reusable containers.

Reusable to-go container systems have been implemented successfully at several campuses, such as University of California at Merced[16] and University of Vermont[17]. Some campuses include reusable cutlery as a component of their reusable container program as well. How to Start a Reusable Takeout Container Program at Your College[18] is a valuable resource for campuses rolling out reusable systems. Eckerd College has a similar handbook[19] based on that campus's experience. Both resources suggest that you start off small – develop a pilot program at one campus-managed eatery. Make sure you thoroughly plan your pilot before launching – early problems can affect the long-term success of your pilot.

Reusable To-Go Cutlery

University of Vermont piloted a reusable spork (a one-piece combination of spoon, knife and fork) in fall 2010. Due to gaining popularity, UVM Dining agreed to expand their availability on campus. Students can purchase a spork for $1, and receive a $0.05 discount on take-out meals when using their spork. Other reusable to-go cutlery options are available, and include a carrying case to readily keep on hand.

Vendors of Compostable and Recyclable Food Service Ware and Bags

The San Francisco Department of the Environment has assembled a list of vendors that provide compostable and/or recyclable food service ware and bags that meet the city and county's Food Service Waste Reduction Ordinance.

16 http://dining.ucmerced.edu/ozzi-initiative-new/how-use-ozzi

17 https://uvmdining.sodexomyway.com/planet/composting.html

18 http://www.shareable.net/blog/how-to-start-a-reusable-takeout-container-program-at-your-college

19 http://www.eckerd.edu/green/files/EckerdEcoClamshell-Handbook.pdf

Vendors of Compostable or Recyclable Food Service Ware and Bags

Compostable = Wood (W), Compostable Plastic (CP), Molded Fiber (F) and Paper (P)

Recyclable= Aluminum (A) and Recyclable Plastic (RP)

SF Environment
Our home. Our city. Our planet.
A Department of the City and County of San Francisco

	Vendor	Phone	Website	Boxes	Bowls	Cold cups & lids	Cutlery	Hinged & lidded containers	Hot cups & lids	Paper & compostable plastic Bags	Plates	Straws	Trays and Cup Holders
1	Alliance	(312) 666 6424	www.allpfs.com	P	F, RP	P, CP, RP	RP	A, F, P	P, RP	P	F, P, RP	RP	P, RP
2	American Paper and Plastic Inc *	(626) 444 0000	www.appinc.com	P	P, RP	CP, RP		CP	P, RP	P	P, RP	RP	
3	Anchor Packaging	(314) 822 7800	www.reusecontainers.com		RP			RP					
4	Arrow Tableware	(650) 871 8226	www.arrowtableware.com		F			F	F		F		F
5	Because We Care	(852 3) 711 3175	www.becausewecare.com.au							CP			
6	Bio Smart *	(888) 310 2008	www.biosmartpackaging.com	P	F, P	CP		CP, F	P	CP	F		F
7	Bio-DC *	(480) 704 3273	www.bio-dc.com							CP			CP
8	BioBag	(727) 789 1646	www.biobagusa.com							CP			
9	Biodegradable Foodservice*	(541) 593 2191	www.bdfs.net		CP, F			CP, F	P		F		
10	Biodegradable Store		www.biodegradablestore.com		F	CP	CP	CP, F	P, RP	CP	F		
11	Birchware	(888) 246 6089	www.birchware.com				W						
12	Branch	(415) 626 1012	www.branchhome.com		PF	CP, PF	CP		CP, P		PF		PF
13	BiRite *	(800) 227 5373	www.birite.com	P	CP, F	CP			P, RP	CP	F, P		
14	Bridge-Gate Alliance	(925) 417 0638	www.bridge-gate.com		F			F			F		F
15	Cash and Carry *		www.smartfoodservice.com		F, P	P, RP	RP	F	P, RP		F, P	RP	F
16	Costco	(800) 774 2678	www.costco.com		F, P	CP, P, RP	CP, RP		P, RP	CP	P	RP	
17	Disposable Food Service Products *	(818) 674 6112	www.sala-dfsp.com		F	F		F		CP	F		F
18	Earth Cycle	(604) 899 0928	www.earthcycle.com					F			F		F
19	EarthSmart LLC *	(310) 834 7336	www.earthsmartllc.com		F			F			F		F
20	Eaternal Plates	(847) 877 5648	www.eaternalplates.com		F						F		F
21	EcNow Tech *	(541) 223 3369	www.ecnowtech.com		F, P			F, RP	P		F		
22	Eco-Gecko Products	(510) 220 5393	www.eco-gecko.com		F		W				F		
23	Eco Greenwares	(510) 656 0440	www.ecogreenwares.com		F	CP	CP	F	P	CP	F		F
24	Ecoware Inc.	(604) 880 1148	www.ecowareproducts.com				W						
25	Everything Eco-Store	(415) 337 8814	www.everythingecostore.com		F	CP		F	P	CP	F		
26	Excellent Packaging and Supply *	(800) 317 2737	www.excellentpackaging.com	P	CP, F	CP	W	CP, F	F, P	CP	F	P	CP, F
27	Genpak *	(518) 798 9511	www.genpak.com		F	F		F			F		
28	Go Earth *	(310) 371 0797	www.goearthcentral.com		F	F		F	F		F		
29	Go Mega Green.com *	(415) 933 6569	www.gomegagreen.com		F	CP			P	CP	F		F
30	Good Flag Biotechnology Corporation	(886) 328 3911	www.biodegradable-product.com			CP, RP		CP, RP					
31	Goodwill Fair Trading Co.	(415) 203 7323			RP		RP	RP	P, RP				
32	Green Day Eco-friendly Material Co.,Ltd	(86 592) 516 3383	www.greendaycn.com				CP						
33	Green Duck	(804) 240 8757	www.shopgreenduck.com		F, P	CP	CP, W	F	P, RP	CP	F		

References to any commercial business, organization, or product does not constitute endorsement.

*Note that these vendors may carry non-compliant products in addition to those listed above.
Please review the Accepted Recyclable or Compostable Food Service Ware list at www.SFEnvironment.org/FoodService.

Updated 6/6/2012
1

Vendors of Compostable or Recyclable Food Service Ware and Bags

Compostable = Wood (W), Compostable Plastic (CP), Molded Fiber (F) and Paper (P)

Recyclable= Aluminum (A) and Recyclable Plastic (RP)

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	Vendor	Phone	Website	Boxes	Bowls	Cold cups & lids	Cutlery	Hinged & lidded containers	Hot cups & lids	Paper & compostable plastic Bags	Plates	Straws	Trays and Cup Holders
34	Green Home *	(415) 282 6400	www.greenhome.com	P	F	CP	CP, W	CP, F	F	CP, P	F, W		F
35	Green Is Green, Inc.	(415) 215 8553	www.greenisgreeninc.com		CP, F	CP	CP	CP, F	F	CP	F		F
36	Green Paper Products	(216) 990 5464	www.greenpaperproducts.com		F, P	CP		F	P, RP	CP	F		F
37	Green Wave	(714) 634 8822	www.greenwave.us.com					F			F		F
38	Greeno Products	(800) 313 6568	www.greenoproducts.com		P			F	P, RP		F		
39	IFN Green *	(510) 868 2891	www.ifngreen.com		F	CP	CP	W, F	P		F		F
40	Innoware	(800) 237 8270	www.innowareinc.com				RP	CP, RP			P		
41	InstaWares	(800) 892 3692	www.instawares.com	P	P	P, RP	RP	RP	P	P	P	RP	P, RP, A
42	Lets Go Green *	(678) 344 6834	www.letsgogreen.biz		F, P	CP	CP, W	CP, F	P, RP	CP, P	F		F
43	Litin Eco	(512) 607 5700	www.litineco.com		F	CP		CP	F	CP	F		F
44	Majestic Sales *	(877) 377 9023	www.majesticsales.net		F, RP	CP		P, RP	F, P	CP	F, P		RP
45	Maple Trade Corporation	(415) 822 3888	www.mapletradecorp.com		RP		RP	RP	P				
46	Nature Friendly Products *	(216) 464 5490	www.nfpco.com		CP, F	CP		CP	P	CP	F		F
47	Natur-Tec	(763) 404 8700	www.naturbag.com							CP			
48	Nexus Group *	(510) 567 1000	www.accessgroupnca.com	P	F, RP	CP, F, RP		A, F, P, CP, RP	F, RP	P, CP	F	P, RP	CP, P, RP
49	Oliver	(800) 253 3693	www.oliverquality.com										F
50	P & R Paper Supply	(909) 794 1237	www.prpaper.com	P	F, P, RP	CP, P	RP	F, RP	P	P	F, P, RP	RP	A
51	Pactiv *	(888) 828 2850	www.pactiv.com		RP	RP		RP	P		F		A, F, P, RP
52	Prime Link Solutions	(650) 375 1398	www.primelinksolution.com		F			F, P			F		F
53	Rainbow Grocery	(415) 863-0620	www.rainbowgrocery.org							CP	P		
54	Red Pod, Inc *	(650) 396 7550	www.earthtoearthpack.com						P, RP				
55	Restaurant Depot *	(714) 666 8211	www.restaurantdepot.com	P	P	P	RP	P, F	P, RP	CP, P	P		F
56	RestockIt	(800) 680 0859	www.restockit.com	P	P	P, RP	RP		P	P	P, RP		
57	S.F. Supply Master *	(415) 642 0700	www.sfsupplymaster.com	P	P, RP	CP, P, RP	RP	A, CP, P, RP	P	P, CP	P, RP	P	P, RP, A
58	Sabert	(800) 722 3781	www.sabert.com		RP		RP	RP, CP					RP, F
59	Smart and Final	(800) 894 0511	www.smartandfinal.com			P	RP				P		
60	Stalkmarket	(503) 295 4977	www.stalkmarketproducts.com		F	CP	CP	CP	P, CP		F	CP	P
61	Sysco Food Services *	(510) 226 3000	www.syscosf.com	P	F, P, RP	CP, P, RP	RP	P, RP	P, RP	P, CP	F, P, RP	RP, P	F, P, RP
62	Tahoe Green	(530) 550 9440	www.tahoegreeninc.com		F, P	CP, F	CP	F	F, P	CP	F		F
63	The Webstaurant Store		www.webstaurantstore.com	P		CP		CP, P, RP		P			A, F, RP
64	US Foodservice	(877) 583 9659	www.usfoodservice.com		F, P, RP	CP, P	RP	F, P, RP	P	P, CP	F, P, RP	RP	F, P
65	Vegware	(860) 779 7970	www.vegware.us	P	F	CP	CP	F	CP, P	P, CP	F		
66	VerTerra Ltd.	(718) 383 3333	www.verterra.com		F						F		F
67	WorldCentric Store	(650) 283-3797	www.worldcentric.org		F	CP	CP	CP, F	F	CP	F, P		F

References to any commercial business, organization, or product does not constitute endorsement.

*Note that these vendors may carry non-compliant products in addition to those listed above.
Please review the Accepted Recyclable or Compostable Food Service Ware list at www.SFEnvironment.org/FoodService.

Updated 6/6/2012
2

STEP THREE

Change Campus Procurement Practices

Guide your campus's procurement leaders toward the purchase of more sustainable food service ware options.

Now that you've completed Step One, the Plastic Footprinting Tool, and Step Two, the Source Reduction Plan, you are ready for Step Three, Change Campus Procurement Practices. This step will help to ensure that your campus implements environmentally preferable procurement policies and procedures (culminating in Step Four, Implement Source Reduction Policies).

Although the focus here is food service ware, you may also find the information in this step useful for other environmentally preferable purchasing initiatives. A suite of supplemental resources, including sample bid specifications and on-campus lease agreements that incorporate procurement stipulations, can be found in the Resources section (page 49) at the end of this step.

There are seven action items necessary to change your campus's procurement practices:

1. *Convene Your Plastic Source Reduction Team*

To change the type of food service ware products that your campus purchases, you need the input and expertise of a cross-section of campus dining, waste management, and procurement services staff, as well as students. While you may have already received assistance from these stakeholders when completing the Plastic Footprinting Tool and Source Reduction Plan, you may need to recruit additional members. To recruit additional members, make sure you do the following:

- Include at least one person from every department that makes and is impacted by food service ware purchasing decisions. Chances are good that some of these departments have little to no experience with campus sustainability initiatives; however, their participation is still important. For example, you may need to call upon campus real estate staff to incorporate plastic source reduction in campus leases. By having a representative from each of these campus departments on your team, you can facilitate communication and expedite results.
- Recruit people with sufficient authority and autonomy to make department-wide decisions so the team can take immediate action without being slowed down by lengthy approval processes.
- Seek support from your university's president's office to strengthen your team's efforts.
- Solicit input from a student-led campus sustainability group, if one exists on your campus. Students are key drivers in advancing sustainability and can provide on-the-ground input and feedback. (See Campus Highlight 1.)

CAMPUS HIGHLIGHT #1

Forming a Plastic Source Reduction Team

UCSD has solicited the assistance of staff from Housing, Dining, and Hospitality; Procurement and Contracts; and Student Affairs to evaluate plastic source reduction options for food service ware.

2. *Establish and Implement Sustainable Food Service Ware Plans*

Universities and colleges often develop environmentally preferable purchasing plans for everything from green energy and office supplies to food service ware products. These plans can serve as your team's university-supported rationale for implementing plastic source reduction. Your team should identify and review all current plans and, where lacking, work to either strengthen them or implement new ones. (See Campus Highlight 2 for examples.)

CAMPUS HIGHLIGHT #2

Establishing a Sustainable Food Service Ware Plan

UCSB, UCSD, and UCSF all based their plastic source reduction plans on the UC system-wide zero waste goal and environmentally preferable purchasing policy, as outlined in the UC Sustainability Practices Policy. For example, UCSD required all food vendors in their student centers to eliminate polystyrene foam and other disposable polystyrene plastic products because these materials, which are not readily recyclable, do not meet zero waste goals.

3. Establish Desired Environmental Criteria for Purchases

Environmental criteria ensure that your campus's environmental priorities are reflected in the university's purchasing choices, and inform the specifications for on-campus or off-campus dining facilities. Specifications are tools that enable purchasing staff to identify characteristics of a product or a service, incorporate environmental criteria, and to convey this information to suppliers. Specifications may describe the physical, functional, or performance characteristics of the product, as well as requirements for inspection or testing, such as meeting biodegradability standards. One example of a product specification might be "8-ounce paper hot cup, without handle."

The following criteria may be used as a baseline for food service ware:

- Includes recycled content
- Recyclable or compostable
- Reusable
- Conserves energy
- Durable and long-lasting
- Reduces greenhouse gas emissions
- Conserves water
- Chlorine-free manufacturing

CAMPUS HIGHLIGHT #3

Developing Environmental Purchasing Criteria

When creating their environmental purchasing criteria, UCSD Procurement Services and UCSD's Housing, Dining, and Hospitality Services (HDH) collaborated to review the available recyclable and compostable food service ware options. Based on their findings, the team decided to prioritize the procurement of plastics numbers 1 (PET, or polyethylene terephthalate) and 5 (PP, or polypropylene) because they were the most desirable to recyclers.

Note: Contact recycling and composting experts on your campus and in your local community regarding the specific infrastructure available in your area. Even though food service ware may be marked "recyclable" or "compostable," your recycling or composting vendors may be unable to accept the item for recycling or composting.

4. Develop Green Product Specifications and Leasing Standards for Food Service Vendors

One easy way to achieve your campus's plastic source reduction goals is to include third-party green certification standards in your product specifications. For example, by adding "compostable to ASTM D 6868"[20] to the 8-ounce paper hot cup specification, a campus can ensure the procurement of a compostable 8-ounce paper hot cup. (See the Procurement Resources section on page 61 for example specifications.) You can also encourage the purchase of reusables by including durability criteria in specifications.

20 *ASTM D 6868 (Standard Specification for Labeling of End Items that Incorporate Plastics and Polymers as Coatings or Additives with Paper and Other Substrates Designed to be Aerobically Composted in Municipal or Industrial Facilities) standard specifies that a product labeled as "compostable" meets three criteria: 1) it must break down to carbon dioxide, water, inorganic compounds, and biomass (i.e., compost), 2) decompose so no plastic fragments are visually distinguishable, and 3) leave no toxic residue that would impede its use as compost.. Source: http://www.astm.org/Standards/D6868.htm, accessed Aug 25, 2014.*

Certification systems relevant to food service ware include:

Forest Stewardship Council	FSC	Certifies that products come from responsibly managed forests. A good certification to look for when selecting paper products.
Biodegradable Products Institute	BPI	Certifies that products are compostable by meeting ASTM D6400 and/or ASTM D6868 standards. A good certification for compostable food service ware.
Green Seal	GREEN SEAL CERTIFIED	Develops product-specific multi-criteria certifications, such as recycled content, compostability, and fiber bleaching methods for food service ware. May be used to select sustainable food packaging materials.
U.S. Environmental Protection Agency's Comprehensive Procurement Guidelines		Provides recycled-content guidelines for a variety of paper products

CAMPUS HIGHLIGHT #4

Integrating Sustainability Standards with Private Vendors

UCSF includes a "Sustainability Clause" in its food vendor contracts and leases. To support the recycling and composting programs on campus, vendors must agree to provide a mechanism for recycling and composting relevant materials and decreasing the use of disposable food service ware. UCSF's Recycling Coordinators are seeking to add zero waste procurement language into the contracts to further improve food service sustainability.

Many campuses also lease space to private food vendors. If this is the case for your campus, you can include green procurement language in leasing agreements to ensure that vendors purchase food service ware that is aligned with your environmental policies and waste management infrastructure. For examples of green leasing agreement language, see the Procurement Resources section on page 61.

5. *Integrate Plastic Source Reduction into Electronic Purchasing Systems*

CAMPUS HIGHLIGHT #5

Implementing Sustainable Sourcing

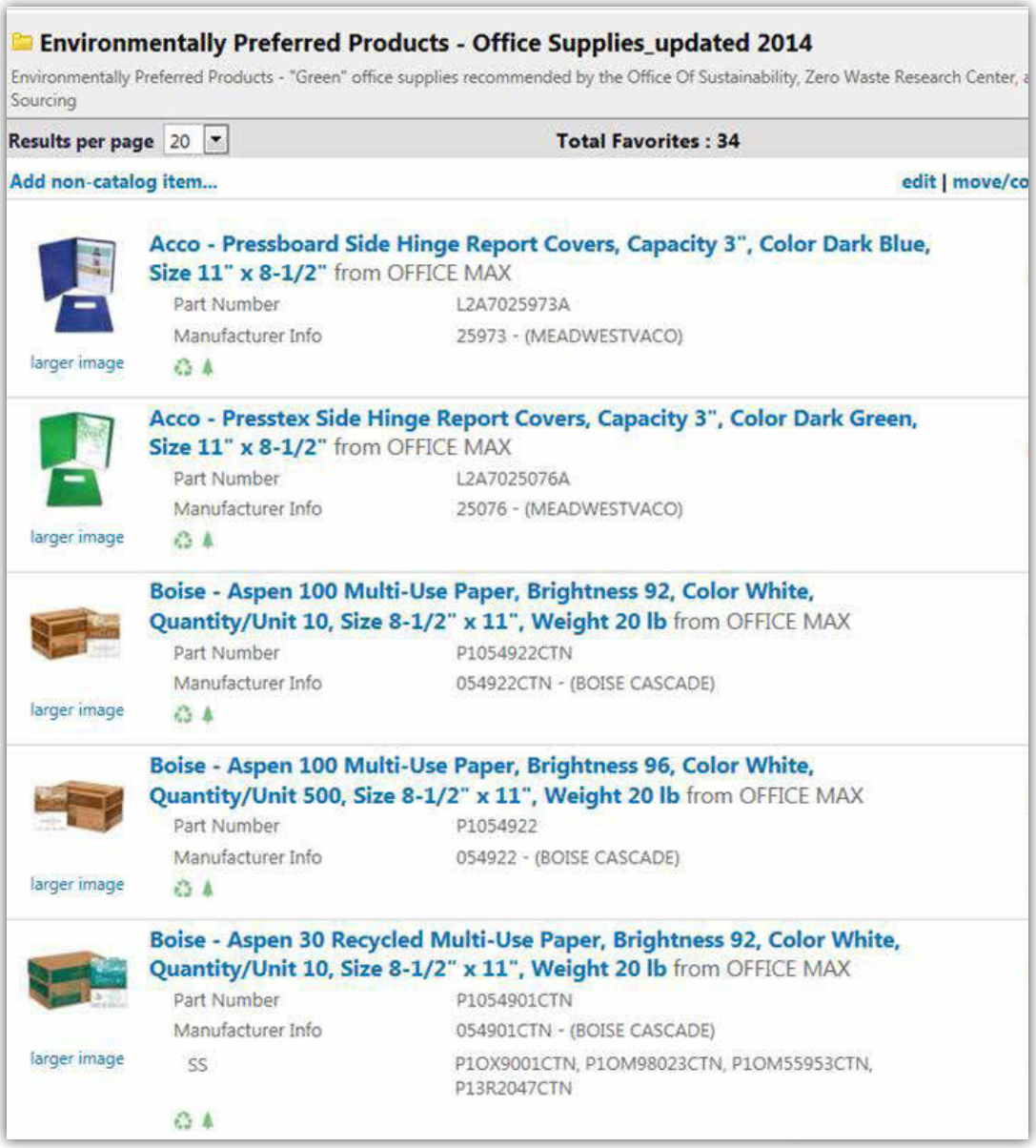
Beginning in fall 2013, UCSB premiered its new Gateway Procurement System. Gateway consolidated UCSB's previously fragmented procurement and requisition system into a centralized portal that, today, is used for the majority of campus purchases. Any UCSB member with a campus login, including administration, faculty, and students, can access and use Gateway. As the centralized procurement portal for almost the entire UCSB campus, Gateway has enormous potential to influence purchasing behavior. As of March 2014, over 4,500 suppliers were listed in UCSB Gateway. Procurement staff intend to review these suppliers in the future and eliminate those that do not meet UC system and/or UCSB campus procurement policies, including environmentally preferable purchasing.

To ensure that source reduction policies lead to changes in what your campus purchases, criteria need to be integrated into campus procurement processes and online requisition systems. UCSF, UCSD, and UCSB all use SciQuest, a cloud-based procurement system. Each of the campuses has tailored the software to its particular needs. (See Campus Highlight 5.)

UCSF and UCSB combined their purchasing activities by using BearBuy, a SciQuest-based software platform that enables collaborative procurement. The platform flags products with positive environmental attributes to facilitate compliance with environmentally preferable purchasing policies. (See image below.) Prior to centralizing in 2011, both UCSF and UCSB had distinct procurement departments. Now, Central Procurement works with product standards groups and provides samples of more environmentally friendly products. It also negotiates and or bids for competitive pricing that meets end-user needs on both campuses.

6. *Take Advantage of Partnership Opportunities with Other Campuses and Governmental Agencies*

Many resources are available to campuses that are developing plastic source reduction policies. Regular communication between your sustainability program leaders and others programs across the state and country creates opportunities for collaboration and may dramatically speed up the success of your initiatives. For example, the Association for the Advancement of Sustainability in Higher Education (AASHE) coordinates campus sustainability resources across North America, providing case studies, policies, and blogs (including the California Student Sustainability Coalition blog). AASHE also offers a sustainability reporting tool, Sustainability Tracking, Assessment & Rating System™ (STARS), which provides a framework for colleges and universities to measure their sustainability performance and gain recognition for their successes. Look on AASHE's website or your state



[Caption: Screenshot of BearBuy procurement software]

government's web site, as many states offer tips and tools for identifying and buying green products. If your school is a member of AASHE, we suggest sharing your successes by submitting your case study for inclusion in AASHE's Campus Sustainability Case Study Database! This database is also an excellent source for additional ideas for greening your campus.

At the state level, organizations like the California Resource Recovery Association and the California Collegiate Recycling Council provide resources for initiating and implementing campus source reduction and recycling programs. The annual California Higher Education Sustainability Conference (CHESC), organized by California's independent/private colleges, community colleges, state universities, and the University of California, offers research and case studies across a broad range of topics, including program development and operations, curriculum development, and community partnerships.

CAMPUS HIGHLIGHT #6

Sharing Information

While assisting UCSF and UCSD in implementing source reduction opportunities, PSI regularly shared information with campus teams. After a Subway franchisee on the UCSF campus agreed to discontinue the use of plastic bags for take-out orders, the Product Stewardship Institute provided a sample letter to persuade UCSD's franchise to take the same step. UCSD staff were able to efficiently and successfully convince their campus Subway franchise to discontinue the use of plastic bags and plastic straw wrappers.

7. Review Procurement Options Regularly

The long-term success of any green procurement project depends highly on your ability to address new situations, expand initiatives for greater impact, and ensure that procurement plans are carried out. It is therefore important to revisit these options on a regular basis, whether through an informal review process or through regularly scheduled structured reviews.

The procurement of more sustainable, environmentally preferable products allows your campus to reduce its environmental impact in a major way. With the aid of this Procurement Guide, you can create a plastic source reduction team, establish procurement criteria, and ensure the purchase of more sustainable products. The success stories of UCSB, UCSD, and UCSF serve as replicable models of how to put this Guide into practice. And the Procurement Resources section on the following pages arm you with practical, in-depth know-how about specific procurement strategies.

You're almost on to the fourth and final step: Implement Source Reduction Policies!

CAMPUS HIGHLIGHT #7

Reviewing Procurement Options

In April 2011, UCSF released an updated Sustainability Action Plan (SAP), developed through a multi-stakeholder review meeting covering issues ranging from zero waste to cultural shifts toward sustainability. The group has since published annual reports indicating goals for the next fiscal year. By holding regular review meetings, UCSF has developed a number of workgroups that continue to affect procurement plan development and implementation.

STATE OF CALIFORNIA

Bid Specification 7360-0008R3

Disposable Food Service Supplies
Cups, Containers & Napkins

1.0 SCOPE

This bid specification defines requirements for "environmentally preferable" disposable food service supplies (cups & napkins) for use by State of California Institutions and agencies.

2.0 STANDARDS

ASTM D6400-04 - Standard Specification for Compostable Plastics.

ASTM D6868-03 - Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates.

3.0 DEFINITIONS

Bio-based Materials
Bio-based materials are defined as renewable agricultural and forestry resources (no petroleum-based materials). Bio-based materials include (but not limited to):

- cellulose fibers (i.e. paper)
- fiber crops such as hemp and flax
- bamboo and other grasses
- agricultural waste such as sugarcane (bagasse) and rice straw
- materials derived from agricultural products such as starch and lactic acid (PLA)

Biodegradable
Degradable in which the degradation results from the action of naturally occurring microorganisms such as bacteria, fungi, and algae (no set time scale).

Bioplastic
Plastics derived from renewable bio-based sources, such as vegetable oil, corn starch, potato starch, or pea starch rather than traditional plastics which are derived from petroleum. Suitable for cutlery/utensils.

Compostable
Capable of undergoing biological decomposition in a compost site as part of an available program, such that the material is not visually distinguishable and breaks down into carbon dioxide, water, inorganic compounds, and biomass suitable for use as a soil amendment, leaving no toxic residue (within a period of 180 days).

Environmentally Preferable Purchasing (EPP)
EPP promotes the acquisition of goods and services that have a lesser or reduced effect on human health and the environment when compared with competing goods and services that serve the same purpose. The CA EPP program promotes the procurement of products that include post-consumer recycled content, are durable and recyclable, conserve energy and water, use renewable bio-based materials including wood from sustainability harvested forests, reduce toxic volatile organic compounds (VOC) emissions, reduce greenhouse gas and ozone-

depleting emissions, use unbleached or process chlorine-free manufacturing processes, and are are lead-free and mercury-free.

Polylactic acid (PLA)
A clear bioplastic made from corn, resembles common petrochemical-based plastics such as polyethylene and polypropylene.

Renewable
Derived from renewable agricultural and forestry resources.

Recyclable Material
Recyclable material is defined as a product that can be used as an ingredient in another manufactured process to create another product.

4.0 REGULATORY REQUIREMENTS

4.1 The products shall comply with all applicable Federal & State mandatory requirements and regulations relating to the preparation, packaging, labeling, storage, distribution, and sales of the products within the commercial marketplace.

4.2 The products that make contact with food and/or beverage shall be prepared in accordance with the 21 CFR §110, Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Human Food and shall comply with the regulations contained within the 21 CFR Parts 170 thru 189, where applicable.

4.3 The plastic food and beverage container products shall comply with the CA Public Resources Code Division 30, Chapter 5. 42359.6.(a) A person shall not sell a plastic food or beverage container in this state that is labeled with the term "compostable," "biodegradable," "degradable," or any form of those terms, or in anyway imply that the container will break down in a landfill, composting, marine, or other natural terrestrial environment, unless, at the time of the sale, the plastic food or beverage container meets the ASTM standard specification for the term used on the label. "ASTM standard specification" means ASTM D6400-04 - Standard Specification for Compostable Plastics.

5.0 PRODUCT REQUIREMENTS/DESCRIPTIONS

5.1 **Group A (Cups, Lids, Sleeves & Containers)**

5.1.1 **Cold Cups & Cold Containers**

5.1.1.1 The cold cups and cold containers shall be compostable and biodegradable.

5.1.1.1.1 Plastic materials shall meet the requirements of ASTM D6400-04 Standard Specification for Compostable Plastics. (Use of Active Organic Enzyme (AOE) for biodegradability is not acceptable.)

5.1.1.1.2 Plastic coating shall meet the requirements of ASTM D6868-03 Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates.

5.1.2 **Sleeves**

5.1.2.1 The sleeves shall be compostable and biodegradable and made from bio-based material(s).

5.1.2.2 The sleeves shall be manufactured process chlorine free (natural or unbleached color is acceptable).

5.1.2.3 The sleeves shall contain a minimum of 30% post-consumer recycled content material(s).

5.1.3 **Hot Cups & Hot/Cold Containers**

5.1.3.1 The hot cups and hot/cold containers shall meet at least one of the following:

5.1.3.1.1 The hot cups and hot/cold containers shall be compostable and biodegradable.

- Plastic materials shall meet the requirements of ASTM D6400-04 Standard Specification for Compostable Plastics. (Use of Active Organic Enzyme (AOE) for biodegradability is not acceptable.)
- Plastic coated paper (or other compostable substrate) shall meet the requirements of ASTM D6868-03 Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates.

5.1.3.1.2 The hot cups and hot/cold containers shall be manufactured from a bio-based material with a plastic coating.

5.1.3.1.3 The hot cups and hot/cold containers shall be manufactured from recyclable polymeric material(s) with a minimum of 30% post-consumer recycled content.

5.1.4 **Lids (Hot & Cold)**

5.1.4.1 The lids (hot & cold) shall meet at least one of the following:

5.1.4.1.1 The lids shall be compostable and biodegradable.

- Plastic materials shall meet the requirements of ASTM D6400-04 Standard Specification for Compostable Plastics. (Use of Active Organic Enzyme (AOE) for biodegradability is not acceptable.)
- Plastic coated paper or other substrates shall meet the requirements of ASTM D6868-03 Standard Specification for Biodegradable Plastics Used as Coatings on Paper and Other Compostable Substrates.

5.1.4.1.2 The lids shall be manufactured with 10% minimum post consumer recycled content or from a recyclable polymeric material(s).

5.2 **Group B (Napkins)**

5.2.1 Each napkin product shall meet two or more of the following:

5.2.1.1 The napkin products shall be bio-based, compostable and biodegradable.

5.2.1.2 The napkin products shall be manufactured from a minimum 40% post-consumer recycled content material(s).

5.2.1.3 The napkin products shall be manufactured process chlorine free. "Natural" unbleached color is acceptable.

5.2.1.4 The napkin products shall meet at least one of the following certification:

- Certified to "Environmental Choice" - CCD 084 for Table napkins
- Certified to "Green Seal™" - Environmental Standard for Paper Towels and Paper Napkins GS 9
- Marked with the "Chlorine Free Products Association" (CFPA) Totally Chlorine Free (TCF) or Processed Chlorine Free (PCF) Certification Mark

6.0 PACKAGING & PACKING

All packaging materials shall be made from 10% post consumer recycled content or recyclable materials. All paper based packaging shall contain a minimum 30 percent by fiber weight post-consumer fiber. No foil or mylar packaging. Excessive inner packing materials are not acceptable.

UCSF

UCSF includes a "Sustainability Clause" in its food vendor contracts and leases; this clause contains the *2013 UC Sustainable Practices Policy*. To support the recycling and composting programs on campus, the following language is included in the agreement signed by each vendor:

> **Recycling/Composting**
> Licensee must comply with all University's campus recycling and composting policies, which may include the following: recycling of cans/bottles at campus events; providing a location and manner for recycling cardboard, cans, and bottles; educating staff, etc., regarding proper recycling and locations of drop off points for self-collected bottles and cans; decrease the use of throw away trays, silverware, food and beverage containers; providing a location and manner for the composting of food, paper, paper plates, napkins, milk/juice cartons, paper cups, tea bags and coffee grounds and proper collection and disposal of grease and cooking oils.

UCSF is equipped with composting bins and universal signage throughout campus, and the Recycling Coordinators and Medical Center staff are working to purchase compostable food service ware for the campus-owned Medical Center. UCSF's Recycling Coordinators would like to include zero waste procurement language in vendor contracts, mandating private food service vendors to use compostables, to take advantage of this composting infrastructure.

UCSB

UCSB's University Center (UCen)-owned eateries follow UC-wide and UCSB procurement policies; however, private UCen leasers only have to adhere to the UCen leasing agreement. UCen has modified leasing agreements to restrict leasers to using compostable products for single use materials that they give to customers:

> "As the campus is aggressively involved in issues of sustainability, the selected vendor will be required to use the provided bins for pre-consumer kitchen waste and provide compostable bags for this purpose. In addition, all customer disposable wares must be compostable. BPI certification will be required for all compostable products selected by the Vendor."

UCSB staff have been encouraging leasers who are on active contracts to switch to using compostable takeout containers by notifying them that they will have to when their contract is up and by identifying other campus leasers who have made the switch. To date, Panda Express and Wahoo's have committed to making the switch to 100% compostable. Yoshinoya is using up the last of their non-compostable stock and the next shipment will be compostable. All nine UCen Dining Units will then be using 100% compostable takeout containers. To address food service needs at special events that require catering, UCSB provides a list of approved catering companies.

UCSD

UCSD's University Center, which is where most of the private food vendors on campus are located, has become proactive in requiring all incoming food vendors to avoid the use of expanded polystyrene foam and incorporate UCSD's Sustainable Food Policy into their practices; current food vendors will be required to do the same at the time of contract renewal. Excerpts of the specific language are exhibited below:

> 11.6 General use of disposable polystyrene foam and other disposable polystyrene plastic products shall be confined to situations when no reasonable replacement product is available. All appropriate replacement items are to be recyclable or biodegradable in nature. Tenant will use recyclable or biodegradable products whenever possible.

They provide this language to all vendors in an attachment to the operating agreement. Also, in future lease agreements, language is being incorporated to require vendors to use biodegradable packaging and adhere to the UCSD Fair Trade Policy.

STEP FOUR

Establish Source Reduction Policies

Set protocols and enact regulations that help ensure reduced waste on your campus and in your local city, town, or village.

Congratulations on making it to the fourth and final step of the Plastic Source Reduction Toolkit! You are well on your way to minimizing not only your campus's overall environmental footprint, but also the amount of plastic marine debris that pollutes our planet's oceans and waterways.

In this section of the toolkit, you'll find a menu of customizable waste reduction policies, strategies, and sample ordinances for your campus and the municipality in which your campus is located. This tool is especially useful because it can help align campus and municipal sustainability objectives. As microcosms of their larger communities, colleges and universities often have unique opportunities to pilot policies that are later adopted by surrounding municipalities. The policies presented in this toolkit are based on a range of policies previously implemented in other municipalities or on other college campuses.

For food service ware, in particular, campuses and municipalities can choose from a wide range of policy types—from those that influence consumer behavior (such as discounts for bringing your own cup) to those that directly alter purchasing practices (such as polystyrene foam bans). Policies may be voluntary or mandated by legislation or contract.

The policy options presented may be replicated and adapted for your unique college and municipality. They are followed by some real-world examples, as well as model language you can tailor for your use.

Policies Influencing Consumer Behavior

Voluntary Policies

- **Dine-in/take-out policy**

  How many times have you purchased a food or beverage at a restaurant or café with the intent to eat or drink it there, only to receive your order in a disposable container with single-use utensils that you end up having to discard? By requiring that restaurant staff ask customers whether they plan to dine in or take their order to go, campuses and municipalities can ensure that those who dine in only get served with reusable food service ware. This will significantly reduce the use of disposable plastics, such as cutlery and plates, as well as secondary packaging, like plastic bags, containers, and lids.

- **Provide plastic straws and/or other disposable items only upon request**

  Encouraging eateries to provide disposable items only by customer request could curtail the improper disposal of these items. Signage to support this "Ask First" policy helps customers understand the policy and prompts them to question whether they really need such items.

- **Incentives**

  To promote the use of reusable food service ware, restaurants could offer discounts to customers who come with their own mug, cup, plate, or cutlery. (See the Mandatory Policies section for more on implementing a "disincentive" policy for single-use service ware: in other words, charging customers extra for these items.)

- **Offer a reusable clamshell package for take-out meals**

  Restaurants and on-campus eateries can coordinate to offer reusable clamshell containers—one-piece containers made up of two halves joined by a hinge that allow the container to open and close. Once customers have finished using the clamshells, they return them to a central area (e.g., dining hall or food court) for washing. To implement this on a campus level, work with dining services to use the dining infrastructure already in place to collect, clean, and distribute containers. To implement this on a municipal level, assess which eateries may be interested in participating. Then, coordinate with them to find an appropriate container dispersal and collection site. See the Source Reduction Resources section of this Toolkit on page 49 for further information about these containers.

Mandatory Policies

- **Disincentives**

  Eateries could be required to charge for dispensing disposable service ware items to customers. By showing a visible charge for each disposable service ware item, customers may be less inclined to request these items and may bring their own reusable items to avoid the charge. This policy is an option for reducing disposable straws, cups, lids, utensils, carryout bags, etc. Compared to incentive policies, disincentive policies send a stronger message to customers about the externalized environmental costs of their purchases. When implemented, they should be campus-wide or municipality-wide to ensure fairness and prevent patrons from preferentially choosing certain eateries over others. Disincentive policies should be considered whenever possible.

Voluntary Policies

- **Reduce single-serve packaging**

  Eateries could be encouraged to replace single-serve pouches of condiments (e.g., mustard, ketchup, and mayonnaise) with refillable dispensers, and swap out individual portion-sized creamers with refillable thermoses and sugar packets with dispensers. Other options include selecting cutlery that is packaged in bulk rather than individually wrapped or replace fork, knives, and spoons with a single utensil, the Spork.21

- **Offer reusable food service ware for dine-in customers**

  Eateries could be encouraged to use reusable food service ware for their dine-in customers.

- **Choose recyclable or compostable food service ware**

  By leveraging existing recycling and compost systems of your municipality or campus, you could make recyclable or compostable food service ware accessible to eateries and their customers. You could also collaborate with dining institutions to develop procurement programs that specify products containing only a certain percentage of post-consumer recycled content.

Mandatory Policies

- **Ban problematic food service products**

  Bans may address a specific type of material or an entire product category. For example:

  - *Expanded polystyrene foam (EPS):* EPS foam, more commonly known by its trademarked name, Styrofoam™, has been the ubiquitous material of choice for hot drink cups and other take-out containers for decades. However, options for recycling polystyrene foam are limited and, because of its light weight, it can be easily swept away by the wind, eventually making its way into storm drains that lead to rivers, lakes, and oceans. Over time, polystyrene breaks down into small pieces that are easily ingested by marine life and, thus, introduced into the food chain. There are also concerns about the potential human health impacts of styrene, the chemical building block for polystyrene. Due to these issues, as well as the fact that alternatives with fewer environmental impacts are readily available (e.g., paper cups, reusable mugs), nearly 100 municipalities in the U.S.—including San Francisco—have banned the use of disposable polystyrene food service ware for both dine-in and take-out food.

- **Ban use of non-recyclable or non-compostable service ware**

  Develop municipal ordinances or campus policies that require dining institutions to offer only recyclable or compostable food service ware. Seattle introduced such a ban in 2009, beginning with a ban on polystyrene foam the first year and expanding it to all disposable food packaging and service ware by the second year. Minneapolis passed a similar ordinance in May 2014, effective as of April 22, 2015 (Earth Day).

  Of course, you'll need to make sure that the restaurant and municipal/campus infrastructure supports the proper management of recyclable and compostable products. First, the restaurant must provide separate receptacles for customers to segregate their waste. Second, the waste hauler must have the ability to

21 http://www.industrialrev.com/spork-original.html

keep waste streams segregated for composting or recycling. And third, municipal recycling and compost collection systems must allow customers to properly dispose of these items at home, in parks, on streets, or in other locations where customers may take their food. Otherwise, compostable and recyclable packaging will likely end in the landfill or even be littered, allowing it make its way to the ocean, where it becomes marine debris.

- **Ban plastic bags**

  More than 150 municipalities across the U.S—and, as of September 2014, the entire state of California—have banned single-use disposable plastic bags. Plastic bags are not compatible with most curbside recycling programs and easily blow into trees and waterways. In 2007, San Francisco became the first city to enact an ordinance that banned the distribution of single-use plastic bags at grocery stores. Since then, many other cities and municipalities across the country have followed suit with similar bans. Additionally, some municipalities and campuses have coordinated related disincentive policies that charge customers for single-use paper or compostable plastic bags, thereby encouraging the use of reusable bags.

- **Ban use of disposable food service ware for dine-in customers**

  This ban would require that eateries have dishwashing capacity for reusable food service ware. An ancillary benefit of this policy option is the reduced potential for cross-contamination of waste streams, which can hinder efforts to compost or recycle. For example, compostable food service ware that is unintentionally mixed with recyclable (yet non-compostable) food service ware will contaminate the recyclable materials, and be lost to the composting program. You may want to consider grandfathering in older establishments, and/or implementing the policy only in those eateries that meet a certain building capacity (e.g., minimum number of square feet).

- **Ban use of all or specific types of disposable items for on-campus or municipal events**

  Many campuses ban the use of disposable water bottles or polystyrene foam plates and cups. For example, UCSB, UCSF, and UCSD have all banned polystyrene foam plates and cups. These bans can be a practical first-step for a campus or municipality to change procurement practices and to ensure that purchased food service products are compatible with the local solid waste management program and goals.

Real-Life Policy Examples

The following policies are active right now in states across the U.S. You may find that you can use them to model your own:

Plastic Bag Reduction Ordinance (CA, 2007)[22]

More than 150 cities and municipalities have passed ordinances banning single-use plastic carry-out bags. These ordinances are typically marked by a progressive roll-out, first requiring larger grocery stores to eliminate plastic bags, followed by pharmacies and smaller food markets. Many ordinances also require that stores charge customers for alternative bags, unless the customers bring their own bags, and that store-supplied bags meet specific recycled content standards. For example, the City and County of San Francisco Plastic Bag Reduction Ordinance prohibits food establishments and retail stores from using single-use plastic bags at check-out. Customers must either bring their own bag or pay 10 cents to receive a compostable plastic bag or a paper bag with at least 40 percent post-consumer recycled content.

Polystyrene Foam Ban (CA, 2006)[23]

The City and County of San Francisco Food Service Waste Reduction Ordinance, passed in November 2006, prohibits food vendors and restaurants from using disposable food service ware made from polystyrene foam. Only recyclable or compostable to-go containers can be used.

Recyclable and Compostable Food Packaging Ordinance (MN, 2014)[24]

Effective April 22, 2015, Minneapolis's Environmentally Acceptable Packaging ordinance requires that the city's food establishments use recyclable, reusable, or compostable food packaging for all food that is to be "immediately consumed" (immediate consumption is not defined).

PET Water Bottle Ban (MA, 2013)[25]

The Sale Of Drinking Water In Single-Serve PET Bottles Bylaw, implemented by the Town of Concord, MA, prohibits the sale of single-serve PET water bottles of 1 liter or less.

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22 http://www.amlegal.com/nxt/gateway.dll/California/environment/chapter17plasticbagreductionordinance?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca

23 http://www.sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/sfe_zw_food_service_waste_reduction_ordinance.pdf

24 http://www.minneapolismn.gov/www/groups/public/@clerk/documents/webcontent/wcms1p-124792.pdf

25 http://www.concordnet.org/Pages/ConcordMA_Bylaws/Water%20Bottle%20Bylaw.pdf

Model Policy Language

The following pages provide model language that you can use to jumpstart the development of your own plastic source reduction policies. Examples include model ordinances for:

1. Banning Sale of Drinking Water in Single-Serve PET Bottles;
2. Banning Expanded Polystyrene (EPS) Foam-based Disposable Food Service Ware by Food Vendors;
3. Banning Single-use Plastic Carry-out Bags;
4. Regulating Take-out Food Packaging; and
5. Requiring Re-Usable Food Service Ware For Restaurants Serving Food And Beverages For On-Site Dining.

1. Model Ordinance Banning Sale of Drinking Water in Single-Serve PET Bottles[26]

AN ORDINANCE of the [insert name of jurisdiction]

AMENDING [IF ORDINANCE IS AMENDING PRIOR LEGISLATION, INSERT REFERENCE]

Sale of Drinking Water in Single-Serve PET Bottles

It shall be unlawful to sell non-sparkling, unflavored drinking water in single-serving polyethylene terephthalate (PET) bottles of one liter (34 ounces) or less in [relevant jurisdiction] on or after [effective date].

Exemption for Emergencies

Sales occurring subsequent to a declaration of an emergency adversely affecting the availability and/or quality of drinking water to [relevant jurisdiction] residents by [relevant city, county, state or federal authority] shall be exempt from this ordinance until seven days after such declaration has ended.

Enforcement Process

Enforcement of this ordinance shall be the responsibility of the [relevant official, e.g. Town Manager or Director of relevant department] or his/her designee. The [relevant official] shall determine the inspection process to be followed. Any establishment conducting sales in violation of this ordinance shall be subject to a non-criminal disposition fine as specified in [relevant section]. Any such fines will be paid to [relevant city].

Suspension of the Ordinance

If the [relevant official] determines that the cost of implementing and enforcing this ordinance has become unreasonable, then the [relevant official] shall so advise the [relevant legislative body] and the [relevant legislative body] shall conduct a public hearing to inform citizens of such costs. Subsequent to the public hearing, the [relevant legislative body] may continue this ordinance in force, or may suspend it permanently or for such length of time as it may determine.

Fine Schedule

FINE SCHEDULE	FINE ALLOWED	ENFORCEMENT AGENCY
1st Offense	Warning	[relevant agency]
2nd Offense	$25.00	
3rd and subsequent offense	$50.00	

26 Based on ordinance in Concord, MA. See http://www.concordnet.org/Pages/ConcordMA_Bylaws/Water%20Bottle%20Bylaw.pdf.

2. Model Ordinance Banning Expanded Polystyrene (EPS) Foam-based Disposable Food Service Ware by Food Vendors[27]

AN ORDINANCE of the [insert name of jurisdiction]

AMENDING [IF ORDINANCE IS AMENDING PRIOR LEGISLATION, INSERT REFERENCE]

Legislative Purpose

The [insert relevant legislative body] finds and determines that:

a) Polystyrene is a petroleum-based, lightweight plastic material commonly used as food service ware by retail food vendors operating in [county or city]. Expanded Polystyrene Foam (EPS), often referred to by the trademark Styrofoam, has become a problematic environmental pollutant given its non-biodegradable, and nearly non-reusable, nature.

b) EPS-based, single-use food service ware constitutes a substantial portion of the litter within [county or city].

c) Effective ways to reduce the negative environmental impacts of disposable food service ware include reusing or recycling food service ware and using compostable materials made from renewable resources such as paper, cardboard, corn starch, and/or sugarcane.

The [insert relevant legislative body] does therefore find and declare that it should restrict the use by food vendors of EPS-based disposable food service ware.

Definitions

For the purposes of this Ordinance, the following words shall have the following meanings:

a) "Disposable food service ware" means single-use disposable products used in the restaurant and food service industry for serving or transporting prepared, ready-to-consume food or beverages. This includes but is not limited to plates, cups, bowls, trays and hinged or lidded containers also known as clamshells.

b) "Food vendor" means any vendor, business, organization, entity, group or individual, including a licensed retail food establishment that provides prepared food at retail level.

c) "Expanded polystyrene" (EPS) means and includes expanded polystyrene, which is a thermoplastic petrochemical material utilizing a styrene monomer and processed by any number of techniques including, but not limited to, fusion of polymer spheres (expandable bead polystyrene), injection molding, form molding, and extrusion-blow molding (extruded foam polystyrene). The term "polystyrene" also includes polystyrene that has been expanded or blown using a gaseous blowing agent into a solid foam (expanded polystyrene (EPS)), and clear or solid polystyrene known as oriented polystyrene.

d) "Prepackaged food" means any properly labeled processed food, packaged to prevent any direct human contact with the food product upon distribution from the manufacturer, and prepared at an approved source.

e) "Prepared food" means food or beverages, which are serviced, packaged, cooked, chopped, sliced, mixed, brewed, frozen, squeezed or otherwise prepared. Prepared food does not include eggs, fish, meat, poultry, and foods containing these raw animal foods requiring cooking by the consumer as recommended by the Food and Drug Administration.

Prohibited Use of EPS-based Disposable Food Service Ware

No food vendor shall use EPS disposable food service ware when providing prepared food.

Exemptions

a) Prepackaged food is exempt from the provisions of this chapter.

b) Polystyrene coolers and ice chests intended for reuse are exempt from the provisions of this chapter.

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27 Based on ordinances in Seattle, WA and San Mateo County, CA. See http://clerk.seattle.gov/~scripts/nph-brs.exe?s3=&s4=122751&s5=&s1=&s2=&S6=&Sect4=AND&l=0&Sect2=THESON&Sect3=PLURON&Sect5=CBORY&Sect6=HITOFF&d=ORDF&p=1&u=%2F~public%2Fcbor1.htm&r=1&f=G and http://www.cawrecycles.org/files/SMCounty_EPSord.pdf.

Request for an exemption

Any food vendor may seek an exemption from the requirements of this chapter upon demonstrating that strict application of the requirements would cause undue hardship.

a) An "undue hardship" shall be found in:

i) Situations unique to the food vendor where a suitable alternative does not exist for a specific application; and/or

ii) Situations where no reasonably feasible available alternative exists to a specific and necessary container prohibited by this chapter

b) The exemption process shall be as follows:

i) The food vendor seeking an exemption shall submit a written exemption request to [relevant department]

ii) A written exemption request shall include all information and documentation necessary for the Director of [relevant department] to make a finding of undue hardship

iii) The Director of [relevant department] may require the applicant to provide additional information in order to make a determination regarding the exemption application

iv) Exemption decisions are effective immediately and are final and not subject to appeal

v) The Director of [relevant department] or his/her designee may grant an exemption for a period of up to one year upon a finding that the food vendor seeking exemption has demonstrated that strict application of the specific requirement would cause undue hardship.

c) If a food vendor granted an exemption wishes to have the exemption extended, it must re-apply for the exemption prior to the expiration of the one year exemption period and demonstrate continued undue hardship. Extensions may be granted for intervals not to exceed one year.

Administrative Fine

a) A fine may be imposed upon findings made by the Director of [relevant division], or his or her designee, that any food vendor has used EPS food service ware in violation of this Chapter.

b) Amount of fine:

i) a fine not exceeding $100.00 for a first violation;

ii) a fine not exceeding $200.00 for a second violation;

iii) a fine not exceeding $500.00 for the third and subsequent violations;

iv) each day that a food vendor uses EPS food service ware when providing prepared food shall constitute a separate violation

c) Notice of the fine shall be served on the food vendor. The notice shall contain an advisement of the right to request a hearing before the Director of [relevant department] or his or her designee contesting the imposition of the fine. The grounds for the contest shall be either that (1) the food vendor did not use polystyrene-based disposable food service ware when providing prepared food or (2) the food vendor would have been granted an exemption under [relevant section] if the food vendor had applied for such exemption. Said hearing must be requested within ten days of the date appearing on the notice of the fine. The decision by the Director of [relevant department] shall be based upon a finding that one or more of the above listed grounds for a contest have been met and shall be a final administrative order, with no administrative right of appeal.

Operative Date

All of the requirements set forth in this Ordinance shall become operative on [effective date]

3. Model Ordinance for Banning Single-use Carry-out Bags[28]

AN ORDINANCE of the [insert name of jurisdiction]

AMENDING [IF ORDINANCE IS AMENDING PRIOR LEGISLATION, INSERT REFERENCE]

Legislative Purpose

The [insert relevant legislative body] finds and determines that:

a) The use of single-use carry-out bags by consumers at retail establishments is detrimental to the environment, public health, and welfare.

b) The manufacture and distribution of single-use carry-out bags requires utilization of natural resources and results in the generation of greenhouse gas emissions.

c) Single-use carry-out bags contribute to environmental problems, including litter in storm drains, rivers and streams, and the ocean.

d) Single-use carry-out bags impose unseen costs on consumers, local governments, the state, and taxpayers, and constitute a public nuisance.

The [insert relevant legislative body] does therefore find and declare that it should restrict the use of single-use carry-out bags.

Definitions

For the purposes of this Ordinance, the following words shall have the following meanings:

a) "ASTM Standard" means the American Society for Testing and Materials (ASTM)'s Standard Specification for Compostable Plastics D6400, as that standard may be amended from time to time.

b) "Compostable Plastic Bag" means a plastic carry-out bag that conforms to at least the minimum standards of [insert relevant stats] labeling law, and meets current ASTM D6400 Standard Specifications for compostability, is labeled as meeting the ASTM Standard by a recognized third-party independent verification entity, such as the Biodegradable Product Institute, and is labeled "Compostable" on both sides of the bag either in green color lettering that is at least one inch in height, or as otherwise specified, or within a green color band that is at least one inch in height in order to be readily and easily identifiable.

c) "Single-use carry out bag" means a bag other than a reusable bag provided at the check stand, cash register, point of sale or other point of departure, including departments within a store, for the purpose of transporting food or merchandise out of the establishment. "Single-use carry out bag" does not include bags without handles provided to the customer: (1) to transport prepared food, produce, bulk food, or meat from a department within the store to the point of sale; (2) to hold prescription medication dispensed from a pharmacy; or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag.

d) "Department" means [relevant city department].

e) "Director" means the Director of [relevant city department].

f) "Food Establishment" means [food service establishment, as defined in relevant law]

g) "Person" means an individual, trust, firm, joint stock company, corporation, cooperative, partnership, or association.

h) "Recyclable" means material that can be sorted, cleansed, and reconstituted using [city]'s available recycling collection programs for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating, converting, or otherwise thermally destroying solid waste.

i) "Recyclable Paper Bag" means a paper Checkout Bag that meets all of the following requirements:

   i) Is 100% recyclable, using the standards for [city]'s available curbside recycling collection program;

28 Based on ordinances in San Francisco, CA and San Mateo County, CA. See http://www.amlegal.com/nxt/gateway.dll/California/environment/chapter17plasticbagreductionordinance?f=templates$fn=default.htm$3.0$vid=amlegal:sanfrancisco_ca and http://www.cityofsanmateo.org/DocumentCenter/Home/View/37289.

ii) Contains only post-consumer recycled fiber, and fiber from sources accredited by the Forest Stewardship Council or other independent certification organization, as approved by the Director.

iii) Contains a minimum of 40% post-consumer recycled content, and the Department may modify the requirements for recycled content by regulation adopted after a public hearing and at least 60 days' notice, based upon environmental benefit, cost, and market availability; and

iv) Displays the word "Recyclable" in a highly visible manner on the outside of the bag, and is labeled with the name of the manufacturer, the location (country) where manufactured, and the percentage of post-consumer recycled content in an easy-to-read size font.

j) "Reusable Bag" means a carry-out bag with handles that is specifically designed and manufactured for multiple reuse and meets all of the following requirements:

i) Has a minimum lifetime capability of 125 or more uses carrying 22 or more pounds over a distance of at least 175 feet;

ii) Is capable of being washed so as to be cleaned and disinfected at least 100 times;

iii) If made of plastic, is at least 2.25 mils thick;

iv) Meets any standards for minimum recycled content established by regulation adopted by the Department after a public hearing and at least 60 days' notice, based upon environmental benefit and market availability.

v) Garment bags that meet the above criteria shall be considered reusable even if they do not have handles.

k) "Store" means a retail establishment or Food Establishment located within the geographical limits of [city]. A "retail establishment" includes any public commercial establishment engaged in the sale of personal consumer or household items to the customers who will use or consume such items.

Mandatory Use of Recyclable, Reusable, and Compostable Carry-Out Bags

a) All Stores shall provide only the following as carry-out bags to consumers: Recyclable Paper Bags, and/or Compostable Plastic Bags, and/or Reusable Bags.

b) Violation of the requirements set forth in subsection (a) shall subject a Store to penalties set forth in [relevant section]

c) Nothing in this section shall be read to preclude Stores from making reusable bags available for sale to customers.

Carry-out Bag Charge

a) On or before [one year from implementation date], a Store may only make Recyclable Paper Bags, and/or Compostable Plastic Bags, and/or Reusable Bags available to customers if the retailer charges a minimum of ten cents.

b) On or before [two years from implementation date], a Store may only make Recyclable Paper Bags, and/or Compostable Plastic Bags, and/or Reusable Bags available to customers if the retailer charges a minimum of twenty-five cents.

c) Notwithstanding this section, no Store may make available for sale a Recyclable Paper Bag; a Compostable Plastic Bag; or a Reusable Bag unless the amount of the sale of such bag is separately itemized on the sale receipt.

d) Report

i) After [date], the Controller shall perform an assessment and review of the economic impacts on businesses, both large and small, of the Carry-out Bag Charge. Based on such assessment and review, the Controller shall submit an analysis to the [relevant legislative body]. The analysis shall be based on criteria deemed relevant by the Controller, but should include a survey of whether and how the Carry-out Bag Charge specifically has impacted businesses' profits and losses.

e) Exemption

i) [Exemption from Carry-out Bag Charge for customers receiving supplemental food assistance, WIC and other public assistance programs, as applicable in relevant state/jurisdiction]

ii) A Store shall not charge the Carry-out Bag Charge required under subsection (a) for a Reusable Bag which meets the requirements of this Chapter and which is distributed to a customer without charge during a limited duration promotional event, not to exceed 12 days per year.

f) Waiver. Any owner or operator of a Store may petition the Director of the [relevant department] for a full or partial waiver of the requirements of this Section, for a period of up to one year, if the owner or operator can:

i) Demonstrate that application of this Section would create undue hardship or practical difficulty for the Store not generally applicable to other stores in similar circumstances, or

ii) Establish that the business as a whole cannot, under the terms of this Section, generate a return that is commensurate with returns on investments in other enterprises having corresponding risks and is sufficient to attract capital.

g) Violations. Violations of this Section may be punished under the provisions of [relevant Section]

Outreach and Implementation

The Department's responsibilities for implementing this Chapter include conducting outreach to stores, providing multi-lingual information to educate store employees and customers, and making available lists of vendors who sell Recyclable Paper, Compostable Plastic, or Reusable Bags.

The Director, after a public hearing, may adopt and may amend guidelines, rules, regulations and forms to implement this Chapter.

Enforcement and Penalties

Any person who violates this Ordinance shall be guilty of an infraction. If charged as an infraction, upon conviction thereof, said person shall be punished by:

1) a fine not exceeding $100.00 for a first violation,

2) a fine not exceeding $200.00 for a second violation within the same year, and

3) a fine not exceeding $500.00 for each additional violation within the same year.

Operative Date

All of the requirements set forth in this Ordinance shall become operative on [effective date] OPTION: Operative dates for different types of Store may be staggered so that the program is phased-in over the first year of operation.

4. Model Ordinance for Regulating Take-out Food Packaging[29]

AN ORDINANCE of the [insert name of jurisdiction]

AMENDING [IF ORDINANCE IS AMENDING PRIOR LEGISLATION, INSERT REFERENCE]

Legislative Purpose

The [name of governing body] finds that discarded packaging from foods and beverages prepared for immediate consumption constitutes a significant and growing portion of the waste in [name of jurisdiction]'s waste stream. Regulation of food and beverage packaging, therefore, is a necessary part of any effort to encourage a recyclable and compostable waste stream, thereby reducing the disposal of solid waste and the economic and environmental costs of waste management for the citizens of [jurisdiction] and others working or doing business in [name of jurisdiction].

The [name of governing body] further finds that plastic packaging is rapidly replacing other packaging material, and that some plastic packaging used for foods and beverages is nonreusable, nonreturnable, nonrecyclable, and noncompostable.

The [name of governing body] also finds that the two (2) main processes used to dispose of discarded nonreusable, nonreturnable, and nonrecyclable and noncompostable plastic food and beverage packaging, are land filling and incineration, both of which should be minimized for environmental reasons.

The [name of governing body] therefore finds that the minimization of nonreusable, nonreturnable, nonrecyclable, and noncompostable food and beverage packaging originating at retail food establishments and at events providing food and/or beverages within the [name of jurisdiction] is necessary and desirable in order to minimize the [city's, county's, town's] waste stream, so as to reduce the volume of landfilled waste, to minimize toxic by-products of incineration, and to make our communities more environmentally sound places to live.

Definitions

As used in this chapter, the following terms and phrases shall have the meanings as defined in this section:

a) *Packaging* shall mean and include food or beverage cans, bottles or containers used to package food and beverage products for distribution including glasses, cups, plates, serving trays, and to-go containers, but shall specifically exclude foods pre-packaged by the manufacturer, plastic knives, forks and spoons sold or intended for use as utensils and plastic films less than ten (10) mils in thickness.

b) *Environmentally acceptable packaging* shall mean and include any of the following:

1) *Reusable and returnable packaging*: Food or beverage containers or packages, such as, but not limited to, water bottles, growlers, milk containers and bulk product packaging that are capable of being refilled at a retail location or returned to the distributor for reuse at least once as a container for the same food or beverage;

2) *Recyclable packaging*: Packaging that is separable from solid waste by the generator or during collection for the purpose of recycling including glass bottles, aluminum cans and plastic food and beverage packaging that have robust recycling markets. For the purposes of this chapter, environmentally preferable plastic packaging includes the following plastic types:

i) Polyethylene Terephthalate (#1 PET or PETE);

ii) High Density Polyethylene (#2 HDPE); and

iii) Polypropylene (#5 PP).

3) *Compostable packaging*: Packaging that is separable from solid waste by the generator or during collection for the purpose of composting. Compostable packaging must be made of paper, certified compostable plastics that meet ASTM D6400 or ASTM D6868 for compostability or other cellulose-based

29 Based on proposed or passed ordinances in Minneapolis, MN, Seattle, WA, and San Francisco, CA. See http://www.minneapolismn.gov/www/groups/public/@clerk/documents/webcontent/wcms1p-124792.pdf, http://clerk.seattle.gov/~scripts/nph-brs.exe?s3=&s4=122751&s5=&s1=&s2=&S6=&Sect4=AND&l=0&Sect2=THESON&Sect3=PLURON&Sect5=CBORY&Sect6=HITOFF&d=ORDF&p=1&u=%2F~public%2Fcbor1.htm&r=1&f=G, and http://www.sfenvironment.org/sites/default/files/editor-uploads/zero_waste/pdf/sfe_zw_food_service_waste_reduction_ordinance.pdf.

packaging capable of being decomposed through composting or anaerobic digestion.

c) *Food establishment*, as used in this chapter, means a food service business, including restaurant, store, shop, and sales outlet, as defined in section [insert reference to pertinent code] of the [insert name of jurisdiction] Code of Ordinances.

Prohibitions and Duties

a) No person owning, operating or conducting a food establishment or any person or organization providing free food or beverage products within the [insert name of jurisdiction] pursuant to a permit or license, or in a manner which would require a permit or license, shall do or allow to be done any of the following within the [city, county, town]: Sell or convey at retail or possess with the intent to sell or convey at retail any food or beverage intended for immediate consumption contained, at any time at or before the time or point of sale, in packaging which is not environmentally acceptable packaging. The presence on the premises of the food establishment of packaging which is not environmentally acceptable packaging shall constitute a rebuttable presumption of intent to sell or convey at retail, or to provide to retail customers packaging which is not environmentally acceptable packaging; provided, however, that this subparagraph shall not apply to manufacturers, brokers or warehouse operators, who conduct or transact no retail food or beverage business.

b) Packaging used to contain food or beverages intended for immediate consumption consumed at the point of sale shall be considered environmentally acceptable packaging only when the food establishment provides consumers with an opportunity to recycle and/or appropriately manage compostable plastics and utilizes a qualified recycling and/or organics management system.

   1) A qualified recycling system shall have the following elements:

      i) A clear and verifiable process for separating recyclable packaging from discarded solid waste; and

      ii) Collection and delivery of recyclable packaging to a recycling facility for processing in the same or similar manner as recyclable packaging collected in a municipally approved recycling program.

   2) A qualified organics management system shall have the following elements:

      i) A clear and verifiable process for separating organic materials from discarded solid waste; and

      ii) Collection and delivery of organic materials to a food to people, food to animals, organics composting or anaerobic digestion facility in the same or similar manner as organic materials collected in a municipally approved organics management program

Enforcement

The [insert relevant city government department and division] shall have the duty and the authority to enforce the provisions of this chapter. The license official shall also have authority to enforce the provisions of this chapter.

Rules and Regulations

The [insert relevant division] may, upon notice and hearing, promulgate such rules and regulations as may be necessary to carry out the purposes of this chapter and protect the health of the public, including the development of exemptions for packaging for which there is no commercially available alternative. In promulgating such rules, the director of [insert relevant division] shall consider the legislative purpose provided in section [XX] of this chapter, and shall consult with the operators of affected food service establishments.

Report to [Relevant Legislative Body]

No later than [two years after effective date of legislation], the Director of [insert relevant department], in consultation with [city administrator or relevant official] and with input from members of the public, shall submit to the [relevant legislative body] a report recommending changes, if any, to this Chapter, including whether the ban imposed by this Chapter should be extended to other products, as supported by the report. If the Director recommends banning additional products, the report must include an estimate of the costs and benefits of compliance with a ban on additional products, including the increased costs to the City as well as to the City's food service industry.

5. Model Ordinance Requiring Re-Usable Food Service Ware For Restaurants Serving Food And Beverages For On-Site Dining[30]

AN ORDINANCE of the [insert name of jurisdiction]

AMENDING [IF ORDINANCE IS AMENDING PRIOR LEGISLATION, INSERT REFERENCE]

WHEREAS, according to the U.S. Environmental Protection Agency, the quantity of solid waste generated per capita in the U. S. increased from 2.68 pounds per day in 1960 to 4.38 pounds per day in 2012;[31] and

WHEREAS, according to the U.S. Environmental Protection Agency, packaging comprised 30% by weight of municipal solid waste in 2012 the United States;[32] and

WHEREAS, numerous studies demonstrate that reusable food service ware offers important environmental advantages over single use disposable products and that those benefits multiply with each use[33].

WHEREAS, it has been demonstrated that switching to reusables saves food service businesses significant costs, even with dishwashing, energy and labor costs factored in.[34]

NOW THEREFORE, the XXXX ordains as follows:

Title XXX of [insert local code] is hereby amended by adding Chapter X, Section X, to read as follows:

Section 1. Declaration of Findings

Section 2. Title. This Chapter may be cited as the "Transition to Re-usable Food Service Ware at Dine-in Restaurants" provision

Section 3. DEFINITIONS

- "**Restaurant**" for the purposes of this ordinance, means a retail use eating place which serves prepared, ready to eat, cooked foods and/or drinks to customers for on-site immediate consumption on or off the premises and which has seating. It may be a limited restaurant, such as coffee store, juice bar, or bakery, or a full service restaurant. For the purposes of this ordinance, this includes fast food outlets, grocery stores with food service areas, bar/taverns with food preparation and service, and restaurants. It is not required to operate within an enclosed building so long as it is also a mobile food facility with outdoor seating/and or dining area.

- "**Dine-in**" means food or beverages are served for consumption on the premises of a food service establishment

- "**To go**" means food or beverages which are served for consumption outside the premises of a food service es tablishment

- "**Re-usable food service ware**" shall mean plates, bowls, cups, glasses, and utensils that are designed to be used more than once and are generally considered to be non-disposable.

30 This ordinance was drafted by California Clean Water Fund, with input from the Product Stewardship and the California Product Stewardship Council.

31 http://www.epa.gov/waste/nonhaz/municipal

32 http://www.epa.gov/waste/nonhaz/municipal/pubs/2012_msw_dat_tbls.pdf (See Table 9)

33 See: Alliance for Environmental Innovation, Report of the Starbucks Coffee Company/Alliance for Environmental Innovation Joint Task Force, April 2000. This study found that for every 1 million beverages served in glass, instead of PET plastic cups, there would be a 98% reduction in energy use; both ceramic and glass cups reduced water pollution by 99 percent and ceramic reusables reduce water usage by 64 percent, ceramic re-usable reduced the amount of air particulates by 86% and greenhouse gases by 29 percent. VOCs could be reduced by 99.7 percent; ceramic reusables reduced solid waste by 86 percent; and glass resuables cut solid waste by 88 percent by weight. http://business.edf.org/files/2014/03/starbucks-report-april2000.pdf. See also, Environmental Evaluation of Single-Use and Reusable Cups. Nuria Garrido and M. Dolors Alvarez del Castillo Technical University of Catalonia. June 2007. The study concluded that the minimum number of uses of the reusable cup necessary for it to have a smaller environmental impact than the single-use cup is 10. As the number of uses of the reusable cup increases, the contribution to all the environmental impact categories decreases. http://www.springerlink.com/content/x4658g3436577005/fulltext.pdf.

34 See Alliance for Environmental Innovation study (note iii) that found that when fully implemented, a re-usable cup and glass service program could save Starbucks more than $1 million per year in packaging costs (based on Starbucks size at the of 1999).

▶ "**Disposable food service ware fee**" shall mean an annual fee levied by the Department of Environmental Health that is deposited into a "re-usable food service ware transition account"

▶ "**Re-usable food service ware transition account** "collects fees levied on the use of disposable food service ware for dine-in at a restaurant. Funds from the account are specifically designated to provide direct funding to restaurants for the transition from disposable to re-usable. Funds shall be available to cover costs associated with plumbing, electrical, and other construction necessary to install dishwashing capacity, as well as the costs associated with purchase of re-usable food service ware.

Effective January 1, 20XX:

A. Restaurants shall be prohibited from selling or providing food and beverages for dine-in consumption using single use disposable plates, bowls, cups, containers, or utensils, except as provided by section C. Customers must be asked whether they want the food or beverage they have ordered to be eaten on the premises (i.e. "dine in") or "to go." If the purchased food or beverage is intended for dine-in, the food service establishment must serve the food and or beverage on re-usable food service ware.

B. The restaurant shall certify to the City/County [insert name of solid waste/recycling program] that it provides re-usable food service ware to serve dine-in meals.

C. Restaurants that do not have on-site or off-site dishwashing capacity to sanitize re-usable food service ware in compliance with the California Health Code section may claim an exemption from (A) but will be required to pay a disposable food service ware fee of XXX$ on an annual basis to the City/County [insert name of solid waste/recycling program].

D. Funds collected by the [insert City/County solid waste/recycling program] shall be deposited into the Reusable Food Service Ware Transition Account. The [insert City/County solid waste/recycling program] shall make these funds available to restaurants to cover the costs of installation of dishwashing equipment, re-usable food service ware, or the costs associated with the first year of participation in an off-site dishwashing service. The [insert City/County solid waste/recycling program] shall determine how to distribute funds through this program, but the express purpose of the distribution of funds shall be to assist restaurants in transitioning from using disposable food service ware for dine-in food service to using re-usable food service ware.