

# 2013 WASTE DIVERSION PLAN

## PROGRAM AND DATA UPDATE



UNIVERSITY OF CALIFORNIA, SANTA BARBARA

JULY 1, 2012— JUNE 30, 2013

PREPARED BY THE SUSTAINABILITY CHANGE AGENT WASTE TEAM



UCSB Sustainability

## UCSB WASTE MANAGEMENT CONTACT INFORMATION

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## **INTRODUCTION**

### Recap of 2012 Waste Diversion Plan

The original Waste Diversion Plan was developed in 2012 and was approved by the Chancellor's Sustainability Committee in November 2012. The Plan, titled '2012 Waste Diversion Plan', was a comprehensive waste management document that provided information on the regional context of waste management in the Central Coast, the various waste entities at UCSB and their respective waste-related programs and practices, UCSB's waste hauler, the University's 2011-2012 Fiscal Year waste diversion rate, and projections of proposed programs. The 2012 Plan saw UCSB record a 68.7% waste diversion rate that included construction and demolition (C&D) material and a 63.9% waste diversion rate not including C&D waste. It also highlighted over 30 of UCSB's waste-related programs, provided pictures of the waste receptacles on the UCSB Campus, and included flow charts that depict where UCSB sends its waste.

### Introduction to 2013 Waste Diversion Plan – Program and Data Update

The 2013 Waste Diversion Plan is an update of the original Waste Diversion Plan that was produced in 2012. The 2013 update highlights new and updated waste management programs at UCSB that have taken place between July 1, 2012 and June 31, 2013, as well as UCSB's waste data generated between the aforementioned dates.

## **NEW PROGRAMS AND PRACTICES**

### ***Recycling***

#### *Landfill/ Commingled Receptacle Pairing*

As a result of mapping UCSB's outdoor waste infrastructure, Facilities Management was able to entirely remove 9 landfill waste receptacles and to re-paint the lids of 11 other landfill receptacles blue, designating them for commingled recycling. These new commingled recycled receptacles were then paired with landfill bins to provide the campus community with additional locations to recycle. The pairings were strategically located throughout the campus in high traffic areas. At these 11 locations, the Facilities Management Grounds staff has witnessed a decrease of recyclables in the landfill receptacles.

## ***Composting***

### **Compostable Contract Language for University Center Tenants**

The University Center (UCen) staff has made a campus-wide policy that all food entities leasing space from the UCen must provide compostable food serviceware. This mandate was added to the contracts for tenants interested in leasing and only applies to new, future contracts. The mandate went into effect at the start of 2013, and the UCen will welcome their first tenant under the new contract in the summer of 2013.

### **Bren Hall Events – Composting**

Facilities Management and Associated Students Recycling has worked diligently with the event staff and building manager at Bren Hall to incorporate composting into the building's existing waste infrastructure. Bren Hall houses the Bren School of Environmental Science & Management and the Environmental Studies program at UCSB. All events hosted at Bren Hall now provide a compost waste stream, which has all but eliminated the landfill waste stream. The Bren Event Staff now purchases only compostable or recyclable material. In response to the introduction of compostable food service ware at UCSB, special receptacles have been added strategically throughout the building to accept only the compostable food service ware. Food scraps will continue to be disposed of via Bren's existing vermicompost program.

### **Garden at the Grove**

The garden plot at the Eucalyptus Grove was developed as a demonstration area to show the effects of compost in action. The fenced area is approximately 35 ft by 20 ft and holds approximately 11 smaller beds. The beds are simply loose piles of compost built on very dense clay soils that are heavily damaged from eucalyptus. The vegetables are grown entirely from seed and provide students with an educational experience in vegetable gardening.

### **Demonstration Worm Bin**

A small Rubbermaid vermicompost bin was created for use in workshops and at tabling events. The bin is portable and made out of easy to find and low-cost materials, so it also shows any workshop or event participants just how easy it is to compost at home. Over the next year, the "Department of Public Worms" may pre-make worm bins and sell all materials and information as a low-cost kit to help students start their own bins even more easily.

### Refined Vermicompost Bin + Procedure

The vermicompost bins that were being managed by the Department of Public Worms at the start of the year were not very well made, and worm populations were dying off. The bins were too shallow, which meant that temperatures and moisture levels fluctuated wildly, and castings were never finished in one area before that area needed to be re-fed. The staff coordinator designed a new bin that would be deeper and better insulated and would allow harvesting from a compartment below while new food could be added on top. The bin is currently being tested; if it is successful, several more bins will be built, and the program will be expanded.

### Refined Hot Compost Procedures

The vermicompost program collects more food waste than can be used in the bins, so there is often a great deal of overflow. To better deal with this overflow, the students built two stalls out of pallets and used them as hot compost bins. With regular turnings, the compost would finish in just a few weeks and could then be added to the garden, along with vermicompost castings.

### Family Housing Compost Program

Department of Public Worms students took over maintenance of the on-site food scrap composting program at both Storke and West Campus Family Housing complexes. The program was previously maintained by a graduate researcher who was measuring incentives for positive environmental actions like composting. The students collect the food waste from drop-off bins, mix it into piles, and turn the piles to encourage faster composting. Finished compost is given back to the housing residents to use in their community garden space.

### Improved Route Efficiency

The AS Recycling Program has been expanding ever since its founding 20 years ago. This has, however, included several inefficiencies. When students added new bins for compostable materials, for example, this generated a new compost-specific route rather than being split amongst the recycling collection routes that went to all the same spots. This year, AS Recycling re-arranged some of its routes to combine duties and make everything much more efficient. We are saving money on labor and have more room to concentrate on new tasks.

### Graduate Students' Association – Compost Program

The Graduate Students' Association (GSA) provides graduate students at UCSB with a place to relax, study, and grab a complementary cup of coffee. On Wednesdays, GSA hosts a bagel hour when students can get breakfast snacks and network with one another. GSA staff collaborated

with Facilities Management and now composts their coffee grounds, an estimated 33.2 lbs/week.

### MarBorg Food Waste Service

In response to the large amounts of pre-consumer and post-consumer food scraps generated at UCSB, as well as the recent introduction of compostable food service ware, UCSB worked diligently with MarBorg Industries and Engle & Gray to establish a new waste stream on-campus for compostables and food scraps. All of the UCen's eateries participate in this program, as well as several of the leased tenants. Post-consumer compost receptacles are strategically located throughout campus and are serviced by Associated Students Recycling. This program receives an estimated 40 tons/ month of food scraps and organic waste.

### Towels2Trees

During the second week of this spring quarter, the Zero Waste Committee (ZWC) launched its much-anticipated project, Towels2Trees Pilot Project. The ultimate goal of this project is to create and implement a campus-wide system of composting the paper towels that are disposed of in UCSB bathrooms. These biodegradable towels are currently sent to the landfill and comprise a notable percentage of UCSB's waste stream. The project's objective is based upon the ZWC's mission to enable UCSB to accomplish the UC-wide zero waste goal by 2020. By diverting the stream of paper towels from the landfill and into compost, UCSB will be adopting a much more sustainable, closed-loop practice that brings it closer to its zero waste goal by 2020. The pilot project takes place in Ellison Hall, and each floor was carefully and systematically introduced to the project. Every day of the school week, a pair of zero-waste members picks up the bags of paper towels from Ellison Hall. A daily waste audit collects data on contamination from both the compost and landfill bins that are provided in the bathrooms, and the resulting paper towels are sent to a commercial composting facility. The data gathered assesses the project's effectiveness and will allow the ZWC and UCSB to determine which areas need additional work. While the project is still in its early phases, the data collected thus far has been promising, and the ZWC is optimistic that Towels2Trees will eventually stand as a model project that can be implemented on a campus-wide scale.

### **Waste Reduction**

#### Hydration Stations

Funded by the Green Initiative Fund and the Coastal Fund, UCSB has installed 40 hydration stations across campus as part of a drive to reduce the use of disposable water bottles. The fountains offer filtered and reverse osmosis water through a water bottle-friendly dispensing

mechanism. The installation of the hydration stations was completed this spring, prompting the Geography Department to add the locations to its interactive map of Campus. The Plastic Pollution Coalition at UCSB incorporated the hydration stations into their Day without a Bottle as a way to promote the use of the new water systems to students as an alternative to plastic water bottles on campus.

### *Day without a single-use Bottle*

On April first, 2013, UCSB sponsored “A day without a bottle”, in which students were asked to pledge to use reusable bottles and refuse single-use plastics. Throughout the day, members of the Plastic Pollution Coalition at UCSB rallied the students, handing out free reusable water bottles, educating them about the dangers of plastic, and getting petitions signed. The day culminated with a show in Storke Plaza, including performances by campus a capella groups, dance crews, and an “eco-rapper” from San Luis Obispo, Mr. Eco. Awesome prizes, including a trip for two to the Channel Islands, were raffled off to those students who signed the petition to refuse plastic. Overall, it was a successful day that brought awareness to the UCSB campus about plastic pollution and the resources available to students to reduce their plastic footprint.

### *Plastic “Foot Printing” Tool*

In 2012, the Environmental Protection Agency granted funding for a project to begin the reduction of single use plastic on campuses nationwide. Through this grant, the Plastic Pollution Coalition at UCSB (UCSB PPC) has been working with the National Organization to help develop a plastic footprinting tool for Universities wishing to begin the reduction of disposable plastic on their campuses. With the help of the Product Stewardship Institute, the UCSB PPC will use this tool to assess the amount of plastic waste reduced on the UCSB campus by establishing a baseline and seeing how change occurs. The overall goal of the EPA grant is an 80% reduction in water bottles being sold on campus.

### *Refuse & Recycling Research Center*

In an effort to better understand waste management challenges at UCSB, Facilities Management has sought to create the Refuse & Recycling Research Center (R<sup>3</sup>C). R<sup>3</sup>C’s overarching purpose is to provide recommendations to UCSB on how to target upstream materials and improve the University’s waste diversion rate, while striving to locally manage materials in an environmentally friendly manner. To achieve this purpose, R<sup>3</sup>C student researchers will meet the following objectives:

- Examine UCSB’s current on-campus waste management infrastructure for areas of improvement.

- Identify sources of waste at UCSB where source reduction practices can be introduced.
- Conduct on-campus behavioral analyses towards waste disposal.
- Explore cost-effective programs, practices, and technologies for improving waste management at UCSB.
- Investigate regional waste disposal options.
- Collaborate with local, state, and national entities in regards to waste management Best Management Practices (BMPs).

### Front-end Loader Scale Pilot Study

One of the projects from the Refuse & Recycling Research Center (R<sup>3</sup>C) this past year was the exploration of front-end loader scales. Front-end loader scales are installed on the forks of garbage trucks and used to measure the weights of dumpsters. To fund this pilot study, R<sup>3</sup>C received a \$4,000 grant, and MarBorg Industries contributed about \$11,000 towards the purchase and installation of the scale, as the company was genuinely interested in UCSB's research efforts. The scale has been installed on the truck that primarily services all of UCSB's waste streams. Data from the scales are provided to UCSB on a monthly basis. Based on the data, R<sup>3</sup>C has identified UCSB's largest generators of landfill waste, as well as buildings that are generating significant amounts of waste, unnecessary service days, and trends in waste disposal. R<sup>3</sup>C plans to use this information to establish building-specific waste management programs and work with both the building occupants and custodial staff in areas where the data shows waste management practices can be improved.

### **Education & Outreach**

#### Can Fairies

The community of Isla Vista, immediately adjacent to campus, houses a significant portion of UCSB's student population, and generates a substantial volume of recyclable goods, including CRV recyclable beverage containers. Often these are not disposed of properly, which has led to a sub-community of can collectors that depend on the CRV recyclable items for their livelihood. The documentary *Can Fairies* follows the story of two can collectors, Estela and Robert. Estela is the mother of three children and recycles to feed her family. Robert is a homeless man struggling to make enough to afford housing. They are both extremely hard working as they scavenge through students' dumpsters, yards, and streets at all hours of the day. The film addresses the social issue of students' lack of respect for can collectors and the environmental issue of students not recycling. In addition, UCSB's Refuse, Recycling & Water Efficiency Manager and Associated Student's Recycling Staff Coordinator provide insight on waste

management at UCSB and how it relates to Isla Vista. The documentary can be viewed here: [Can Fairies](#)

### *Change Agent Waste Team – Movie Night*

UCSB's Change Agent Waste Team hosted their first movie night during the winter quarter. The night was a chance for students, staff, and faculty to meet one another, enjoy dinner together, discuss waste management topics, and watch a waste-related movie. The movie selected was *Waste Land*.

### *“Focus on Food” Internship Program*

One of Residential Dining Services Sustainability Strategic Goals for 2015 is to partner with others to research and implement best practices in sustainability. In an effort to reach our goal, we partnered with the Environmental Studies department at UCSB and developed the Student Internship Program. This program exemplifies the ability of students, faculty, and staff to collaborate to improve the campus and community.

There are various projects being completed at different times throughout the year by three current interns. Notable projects from this year's internship program include how to better identify climate-friendly foods, how to track monthly utility data, and how other campuses are influencing students to make more educated and sustainable choices.

During Sustainability Week and Earth Day, our Dining Commons follows a Climate Friendly Menu. There are four core principles that are followed, including buying locally grown and organic foods, reducing meat and dairy consumption, avoiding processed foods, and saying no to packaging. The interns are adopting the traffic light model to identify different food types; green means it's a great choice and red means eat sparingly or never. The interns developed a list of recipes that are climate friendly and are based on specific criteria.

The tracking of monthly utility data and efforts to understand how students make more educated sustainable choice are still in progress. Both endeavors improve our waste management.

### *The Food Waste Project (Bren School Group Project)*

Waste throughout the food system, or from farm to fork, in America causes a multitude of environmental problems. These issues were investigated by four master's candidates from the Bren School of Environmental Science & Management; the project also acted as their Master's Group Project. Food, which is thrown away or wasted at any stage of the supply chain for any reason often rots in our nation's landfills, where it releases methane into the atmosphere as it

decomposes. Besides leading to methane emissions, food waste also implies the waste of resources such as fertilizer, energy, and water embodied in that food. Significant social and economic problems also persist as a result of food waste in the United States, where experts assert that, overall, 40% of food produced is lost or wasted. Among all of the stages in the food supply chain, losses at the consumer level, both in and out of the home, are the largest, both in terms of weight and value. The Food Waste Project consists of a survey of Californians regarding their knowledge, attitudes, and behaviors related to food waste, as well as our integrated communications campaign, and it aims to help fill both of these voids within the United States. The results of the survey, which was completed by over 1,000 adult Californians, reveal significant opportunities and potentials for the United States to achieve reductions in food waste, especially in comparison with countries which have made food waste reduction a priority. The Food Waste Project also produced a video, which can be viewed on their website: ['I am the 40%'](#).

### Lab Waste Management Program

The laboratory waste management program is a newly established procedure for separating out non-hazardous but physically dangerous materials from the main waste streams from campus laboratory buildings at UCSB. Prior to this program, 40 tons/week of waste was sent directly to the landfill for disposal from laboratories, while all other buildings participated in a mixed material recovery facility (MRF) to remove improperly sorted recyclables from the landfill stream. The MRF procedure was impossible in the lab buildings, due to sharps containers breaking open in compacting trucks and creating hazards for MRF facility workers. Additionally, occasional improper disposal of sharps and glass led to a small but steady stream of injury incidents to campus custodial staff, which this program also serves to address. Motivated by these safety issues, plus high tipping costs for landfill-direct disposal and a known source of undiverted recyclables, stakeholders including Environmental Health and Safety, Facilities Management, the campus' waste hauler, and sustainability representatives, designed the program over an eight-month period before roll-out to all campus laboratory buildings.

This program requires all laboratories on campus to place uncontaminated, non-recyclable laboratory glass, sealed sharps containers, and sterilized autoclave waste into red-lidded rolling bins instead of into campus dumpsters. Outreach and education for this program have raised additional awareness by laboratory occupants of disposal procedures, increasing safety for lab, custodial, and waste hauler staff. Remaining waste from the laboratory buildings will then be safe to sort in a mixed reclamation process, which has been shown by our hauler to divert 13% of the original volume from the landfill to a recyclable stream. At 40 tons of waste per week from the lab buildings, the expected diversion from this program is 270 tons of recyclables per

annum, in addition to the significant safety, savings, and awareness benefits for all constituents.

### Recycling Online Training Module

In an effort to better educate the UCSB Community in regards to recycling, the UCSB PACES internship program has created an online recycling training module. The training module is designed to highlight some of the programs and leadership at UCSB in regards to recycling efforts, with the overall goal of motivating users to take action.

### Revised Informational Brochures and Website

While AS Recycling does have an outreach team, our focus has been collections work. Therefore, many of our outreach materials have not kept up with the program and do not include up to date information on all available resources. We revised our standard set of brochures and are in the process of revising our website to include not only up to date information about our program, but also information about waste and recycling in general and in our community. This is already helping to inform our campus and improve waste knowledge.

### SmartSource – Sustainable Supply Chain Management at UCSB (Bren School Group Project)

This project provided UCSB with a framework to efficiently assess and reduce environmental impacts from the \$70 million of goods and services the University purchases annually. The team evaluated the current state of purchasing through data analysis, life cycle assessment (LCA) methods, and a behavioral survey. Data analysis enabled the team to use an LCA tool to identify the purchases with the greatest environmental impacts. The LCA tool assesses several environmental impact categories, including greenhouse gas emissions, water use, and energy consumption. Measuring specific environmental impacts that result from campus expenditures and setting measureable goals for reduction will allow UCSB to quantify its environmental performance. The survey examined current attitudes and behaviors regarding purchasing in order to identify barriers to and opportunities for reducing the environmental impacts from purchasing. The framework recommends that UCSB complete a similar process on an annual basis, allowing the campus to identify products with high environmental impacts. Once products are identified, strategies for restriction, reduction, or substitution for alternatives with lower environmental impacts should be examined. This shift towards reducing UCSB's environmental impacts will also increase expenditures on products with lower environmental impacts, allowing the campus to leverage its purchasing power to enhance the sustainability of its supply chain.

## Waste Signage Update

In an effort to establish uniformity amongst UCSB' waste signage, the electronic waste signs were updated to match the formatting of the existing signage on campus. Orange was selected as the color to represent electronic waste at UCSB.



## **Waste Audits**

### CHESC Waste Management and Waste Audit

AS Recycling performs waste audits for special events put on by campus departments. This year, UCSB hosted the annual California Higher Education Sustainability Conference, and AS Recycling students handled all waste management, including bin placement, collection, sorting, and auditing. The audit itself took place over two days, with a short third day to account for post-conference workshops. During the audit, seven students sorted material into several categories: food, certified compostable products, glass, metal, film plastic, all other plastic, office pack paper, other paper, cardboard, and landfill. The students found that 88.6% of material was placed in the proper bin, and 97.4% could be diverted following a hand sort, where auditors additionally sorted the material and corrected any errors made by attendees. These results met the stated goal of 85% properly sorted and 95% diverted, and the Recycling Student Team gained great experience in large event management and large-scale auditing.

### EPA Food Recovery Challenge and Food Waste Audits

In fall of 2012, Residential Dining Services joined the Food Recovery Challenge. The program offers tools and assistance to help reduce food waste. Within 90 days of joining the program, we established our baseline data. With that established, we then determined our waste reduction goal. We plan to reduce our food waste by 5% by 2014

In order to reach this goal, the dining commons continues to conduct weekly food waste audits in all dining commons. This baseline data allows our organizations to measure our progress over time. Analyzing our food waste has allowed us to diagnose problems and make changes, including more accurate forecasting, sustainable purchasing, and recipe editing.

### RecycleMania 2013

UCSB participated in RecycleMania, a nationwide recycling competition that promotes waste reduction strategies during an 8-week period. Each week, weights were recorded for various waste streams. UCSB chose to participate in the following categories and received the following rankings: Grand Champion – Ranked #44/273; Per Capita – #81/361; Waste Minimization – #69/167; Food Service Organics – #16/156. During the competition, Associated Students Recycling tabled in front of one of the main cafes on campus where they also conducted a public waste audit. Using the results from the competition, UCSB has sought to explore methods to improve waste management efforts. Comments about RecycleMania’s metrics were also compiled to be shared with fellow institutions and RecycleMania.

### Zero Waste Weekend

UCSB’s Intercollegiate Athletic Department (ICA) was awarded a \$3,950 grant from the University’s “The Green Initiative Fund” (TGIF) to “green” ICA’s athletic facilities. With support from Facilities Management and the Associated Students Recycling (ASR) program, ICA chose to utilize the grant to upgrade the waste infrastructure and host the University’s first ever zero waste athletics event at Harder Stadium, Zero Waste Weekend. ASR students conducted a waste audit of an early-season game in order to understand the stadium’s waste stream before any changes were implemented and to provide a baseline to which they could compare later results. From that audit, ASR found that 42% of the stadium’s waste could be recycled, 40% could be composted, and 18% was landfill material. The waste infrastructure upgrade consisted of replacing the previous waste receptacles, which were unlabeled and inconsistent, with color coordinated, rolling 35-gallon waste carts for commingled recycling, landfill, and compost waste. The rolling carts were also clearly labeled with signage respective to their designated waste stream. The lids on the new waste carts also eliminated the pest issues that were problematic with the previous waste receptacles. Fifteen pairs of the tan landfill and blue commingled recycling carts were strategically located throughout Harder Stadium.

For Zero Waste Weekend, the landfill rolling carts were replaced with yellow food waste/compostables rolling carts. ICA advertised Zero Waste Weekend with articles on its website, by notifying all attendees via pre-, halftime, and post-game announcements at events leading up to Zero Waste Weekend, and by emailing all season ticket holders. ICA’s Media Team also produced two videos highlighting Zero Waste Weekend. One of the videos, [“UCSB Leads,”](#)

included faculty, staff, students, and Men's and Women's Soccer players from UCSB and was shown on the video board during games leading up to and during Zero Waste Weekend. During each of the three soccer games, ASR student-employees were stationed adjacent to the waste bins to assist attendees in properly disposing of waste. ASR and UCSB's Plastic Pollution Coalition also hosted informational booths at the games that helped attendees familiarize themselves with changes to the waste infrastructure and the concept of zero waste. ASR conducted a full waste audit for the last game of Zero Waste Weekend. This Men's Soccer game, which saw UCSB take on UCD, boasted a 95.1% post-sort waste diversion rate.

### **2012 – 2013 FISCAL YEAR WASTE DATA**

The addition of the aforementioned waste management programs and practices allowed UCSB to achieve a 78.9% waste diversion rate when accounting for construction and demolition (C&D) waste and a 70.1% waste diversion rate not including C&D waste, a 9.3% and 6.17% increase respectively.

The data is presented in a manner that reflects the University of California's 2012-2013 Solid Waste Diversion Survey.

FY 2012-2013 Waste Diversion Data by Commodity

*Table 1: Waste Sent to Landfill*

<b>Commodity Type</b>	<b>Actual</b>	<b>Estimated</b>	<b>Units</b>	<b>Data Contributors</b>
Residuals from MRF w/o C&D	1,877.73		Tons	MarBorg
C&D Waste	100.70		Tons	MarBorg
<b>TOTAL</b>	<b>1,978.43</b>		<b>Tons</b>	

*Table 2: Basic Recycling Diversion Data*

<b>Commodity Type</b>	<b>Weight</b>		<b>Units</b>	<b>Data Contributors</b>
	<b>Actual</b>	<b>Estimated</b>		
Glass	1.12		Tons	A.S.R
Plastics 1-2	1.91		Tons	A.S.R
Aluminum	0.57		Tons	A.S.R
Corrugated cardboard	7.50		Tons	H&RS
Office pack/ mixed paper	52.16		Tons	
Scrap metal	N/A		Tons	
Commingled recyclables (glass, plastics, aluminum, paper cardboard)	1,828.05		Tons	MarBorg
Shredded Paper	57.47		Tons	Student Health/ Recall
<b>TOTAL</b>	<b>1,948.78</b>	<b>0.00</b>	<b>Tons</b>	
<b>GRAND TOTAL</b>	<b>1,948.78</b>		<b>Tons</b>	

*Table 3: Organics Recycling Diversion Data*

<b>Commodity Type</b>	<b>Weight</b>		<b>Units</b>	<b>Data Contributors</b>
	<b>Actual</b>	<b>Estimated</b>		
Landscape/ yard waste	672.56		Tons	MarBorg/ Family Compost
Food waste	923.53		Tons	H&RS/ Family Compost
Animal bedding	325.00		Tons	Facilities Management
Cooking oil	12.26			H&RS/ UCen
Coffee Grounds	21.33		Tons	Facilities Management
<b>TOTAL</b>	<b>1,954.67</b>		<b>Tons</b>	
<b>GRAND TOTAL</b>	<b>1,954.67</b>		<b>Tons</b>	

Table 4: Miscellaneous Recycling Diversion Data

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Construction/ demolition	4,184.59		Tons	MarBorg/ Subcontractors
Compact discs	N/A		Tons	
Plastic pipette boxes	N/A		Tons	
Pallets	N/A		Tons	
Toner cartridges/ inkjet	N/A		Tons	Central Stores/ A.S.R.
Carpet	N/A		Tons	
Furniture/ office supplies	144.00		Tons	Central Stores
Furniture - GIVE Sale	17.42			H&RS
Textiles	1.76		Tons	H&RS
Eyeglasses	N/A		Tons	Human Resources
Toilets (porcelain)	N/A			H&RS
Clothing/ Shoes	N/A		Tons	A.S.R./ Bren
Vehicles	27.25			Central Stores
TOTAL	4,375.02	0.00	Tons	
<b>GRAND TOTAL</b>	<b>4,375.02</b>		<b>Tons</b>	

Table: 5 Universal Waste Materials Recycling Diversion Data - **NOT INCLUDED IN PLAN**

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Freon	N/A			
Electronics	N/A			Central Stores/ A.S.R.
Household batteries (e.g., alkaline and rechargeable)	N/A			Central Stores
Cell phones	N/A			Included in "Electronics"
Tires	N/A			
Anti-freeze	N/A			
Medical sharps containers	N/A			
Non-hazardous batteries (e.g., automotive)	N/A			EH&S
Chemicals	N/A			EH&S
Fluorescents	2.17			EH&S
Mercury	0.11			EH&S
Empty barrels	N/A			EH&S
Petroleum oil	0.62			EH&S
TOTAL	2.91	0.00	Tons	
<b>GRAND TOTAL</b>	<b>2.91</b>		<b>Tons</b>	

Table 6: Alternative Methods

Method Type	Weight		Units	Data Contributors
	Actual	Estimated		
Alternative Daily Cover	309.24		Tons	MarBorg
Dirty Material Recovery Facility	1,978.43		Tons	MarBorg
Waste to Energy: Incineration	N/A			

Table 7: Totals w/ C&D

Commodity Totals	Weight	Units
RECYCLED/ COMPOSTED TOTAL	8,587.71	Tons
LANDFILL TOTAL	1,978.43	Tons
TOTAL WEIGHT	10,875.38	Tons
		Tons
<b>DIVERSION PERCENTAGE</b>	<b>78.96%</b>	<b>Tons</b>

Table 8: Totals w/o C&D

Commodity Totals	Weight	Units
RECYCLED/ COMPOSTED TOTAL	4,403.12	Tons
LANDFILL TOTAL	1,877.73	Tons
TOTAL WEIGHT	6,280.85	Tons
		Tons
<b>DIVERSION PERCENTAGE</b>	<b>70.10%</b>	<b>Tons</b>

Figure 1: 2012-2013 Visual Breakdown of Data by Commodity

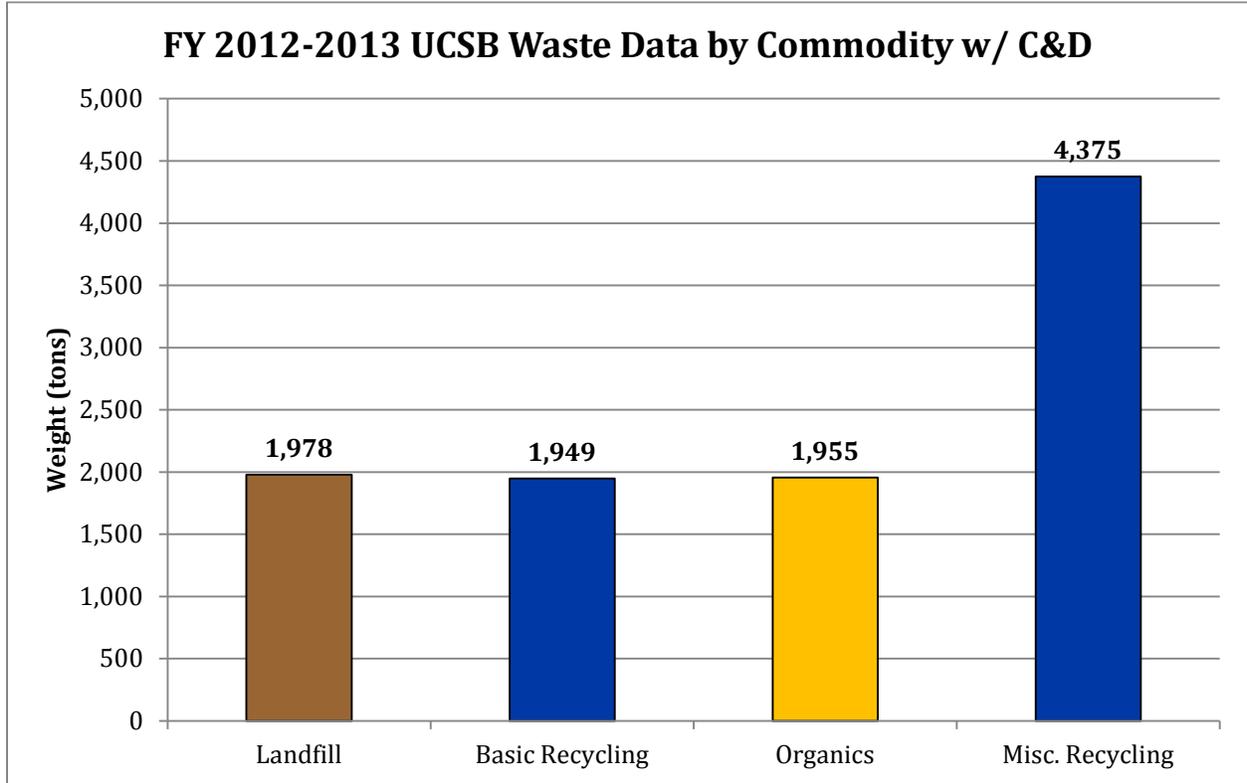


Figure 2: 2012-2013 Waste Diversion Rate w/ C&D

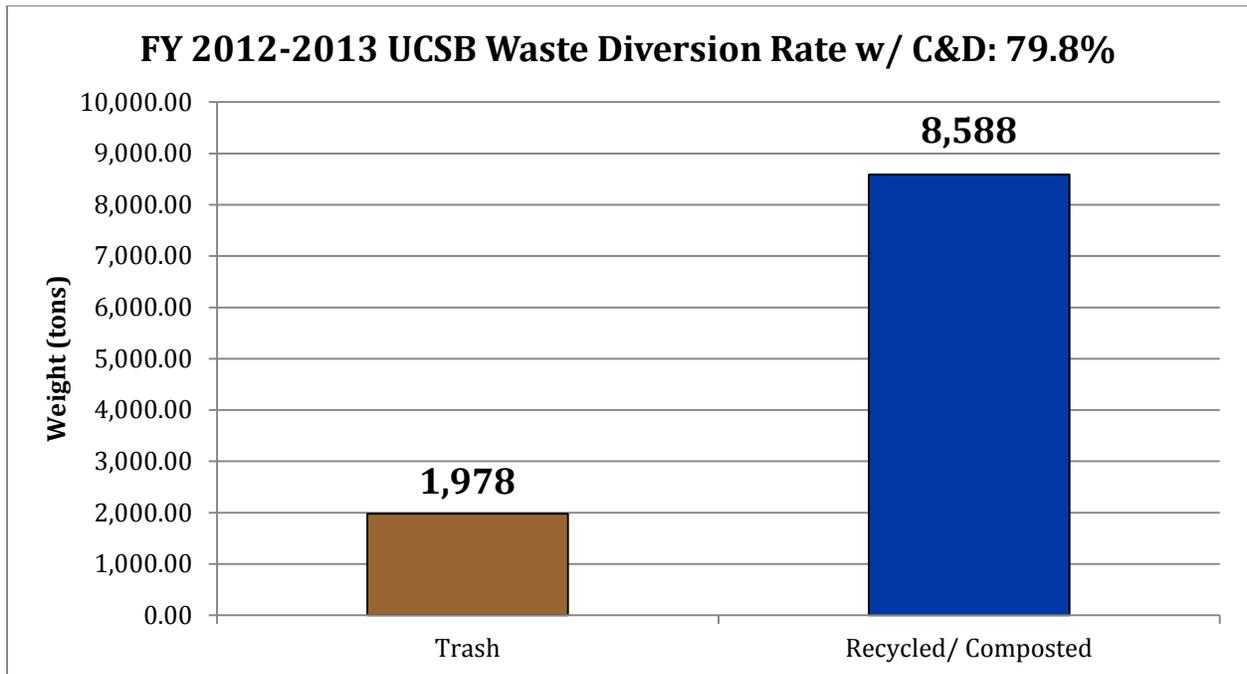


Figure 3: 2012-2013 Waste Diversion Rate w/o C&D

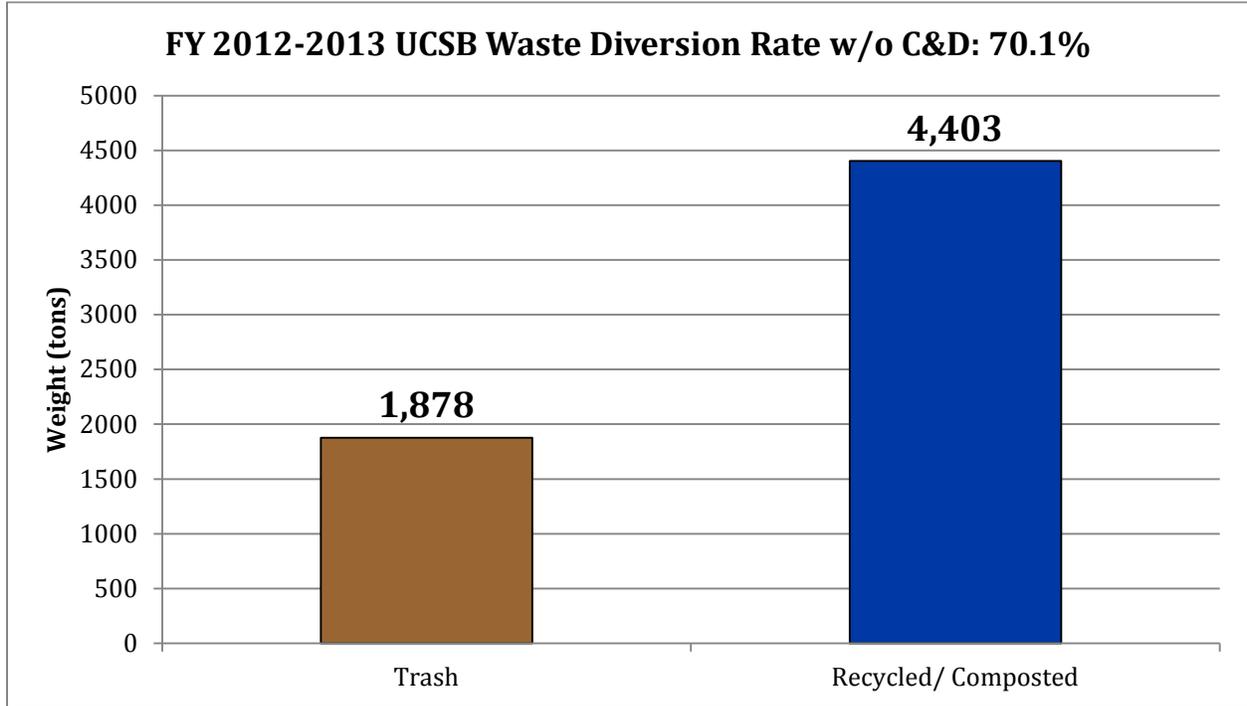


Figure 4: Annual Waste Generation Comparison w/o C&D

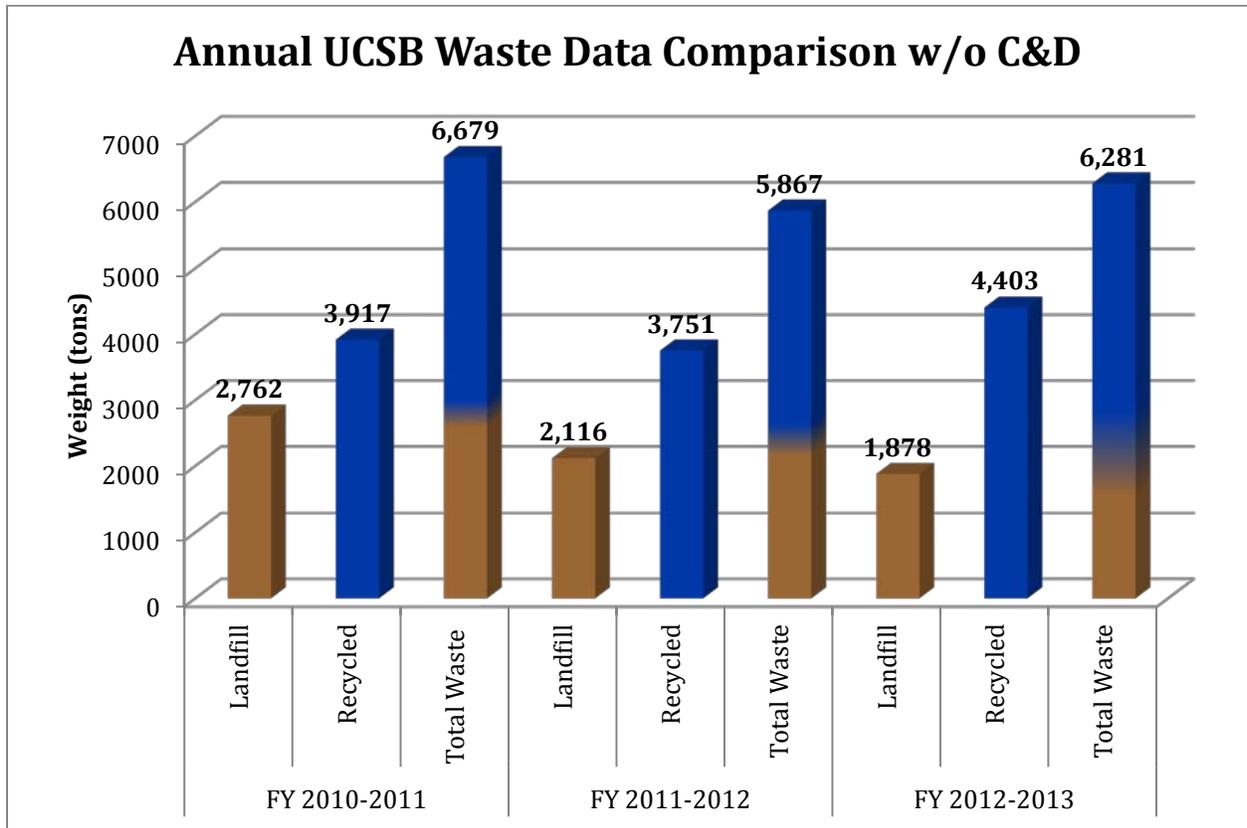


Figure 5: 2012-2013 monthly waste generation w/o C&D

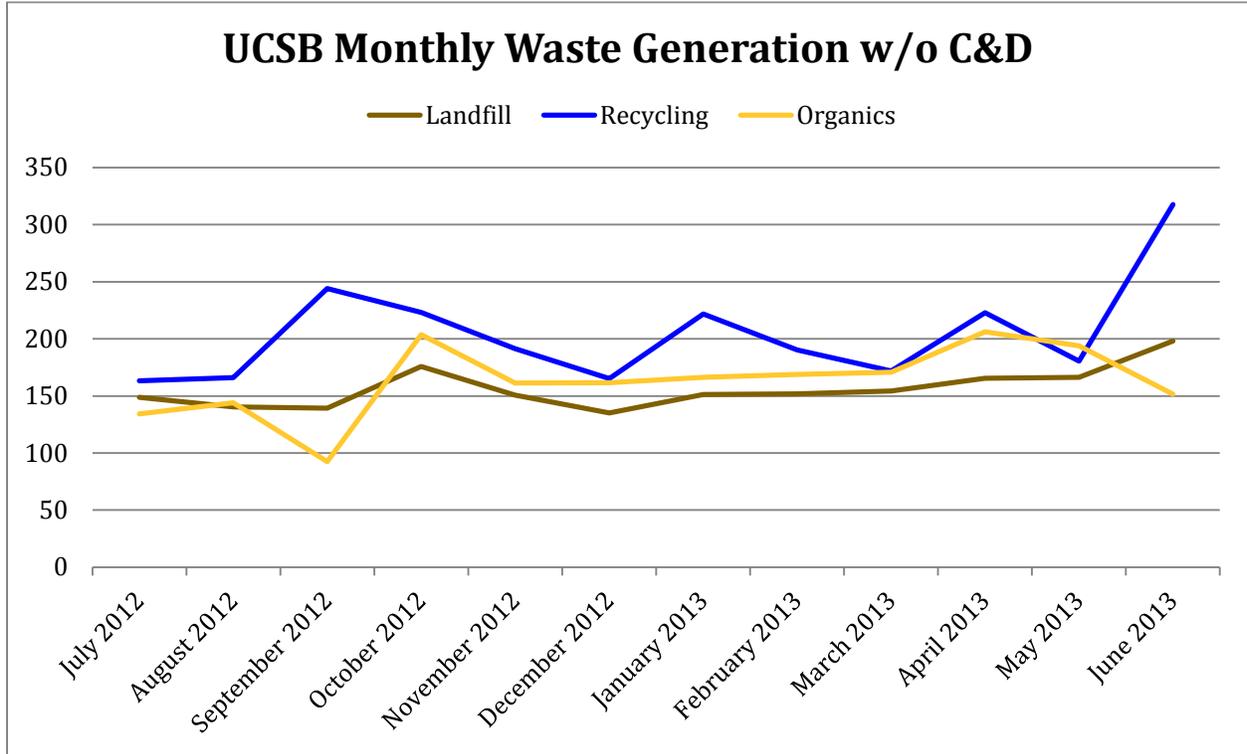
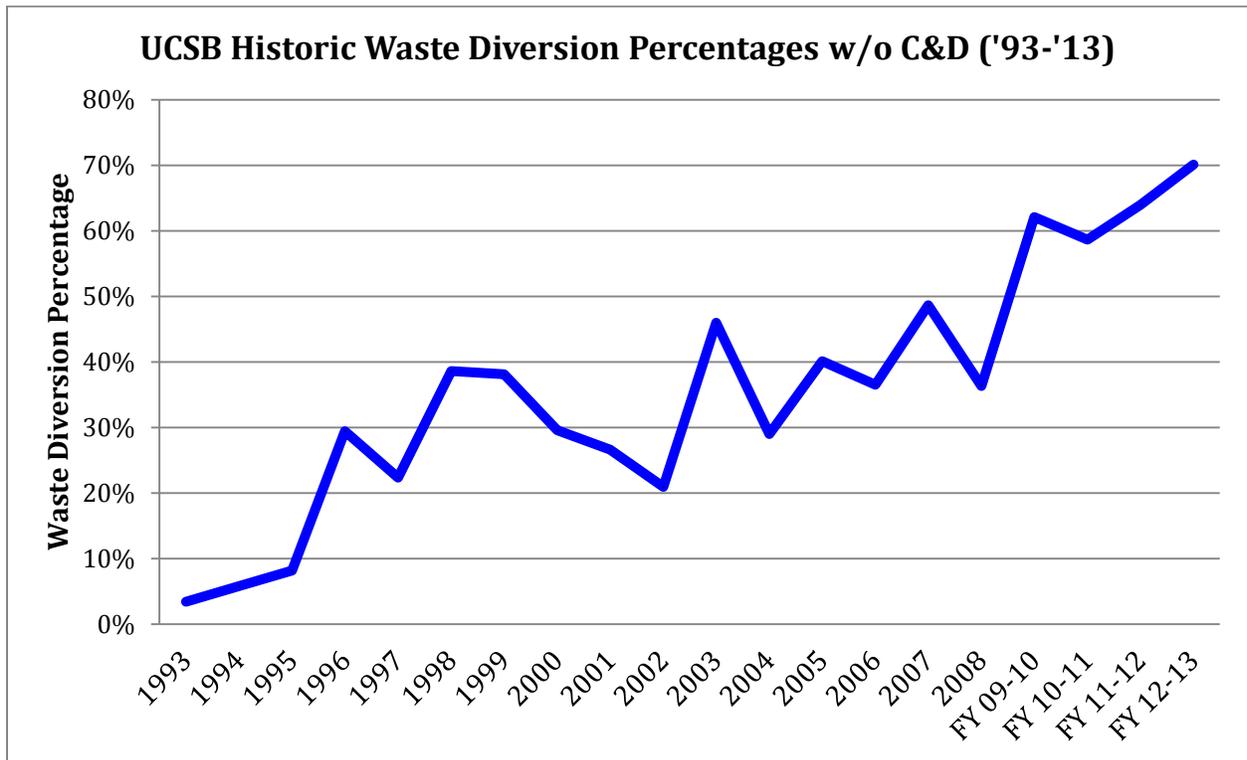


Figure 6: Historic Waste Diversion Percentages



## **FY 2012-2013 DATA ANALYSIS**

Figure 1 indicates that the “miscellaneous category” was the largest categorical type of recycling in FY 2012-2013; the same trend was seen in the previous year. This is due to the fact that C&D waste was included in this figure, and in FY 2012-2013, it accounted for about 4,000 tons of waste recycled in this category.

Figures 2 and 3 display UCSB’s waste diversion percentage; Figure 2 includes C&D waste, and Figure 3 does not.

From FY 2010-2011 to FY 2011-2012, UCSB’s waste generation dropped, but then increased marginally in FY 2012-2013. Although this could be interpreted as an uptick in consumption, we believe that it more likely represents the implementation of more accurate tracking of waste leaving the UCSB Campus, thanks to programs such as the Front-end Loader Scale Pilot Study. Additionally, starting in FY 2012-2013, UCSB has made significant efforts to track all waste streams, which include following up with building managers regarding departmental waste management programs, and introducing new practices to track weights.

Monthly waste generation at UCSB is depicted in Figure 5. UCSB now has the ability track waste weights via a shared document between all of the departments on-campus and UCSB’s waste hauler, MarBorg Industries, on a monthly basis. When looking at the “landfill” category, it appears that landfill waste is generated fairly uniformly, with slight peaks and valleys. In the “recycling” category, the significant peaks seen from August-September 2012 and June 2013 are mainly attributed to students moving in and out of residence halls. Clean-out efforts of academic buildings also account for waste generated during this time. These academic building clean-outs also likely account for the peaks seen during December 2012 and April 2013. These are months where the end of the fall and winter academic quarters occurs, respectively. The organics waste stream remains relatively consistent; while summer months generate smaller amounts of organic waste than the academic school year, it is still present. This is because the residence halls, they host a significant number of summer camps, and the campers generally eat in the residence dining halls. The significant valley seen in September 2012 is indicative of the period when the camps end and the residence dining halls are preparing for the upcoming academic school year.

## **SUMMARY**

The 2012-2013 Fiscal Year saw UCSB improve its non-C&D waste diversion rate by 6.2%, thanks to several programs that were introduced and improved. The introduction of the MarBorg Food Waste Program at the UCen eateries, combined with the UCen’s commitment to providing compostable foodservice packaging, has significantly decreased the amount of material UCSB sends to the landfill. Zero Waste Weekend and the Towels 2 Trees paper towel compost

program were both firsts for the University that proved that zero waste athletic events and composting paper towels can be achieved at UCSB. Their success has encouraged the University to take the next steps in permanently applying those practices campus-wide. With a 2012 – 2013 Fiscal Year diversion percentage of 70.10%, UCSB, is well on road to zero waste.