



2012 WASTE DIVERSION PLAN

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

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PREPARED BY THE SUSTAINABILITY CHANGE AGENT WASTE TEAM



UCSB WASTE MANAGEMENT CONTACT INFORMATION

Matthew R. O'Carroll

Refuse & Recycling Intern
Facilities Management
University of California, Santa Barbara
matthew.ocarroll@pf.ucsb.edu
Office: (805) 893-2661 ext. 2302

Mo Lovegreen

Executive Officer
Geography Department
University of California, Santa Barbara
lovegreen@geog.ucsb.edu
Office: (805) 880-2585

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- Kathy Borgatello-Koeper, Executive Assistant
- Dena Philips, Environmental Manager

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- Alelia Parenteau, CEO

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A. EXECUTIVE SUMMARY

With landfills reaching their capacity and the numerous negative environmental impacts associated with landfills (methane release, slow biodegradation rates, leaching of chemicals, etc.), reducing, reusing, recycling, and composting our waste is of the utmost importance. In combination with future pressures from population growth and urban sprawl, proper municipal solid waste management programs and practices must be implemented and utilized to avoid possible economic, social, and political conflicts. In the state of California, where land is a valuable commodity and population growth is continuous, proactive waste management strategies must be taken in order to avoid a waste crisis.

The University of California (UC) recognizes the importance of addressing waste management issues and is taking proactive measures by encouraging each of its campuses to produce a Waste Diversion Plan to show how they will achieve the waste diversion goals of 75% waste diversion by 2012; and zero waste by 2020. Initial plans are due July 30, 2012. UCSB's Waste Diversion Plan will act as a guiding document for the University in regards to waste management and will also be implemented through each campus's Sustainable Practices Policy.

The University of California, Santa Barbara (UCSB) is one the 10 UC campuses. Established in 1944, UCSB is the fifth largest, with an enrollment of roughly 22,000 students. The 2011-2012 fiscal year saw UCSB implement numerous waste management practices and programs that allowed it to achieve the following: increase its diversion rate from the previous year by 7.73%; reduction of waste sent to the landfill by 346 tons by reducing, reusing, recycling, and composting 712.80 tons more material than the previous year. This achieved an overall waste diversion rate of 69.73%.

As the University strives to achieve zero waste, UCSB will introduce new programs and improve upon existing practices. It will also stress the importance of communication, collaboration, and connectivity between departments and encourage behavioral modification in faculty, staff, and students in regards to waste management. UCSB is well on the road to achieving zero waste.

B. INTRODUCTION

Issues regarding waste management have been prevalent at the state, regional, and university levels in California. Waste management issues have led the state of California to pass the Integrated Waste Management Act in 1989, which required state entities to divert 25% of waste from landfills by 1995 and 50% by 2000. The University of California (UC) adopted similar goals in the Policy on Sustainable Practices to divert 50% of municipal solid waste from landfills by 2008, 75% by 2012, and to generate zero waste by 2020. In addition, the UC system requires UC campuses to produce a Waste Diversion Plan that outlines their annual waste data, plans to achieve waste diversion, and zero waste efforts.

The University of California, Santa Barbara (UCSB) has been implementing waste reduction, reuse, recycling, and composting programs and practices for the past two decades. The overarching goal of waste management at UCSB is to become a zero waste campus. UCSB plans to achieve this goal by reducing the amount of waste entering and produced on-campus, as well as ensuring that all waste leaving the University is either reused, recycled, or composted, and not sent to a landfill.

UCSB's 2012 Waste Diversion Plan will replace the University's previously produced Integrated Waste Management Plan. The 2012 Waste Diversion Plan is a comprehensive document that highlights and provides an analysis of the 2011-2012 fiscal year's waste data, as well as the current and future waste management programs and practices at UCSB.

The document highlights all types of waste generated on-campus, by acknowledging them in the programs and practice sections. However, hazardous waste is not included in the data section because the UC Systemwide Solid Waste and Recycling Working Group defined Municipal Solid Waste for the purposes of the UC Policy on Sustainable Practices as:

"Garbage, refuse, sludges, and other discarded solid materials resulting from residential activities, and industrial and commercial operations, which are legally dumped into CalRecycle permitted landfills. Municipal solid waste does not include any regulated hazardous or medical waste."

The Waste Diversion Plan will act as a guiding document for UCSB in regards to waste management, introduced as a component of the UCSB's Sustainable Practices Policy, and will also be submitted to the UC Office of the President for review. The 2012 Waste Diversion Plan will ensure that UCSB remains a leader in waste management efforts and sustainability among institutions of higher education.

C. WASTE DIVERSION PLAN SCOPE

The 1,055-acre UCSB campus is located in Southern Santa Barbara County on a coastal bluff overlooking the Pacific Ocean. The UCSB campus borders the City of Goleta and a series of open spaces to the east, the Goleta Valley and the east-west trending Santa Ynez Mountains to the north, the community of Isla Vista to the west, and the Pacific Ocean to the south. During 2011-2012, the University employed roughly 5,000 faculty and staff members and taught 21,685 students. Of those 21,685 students, 7,576 live on-campus, 13,415 live off-campus (primarily in Isla Vista), and 694 attend the UCSB satellite campus.

This plan will specifically focus on the waste management programs, practices, and data from the UCSB 1,055-acre campus. This includes the University's Main Campus (also known as the East Campus), West Campus, the student residence halls, and the family housing facilities of the West Campus Apartments and the Storke Apartments. Due to the proximity of UCSB's Coal Oil Point Reserve, their waste management data is also included in this plan. Waste from each area is managed by five major campus entities: A.S. Recycling, Facilities Management, Housing and Residential Services (H&RS), The University Center (UCen), and Environmental Health & Safety (EH&S). The aforementioned areas are also serviced under UCSB's waste hauling contract with MarBorg Industries (MarBorg).

The 2012 Waste Diversion Plan does not include waste management data and programs from leased facilities, satellite campuses, nor any of the remaining six UCSB-operated natural reserves. In comparison to the main Santa Barbara campus, the waste management operations of the leased facilities outside of the Main Campus, the satellite campus in Ventura, CA. and the natural reserves are minor. However, UCSB and the Sustainability Change Agent Waste Team recognize the importance of including all UCSB operated facilities into the Waste Diversion Plan and, therefore, will strive to do so in future plans.

D. SUSTAINABILITY CHANGE AGENT WASTE TEAM

The Sustainability Change Agent Waste Team is a committee comprised of individuals from different departments on-campus tasked with addressing UCSB's waste and recycling issues. The Change Agent Waste Team is responsible for the production of the 2011-2012 Waste Diversion Plan. Members of the Change Agent Waste Team worked diligently with individuals and departments from around the University, as well as the Greater Santa Barbara Community, to retrieve and compile waste and recycling data and information. Change Agent Waste Team Members are listed below:

Matthew O'Carroll (Co-chair/Graduate Student/ Facilities Management), Mo Lovegreen (Co-chair/ Geography Department), Kathy Borgatello-Koeper (MarBorg Industries), Bruce Carter (EH&S), Jon Cook (Facilities Management), Amorette Getty (LabRATS/ Materials

Research Laboratory), Jeff Goldmann (Furniture Services), Sue Hawkins (UCen Dining), Philip Jankoski (Undergraduate/ A.S. Recycling), Mark Rousseau (H&RS), Jordan Sager (Facilities Management), Byron Sandoval (Facilities Management), Sarah Siedschlag (A.S. Recycling), Jasmine Syed (Administrative Services)

E. REGIONAL CONTEXT OF WASTE MANAGEMENT

Regional Waste Haulers and the UCSB Contract

Regional waste management options within Santa Barbara County and the California Central Coast are primarily limited to four waste haulers: Allied Services, Waste Management, EJ Harrison & Sons, and MarBorg Industries. Allied Services, Waste Management, and EJ Harrison & Sons are entities that operate in the Santa Barbara region on a minor scale in comparison to MarBorg Industries. MarBorg services the City of Goleta, the City of Santa Barbara, and the unincorporated community of Isla Vista. The magnitude of their operations in the Santa Barbara area was highlighted when the most recent request for proposal (RFP) to provide solid waste collection and disposal services to UCSB from July 1, 2007 through June 30, 2009 went out to public bid. MarBorg Industries was the only entity to respond to the RFP and, thus, is currently UCSB's waste hauler. Detailed information regarding the services MarBorg provides to UCSB can be found in Section H of this document.

Regional Solid Waste Programs

City of Goleta

The City of Goleta has recently had simultaneous contracts with two waste haulers, Allied Services and MarBorg Industries. However, MarBorg's recent purchase of the Allied Services sorting facility in Downtown Santa Barbara has dramatically limited the presence of Allied Services in the area. As of now, MarBorg services the entire city of Goleta. MarBorg's David Love Place Recycling Facility receives recyclables from residents and commercial businesses and is also open to the public for recycling drop-offs. MarBorg's Downtown Sorting Facility receives the landfill waste from Goleta residents and commercial businesses.

City of Santa Barbara

The City of Santa Barbara is serviced entirely by MarBorg Industries. MarBorg collects landfill waste, green waste, and commingled recycling from both residents and commercial establishments. MarBorg provides the restaurants in Downtown Santa Barbara with pre- and post-consumer food waste collection. This food waste is transported to the Downtown Sorting Facility and then composted in Santa Maria, CA at Engle & Gray.

Isla Vista

The unincorporated city of Isla Vista is serviced entirely by MarBorg Industries. MarBorg's David Love Place and the Downtown Sorting Facility receive the recycling and landfill waste from Isla Vista.

Waste Disposal Sites

Tajiguas Landfill

The Tajiguas Landfill is the landfill in which waste haulers in the region dispose of the residuals of the landfill waste stream. The Tajiguas Landfill opened in 1967 with a projected 100-year lifespan. The landfill site is located in a canyon 26 miles west of Santa Barbara, along the north side of the Highway 101. The landfill capacity is estimated to 52.8 million yards³, with an additional 14.8 million cubic yards of increased capacity as a result of the reallocated access road. The Average Daily Cover at Tajiguas is estimated to be 13.4 million yards, which is sufficient to meet the county's cover needs for the life of the site. The landfill is open seven days a week and is closed on select holidays. The average daily tonnage delivered to the landfill is estimated to be 1,000 tons per day, with a maximum processing capacity of 1,500 tons per day. Despite the projected lifespan of the landfill, and in accordance with the Integrated Waste Management Act, recent rates of landfill material entering the facility indicates that Tajiguas only has sufficient capacity/ ability to accept waste until 2020. In order to extend the lifespan of the landfill, Santa Barbara County is taking proactive measures to increase waste diversion practices and comply with state law, and it is even considering the development of a material recovery facility located at the landfill itself.

Engle & Gray

Engel & Gray, Inc. has been serving the Central Coast of California since 1946. Engle & Gray operates a regional composting facility in Santa Maria, California, that is fully permitted and in compliance with state and federal laws. The composting facility has the ability to receive both pre- and post-consumer food and organic waste and grinds the waste before using the aerobic windrow composting method. The compost produced by Engle & Gray is marketed as Harvest Blend Compost and is sold to local farmers and interested individuals.

BIODICO

BIODICO (formally BioDiesel Industries) is a sustainable biorefinery that specializes in producing biodiesel. BIODICO has a Green Restaurant Service that collects waste cooking oil from restaurants to produce biodiesel. Their closest location to UCSB is in Ventura, CA. BIODICO services numerous restaurants in the Central Coast region, as well as the Dining Commons at UCSB.

F. WASTE MANAGEMENT PROGRAMS AT UCSB

UCSB Waste Management Entities

UCSB strives to reduce the amount of waste leaving the University by implementing on-campus waste management programs and practices. In many cases, UCSB's proactive waste management efforts facilitate MarBorg's efforts, especially the job of their employees on the sorting lines at both the David Love Recycling Facility and the Downtown Sorting Facility. Each of these departments also contributed data to the 2012 Waste Diversion Plan.

A.S. Recycling

Since its origination in 1994, the A.S. Recycling Program has played an influential role in waste management and recycling at UCSB. The A.S. Recycling Program is funded by a \$1.50 lock-in fee, which is a mandatory fee paid by students each quarter and is accounted for in their tuition. The program is led by a Recycling Coordinator, Sarah Siedschlag, currently employs 30 students, and is operates year-round. A.S. Recycling is responsible for servicing the 92 recycling clusters (berthas) that are strategically located throughout campus. Another major component of the A.S. Recycling Program is waste management education. The A.S. Recycling staff continuously works to educate the UCSB Community about proper waste management practices through workshops, educational booths, and their recycling and composting programs. A detailed list of A.S. Recycling's programs can be found below.

Department of Public Worms – A.S. Recycling

The Department of Public Worms (DPW) is a vermicomposting program that four staff members who collect pre-consumer, vegetarian food scraps from two businesses in Isla Vista. The food waste collected from the dining establishments in Isla Vista, Blenders in the Grass and Coffee Collaborative, is used in the DPW vermicomposting bins. The compost generated from this practice is then available for sale to students and community members.

DPW holds workshops and demonstrations at on-campus and off-campus events to promote and educate the community about the importance and techniques of composting and vermicomposting. When individuals are sold compost from DPW, they are also provided with educational flyers and pamphlets about how to use the compost, how it benefits plants, and how it reduces the amount of waste we send to the landfill. DPW employees work very closely with students from the Compost Pilot Project to educate students on-campus about the program and inform them how and where they can dispose of their food scraps.

The increase in on-campus composting at dining facilities will provide DPW the opportunity to move their food waste collection efforts from Isla Vista to on-campus eating

establishments. Specifically, DPW is looking to partner with the UCen, in which food waste for vermicomposting would be collected from Nicholetti's and Jamba Juice.

Route Riders – A.S. Recycling

The Route Riders Program employs 7-10 A.S. Recycling students who use bicycles with trailers carrying separate bins to service 92 Bertha Trash Clusters (Berthas) on-campus. In addition to the Bertha's, the Route Riders also service buildings that are part of special routes, such as the KCSB Radio Station, the A.S. Main Office, and the A.S. Bike Shop. Recycled items are returned to the A.S. Recycling facility for processing. Recyclables with CRV value (aluminum, bimetal, glass, and plastics 1 and 2) are taken to rePlanet, a CRV value Recycling Center located in Isla Vista, where the revenues from recycling are used to fund the A.S. Recycling Program. Items that do not have CRV value are recycled using the on-campus commingled dumpsters.

The education component of the Route Riders program occurs mainly through signage. All bins of the Bertha are labeled: some signage specifically indicates what items can be disposed of in which bins, and covers the following waste streams: commingled, landfill, compost, and office pack. The route riders themselves also act as educational tools. Their constant presence around the UCSB campus allows them to be approachable for recycling questions, as well as providing a visual tool encouraging proper recycling.

We anticipate that the deployment of BigBelly Solar Compacting units that will include commingled, landfill, and compost bins, will require that the Route Riders modify their routes. The three stream system, the units' ability to compact, and its ability to notify the Recycling Coordinator remotely when they are at capacity will require yet to be determined changes for waste management services provided by both A.S. Recycling and Facilities Management. The Route Riders Program is looking to expand the educational efforts of the program, especially through promoting "good-better-best" recycling, where good would be using and recycling a plastic bottle, better would be using and recycling a glass bottle or compostable cup, and best would be using reusable bottles. The Program is also looking to expand operations to buildings that have special recycling needs, such as the art buildings here at UCSB.

Techno Program – A.S. Recycling

The Techno Program targets the reuse and recycling of electronic waste (e-waste) at UCSB. Five students employed by A.S. Recycling are part of the Techno Team that is tasked with collecting e-waste from 45 buildings on campus. In addition to their regular rounds, the Techno Team is also responsible for responding to special request pick-ups. Once the various types of e-waste are picked-up from their respective bins, they are sorted and delivered to four different entities to be reused or recycled. The Techno Team takes batteries and light bulbs to be properly disposed of at UCSB's Environmental Health &

Safety Department. Collected cell phones are mailed to Wireless Alliance, a cell phone recycling company. A.S. Recycling currently stores disposed laptops and is in search for a credible laptop recycler. All other collected e-waste items are taken to Central Stores where they are either sold for reuse or recycled by a certified recycler. The Techno Team has also recently started selling remanufactured ink cartridges. This practice started in the Winter Quarter of 2011 and is a collaboration between A.S. Recycling and the vendor that purchases the campus' used cartridges. This component of the program reduces waste associated with the manufacture of new cartridges and helps make purchasers aware of e-waste issues and what can be done to help.

The Techno staff actively promotes proper e-waste recycling. Promotions include setting up e-waste informational booths at University events to educate the community about how and where to appropriately dispose of e-waste.

Future components of the Techno Program include expanding operations and educational opportunities. In regards to the remanufactured ink cartridge program, The Techno Team is working on simplifying the ordering procedure and increasing inventory, and it is promoting the program across campus with the goal of dramatically increasing purchase volume beginning in Fall 2012. The Techno Team is also actively researching a laptop recycler and hopes to have that practice in place immediately. The program is also working with the freshmen orientation staff to develop materials for incoming freshmen housed in the residence halls so they may learn why it is important to recycle e-waste and where they can properly dispose of e-waste.

Special Events Program – A.S. Recycling

The Special Events Program, managed by the A.S. Recycling Special Events Coordinator, targets waste management at UCSB events. The Special Events Program recruits students from other areas of A.S. Recycling to provide assistance to staff at special events. Events coordinators can request Special Events to provide and service landfill, compost, and recycling bins for their on-campus events. Special Events services also include a post-event waste audit of the bins to determine the waste management habits of the attendees. Suggestions are also provided to the event coordinator regarding ways to further reduce waste generated by upcoming events. The compostable material collected from events is disposed of via the Portola Dining Commons Composting Compactor. CRV value items are taken to rePLANET in Isla Vista, and non-CRV value items and landfill/ trash, respectively, are disposed of in commingled dumpsters and landfill dumpsters on-campus.

The education component of the Special Events Program occurs both during and after the event. The on duty A.S. Recycling staff provides attendees with information regarding proper waste management and disposal via direct communication and signage. The inclusion of a post-event waste audit provides the event coordinator with a detailed breakdown of the disposed commodities and their weights. The evaluation included in the

waste audit also provides suggestions for improvements and ideas for waste reduction techniques that can improve future performance.

The Special Events Program looks to expand its operations by covering more and larger events in the future and working the catering department at UCSB to eliminate the use of items that cannot be recycled or composted. However, the Program may need to recruit more staff and reevaluate the pricing structure to meet the needs of various departments on-campus.

Central Stores

Furniture Services at UCSB's Central Stores is a key player in on-campus waste management. Its operations are funded mainly by revenues generated from the resale of the University's unwanted equipment and furniture. Among other duties, Central Stores and Furniture Services provides a plethora of waste management services, ranging from furniture and electronic waste pick-ups to the resale of unwanted items to the UCSB and Greater Santa Barbara communities. A list of their programs follows.

Central Stores Surplus Program

The Central Stores' Surplus Program strives to reuse surplus UCSB items and equipment. Items collected from Central Stores that are deemed reusable are stored in the warehouse for resale. Such items include electronics, ergonomic products, furniture, and even cars. These items are available for purchase by UCSB students and the public. Their sales list can be found online at the Central Stores Surplus website. Items that are not suitable for resale are recycled. Electronics that are not suitable for resale are sent to certified recyclers to be properly recycled, while furniture, pallets, and other items determined to be commingled recyclables are sent to MarBorg.

The education component of the program is limited, and individuals who recycle through or purchase from Central Stores are aware of the program details. Central Stores services are readily available, and the majority of departments on-campus are aware of their services.

In collaboration with Facilities Management, the Central Stores' Surplus Program will be refined over the 2012 summer. In order to gain an accurate representation of the weight of the items being resold to the public, an industrial floor scale and a catalog detailing furniture/large items and their respective weights will be included in the program. The floor scale and a recording sheet will be used when small items are sold on-site at Central Stores. The furniture/large item catalog sheet will be valuable for equipment that cannot be weighed on the scale. Facilities Management and Central Stores are both working with UCSB's furniture representative, BKM, to populate a list of items and their respective weights. The incorporation of both the scale and the catalog will significantly increase the reporting accuracy of Central Stores resale practices.

Environmental Health & Safety (EH&S)

Environmental Health & Safety (EH&S) deals with hazardous waste disposal at UCSB. The department's Hazardous Waste Program is responsible for providing hazardous waste management in compliance with federal, state, and local regulations. The department is also a sanctioned drop-off location for hazardous waste belonging to the general public. EH&S' hazardous waste management practice is built around their Hazardous Waste Minimization Program, which recommends that generators of hazardous waste consider the following items in order to reduce the production of hazardous materials: 1) source reduction – effective purchasing, chemical substitution, and good chemical inventory practices; 2) on and off site recycling of hazardous wastes; 3) treatment – neutralizing or detoxifying a chemical; and 4) proper disposal. EH&S also works very closely with UCSB's Facilities Management Department, LabRATS, and A.S. Recycling. Many of EH&S' programs are collaborations with the previously listed organizations. The following programs assist in overall waste management at UCSB, as well as in decreasing the likelihood of hazardous waste threatening human health and the environment.

Hazardous Waste Program – EH&S

EH&S's Hazardous Waste Program assures compliance with Federal, State, and local hazardous waste regulations through education, campus cooperation, and implementation of practical and efficient policies while providing a cost-effective hazardous waste management program that protects the environment. Materials managed by the program include chemicals, biohazards, radioactive materials, and electronic waste such as batteries and lamp bulbs. In order to best serve the UCSB Community, the Program includes the following:

- Free pick-up and transportation of waste materials from research laboratories to EH&S facilities
- A Specialized facility designed for proper handling and sorting of hazardous materials
- On-going measurement and verification of hazardous waste
- Campus training and education
- The Adopt-a-Chemical Program

The Hazardous Waste Program educates hazardous waste material users mainly through signage and workshops. EH&S has readily available labels and signs for their Hazardous Waste Containers, as well as Hazardous Waste Storage Areas. Training workshops offered by EH&S include their Hazardous Waste Refresher Courses. These courses stress the previously mentioned recommendations for hazardous waste generators (source reduction, effective purchasing, etc.). The future of the program and the chemical disposal options are dictated by Federal, State, and local regulations and by the chemistry involved in disposal. Data from this program is not included in this report.

Surplus Chemical Program – EH&S and LabRATS

The Surplus Chemical Program is currently a joint operation between EH&S and LabRATS that aims at reducing chemical waste streams and expenditures on chemicals and hazardous waste management. To minimize waste in laboratories, the program promotes and facilitates the reuse of surplus chemicals within the UCSB Community. Unwanted, reusable chemicals are collected by EH&S where they are screened and logged into a database. This database can be found online at the “Surplus Chemical Program” website. When the program originated, 150 chemicals were initially logged and were ready to be distributed. Currently, the program houses 358 chemicals that are being diverted from waste and are ready to be adopted. Data from this program is not included in this report.

The education component of the Surplus Chemical Program is headed by LabRATS. They initiated the program, which included receiving funding from UCSB’s The Green Initiative Fund (TGIF). LabRATS and EH&S maintain regular contact with lab occupants to promote and expand the program. The Geography Department’s IT staff is responsible for the maintenance and updates of the Program’s website.

Mercury Thermometer Exchange Program – EH&S, LabRATS

The Mercury Thermometer Exchange Program aims at reducing the use of mercury on-campus, specifically by removing unneeded mercury devices. The Program will remove items such as barometers and McLeod gauges but mainly focuses on exchanging mercury thermometers for new spirit thermometers. To exchange old mercury thermometers, exchange forms can be filled out or exchanges can be made on sanctioned days.

Education regarding the Mercury Thermometer Exchange Program is available on the “Mercury Thermometer Exchange” website. Here, interested parties can read about the services provided by the program, as well as about best management practices for preventing mercury pollution and safeguarding your lab. Information about the human health and environmental impacts of mercury are also listed. Education about the program is also provided via efforts made by the LabRATS team. The designated exchange days and events are often staffed by LabRATS team members, where information is provided regarding the mercury and its waste management. Since the program’s origination in 2007, much of the equipment containing mercury has been phased out. However, the program is still active in addressing concerns relating to mercury waste. Data from this program is not included in this report.

Facilities Management

UCSB’s Facilities Management Department is responsible for the maintenance and upkeep of the University’s buildings and landscapes, excluding those managed by Housing & Residential Services. Within Facilities Management, the Associate Director of Landscape,

Environmental, and Custodial Services, Jon Cook, and the Waste Management and Recycling Intern, Matthew O'Carroll, oversee the waste management at the University, populate the waste management data, as well as develop and maintain their department's waste management program and practices. Facilities Management also acts as the main liaison between the University and MarBorg for buildings and areas of campus that are under their jurisdiction. Facilities is also in charge of developing and signing the waste hauling contract for the University. The department's custodial and landscaping staff is responsible for servicing the landfill and recycling bins in buildings, as well as the 342 public outdoor landfill bins. This department works closely with A.S. Recycling and the other entities dealing with waste management to ensure that the University is reducing consumption, reusing materials, and recycling effectively. A list of Facilities Management's waste programs follows.

"UCSB Reuses" – Facilities Management

The UCSB Reuses Program encourages the reuse of office trashcan liners. With the University's expenditures on trash can liners estimated to be \$60,000 a year, this program will not only reduce the amount of money spent but will also reduce the purchase and encourage the reuse of trashcan liners. The reuse of trashcan liners has always been a practice of the custodial staff, but with input from a staff member and collaboration with custodial services, Facilities Management has formalized the program. Participation in the program requires office occupants to actively use a gold and blue 'chip clip' imprinted with the name of the program to indicate their desire to either keep or have their liner removed. If a trashcan has a UCSB Reuses clip attached, it indicates that the contents of the can may be dumped, but the liner is not to be replaced. If the trashcan does not have a clip attached, the custodial staff is to remove the contents and replace the liner.

The education component of UCSB Reuses targets both the custodial staff and the trashcan owners, which are mainly UCSB faculty and staff members. Prior to deployment, the Custodial Superintendent notifies all the custodial staff of the program; the presentation is in both English and Spanish. At the same time, building occupants are sent a detailed email outlining the logistics and instructions concerning the program. The email encourages staff and faculty members to use departmental compost bins or kitchen/centrally located trashcans to dispose of perishable items and liquids and not their office trashcans, a practice that will increase the longevity of office trashcan liners. In addition to the program details, the email also includes information regarding the practice and importance of reusing items and how it relates to the importance of diverting waste from the landfill. When the clips are distributed to the office occupants, a bi-lingual index card with program instructions also accompanies them. The index cards are clipped to the trashcans as a friendly reminder to both the office occupants and the custodial staff.

This program was recently implemented on May 2012 in Ellison Hall and thus data to determine its success is unavailable. However, if effective, UCSB Reuses expects to target the rest of campus with over 3,000 clips and notecards.

“UCSB Grounds to Grounds” – Facilities Management

UCSB Grounds to Grounds is a composting program that focuses on composting coffee grounds on-campus. The recently implemented program formalizes the existing practice of applying the University Center Dining Service’s post-consumer coffee grounds as a low-cost organic soil amendment at the University. Coffee grounds are taken directly from UCen dining facilities and applied directly to the UCSB landscape in strategic locations. Prior to the program, this process was done using biodegradable bags to transport coffee grounds from dining facilities to planter beds. With the program now in place, 3.5 gallon buckets are used in place of the biodegradable bags. The switch to using buckets has eliminated the purchase of biodegradable bags, allowed the University to track the weight of the composted coffee grounds, and also prevented injuries to the grounds staff required to carry the bags.

The educational component of the UCSB Grounds to Grounds Program is limited. However, the aroma of fresh coffee grounds coming from landscape areas around campus should be an indication to the UCSB Community that their university is composting their coffee grounds in a closed-loop system.

The recent implementation of the UCSB Grounds to Grounds Program has been a success in eliminating the purchase of biodegradable bags and tracking weights from the composted coffee grounds. The first month of its implementation, May 2012, showed that a little over two tons of UCEN coffee grounds were collected and composted on-site. The UCSB Grounds to Grounds Program hopes to expand its operations to not only UCEN Dining Facilities, but also to individual buildings and departmental kitchens. This expansion would be done in collaboration with A.S. Recycling, where both Facilities Management and A.S. Recycling would work together to collect and distribute the post-consumer coffee grounds.

Subgrade Greenwaste Dumpsters

Facilities Management has recently worked with MarBorg to install subgrade greenwaste dumpsters to facilitate the disposal of greenwaste by landscaping staff. These subgrade dumpsters are serviced by MarBorg. The University now has 20 subgrade greenwaste dumpsters, which has eliminated the need for landscaping staff to lift greenwaste in order to dispose of it. The University is currently working with MarBorg to install additional subgrade greenwaste dumpsters.

Housing and Residential Services (H&RS)

Housing and Residential Services (H&RS) is responsible for maintaining the residential facilities at UCSB. The Environmental and Energy Manager, Mark Rousseau, heads waste management at H&RS. Although H&RS operates separately from Facilities Management, H&RS's waste operations have always been included in the University's waste contracts. H&RS and Facilities Management work closely together to facilitate and align their waste management practices and goals. The custodial and landscaping staff are responsible for servicing the public landfill bins, as well as the indoor landfill and recycling bins in the residence and dining halls. The waste management goals of H&RS are outlined in the department's Strategic Plan, where the department also stresses the importance of education. H&RS strives to educate residents, families, staff, vendors, and visitors of its facilities about the importance of reducing, reusing, and recycling products. A list of the department's waste management programs can be follows.

Dining Commons Waste Management Program

The Dining Commons Waste Management Program consists of standard waste management practices such as glass, paper, and can recycling, but it also includes two notable programs: pre- and post- consumer food waste composting and food oil waste recycling. All food waste is collected from H&RS' four dining facilities and is placed in compost-specific compacting roll-offs at each commons. The roll-offs are picked-up weekly by MarBorg and average ~75 tons a month collectively. The food waste is then transported from the MarBorg facility to Engle & Grey's composting facility in Santa Maria, California. Dining staff and students are urged to dispose of all food waste into compost specific waste bins. Individuals using dining facilities are reminded about the practice through signage and announcements. Food oil from dining practices is recycled using a third-party, BIODICO, and they are responsible for the pick-up and recycling of food oil. H&RS is in the early stages of planning a pilot program to begin using the biodiesel fuel from their food oil waste in departmental grounds equipment.

Move-In & Move-Out

H&RS has encouraged proper recycling practices during residence hall move-in and move-out days by providing students with extra recycling dumpsters and roll-offs. It is estimated that during the move-in process, 10-14 tons of cardboard waste is generated. During the move-out process, extra recycling dumpsters are again ordered to encourage students to recycle properly. Students are encouraged to dispose of unwanted items through Project GIVE (see program details below). Students are educated about proper waste management practices during these events through signage and announcements during residence hall orientation events.

Project GIVE

Project GIVE targets the reuse of furniture and items generated from the Move-Out practice. The program collects reusable items (books, clothing, bikes, appliances, flatware, un-opened foods, shoes, etc.) from students when they move out of the residence halls in June. The items are then transported to a designated site in Isla Vista where they are resold through Project GIVE. The revenue generated from the sale of items is coordinated by the Student Affairs Department and is donated to various Isla Vista non-profit organizations.

University Center (UCen)

The UCen is responsible for staffing and maintaining the non-H&RS dining facilities on-campus, such as those at the UCen, the Arbor, Courtyard Café, Coral Tree Café, and the coffee carts at Buchanan Hall and the Humanities and Social Sciences Building. The UCen participates in a multi-stream waste system that encourages the separation of different waste types. The food oil waste at the UCen dining facilities is recycled, and the dining facilities participate in pre-consumer food composting via their green-waste dumpsters. The future of waste management at the UCen and its dining establishments, and the food establishments are leasing is set to change with the incorporation of a formal composting program provided by MarBorg and the introduction of compostable food serviceware in 2012/2013. Details regarding both upcoming programs can be found in the “Road to Zero Waste – Future Programs” section.

Decentralized and Departmental Waste Management Programs

Compost Pilot Project

The Compost Pilot Project (CPP) is a TGIF funded program that is run as a collaboration between the Sustainability Change Agent Waste Team, A.S. Recycling’s compost staff, PACES, the Environmental Affairs Board, and The Coastal Fund. Students working with A.S. Recycling mainly run the program. During the 2012 Winter Quarter, The CPP initiated the addition of composting receptacles to six existing recycling clusters on-campus that are adjacent to campus eateries. The food waste generated from the program was audited and taken to the compacting compost roll-off at H&RS’ Portola Dining Commons. The purpose of this pilot project was to establish the logistics of collecting compost in public spaces at UCSB, as well as to determine the behavior of the UCSB Community in relation to composting. The 2012 Winter Quarter saw the University collect over 1,000 lbs. of compost in six locations with a minimal contamination rate, and, therefore, the pilot project was determined to be a success. The success of the pilot has led to the project continuing in the 2012 Spring Quarter, and there are plans to keep public compost collection running in the future. The CPP has also encouraged the UCen to incorporate compostable food

serviceware in their dining facilities, an implementation that will be in place before the start of the 2012-2013 academic year. The CPP is currently about to start Phase II of the program, as it received a second TGIF grant to fund the purchase of four BigBelly Solar Compacting Compost Waste Bins, due largely to the pilot's success. UCSB will be the first to use the BigBelly compacting units for compostables. CPP's Phase II will also work with the University's switch to compostable food serviceware and MarBorg's upcoming composting program. Details regarding, the compostable food serviceware, MarBorg's composting program, and the BigBelly compost compacting unit can be found in the "Road to Zero Waste – Future Programs" section.

Bicycle Abatement Program- UCSB Campus Service Officers (CSO)

The Campus Service Officers (CSOs) are employed by the UC Police Department to assist the Department in upholding UCSB's rules and regulations. The CSOs are responsible for the UCSB Bicycle Abatement Program. The bike abatement program identifies bikes for removal that have been abandoned on-campus. Once a bike has been identified as abandoned, it will be impounded and held for 90 days before it is auctioned off to students at quarterly bike auction events or listed on PropertyRoom.com for auctioning. This program is conducted in accordance with University policies as well as California laws.

A change in the bike law that occurred in 2010 (AB 1890) will see upcoming changes in the auctioning and reselling of impounded bikes. Facilities Management is in the beginning stages of working with the CSOs to update the program.

Family Housing Compost Program

The Family Housing Compost Program commenced in 2011 as a means of reducing trash sent to landfills from Family Student Housing and providing nutrient-rich compost for the Family Gardens. The fundamental goal of the program is to compost vegetable food waste and landscape waste for use in the Family Gardens instead of requiring transport to an external sorting facility for disposal. A central compost bin is placed at each location, where food waste is deposited with or without compostable bags. Grass clippings, and leaves from the maintenance crew are combined with the food waste to create compost. The compost is managed on-site, without transport, and the compost is then distributed in the Family Gardens to grow crops for residents.

Currently, the program is operating at West Campus Apartments and Storke Family Housing. A generous grant from The Green Initiative Fund provided the means to purchase compost bins, create and distribute educational materials, fund research on composting behavior in a multifamily setting, and hire the necessary resources to maintain the program for one year. The program, on average, composts 720 pounds of food waste from the two residence complexes and an additional 580 pounds of grass clippings and leaves, on site, each week. Additionally, the program has resulted in only a 4% contamination rate in the

composted food waste and a 40% participation rate by families in the two residence complexes.

Currently, the program is managed by Valentin Shmidov, a PhD student in the Economics Department, with the assistance of UCSB undergraduates and staff from H&RS. Valentin Shmidov is conducting academic research on the environmental properties, geographic considerations, educational components, and behavioral attributes of composting in a multi-resident setting. An academic paper, including the research design, analytical framework, results, and conclusions is forthcoming.

The program is a pilot scheduled to end on July 31, 2012. Associated Students Recycling, Katie Maynard at UCSB Sustainability, UCSB Housing and Residential Services, Jeff Simeon at The County of Santa Barbara, and BioBag USA have all contributed to the success of the program, and a detailed summary will be provided to all parties for future consideration upon the completion of the pilot. Discussions regarding the extension of the program are currently underway between A.S. Recycling and H&RS.

Sole4Souls

UCSB's Bren Hall participated in Deckers Outdoor Corporation's Sole4Souls footwear recycling program. Sole4Souls is an international shoe charity dedicated to providing used shoes to people in need. Bren Hall was a drop-off location for shoes for all of campus, and staff at Bren Hall worked with Deckers to organize the program. Weights from this program were not included in the Waste Diversion Plan.

Bren Hall Vermicomposting

The kitchen on the third-floor of Bren Hall at UCSB serves as the lunchroom for the building's Bren School of Environmental Science & Management students. All faculty, staff, and students are encouraged to use the vermicompost bin to dispose of appropriate food waste. A select group of students that operate year-round are in charge of maintaining the practice and educating the Bren Community. These are referred to as the "Worm Wranglers." The compost and worm tea generated from the practice is distributed to Bren School faculty, staff, and students in need of giving their gardens an organic boost. Facilities Management has recently worked with the Worm Wranglers to purchase a small scale so the program can record the weights of the food waste before it is placed in the bins. The weights generated from this program will be included in the next Waste Diversion Plan.

Ellison Hall Vermicomposting

The occupants of Ellison Hall are encouraged to compost their food waste via the vermicompost bins located on the 5th floor of the building. This practice originated in the building in 2007 and has since flourished. The Ellison Hall program incorporates the use of composting pails that are conveniently located throughout the building for occupants to use. A student or staff member periodically takes food scraps that are placed in these pails

to the 5th floor volunteer that works on this program year-round. That individual is also in charge of maintaining the vermicompost bins and allocating the generated compost and worm tea. Facilities Management is working with Ellison Hall and A.S. Recycling to purchase a scale for the department to record the weights of food waste.

Bren Hall Costume Swap

The Bren Hall Costume Swap takes place every year shortly after Halloween. Members of the Bren School Sustainability Committee (BSSC) organize the costume swap and encourage members of the Bren Community to participate in exchanging Halloween costumes. Halloween costumes that are not claimed by the Bren Community are donated to local organizations. This event does not contribute data to the Waste Diversion Plan, but it is an important practice, nonetheless.

Eyeglass Recycling Program

The UCSB Human Resources Department participated in VSP Global's Eyes for Hope eyeglass reuse and recycling program. The program refurbishes, cleans, and labels old eyeglasses to be donated to those in need. At UCSB, eyeglasses were accepted at the Benefit Office and Open Enrollment events.

Books for Africa – UCSB

UCSB's Engineers Without Borders (EWB) partners with the non-profit organization Books for Africa to collect books from the UCSB Community to alleviate the book famine in Africa. Books for Africa, a Minnesota-based 501© organization, is the largest supplier of books to the African continent. Once the books reach the continent, they are distributed to schools and libraries. EWB holds book drive events and will do special pick-ups of unwanted books for donation. An estimated weight of books donated through this program is included in this Waste Diversion Plan.

Surplus Exchange – Ellison Hall and Earth Research Institute (ERI)

The Surplus Inventory Program allows users to give away or find equipment, supplies, and furniture from the laboratory or office. All items posted here are free to UCSB faculty, staff, and students for use on-campus. The Program contains an approval system to help users navigate the steps to properly exchange equipment. An individual wanting to post an item is required to fill out a simple web form that requests information about the equipment. After the form is submitted, chains of automatic notification emails are initiated. The program was initially inspired by LabRATS and is run as a collaboration between LabRATS, Business Services, Central Stores, the campus' Material Manager, Environmental Health & Safety, and the Campus Change Agent Team on Sustainable Purchasing.

Tortilla Composting – Margaret Rankin

Men's Soccer is incredibly popular at UCSB. We hold the USA record for attendance at any type of college soccer match (over 16,000). One of the game traditions is the tossing of tortillas on to the field whenever a home goal is scored (an occasionally when a refereeing decision is not popular). Composting the tortillas thrown at the UCSB Men's Soccer games is a practice that was started in 2011 by UCSB's Margaret Rankin, a staff member from the University's library. To divert the tortillas from the landfill, the Athletics Department's staff work diligently, along with Margaret Rankin, to collect the tortillas and place them in rolling bins. These are then taken to the A.S. Recycling's Department of Public Worms to be vermicomposted. Margaret Rankin estimates that large games can produce over 150 lbs. of tortillas, all of which are now being composted.

G. EDUCATIONAL WASTE MANAGEMENT PROGRAMS AND PRACTICES AT UCSB

Laboratory Research and Technical Staff (LabRATS)

The Laboratory Research and Technical Staff (LabRATS) team promotes the evaluation of laboratory procedures and encourages the implementation of performance standards to assist laboratories in becoming more sustainable. LabRATS advises the Laboratory Assessments for Research Sustainability (LARS) program at UCSB, which assists laboratory managers and occupants in increasing laboratory resource efficiency and quality of research while using sustainable practices that leave the smallest environmental footprint possible.

Through voluntary enrollment, LARS increases the lab users' and principle investigators' (Pis') understanding of how laboratories can integrate sustainable practices into everyday research activities. LARS' goals are to acknowledge laboratory conservation accomplishments, find opportunities for efficiency, answer questions, collaborate, and discover innovations in resource efficiency and conservation.

Ellison Hall Sustainability Committee (EHSC)

The Ellison Hall Sustainability Committee (EHSC) is made up of faculty, staff, and students who work and study in Ellison Hall. This includes the departments of the Earth Research Institute, Political Science, and Geography, and History of Art & Architecture. In regards to waste management, the EHSC has been influential in implementing recycling and composting practices at Ellison Hall. EHSC actively works with the custodial staff to encourage proper recycling, and, in 2007, established a vermicomposting program for the building. Their efforts have even led the Geography Department to be described as the #1 Green Department at UCSB by A.S. Recycling. The EHSC publicly provide information regarding waste data for Ellison Hall and is always looking at ways to educate and

encourage building occupants about best waste management practices. The EHSC also encouraged Facilities Management to use Ellison Hall in the UCSB Reuses pilot run.

Davidson Library Waste Diversion and Reduction Efforts

The staff at UCSB's Davidson Library takes proactive steps to inform its patrons about proper waste management strategies and practices. All staff and student waste is presorted by material type and placed into the appropriate commingled, office pack, or landfill bins. Currently there are over 185 bins in the public areas. Surplus library books are donated to Better World Books, an organization which distributes the books, and funds literacy initiatives worldwide. To reduce the use of single-use plastics, patrons requesting a book bag are provided used plastic bags. The library has installed hydration stations that will encourage the use of reusable water bottles and reduce the plastic waste stream. UCSB Davidson Library staff educates their patrons about proper waste management strategies and practices through educational displays.

Program for the Assessment and Certification for the Environment and Sustainability (PACES)

PACES is a student-led coalition between two groups, the Ellison Hall Sustainability Committee and A.S. Recycling. The program motivates students, staff, and faculty at UCSB to take action as individuals and as members of their respective departments. It looks to raise awareness and communication within departments at UCSB, both in the sense of the individual awareness of the department's/university's policies and in the sense of the department's recognition of individual efforts/needs by meeting with department faculty, staff, and students. PACES also conducts site assessments, and audits to determine how buildings and their occupants can improve their waste management practices. It also works to encourage behavioral change. Rather than basing solutions on structural retrofits and improvements (which are important and necessary), PACES tries to recognize the power that daily human interactions can have on the functioning of a department. In this, PACES recognizes the importance of increasing knowledge (of university policies, for example), connecting departments to campus resources, and incentivizing sustainable behavior.

Plastic Pollution Coalition – UCSB Chapter

The Plastic Pollution Coalition (PPC) at UCSB seeks to reduce and eventually eliminate the consumption of single-use plastics in the UCSB Community through education, policy initiatives, and the promotion of sustainable alternatives. The PPC is comprised of 19 partnering organizations that include all student environmental organizations on-campus and several community organizations such as the Surfrider Foundation. The Coalition emphasizes the importance of behavioral change towards recycling. Their approach discourages students from purchasing unnecessary items and promotes the use of sustainable alternatives to single-use plastics. The 2011-2012 academic school year saw

the PPC target single-use plastic bags, and their efforts encouraged the UCSB Bookstore to replace single-use plastic bags with high-quality compostable bags.

The education component of the PPC relies heavily on community outreach. The PPC assisted in distributing the *Moby Duck* books for UCSB Reads and also was responsible for hosting multiple *Moby Duck*-related events. The PPC also hosted the first “Day Without A Bag,” an event that encouraged the use of reusable bags through workshops, demonstrations, presentations, and a distribution of 3,500 reusable bags with notecards indicating the importance of using reusable bags.

The PPC has numerous events planned for the 2012-2013 academic school year that revolve around eliminating single-use water bottles and stress the importance of using reusable water bottles. The PPC will be working closely with the Geography Department, the Sustainability Change Agent Waste and Water Teams, and H&RS to promote the use of hydration stations on-campus and the use of reusable water bottles. It also plans to collaborate again with the Bookstore in providing students with reusable water bottles equipped with a QR code that will help them identify the nearest hydration station with their smart phone. The PPC is looking to expand to other universities around the nation, and it is currently seeking the funds necessary for expansion.

Green Project Consultants – Waste Audits

Green Project Consultants, a licensed and professional environmental consulting firm, has worked with Facilities Management to conduct a series of building waste audits at UCSB. The purpose of these audits is to gather data and information about the weight, volume, and composition of waste placed in containers made available to building occupants and visitors. These audits also act as educational tools for Facilities Management by establishing baselines that can be used to monitor the University’s progress in waste management. In addition to the data provided by Green Project Consultants, suggestions to improve waste diversion efforts are also included in the waste audit. To this date, the University has conducted waste audits using Green Project Consultants for the following buildings: Ellison Hall, Facilities Management, Intercollegiate Athletic Office, Student Health, West Campus Child Care, Student Resources Building (2x), Davidson Library, Student Affairs & Administrative Services, and Counseling & Career Services.

UCSB Reads – Moby Duck

UCSB Reads is a common reading experience that engages the campus and the broader Santa Barbara community in conversations about a key topic while reading the same book. The 2012 theme for the program was “Making an Impact. What’s Yours?” and the book chosen for the program was *Moby-Duck: The True Story of 28,000 Bath Toys Lost at Sea and the Beachcombers, Oceanographers, Environmentalists, and Fools, Including the Author, Who Went in Search of Them* by Donovan Hohn. Among other topics, the book’s scope included

heavy coverage of ocean pollution from plastics, which was a topic of discussion in many of the 2012 program's events. Workshops, presentations, and events that were made available to UCSB and the greater Santa Barbara community included: book discussions, several movie screenings (Plastic Planet, Dirty Energy, and Bag it), numerous lectures and panel discussions regarding plastic pollution in the ocean and the Pacific Ocean garbage patch from UCSB faculty members and individuals from local organizations, *Moby-Duck* book give-a-ways (2,500 books), reusable bag give-a-ways, beach clean-up days, on-air readings of the book by UCSB's radio station KCSB, and even an in-person appearance and presentation by the author. Events have been ongoing since November 2011 and will continue until the program selects a new book for the upcoming academic year. The 2012 program sponsors included other institutions of education in the Central Coast, individual departments within UCSB, and both local and national level organizations, such as Deckers Outdoor Corporation and the Plastic Pollution Coalition.

UCSB Waste Signage

In 2010/2011, the Sustainability Change Agent Waste Team developed standardized signage for the Landfill, Office Pack, and Commingled waste streams. Members of the Compost Pilot Project were also recently responsible for developing similar signage for compost waste stream.



H. MARBORG INDUSTRIES

The municipal solid waste that is not managed on-campus is handled by MarBorg Industries. MarBorg Industries, a family owned and operated business specializing in waste management, has serviced the greater Santa Barbara community for over 75 years. In respect to UCSB, MarBorg has provided the University with over 20 plus years of service. In the most recent contract between UCSB and MarBorg, it was agreed that MarBorg would service the University for an initial two-year period (July 1, 2007 - June 30, 2009), with the

option to extend for four additional one-year periods per the defined specifications, terms and conditions, and pricing exhibits. Both UCSB and MarBorg chose to extend the contract; 2012 sees UCSB and MarBorg in the fifth year of partnership since the RFP in 2007.

MarBorg Industries services the University's six major waste streams: landfill, commingled recycling, office pack, greenwaste, food waste, and construction and demolition waste (C&D). The landfill, commingled recycling, and office pack streams are serviced via dumpsters that range in size from 1.5 - 4 yrd³ (Appendix IV), the greenwaste is serviced via the sub-grade greenwaste dumpsters (Appendix IV), C&D waste is disposed of via roll-off dumpsters, and the food waste is handled via the compacting roll-off units located at the four Housing and Residential Dining Commons.

Landfill Waste Stream

MarBorg transports the landfill waste stream from UCSB's 128 landfill dumpsters to their Downtown Sorting Facility located at 119 N. Quarantina Street in Santa Barbara. The trucks enter the facility through the weighing scale and deposit their contents on the facility floor. To ensure that no recyclables are sent to the landfill, the landfill waste undergoes a series of sorting practices. Large items are initially removed using a crane, which is also responsible for placing the remaining landfill waste on a conveyor belt that then takes it to two shakers. Each of the shakers sifts out small items, which are then used for Average Daily Cover (ADC) at the Tajiguas Landfill. MarBorg employees then manually sort the waste, removing any recyclables that that make their way past the two preliminary sorting stages. The remaining waste after the aforementioned sorting procedures is then determined to be "residuals." The residuals are then placed in transport trucks and hauled to Tajiguas Landfill. Appendix IV provides a flow chart explaining the process in which landfill dumpsters leave the University and their contents make their way to the landfill.

Commingled Recycling Waste Stream

Commingled recyclables are taken from the University via their 111 commingled recycling dumpsters and delivered to MarBorg Industries Commercial Recyclables Processing Center located at 20 David Love Place in Goleta, California. The Recycling Facility also serves clients in the City of Santa Barbara, the City of Goleta, and Santa Barbara County, in addition to UCSB. The facility is rated at 80 tons per day throughput for commingled recyclables.

The MarBorg Recycling Facility has the ability to recycle the following items:

<u>Plastic</u>	<u>Metal</u>	<u>Paper and Cardboard</u>
<ul style="list-style-type: none">▫ All solid plastics▫ Plastics #1-7▫ Plastic utensils and straws▫ Nursery flats and pots▫ Pipe and irrigation hose▫ Plastic household items	<ul style="list-style-type: none">▫ Steel (can contain rust or paint and be stainless)▫ Copper, lead, brass▫ Aluminum foil and cans▫ Empty paint and aerosol cans▫ Pots pans and utensils	<ul style="list-style-type: none">▫ Junk mail▫ All books▫ Shredded paper▫ Paper bags▫ Newspapers, magazines▫ Cardboard, egg cartons

The recycled products sorted and processed at MarBorg's David Love Place Recycling Facility are then resold to vendors to be made into new items. For each ton of material sold, UCSB receives \$25.00, which is the standard rate for all commodities. The commodities and their current respective vendors include:

- Aluminum – Sold to Alpert & Alpert, an iron and metal recycling facility in Los Angeles, California. Alpert & Alpert make can sheet for aluminum can manufacturers
- Glass – Sold to Potential Industries in Wilmington, California for use in making cullet (furnace ready glass) for production of new glass containers
- Newspaper – Sold to Smurfit Stone Container and delivered to Blue Heron Paper Mill to be made into 100% secondary fiber newspaper
- Cardboard – Sold to Newport CH International and America Chung Nam to be used mainly to produce liner board which is the outside lining on a corrugated box
- PET Plastic – Sold to Potential Industries and Pacific West Recycling to be made into beverage containers and fiber fill for jackets and sleeping bags
- Mixed plastic – Sold to Pacific West Recycling to use in various products such as children's toys, benches, patio furniture, pipes, flower pots, and electronic housings
- Tin cans and miscellaneous metal – sold to Alpert & Alpert for reuse

Appendix IV provides a flow chart explaining the process in which UCSB's commingled recyclables make their way to vendors.

Office Pack Waste Stream

The office pack waste stream is separated from commingled recycling because of the high value of office pack. However, in the data section, weight from office pack recyclables is included in commingled. UCSB has 40 office pack dumpsters that are predominantly three yard³ dumpsters. The office pack dumpsters are sent to the David Love Recycling Facility where they are then sorted and sent to Newport CH International for use in producing tissue and bond paper.

Greenwaste Stream

Green waste leaves the University primarily through the sub-grade greenwaste dumpsters. UCSB has 24 greenwaste dumpsters on-campus. The greenwaste that is not mulched on-campus is taken to the Downtown Sorting Facility where it is ground into mulch. The mulch is then sold to various parties but is free to UCSB. Appendix IV provides a flow chart explaining the process in which UCSB's green waste is turned into mulch.

Construction and Demolition (C&D) Waste

Subcontractors contracted to work on various projects at the University primarily generate C&D waste. Construction companies are required to contract with waste haulers to properly dispose of their generated waste. MarBorg is generally the primary waste hauler for the majority of projects at UCSB. When a subcontractor uses MarBorg, the waste is disposed of in roll-off dumpsters ranging in size from 11 – 40 yrd³. C&D waste for construction projects is recorded in a separate category than the rest of the streams but is still counted in UCSB's overall waste production by MarBorg. The Downtown Sorting Facility handles C&D waste. The amount of roll-off dumpsters on the UCSB campus is dependent on construction projects.

Food Waste Stream

Food waste hauling services are currently only available to the four H&RS Dining Commons. Each of the four dining commons at UCSB is equipped with compacting roll-off dumpsters that only accept both pre- and post- consumer food waste. The food waste contents of the compactors primarily consist of food waste from the H&RS Dining Commons, but the compacting roll-off at the Portola Dining Hall also receives food waste from the retrofitted Bertha recycling clusters. The food waste roll-offs are then taken to the Downtown Sorting Facility where they are emptied, but not sorted, and the waste is then immediately taken via transport truckers to the Engle & Gray compost facility in Santa Maria, California. The contents of the roll-offs are then sorted at Engle & Gray and turned into "Harvest Blend Compost." MarBorg will be providing the University with a formal compost program, which will result in the addition of yellow dumpsters and rolling totes designated for food waste. More information regarding this program can be found in the

“Road to Zero Waste” section of this report. Appendix IV displays how the food waste stream is disposed of at UCSB.

I. 2011-2012 FISCAL WASTE DIVERSION DATA

The waste management programs and practices of the 2011-2012 fiscal year allowed UCSB to achieve a waste diversion rate of 69.67% from landfills. This percentage was a 7.67% increase from the previous year’s 62.00% diversion rate. Although UCSB did not achieve the 75% diversion rate by 2012, it should be noted that a misunderstanding by the University’s waste haulers led to the failure to attribute a substantial amount of additional recyclables to the annual total.

From January 2011 – December 2011, the contents of several roll-off recycling dumpsters were being properly recycled but were not credited to UCSB’s account. MarBorg caught the misunderstanding in late December of 2011, and the staff at MarBorg has provided the University with accurate weights since January 2012. Both UCSB’s Sustainability Change Agent Waste Team and MarBorg agreed it would not be accurate to estimate the unaccounted recycling waste. Thus, the weight of this recycled material was not applied to the calculation of our diversion rate. A letter from MarBorg stating the details of the misunderstanding can be found in Appendix I.

The data is presented in a manner that reflects the University of California’s 2011-2012 Solid Waste Diversion Survey. The categorical breakdown of the data is identical to that of the Survey.

2011-2012 Waste Diversion Data by Commodity

Table 1: Waste Sent to Landfill

Commodity Type	Actual	Estimated	Units	Data Contributors
Residuals from MRF w/o C&D	2,116.35		Tons	MarBorg
C&D Waste	300.11		Tons	MarBorg
TOTAL	2,416.46		Tons	

Table 2: Basic Recycling Diversion Data

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Glass	4.06		Tons	A.S.R
Plastics 1-2	1.69		Tons	A.S.R
Plastics 3-7	0.20		Tons	A.S.R
Plastics 1-7	N/A		Tons	Included in commingled
Aluminum	0.63		Tons	A.S.R
Corrugated cardboard	16.90		Tons	H&RS
Office pack/ mixed paper	N/A		Tons	Included in commingled
Scrap metal	N/A		Tons	Included in commingled
Commingled recyclables (glass, plastics, aluminum, paper cardboard)	1,248.52		Tons	MarBorg
Shredded Paper	58.92		Tons	Ucen/ Recall
TOTAL	1,330.91	0.00	Tons	
GRAND TOTAL	1,330.91		Tons	

Table 3: Organics Recycling Diversion Data

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Landscape/ yard waste	651.41		Tons	MarBorg/ Family Compost
Food waste	708.24		Tons	H&RS/ Family Compost
Animal bedding		325.00	Tons	Facilities Management
Cooking oil	8.64	8.50		H&RS/ Ucen
Coffee Grounds	4.06		Tons	Facilities Management
TOTAL	1,372.35	333.50	Tons	
GRAND TOTAL	1,705.85		Tons	

Estimating Procedures for Organics Recycling Diversion Data

- Animal bedding: Estimated numbers were determined using historical data and consultation with Jennifer Dugan, who operates the horse and animal stalls at UCSB
- Cooking oil: H&RS collected data on both volume and associated weight of recycled cooking oil. The UCen had only volume, and weight was estimated from the H&RS data. The similarity in operations of both entities allows the estimated weight to be reasonably accurate.

Table 4: Miscellaneous Recycling Diversion Data

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Construction/ demolition	1,611.40		Tons	MarBorg/ Subcontractors
Wood/ lumber - dimensional, not trees or yard waste	N/A		Tons	
Compact discs	N/A		Tons	
Plastic pipette boxes	N/A		Tons	
Pallets	N/A		Tons	
Toner cartridges/ inkjet	1.37		Tons	Central Stores/ A.S.R.
Carpet	N/A		Tons	
Furniture/ office supplies	130.60	189.50	Tons	Central Stores
Furniture - GIVE Sale	17			H&RS
Plastic film	N/A		Tons	
Eyeglasses		0.12	Tons	Human Resources
Toilets (porcelain)	2.70			H&RS
Bicycles		3.10	Tons	CSO/ UCPD
Books		8.00	Tons	A.S.R.
Blankets		1.20	Tons	A.S.R.
Clothing/ Shoes		3.40	Tons	A.S.R./ Bren
Vehicles		34.00		Central Stores
TOTAL	1,763.07	239.32	Tons	
GRAND TOTAL		2,002.39	Tons	

Estimating Procedures for Miscellaneous Recycling Diversion Data

- Furniture/ office supplies: The weights of this commodity were determined using educated estimates by the Furniture Services Supervisor, Jeff Goldmann .
- Eyeglasses: Estimated weights for eyeglasses were determined by taking the weight of one pair of eyeglasses and multiplying it by the number of eyeglasses donated.
- Bicycles: Estimated weights for bicycles were determined by averaging the weight of several types of bicycles and multiplying it by the number of bicycle donated.
- Books: The estimated weights of books were determined using data from previous years, as well as estimates from individuals who operate various book donation drives and programs.
- Blankets: The estimated weights of blankets were determined using data from previous years.
- Clothing/ Shoes: Estimated weights of clothing were determined using historical data and estimates from individuals who operate various clothing donation drives.

- Vehicles: The weights of this commodity were determined by using educated estimates from the Furniture Services Supervisor, Jeff Goldmann.

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

Commodity Type	Weight		Units	Data Contributors
	Actual	Estimated		
Freon				
Electronics	95.97			Central Stores/ A.S.R.
Household batteries (e.g. alkaline and rechargeable)	0.32			Central Stores
Cell phones	N/A			Included in "Electronics"
Tires				
Anti-freeze				
Medical sharps containers				
Non-hazardous batteries (e.g. automotive)	2.53			EH&S
Chemicals				
Fluorescents	2.04			EH&S
Mercury	0.15			EH&S
Empty barrels	0.09			EH&S
Photograph/ move film	0.14			EH&S
TOTAL	101.23	0.00	Tons	
GRAND TOTAL	101.23		Tons	NOT IN DIVERSION TOTAL

Table 6: Alternative Methods

Method Type	Weight		Units	Data Contributors
	Actual	Estimated		
Alternative Daily Cover	323.31		Tons	MarBorg
Dirty MRF	2,942.65		Tons	MarBorg
Waste to Energy: Incineration	N/A			

Table 7: Waste Totals

Commodity Totals	Weight		Units
	w/ C&D	w/o C&D	
RECYCLED/ COMPOSTED TOTAL	5362.459	3751.059	Tons
LANDFILL TOTAL	2116.35	2116.35	Tons
TOTAL WEIGHT	7802.119	5867.409	Tons
DIVERSION PERCENTAGE	68.73%	63.93%	Tons

Figure 1: 2011-2012 Visual Breakdown of Data by Commodity

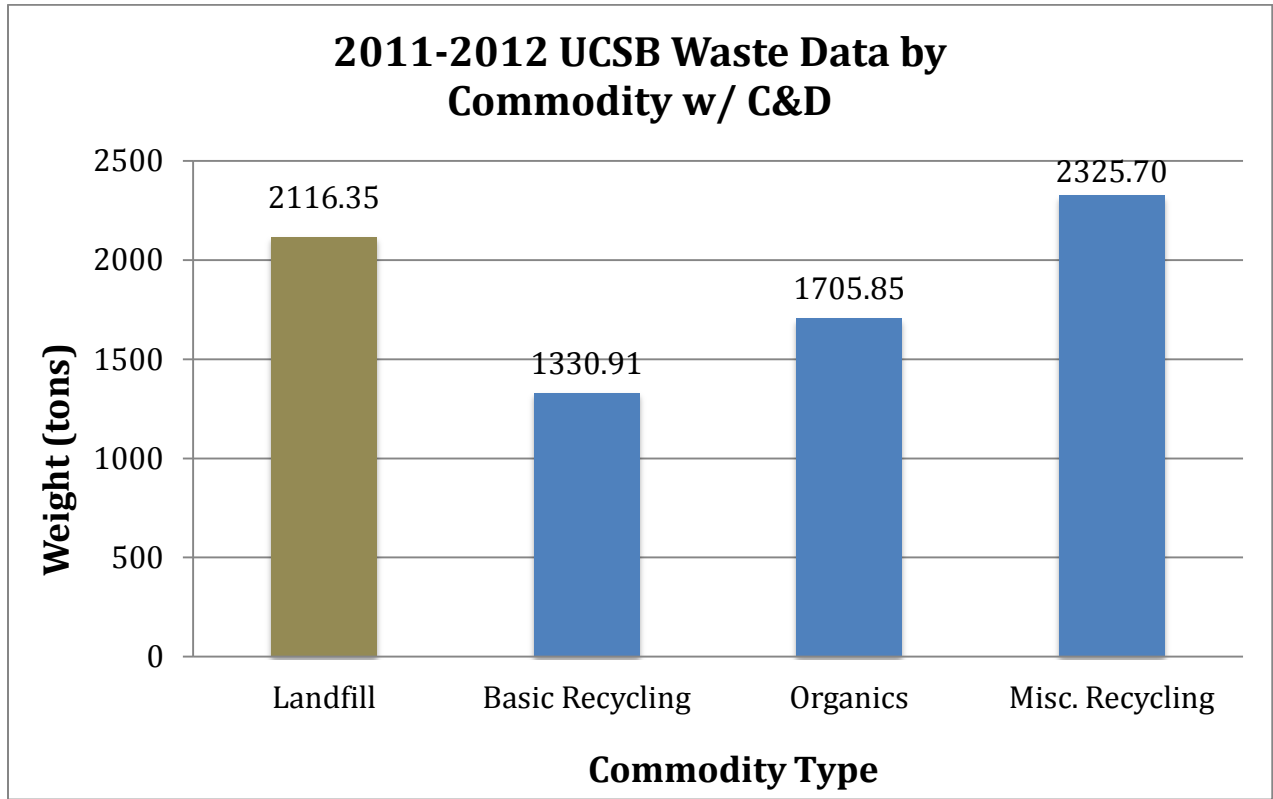


Figure 2: 2011-2012 Waste Diversion Rate

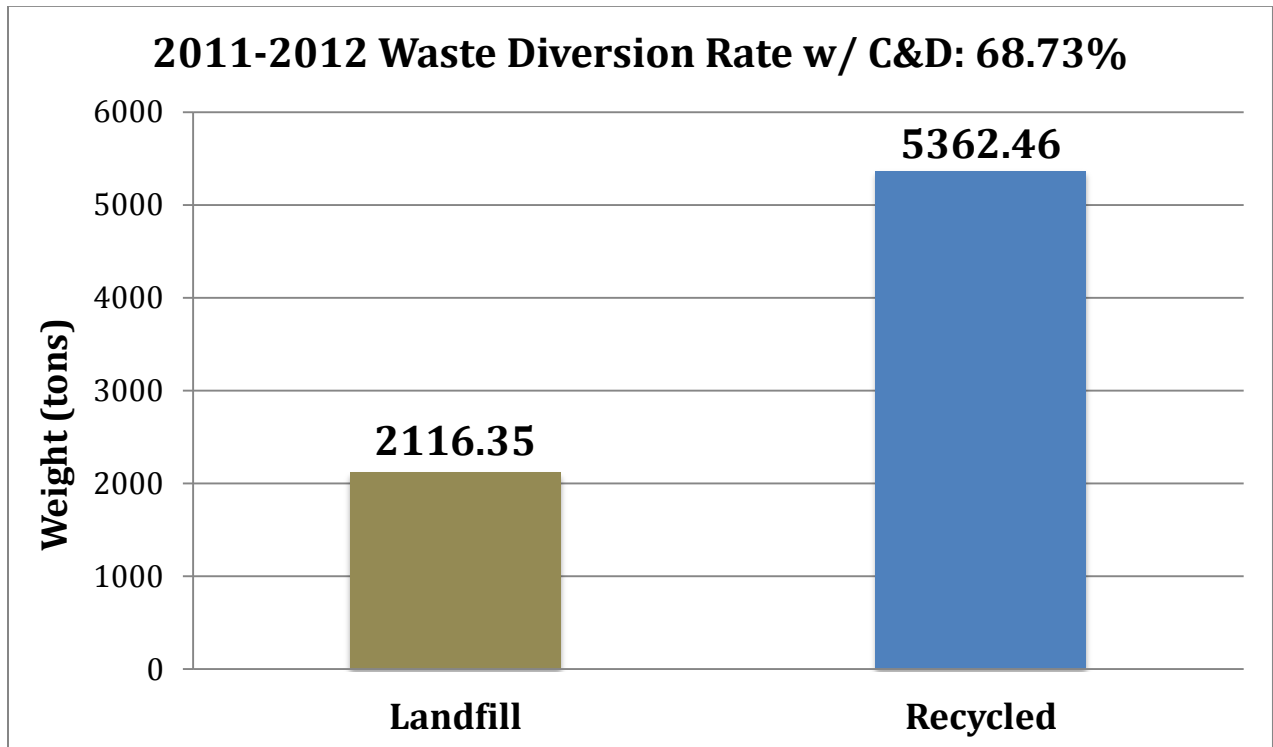
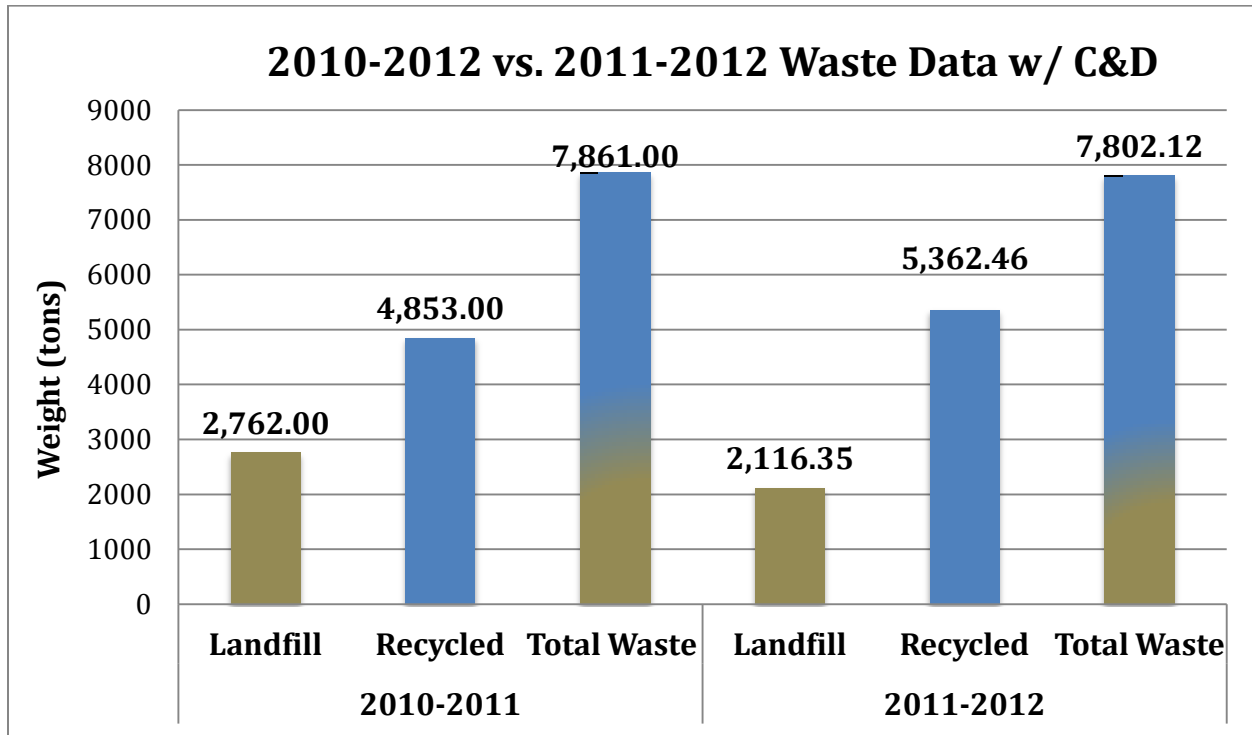


Figure 3: 2010-2011 vs. 2011-2012 Waste Diversion Rates



2011-2012 Data Analysis

Figure 1 shows that “miscellaneous recycling” was the largest categorical type of recycling in 2011-2012. This is likely due to the inclusion of construction and demolition in this category. The “basic recycling” and “organics” categories closely follow behind the miscellaneous recycling category. “Universal recycling” is the smallest contributor to the recycling category.

When examining the 2011-2012 Waste Diversion Rate (Figure 2), the amount of waste recycled significantly outnumbers the amount of waste sent to the landfill. The summation of the basic recycling, organics, and miscellaneous recycling amounts to a total of 5,565.80 tons, while the landfill category only amounts to 2,416.00 tons. The difference between these two categories results in a 69.73% diversion from the landfill rate for 2011-2012.

Examining the data, specifically in comparison to the 2010-2011 waste data, it is evident that UCSB is making significant progress towards the overall goal of achieving zero waste by 2020. The 7.73% waste diversion increase from 2010-2011 to 2011-2012 is a notable achievement in itself. Although the University produced more waste in the 2011-2012 period than the 2010-2011 period, they sent less of it to the landfill and recycled/composted a significantly greater amount of it. If the misunderstanding with MarBorg had not occurred, the tonnage of recycled materials for 2011-2012 would have also been

greater. With short-, mid-, and long-term goals thoroughly outlined, UCSB aims to build upon its 2011-2012 success and is confident it is on the road to achieving zero waste.

J. THE ROAD TO ACHIEVING ZERO WASTE

It is of the utmost importance UCSB to meet the 2020 zero waste goal outlined by the University of California, Office of the President. The UC Solid Waste and Recycling Working group defined zero waste in the last update of the Policy on Sustainable Practices as follows.

“For the purpose of measuring compliance with UC’s zero waste goal, campuses need to meet or exceed 95% diversion of municipal solid waste. Ultimately, UC’s zero waste goal strives for the elimination of all materials sent to the landfill by 2020.”

UCSB acknowledges the aforementioned definition, but also defines zero waste in accordance with the Zero Waste International Alliance’s peer-reviewed zero waste definition:

“Zero Waste is a goal that is ethical, efficient, and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use. Zero waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury any of them. Implementing zero waste will eliminate all discharges to land, water, or air that are a threat to planetary, human, animal, or plan health.” – Zero Waste International Alliance.

Foundation for Waste Management Success

The primary step to achieving zero waste is to construct a foundation on which to build upon. At UCSB, this foundation consists of the “Three C’s” and behavioral modification towards solid waste and recycling.

The Three C’s: Communication, Collaboration, and Connectivity

The Three C’s consist of communication, collaboration, and connectivity. In that particular order, the Three C’s represent how UCSB can achieve campus-wide unity in terms of waste management. Communication between the departments and organizations both at UCSB, at the local, regional, and national scales is essential. As mentioned in previous sections and listed at the beginning of the document, there are multiple parties responsible for waste management at UCSB. Although each has unique practices are unique and has contributed to the University’s previous waste management success, achieving zero waste will require the various departments to communicate and to develop a greater degree of integration.

Such communication includes: notifying and updating one another of waste management programs and practices, identifying waste management ideas and strategies, and expressing opinions on ways to improve the waste management structure at UCSB. Transcending the department level, communication regarding waste management needs to extend to and beyond the entire UCSB Community, which includes faculty, staff, students, campus visitors, and outside organizations. Everyone is an expert on waste; we all handle multiple types of waste streams on a daily basis. Communication in the forms of workshops, meetings, clubs, booths at events, and even informal conversation in passing are ways the UCSB Community can share their expertise, learn from one another, and even influence those responsible for waste management at the University. Communication alone is important, but even more so as it segues into collaboration.

Collaboration can only be achieved after communication. At the departmental level, collaboration will allow the various departments to tackle waste management issues together, which will lead to more complex and well-thought-out strategies and practices. Departmental collaboration will also allow UCSB to uniformly address waste management issues and ensure that the campus population receives the same message. Following communication and collaboration is connectivity.

Once UCSB achieves waste management communication and collaboration, it will be primed and ready to tackle all waste management issues as a single entity. As much as waste management has divided the University, it also has the ability to unite UCSB. The complex waste management issues that UCSB and other entities alike are now facing are too complex and broad for a single department to solve. Establishing the Three C's between departments and organizations both on- and off-campus will allow UCSB to get started on the road to achieving zero waste.

Behavioral Modification towards Waste Management

In combination with the Three C's, behavioral modification towards waste management is essential in achieving zero waste. Waste in general needs to make a transition from a topic that has been traditionally viewed as smelly and dirty to one that stresses the importance of proper waste management practices. Waste management needs to become a comfortable discussion topic, where individuals encourage one another to properly recycle and compost but also feel comfortable in calling out community members when they have identified a waste management mistake. Behavioral modification does not require a top-down approach but, rather, a more comprehensive strategy that includes all parties regardless of their social standing. Modifying individuals' behaviors towards waste management issues starts with education. Formal education is great, but even informal education is crucial in making a change. Champions for the environment and waste management justice need to share their ideas with fellow community members. They need to be change agents that inspire the creation of more champions for the environment and

waste management justice. Behavioral modification towards waste management issues is a continuous process that will evolve and, once established, will result in dramatic, positive changes to waste diversion and the topic of waste management in its entirety.

Building a Foundation for Success at UCSB

Waste management communication, collaboration, connectivity, and behavioral modification at UCSB have not been actively promoted in the last two years due to vacancies in both the Facilities Management Waste and Recycling Manager position and the A.S. Recycling Program Coordinator position. The recent appointment of individuals in both of these positions, in combination with the University's belief in the importance of the Three C's and behavioral modification towards waste management, indicates that UCSB is taking the necessary steps to reach zero waste by 2020. A foundation that encompasses the aforementioned components will also allow UCSB to refine existing programs and practices, as well as identify and establish new programs and practices that will guarantee success.

Upcoming 2012-2013 Waste Management Programs & Practices

"Analyzing Waste Receptacles at UCSB"

Facilities Management has recently begun the process of analyzing the placement and quantity of outdoor, public waste receptacles on the UCSB campus. Completed stages of the study included recording the geographic position of each outdoor public waste receptacle located on the Main Campus at UCSB (see Appendix II), as well as the location of the University's dumpsters that are under contract with MarBorg. The next step of this study is to conduct a spatial analysis of the outdoor public waste bins to determine the optimum rearrangement of waste receptacles. This will be immensely helpful to Facilities Management staff, as one of their upcoming projects includes retrofitting existing landfill Quickcrete bins as recycling receptacles and pairing them with the Keystone Ridge landfill bins. An in-field meeting with the MarBorg waste haulers will also take place in order to gain an understanding of the amount of waste in each dumpster. Such insight will hopefully allow the University to adjust their service schedule, ideally reducing the amount of dumpsters on-campus and the days they are serviced if it is determined they are being dumped when they are not full. By conducting these spatial analyses, the University will then be able to effectively utilize its recent purchase of BigBelly Solar Trash Compactors. With UCSB on the verge of deploying four Big Belly Solar Compacting stations that will consist of landfill, commingled, and compost units (UCSB will be the first University to use these compacting units for compost), the spatial analyses will identify locations where these units will be utilized most effectively by UCSB Community members. In summary, the study will greatly assist the University in recognizing its specific waste management needs and, therefore, will allow UCSB to better negotiate a contract with a waste hauler in 2014.

Hazardous Lab Waste Program (EH&S, Facilities Management, LabRATS)

The Hazardous Lab Waste Program targets reducing the amount of waste sent to the landfill. The University currently sends an estimated 38 tons of municipal solid waste a month of waste from 11 lab buildings directly to the Tajiguas landfill. A conservative estimate is that 30% (11.4 tons) of this waste is recyclable material, but, because it is intermixed with hazardous lab waste, it cannot be recycled via the regular sorting process by our waste hauler. The hazardous lab waste that is intermixed is disposed of in accordance with local, regional, and national regulations, but, during the recycling process, the hazardous lab waste can pose danger to individuals on the sorting lines.

To relieve this issue, the Hazardous Lab Waste program will collect all hazardous lab waste from campus laboratories and confine it to toter bins distributed to each lab or group of labs. Lab staff will be responsible for placing hazardous lab waste items in the toters, and not the buildings other bins. The toters will be picked up by MarBorg on a special route and taken directly to the landfill without being directly handled again by custodial or MarBorg staff, thus protecting them from injuries inflicted by sharps or chemicals. All other waste from the building will then be sent to MarBorg's sorting facility, which will allow for separation of landfill- destined items and those that can be recycled.

The program will be implemented before the start of the 2012-2013 academic school year and will involve collaboration between EH&S, Facilities Management, LabRATS, lab/building occupants, and our waste hauler, MarBorg Industries. Hazardous Lab Waste Toters will be clearly labeled to designate their purpose and will be marked to identify which lab and building they belong to. In all, the program has the ability to divert an estimated 136.8 tons annually from the landfill by allowing that tonnage to be recycled.

Formal Composting Service from MarBorg Industries

UCSB's Facilities Management and UCEN departments have been working closely with MarBorg to implement a formal food compost program for UCSB's Main Campus. This program introduce food waste composting bins to existing eateries, as well as pull together several of the separate, already existing food waste compost programs. Food composting already occurs on-campus via the collection of food waste from the four food compost compactors at each of the H&RS Dining Commons. With the increase in demand for food composting at UCSB, MarBorg is willing to expand operations to the UCEN and its satellite food facilities, as well as select public locations on the Main Campus. UCEN Dining Facilities will be supplied with yellow food waste toters that will be able to receive pre- and post-consumer food waste, which will then be taken by University staff to yellow food waste dumpsters located in the vicinity of the dining establishments. Food waste disposed of in the BigBelly food composting compactors and the Berthas that have been retrofitted to accept food waste will also feed the yellow food waste dumpsters. The yellow food waste dumpsters will leave UCSB and be transferred to transport trucks by MarBorg, and the food

waste will then be taken to Santa Maria, CA. to be composted at Engle & Gray. At Engle & Gray, the food waste is turned into compost, using the aerobic windrow method. The compost product is then sold by Engle & Gray under the name “Harvest Blend Compost.”

Between the UCEN, its satellite dining facilities, and the existing retrofitted Berthas, UCSB’s Main Campus is already producing an estimated 6,200 lbs. of food waste per week. Of the 6,200 lbs., only 20% is being composted, while the remainder is being disposed of in the landfill. This program will ensure that the remaining 80% of food waste is diverted from the landfill and is composted instead. In combination with the implementation of compostable food serviceware, this program will be capable of meeting the future needs of the UCSB Community in regards to composting food scraps.

Compostable Food Serviceware at UCSB

UCen Dining will be working with its self-operated units and its leased tenants to implement compostable serviceware for the upcoming academic school year. Currently, the only entities to carry all compostables are Root 217 and UCSB’s Catering Department. The cost of implementing compostables campus-wide has been an issue of concern, but a recent survey that was distributed to all students via email showed that they would be willing to bear the costs associated with switching to compostable food serviceware. 86% of respondents stated they would be willing to pay \$0.05 - \$0.10 more per food item. UCen Dining is currently working to find a reputable compostable food serviceware product, as well as drafting the use of compostables into existing policies and contracts.

Art Studio Recycling Program (Facilities Management, LabRATS, PACES, A.S. Recycling)

The Art Studio Recycling Program aims to address recycling and waste management issues that frequently occur in the six various buildings of the Art Department. As an entirety, the waste stream of the Art Department is variable in regards to the type and amount of material being disposed of. Each of the six buildings experiences individual waste management difficulties. To assist the department and its building occupants in properly disposing of waste, Facilities Management, MarBorg, LabRATS, PACES, and A.S. Recycling are collaborating with one another, as well as with the faculty, staff, and students from the Art Department, to implement the Art Studio Recycling Program. The development of the program is still in its beginning stages, but proactive measures and actions have taken place. LabRATS and PACES are diligently working with Art faculty, staff, and students regarding waste management education, Facilities Management and A.S. Recycling are organizing waste bins for deployment in the Art buildings and studios, and MarBorg is working with the department to identify items that are and are not recyclable.

The final product will include a “Design for Deconstruction” educational module that will advise students on how to select products and design and make art projects that can be

easily deconstructed and recycled. All buildings and art galleries will be equipped with easily identifiable waste receptacles that will meet the needs of the buildings' users. Weights of material that this program will divert from the landfill have not been calculated, but with the Art Department producing 3-D and wood projects, it is believed that this program will significantly assist in diverting material from the landfill.

Zero Waste Athletic Event – Using the Blue-Green Rivalry

UCSB is currently in the beginning stages of making a 2012-2013 athletic event zero waste. The soccer rivalry between UCSB and Cal Poly San Luis Obispo (Cal Poly SLO) is nationally-recognized and televised, drawing six of the ten highest attended regular season college soccer games in NCAA history. This makes it a fitting venue for a zero waste athletic event and a monumental step in achieving zero waste by 2020. Meetings with the Intercollegiate Athletics Department, Facilities Management, A.S. Recycling, and UCEN Dining Services are set to take place in the immediate future.

UCSB Gateway Procurement System

UCSB Procurement Gateway will drastically increase the purchase of sustainable goods and services at UCSB by increasing the transparency of sustainable products to end users via the new campus Procure to Pay (P2P) system, "Gateway." To accomplish this goal, Gateway formed a team of students that will assemble a list of sustainable product classifications and add this classification data into the Gateway product catalogs. Once in practice, the program will permit us to evaluate the full life-cycle and environmental impact of products (vetting products to avoid "greenwashing" by vendors). Once this data is appended to Gateway, the group will analyze faculty, staff, and student procurement patterns to identify training opportunities on environmentally preferable procurement behavior. This project is intended as a proof of concept and, if successful, will be presented for adoption system-wide.

Zero Waste Committee

The A.S. Recycling Zero Waste Committee will be a group of individuals tasked with assisting the University in achieving the 2020 zero waste goal. The overall goal of the committee is to act as an advocate for waste reduction efforts on-campus. The committee will be primarily student-driven but will be under the direction of the A.S. Recycling Program Coordinator. The Zero Waste Committee will consist of a Chair, Vice-Chair, and one coordinator for each of the four aspects on which the committee will focus: Education and Outreach, Recycling, Organics, and Procurement and Source Reduction. The committee will also include representatives from other A.S. organizations, such as PACES, the Environmental Affairs Board (EAB), and the Coastal Fund, as well as Facilities Management. This alliance will ensure communication and collaboration between the various groups and increase uniformity in tackling waste management issues. The Zero waste Committee will

be recognized as a formal organization on campus for the 2012-2013 academic school year by Associated Students and will receive annual funding. Members and officer positions of the committee will be appointed during the Fall 2012 Quarter.

Projected 2012-2013 Waste Diversion Rates

The following tables and graphs display the projected waste diversion rate for the 2012-2013 fiscal year at UCSB using the 2011-2012 waste data. The weights that each of the aforementioned 2012-2013 programs and practices will contribute are derived from educated estimates and pilot studies by members of the Sustainability Change Agent Waste Team.

Table 8: 2012-2013 Projected Data

Program/ Practice	Projected Annual Diversion Weight (tons)
Hazardous Lab Waste Program	136.8
MarBorg Compost Program	156
Coffee Grounds Compost Program	24
Compostable Food Serviceware	7
Zero waste Men's Soccer Game	2.5
Art Studio Recycling Program	120
Improvement of the Three C's	30

Table 9: 2012-2013 Projected Data Breakdown

Landfill	Basic Recycling	Organics	Misc. Recycling	Universal Recycling
2416	1799.3145	1688.71	1962.84	118.369
136.8	136.8	156		
156	2.8	24		
7	120	7		
2.8	30			
120				
1993.4	2088.9145	1875.71	1962.84	118.369

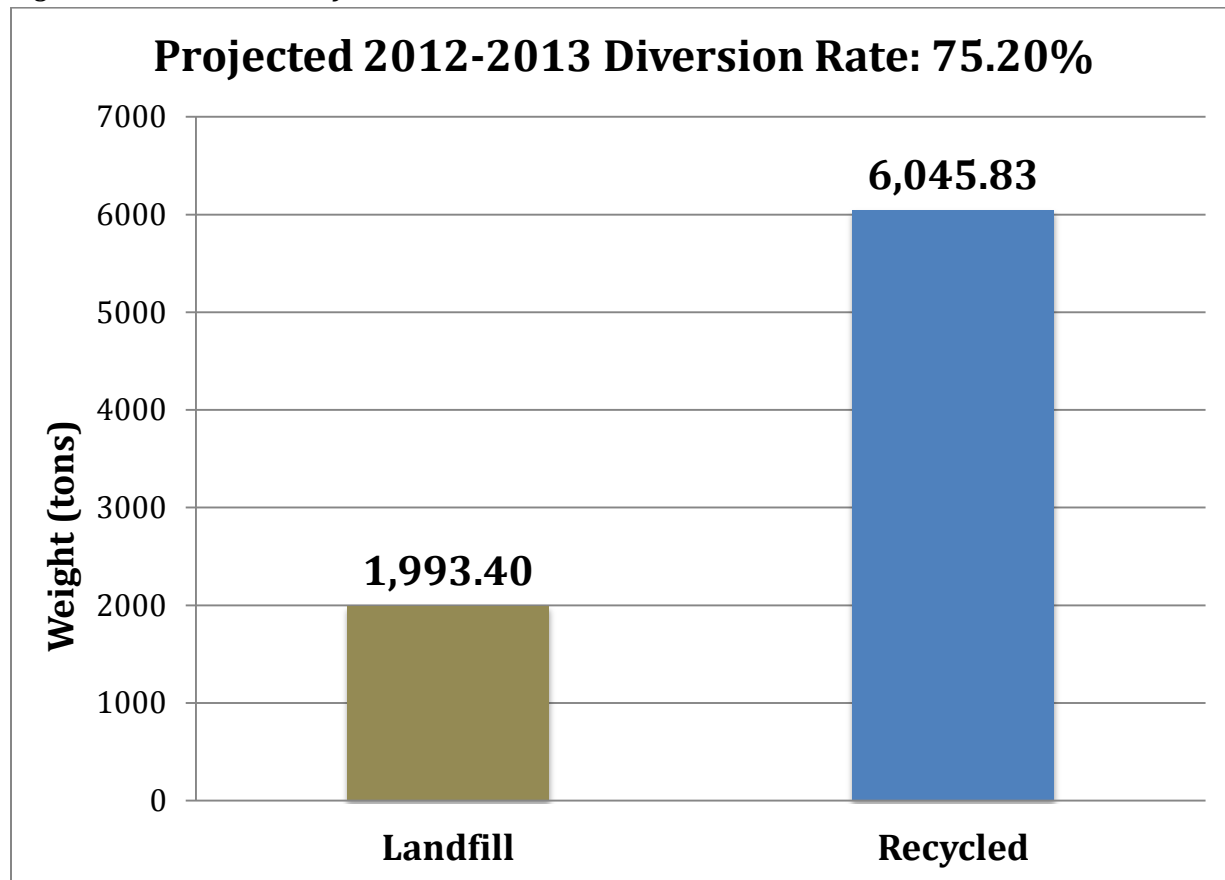
** Red numbers indicate subtraction from the category*

** Green numbers indicate addition to the category*

Table 10: 2012-2013 Projected Waste Diversion Percentage

Commodity Totals	Weight	Units
RECYCLED/ COMPOSTED TOTAL	6,045.83	Tons
LANDFILL TOTAL	1,993.40	Tons
TOTAL WEIGHT	8,039.23	Tons
DIVERSION PERCENTAGE	75.20%	

Figure 4: 2012-2013 Projected Diversion Rate



Future Programs, Projects, and Practices to Meet Zero waste

Short-Term Goals: July 1, 2012 – June 30, 2014

The short-term programs, projects, and practices outlined below are that the University expects to address and implement between now and June 30, 2014. The beginning steps to some of the short-term goals have already taken place or are currently underway:

- Implement Campus Food Waste Compost Program in collaboration with MarBorg
- Switch from traditional (plastic, styrofoam) food service ware to compostable food service ware at the UCen and its contracted restaurants
- Complete spatial analysis study of waste receptacles at UCSB
- Retrofit Quickcrete landfill bins with blue lids to make them recycling receptacles and pair with Keystone Ridge landfill bins
- Continue waste audits with Green Project Consultants
- Expand A.S. Zero Waste Program to cover all events on-campus
- Improve green waste disposal methods and practices by inducing collaboration between the H&RS and F.M. landscaping crews and the staff of the Cheadle Center for Biological and Ecological Research
- Coordinate with UCSB Procurement Team on improved specifications for packing material
- Work with campus vendors to reduce in-flux of unnecessary packing materials
- Utilize the Gateway Procurement System to identify items for purchase that have minimal packaging and are made of recycled materials
- Collaborate with the UCen Bookstore to reduce the use of packaging material
- Collaborate with Central Stores to improve recycled content paper sales in departments
- Conduct a closed-loop study to assess ways to partner with individuals, companies, and NGO's to determine the process of re-using our waste and keeping it on-site
- Collect and assess "best practice" RFP's for waste management contracts and develop language for our bid
- Continue work with the County of Santa Barbara on solid waste cogeneration and the level of the University's involvement

Mid-Term Goals: July 1, 2014 – June 30, 2020

- Continue to work on emissions reductions
 - Implement clean fuel strategies for generators
 - Work with Transportation Services for clean/alternative fuel fleet implementation
 - Waste heat recovery implementation
- Continue to improve efficient use of chemicals in laboratories
- Continue to work with dining and catering services to fully implement food waste reduction program, which stipulates a 50% reduction of food waste in 5-10 years, 80% in 10-20 years, and a 100% reduction in 20-25 years

- Achieve a 95% reduction of total weight of campus waste

Long-Term Goals: July 1, 2020 – June 30, 2050

- Analyze and build on goals achieved from the “Mid-term” section
- Refine any practices that still remove or displace waste at UCSB
- Conduct waste management studies to determine practices and programs needed to further increase diversion rates

Vision of Zero Waste

Achieving the aforementioned goals will ensure that, each year, UCSB will purchase less, reuse and recycle more, and, when required, will purchase sustainable products. The goals will not only help UCSB achieve a solid waste diversion rate of 90% or greater but will also assist UCSB in becoming a zero waste entity in all sectors: “Zero Solid Waste,” “Zero Hazardous Waste,” “Zero Toxics,” and “Zero Emissions.” Although the goals of solid waste management at UCSB are only projected through 2050, it can be assured that UCSB’s waste management programs and practices will evolve to meet the demands of our natural environment and mandates from local, state, and national organizations.

APPENDIX I: MarBorg Number Underreporting Error



Matthew R. O'Carroll
University of California Santa Barbara
Facilities Management
Santa Barbara, CA 93106

June 15, 2012

Dear Matthew,

Per our conversation MarBorg has discovered that the reported diversion figures for 2011 were much lower than they should be due to an error in our calculations. In July of 2010 we began to bring all MSW containers to our facility where they were sorted prior to disposal at Tajiguas Landfill. This sorting has resulted in a diversion of approximately 13% per load. Unfortunately this was not calculated into the diversion figures that were provided to the University in 2011. Be assured that materials were recovered and recycled in the proper manner and that this is solely an accounting error on our part. In January of 2012 the error was discovered and the necessary corrections have been made. We do have the ability to provide you with the corrected numbers for 2011 if you choose.

If you have any further questions regarding this matter, please do not hesitate to contact our office.

Thank you for your time.

A handwritten signature in cursive script that reads 'Kathy Borgatello Koepfer'.

Kathy Borgatello Koepfer
MarBorg Industries

"where service is a family tradition!"

P.O. Box 4127
136 N. Quarantina Street
Santa Barbara
California 93140
Phone 805-963-1852
Fax 805-963-0552



APPENDIX II: Main Campus Waste Bin Location Map



APPENDIX III: Common UCSB Waste Receptacles

Quickcrete (landfill)



Keystone Ridge (landfill)



Parking Lot (landfill)



Original Bertha Recycling Cluster



Modified Bertha Cluster for compost



BigBelly Commingled, Landfill, and Compost units



APPENDIX IV: MarBorg Dumpsters at UCSB

MarBorg Landfill Dumpster (2 yrd³)



MarBorg Commingled Dumpster (1.5 yrd³)



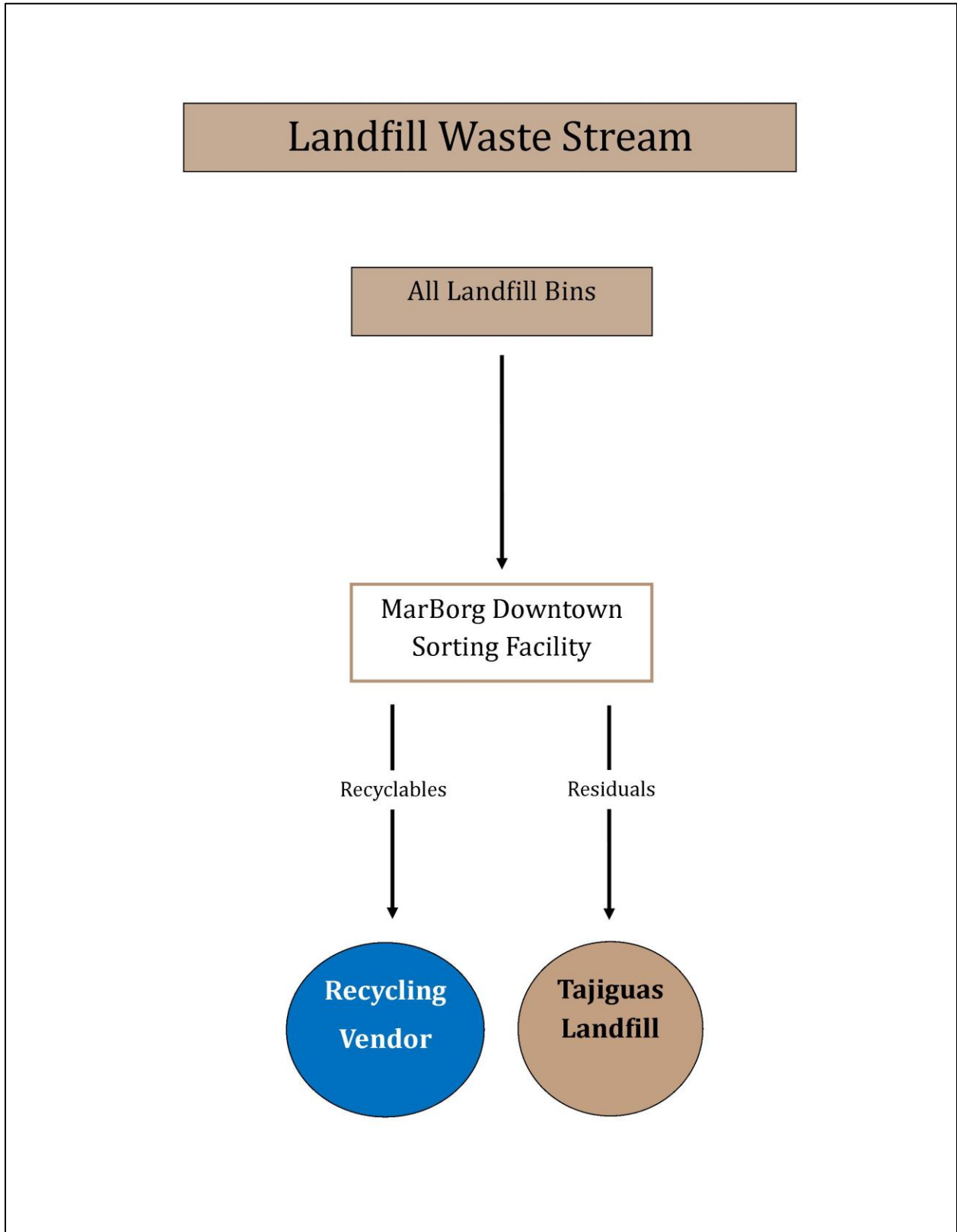
MarBorg Office Pack Dumpster (4 yrd³)



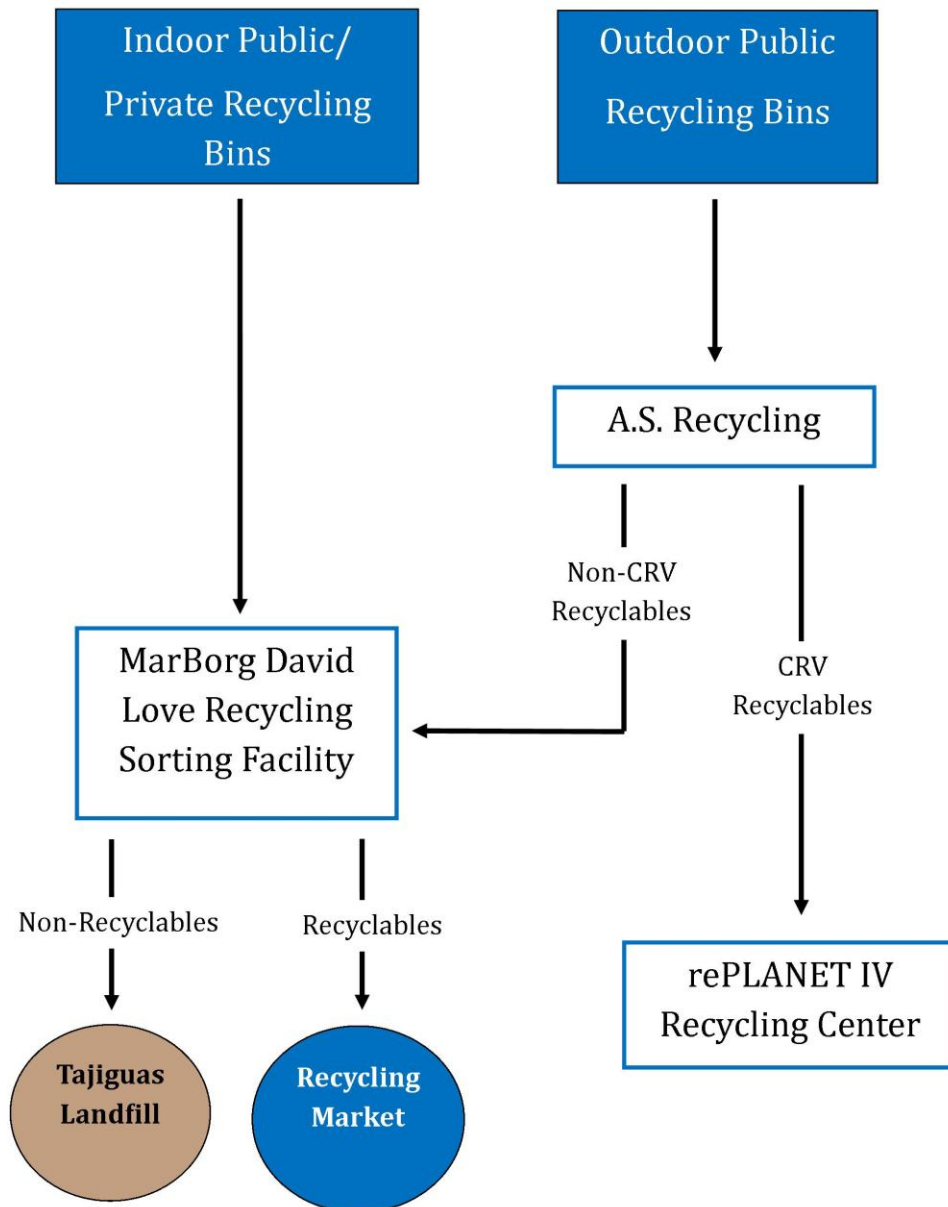
MarBorg Subgrade Greenwaste Dumpster



APPENDIX V: Waste Stream Flow Charts

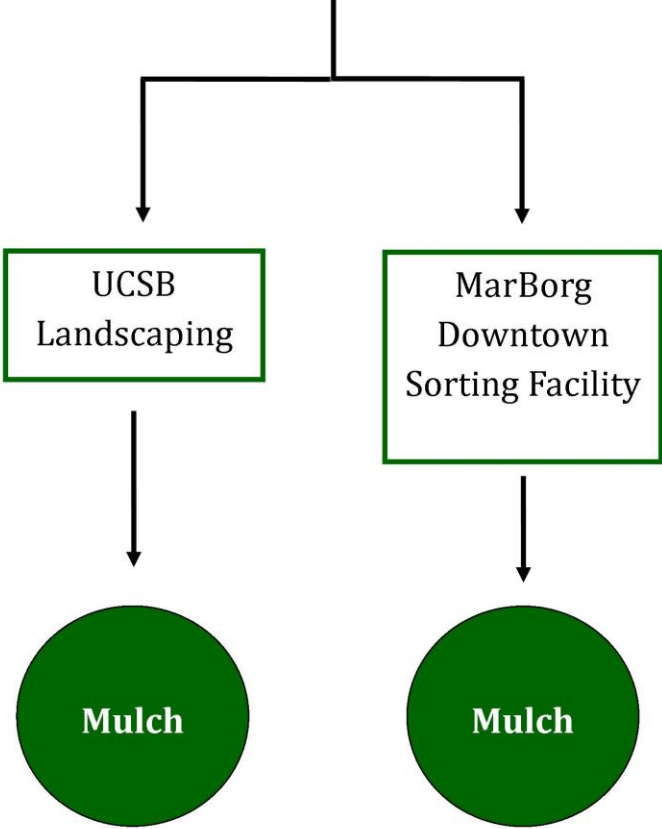


Commingled Waste Stream

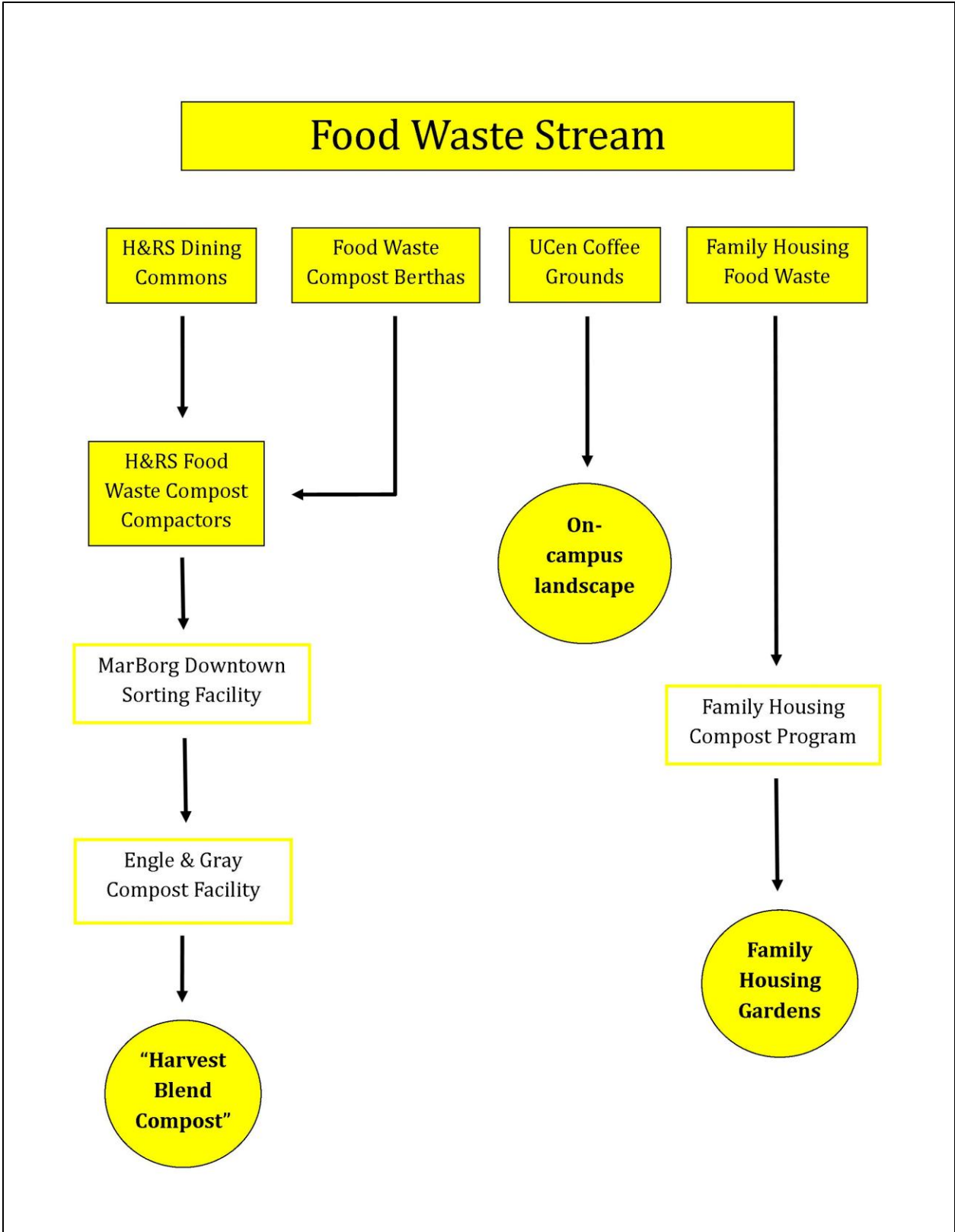


Greenwaste Stream

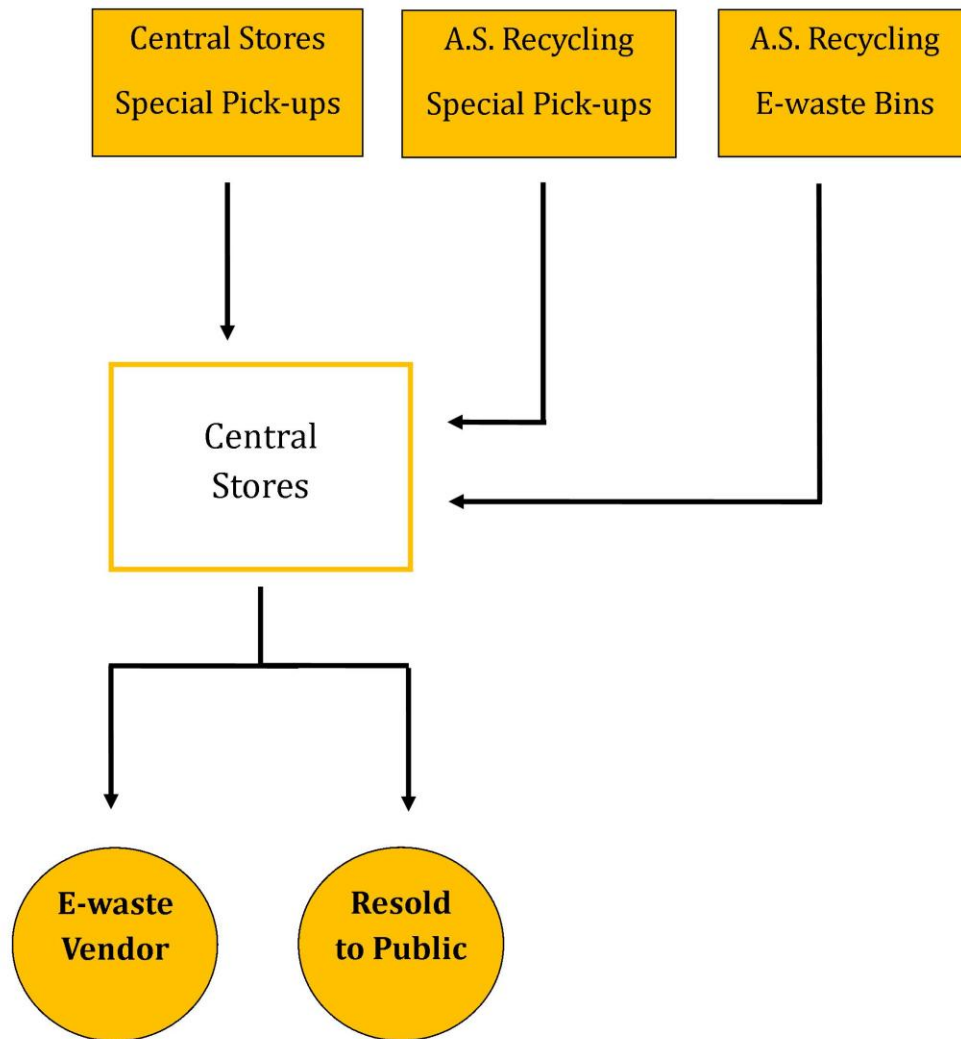
UCSB Greenwaste



*Small quantities of greenwaste are turned into mulch on-campus, while the majority is disposed of via the greenwaste dumpsters and taken to MarBorg's Downtown Sorting Facility.

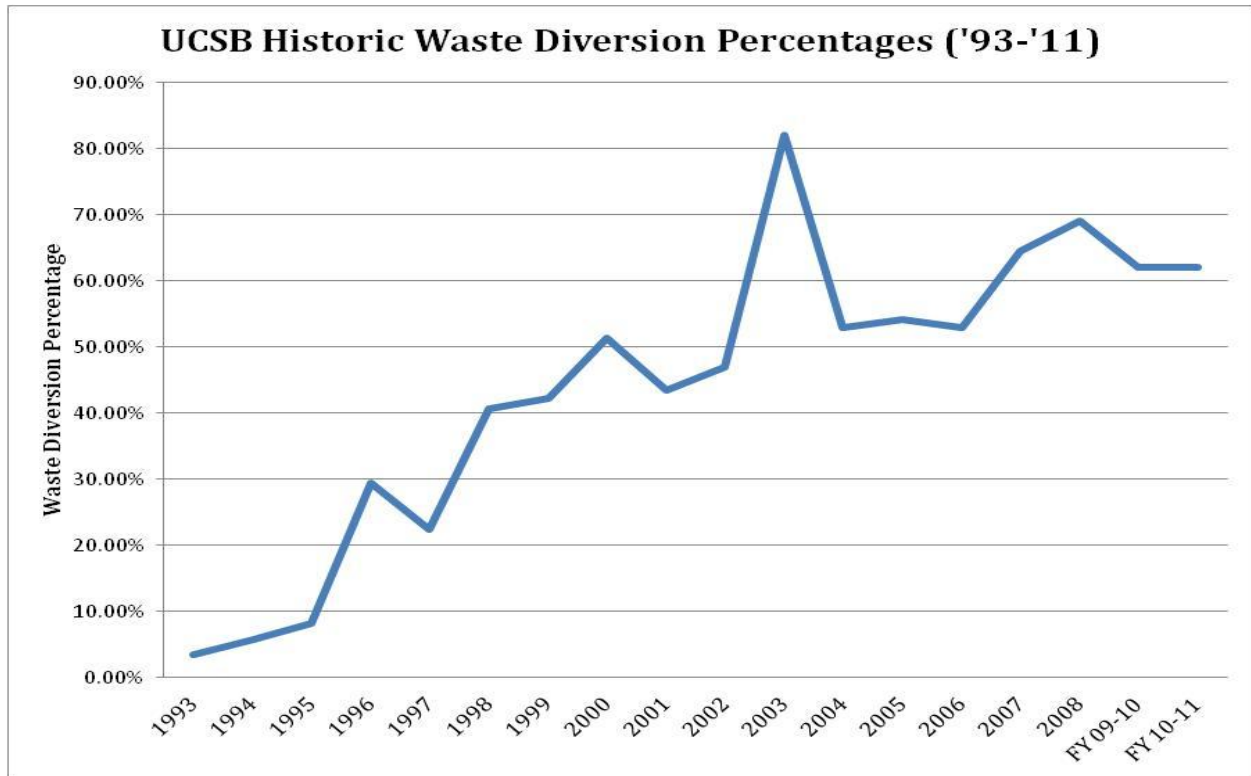


Electronic Waste



APPENDIX VI: UCSB's Historical Waste Data ('93-'11)

Year	Landfill (tons)	Recycled (tons)	Composted (tons)	Total Diverted (tons)	Total Waste Generated (tons)	Diversion Percentage
1993	3072.69	108.31	0.00	108.31	3181.00	3.40%
1994	3107.65	191.35	0.00	191.36	3299.00	5.80%
1995	3373.96	343.04	0.00	301.38	3717.00	8.20%
1996	3381.44	441.49	970.69	1412.18	4793.62	29.46%
1997	3737.32	476.10	599.54	1075.64	4812.96	22.35%
1998	3355.65	2230.64	71.30	2301.94	5657.59	40.69%
1999	3202.88	2237.09	96.22	2333.31	5536.19	42.15%
2000	3380.89	3548.61	26.82	3575.43	6956.32	51.40%
2001	3154.52	2410.21	23.23	2433.44	5587.96	43.55%
2002	2880.30	2546.34	3.68	2550.02	5430.32	46.96%
2003	801.20	3596.02	71.01	3667.03	4468.23	82.07%
2004	2182.54	2431.38	19.58	2450.96	4633.50	52.90%
2005	2731.22	2971.06	264.14	3235.20	5966.42	54.22%
2006	3429.47	3380.92	463.56	3844.48	7273.95	52.85%
2007	4088.66	7198.92	263.55	7462.47	11551.13	64.60%
2008	1853.63	3866.51	259.32	4125.83	5979.46	69.00%
FY 09-10	4680.72	5933.55	1735.92	7669.47	12350.19	62.10%
FY 10-11	2762.00	4850.48	1255.00	4850.48	7612.48	62.00%



* The 2003 diversion percentage is heavily influenced by construction and demolition projects that occurred during 2003.