UC San Diego

Solid Waste Diversion Plan



DO HO DUH Fallen Star, 2012 Stuart Collection UC San Diego

Updated July 2012

Prepared by: Facilities Management

UC San Diego Solid Waste Diversion Plan

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Overview

University of California campuses are required to update their Waste Diversion Plans (formerly called Integrated Waste Management Plans) by July 21, 2012 to evaluate their progress towards 2012 and 2020 targets, review waste reduction and regional recycling options, identify medical center specific challenges and explain how they plan to reach the 2020 zero-waste target.

This plan has been developed to help guide the UC San Diego in achieving this goal. The UC San Diego Medical Center will prepare a separate Waste Diversion Plan for its facilities.

Location and Areas Covered

This plan applies to these areas managed by UC San Diego Facilities Management (See a mpa on the following page):

- Main Campus
- Housing, Dining & Hospitality
- University Center (UCEN)
- Sports Facilities
- University Extension (UNEX)
- Camp Elliott
- Scripps Institute of Oceanography (SIO)
- Hillcrest Medical Center buildings:
 - o Surgical Lab
 - o Multi Purpose Bldg
 - o Gildred Teaching Facility
 - Clinical Teaching Facility
 - o Library
 - o Department of Psychiatry

Campus Recycling and Solid Waste Management Contact

The Facilities Management department is responsible for recycling and solid waste management on campus. Alonso Noble, Assistant Superintendent manages the program.

Name: Alonso Noble Title: Assistance Superintendant, Facilities Management Phone: 858-534-6618 Email: <u>annoble@ucsd.edu</u>

Campus Context

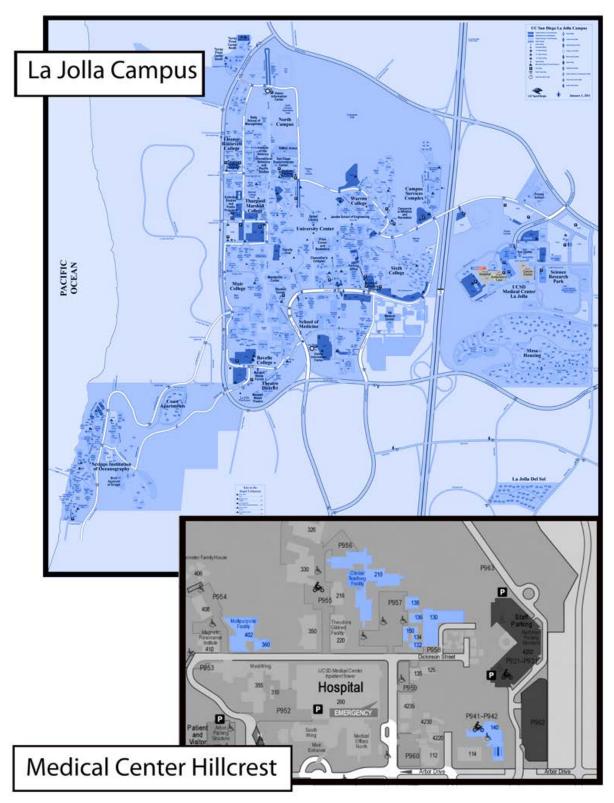
Waste Composition

Campus waste is composed of municipal solid waste, landscaping waste, recyclables, surplus equipment, laboratory waste, electronic waste and food waste.

Regional Waste Diversion Options

The San Diego region provides opportunities to divert landscape waste, commodity recyclables, electronic waste, food waste, metal, and construction and demolition waste.





Areas Covered by Waste Diversion Plan

Commodity Recycling

Three major commodity recycling facilities, or material recycling facilities, are capable of processing single-stream recyclables and several recyclers accept source separated materials. The three facilities listed below are viable options for UC San Diego's material stream. Currently, no "dirty" material recycling facilities in San Diego County separate recyclables from trash. Residue amounts at these local facilities are typically below 10%.

- 1. EDCO Lemon Grove, 6670 Federal Blvd., Lemon Grove, CA 91945
- 2. IMS Recycling, 2740 Boston Avenue, San Diego, CA 92113
- 3. Allan Company, 6733 Consolidated Way, San Diego, CA 92121

Landscaping Debris

Multiple outlets accept green waste; however, UC San Diego has minimized yard waste hauling by mulching material onsite and using it for landscaping purposes to beautify campus grounds, increase soil retention, prevent erosion and add nutrients to the soil. In 2011, onsite mulching

- Diverted an estimated 520 tons of green waste
- Eliminated 88 disposal hauls to recycling facilities
- Saved the university \$20,167 in hauling and disposal costs and \$39,000 in purchased mulch costs for a combined savings of \$59,167

Commercial facilities close to campus that accept landscaping debris for reuse and diversion from landfills include:

- 1. Miramar Greenery
- 2. Sycamore Landfill
- 3. Otay Landfill

Food Waste Composting

Miramar Greenery is currently the only facility permitted to compost food waste, which is operated by the City of San Diego. This facility accepts clean food scraps diverted from the campus waste stream. All Housing, Dining & Hospitality sites are composting pre-consumer food scraps and several locations have expanded the program to include post-consumer food scraps.

The facility restricts acceptable materials to food scraps and soiled paper towels from kitchen areas. Generally, the facility does not accept compostable service ware; however, the operator has been willing to work with the campus to pilot some products.

Construction and Demolition Recycling

All new campus construction must meet a minimum diversion level of 75%. The campus must divert these materials but transport them a short distance to avoid reducing the environmental impact of recycling them. The City of San Diego is the certifying entity throughout San Diego County; it assigns a certified diversion percentage to all regional mixed construction and demolition facilities on a quarterly basis. Diversion rates (as of July 2012) for the three facilities closest to campus are listed.

- 1. Otay Construction and Demolition (85%)
- 2. SANCO (73%)
- 3. Waste Management Construction and Demolition (51%)

Other Source-Separated Recycling Outlets

Several regional vendors provide source-separated recycling services for the campus and many others are available. These recycled materials include electronic waste, universal waste, metal (ferrous and non-ferrous), carpet, drywall, wood, concrete, asphalt, Styrofoam, etc.



Local Waste Management Plan Goals and Diversion Methods

The UC San Diego campus is located in the City of San Diego, which has two separate mandatory recycling ordinances, the Commercial Recycling Ordinance and the Construction and Demolition Debris Deposit Ordinance. Both ordinance have a 50% diversion goal and were designed to help the jurisdiction comply with the 50% diversion requirement established by California's Assembly Bill 939 implemented in 1989.

Much has changed since AB939 was passed. As a whole, the state has met this 50% diversion goal and few individual jurisdictions have failed to meet the minimum requirement. However, the disposal rate also increased significantly during this time. Before 2007, a jurisdiction's diversion percentage was used to determine compliance with the law. In 2007, increased disposal triggered a shift to the measurement of disposal on a per capita basis. This shift represented a significant moment in which source reduction became easily accounted for in a jurisdiction's efforts to reduce waste destined for landfill.

California passed Assembly Bill 341 in October of 2011, marking a new era in the recycling industry. This new legislation sets a statewide goal of 75% recycling by 2020. Unlike its predecessor, AB939, direct pressure is not placed on local jurisdictions, but the state has a benchmark to meet. As a result, jurisdictions, including the City of San Diego, are modifying existing ordinances to comply with the new law.

Source-separated and single-stream recycling are accepted methods to determine compliance with the Commercial Recycling Ordinance. Since there are no mixed waste processing facilities or "dirty" material recycling facilities in the region, their viability has not been challenged in terms of minimum compliance with the ordinance.

Existing Program Description

Before 2003, UC San Diego operated a source-separated recycling program. Due to an increased demand for space on campus and a push to divert as much volume as possible, Facilities Management transitioned to a single-stream program. Indoor and outdoor collection systems are designed to maximize the capture of single-stream recyclable commodities.



Recyclables are collected using blue desk-side recycling bins and blue toters inside campus buildings. Reusable collection bags in housing facilities are designed for residents to use to transport recyclables from dorm rooms to common area recycling collection containers. Residence halls are similar to other multifamily dwellings in that they are space constrained and have a high turnover, which make them a difficult area to effectively capture recyclables. The provision of these bags provides a solution to each of these problems as they are collapsible, washable and have a description or recyclable items.

Concrete waste and recycling receptacles are placed outside buildings and on walking paths to help maximize campus recycling. In 2012, Facilities Management purchased 25 BigBelly solar-powered trash and recycling compactors to aid in the efficient collection of waste and recycling.

Materials are gathered from individual collection points around campus and deposited in dumpsters and compactors or returned to a yard operated by Facilities Management housing roll-off containers for collected materials.

Trash dumpsters and recycling dumpsters are paired at each campus location. Compactors are ordered in pairs, one for trash and one for recycling. Roll-off containers are used in zero-waste residence hall move-ins and move-outs and for special projects. A standardized color scheme was agreed upon while drafting the campus's most recent waste hauling agreement. Campus trash dumpsters are black and recycling dumpsters are blue; all are consistently labeled in English and Spanish with full-color text and graphics describing the acceptable contents.



Waste Commodities Reduced, Reused, Recycled and Composted

UC San Diego collects materials for reuse, recycling and composting in a number of different ways based on material type, value and program cost.

Single-Stream Recycling

The following materials are accepted in our single-stream program. This information is available on the campus website and is updated as program changes occur.

- Aerosol cans containing no propellant or material
- Aluminum: Cans and clean foil
- Beverage and food containers: Clean glass, steel, and tin



- Mixed paper:
 - White writing paper and stationery
 - Tablet paper and tablet cardboard
 - White and colored copy paper
 - o Computer paper (green and blue bar)
 - Colored triplicate forms
 - o Sticky notes
 - o Paper wrappers
 - o Magazines
 - o Newspaper
 - o Blueprint paper
 - o All envelopes
 - o Junk mail
 - o Telephone books
 - Paperback books
 - o Manila folders
 - Boxboard (e.g., cracker or cereal boxes)
 - o Corrugated cardboard
- Plastic bottles or containers with a #1-7 recycling symbol on the bottom (rigid plastic only, not plastic film)
- Molded Styrofoam packaging

Food Waste Composting

UC San Diego practiced small-scale, onsite composting for a few years. In 2010, UC San Diego was accepted as a participant in Miramar Greenery's composting program. The program was designed to collect food scraps from generators throughout campus Housing, Dining & Hospitality facilities using 32-gallon toters and consolidating material in a centrally located self-contained compactor. Each participating facility receives the number of toters needed for each day; toters are exchanged on a daily basis and hauled to the compactor which is transported off campus on a weekly basis. Toters are washed and returned to participants and the compactor is cleaned each service day.

The following campus facilities are participating:

- 1. Café Ventanas
- 2. Eucalyptus Point
- 3. Goody's
- 4. Oceanview Terrace
- 5. The Pines/Sierra Summit
- 6. The Bistro/The Strand/The Market
- 7. Plaza Café
- 8. Club Med
- 9. Food Worx
- 10. Canyon Vista

Landscaping Debris

All landscaping waste is either mulched onsite or collected in two permanent roll-off containers for hauling to a green waste facility. Yard waste services are ordered instead of waste services for projects anticipated to generate greenery exceeding campus mulching needs. In addition to landscaping debris, pallets that are unsuitable for reuse and other untreated wood is recycled on campus.

Bedding Boxes

Two campus locations were identified where a significant amount of animal bedding is generated. A blower system and receiver boxes were implemented at the Leichtag and Pharmaceutical buildings for the collection and diversion of wood-based animal bedding. These materials can be diverted and effectively control odors traditionally associated with this waste stream.



Surplus Sales

Reusable furniture and equipment is diverted through our Surplus Sales facility. Materials unsuitable for sale are recycled or disposed of. The following items are warehoused and exchanged:

- Audio/Visual equipment
- Clinical and medical equipment
- Computer and data processing equipment
- Electronic testing equipment
- Food preparation equipment
- Furniture
- Office equipment
- Laboratory and research equipment
- Machine shop and fabrication equipment
- Motor vehicles
- Musical instruments

In addition to Surplus Sales, materials are reduced and reused in other ways. This year, Facilities Management replaced 1,700 battery-operated paper towel dispensers with manual ones. The old dispensers were returned to the manufacturer for reuse. Replacing dispensers will significantly reduce battery purchase costs and hazardous waste disposal for the university.

The campus is currently in the process of eliminating individual desktop printers. Centralizing printing allows for standardized printers that use larger cartridges, reducing cartridge and packaging waste.

Education and Outreach

Education and outreach surrounding our programs play a key role in increasing our campus diversion rate. A waste audit performed in 2011 determined that an additional 17% of our waste stream could be diverted through the standard single-stream program.

Approximately 45,000 people pass through our campus daily and many are only here briefly. We expect students, many of whom come from different states and countries, to participate in our recycling program. Increasing awareness is critical to ensuring participation and achieving our zero-waste goal.

Online Resources

Users can find detailed Information about recycling and waste management programs, what can and cannot be recycled, collection schedules and contact information. Web pages are updated when program changes occur.

Faculty and staff business website: <u>http://blink.ucsd.edu</u> Campus sustainability website: http://sustain.ucsd.edu

Sustainability Resource Center

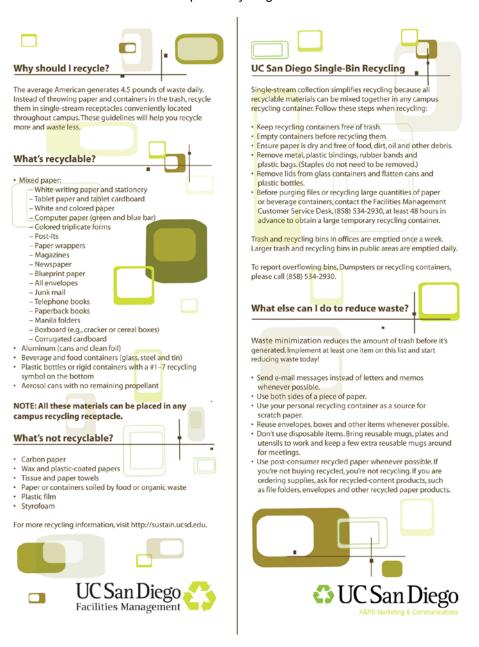
The UC San Diego Sustainability Resource Center serves as a hub for materials and initiatives related to local, national and global sustainability, including waste reduction and recycling on campus. The center is operated as a partnership between the Sustainability Program Office and the Student Sustainability Collective dedicated to balancing environmental, social and economic stewardship. The center is housed in a LEED Gold certified facility open to students, faculty, staff, alumni and visitors weekdays during academic quarters.



Print Media

With sustainability in mind, print materials are kept to a minimum. A double-sided, half-page recycling guide is available upon request and is distributed at major campus events – Open House, Earth Week, Triton Day, etc.

Customized signs were designed for posting loading docks near collection dumpsters to educate building occupants and maintenance staff.



Campus Recycling Guide



EcoNauts

Since 2009, Housing, Dining & Hospitality employs an environmental group of students known as the EcoNauts who educate residential staff and their peers about sustainable practices that will reduce the campus's carbon footprint. This group encourages participation in the campus recycling program and coordinates the zero-waste move-In and move-out efforts, explaining recycle procedures and encouraging reuse through donation wherever possible.



RecycleMania

Since 2005, UC San Diego has proudly participated in RecycleMania. This year the campus competed against 605 schools nationwide to emphasize waste reduction and recycling and ranked 29th in the Gorilla Prize category. Participation in this competition provides an opportunity to bolster recycling activity on campus by leveraging the competitive nature of campus life. Competition is promoted through signage in buildings and on campus shuttles and waste and recycling collection vehicles.

RecycleMania website: http://recyclemania.org

Earth Week Events

Each year, UC San Diego hosts a week of environmental and sustainability events to celebrate Earth Day. Featured waste reduction and recycling related activities include clothing and book exchanges, electronics recycling and trash sorts.

In 2011, Facilities Management partnered with Allied Waste, a contracted vendor, to erect Mt. Trashmore. One day's worth of trash collected from campus – roughly two trash truck loads – was deposited in the center of campus. The exhibit required the cooperation of numerous stakeholders. While the odor may have been offensive, the demonstration sent a powerful message that regardless of our diligent recycling efforts, we need to decrease campus waste.



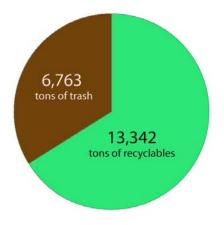
Annual Diversion Data

Each UC campus must meet these policy-defined targets:

- 1. 50% waste diversion prior to 2012
- 2. 75% waste diversion in 2012
- 3. Zero waste by 2020

UC San Diego prepares an annual report to track progress toward these goals. Challenges related to accurately tracking this information are timely data collection from waste hauling performed outside of the scope of the Facilities Management waste and recycling contract and the quantification of waste reduced and reused through outlets, such a Surplus Sales.

UC San Diego reported a 55% diversion to UCOP for the 2010-2011 reporting period. The campus generated 20,105.84 tons of waste during the 2011-2012 reporting period, resulting in 66% diversion (13,342 tons were recycled, reused or reduced; 6763.84 tons were sent to landfills).



Plan for Progress

Waste Reduction through Procurement

The first step toward meeting our goal requires reducing the amount of discarded material by controlling the items purchased. By auditing materials that leave campus – identifying those that should be diverted and those that can no longer be used – will help the campus efficiently evaluate future purchases and help achieve our zero-waste goal. The chart below shows some Procurement and Contracts initiatives related to sustainable purchasing. In addition, Housing, Dining & Hospitality is actively pursuing different programs to reduce, reuse, recycle and compost.

PROCUREMENT AND CONTRACTS	
Sustainable Economy	 RFP responses and agreements are being requested electronically. All RFP quality point calculations include questions about sustainability. 47,000 items are "green" flagged in our eCommerce site's searchable content. We have created our own UC San Diego green flag to promote items that have a multitude of sustainable features that aren't necessarily Energy Star or Recycled Content.
Energy and Water	 Only EPEAT rated computers appear on our Dell home page – all negotiated bundles must be rated. Tier 3 Energy Star washers.
Recycled Content	All RFP's request statements on environmentally friendly attributes are outlined in the 2007 UC Guidelines.
Green Seal	All custodial cleaning products are Green Seal Certified.
Reduction of Hazardous Electronic Waste	Recycle batteries and electronic waste at student move out.
Environmental Friendly Packaging	 Our shredder (Total Secure) recycles the paper they shred. Many of our buyers use electronic signatures to avoid printing contracts and agreements.
Recycled and Mfg. take backs	Mattress Mfg, takes back mattresses and recycles them.
Supply Chain Environmental Responsibility	 Transitioned one supplier to be available only through Core which significantly reduced the number of shipping boxes and fuel use from multiple shipments. Worked with Mail Services to add the delivery of lab coats to employees to their regular routes, eliminating multiple shipments across campus and reducing packaging required.

In the Dining Services group, the following programs are in place and are actively pursued towards reaching a zero waste goal.

- 100% waste diversion program to obtain full recycling and composting of all disposables; simplified and promoted through education of students and staff.
- Elimination of plastic water bottles\sources for reusables
- Pick-up and\or recycling of all shrink wrap, cardboard, pallets, and packaging
- Separate contract with Bio Diesel company\small business for the pick-up and recycling of Kitchen cooking oils and as a supplier for UCSD Fleet Services.
- Donation of leftover food to Father Joe's Mission
- Composting of food waste and post consumable products
- Extension of contracts for disposables to other campus departments and out sourced vendors to achieve higher diversion rates
- Evaluation of all Suppliers (for all RFPs) for sustainability\waste reduction in policy and operations
- Window shades are made from clothing filter sunlight to lower solar heat gain.
- Carpet cleaning machines have low-moisture extractors that speed drying times and use less chemicals.
- UNFI products are delivered in recyclable crates.



Formation of a Zero-Waste Committee

Forming a zero-waste committee would help move the campus toward achieving its zero-waste goal. Several stakeholders that have influence in their area of expertise are identified in this section. Uniting these representatives will foster a community dedicated to meeting this system-wide goal. Currently, efforts are disjointed across the campuses. Joining forces of the talented individuals dedicated to the diversion of waste on campus will produce better results.

Waste Audits

Waste audits have been performed for specific purposes, such as LEED certification and upon generators' requests. The results provide a useful tool to drive waste diversion. Waste audits should be conducted to address specific waste streams and identify problematic materials. Waste audits on targeted generator types will be conducted annually to monitor progress toward the zero-waste goal and identify issues challenges. Additionally, an annual allocation study will be conducted to monitor contamination levels in the single-stream recycling program and provide a breakdown of recyclables by commodity type.



Working with Custodial Staff and Key Area Contacts

Drafting plan to pursue zero-waste is useless unless it is clearly communicated and understood by those who must take action and provide feedback. These individuals will ensure that discards end up n the right place. More importantly, these individuals are uniquely aware of the waste composition in their areas on a daily basis. While waste audits will be performed periodically, developing and implementing a communication and incentive plan will help ensure continuous input from these individuals to meet waste diversion goals.

In an effort to cut maintenance costs and reduce waste, Facilities Management Building Services (custodial) replaced restroom hand towel dispensers throughout campus. After several months of conducting research and onsite trials, Building Services selected manual SofPull hand towel dispensers to replace battery-operated EnMotion dispensers. Benefits of the new dispensers include:

- Sanitary touch-less operation similar to the old dispensers, SofPull dispensers only require that you touch the paper you use
- No battery use or disposal saving approximately \$3, 200 in battery costs and \$30,000 in labor costs annually
- Reduced paper use switching from a 10" to 8" width will save approximately 2,739,200 linear feet annually and reduces the amount of paper sent to landfills

Overall, replacing paper towel dispensers will save Facilities Management an estimated \$110,000 annually. Georgia-Pacific, manufacturer of the dispensers and paper, will refurbish, reuse or recycle the EnMotion dispensers removed from campus restrooms. Many will be donated to nonprofit organizations.

Information Sharing

Recycling efforts are fueled by knowledge and UC San Diego is committed to collecting data from other programs and sharing the successes and challenges of our own programs. UC San Diego will participate in the following organizations and conduct research to identify additional resources:

- CHESC California Higher Education Sustainability Conference
- CRRA California Resource Recovery Association
- CCRC California College Recycling Council
- AASHE Association for the Advancement of Sustainability in Higher Education
- CURC Colleges and Universities Recycling Coalition



Educating Faculty and Staff

UC San Diego's culture of waste diversion and recycling must be communicated to each new employee so that faculty and staff are aware of the program and system-wide goals. Incorporating current program information and university goals into the new hire orientation process will help to encourage program participation among employees.

Additional Composting

The addition of composting at all Housing, Dining & Hospitality dining facilities has significantly benefited UC San Diego's diversion efforts. Expanding the program to include other generators, such as the Faculty Club and vendors in the Price Center, will increase program success. Expanding the composting program to Include post-consumer food scraps will also increase diversion. This would require a comprehensive education program to avoid contamination.

Composting in the region is currently restricted to food scraps accepted by only one facility. UC San Diego will continue to explore onsite composting opportunities wherever feasible, seek additional composting outlets and support the enhancement of local infrastructure.

Buy Back Center

Student demand exists for a California Redemption Value (CRV) Buy Back Center on campus. In 2011, a new waste hauling and recycling contract began and one proposed enhancement was the inclusion of such a center. Several options were presented and are being considered by the university. Challenges that remain include identifying site for the center and structuring the program to deter scavenging on campus. While addition of the center may remove materials currently being deposited in the single-stream recycling program, it offers an economic incentive to recycle and may capture additional materials that are currently being inappropriately discarded or carried off campus for redemption.

Waste Diversion and Recycling Manager

The 2008 Climate Action Plan written by the University to address AB32 identified the need for a Waste Diversion and Recycling Manager. This position was occupied briefly but was subsequently vacated and remains unfilled. This vacancy ultimately leaves one individual responsible for the recycling efforts on campus in addition to other areas responsibility. Identifying and maintaining a full-time individual to implement this plan and align campus stakeholders and resources to form a cohesive unit will greatly benefit the program. The position would be utilized to:

- Provide additional staff and student education opportunities
- Coordinate volunteer and intern activities
- Consolidate generation numbers and verify accuracy and completeness
- Prepare the annual report
- Update and enhance the Waste Diversion and Recycling Plan
- Monitor adherence to the existing waste and recycling contract
- Champion the Zero Waste Committee
- Effectively communicate the zero-waste goal to the campus community
- Research additional diversion options
- Identify targeted materials for diversion and develop a plan to remove them from the waste stream
- Maintain a knowledge of current and pending legislation and the impacts of such on the

Challenges

Every year at reporting time, the quasi waste management staff embarks on the challenging and difficult task of getting the participation of various campus constituents to gather, analyze, organize and report data. The resulting rush to prepare a report produces a document that may not be as complete as one where all major players can dedicate time and resources to the project. Hiring a full-time recycling coordinator will be a big step towards addressing this particular challenge. The lack of consistency in methodology has shown over the years that it adversely affects the quality of the report from year to year.

A full-time waste reduction coordinator will focus not only on how to collect and divert from the landfill all recyclable materials recovered from the waste stream, but more importantly on how to reduce waste. Reducing campus waste should be the number one focus of the program, followed by finding ways to reuse discards, then recycle and compost the rest. For UC San Diego to maintain its leadership position in sustainability, it is important that it allocates funds for this component of sustainable and green practices.

UC San Diego does not have a recycling coordinator who manages the operational and programmatic components of waste management. Education and outreach are sorely missing in the picture, resulting in a campus community that has a very sketchy idea of what is and what is not recyclable. Staff, students and faculty need to be reached, engaged and involved in a program that has clear direction, goals and mechanism for success. The duties of this position have been added to the responsibilities of existing staff that is assigned other full time assignments.

In spite of strong interest by students to have an on-site composting area, UC San Diego has not seriously considered dedicating a site for this program. Although a small scale on-site composting program does not divert a lot of material and contribute significantly to achieving the goal of zero waste, it is very important that the energy and passion of the students are harnessed and supported.

Conclusion

If you aren't for zero waste, how much waste are you for?

This statement resounds through the zero-waste community. UC San Diego has embraced the zerowaste mentality and is prepared to achieve the goal of zero waste. Although the path to achievement is filled with challenges, the goal is attainable.

Preparation of this plan demonstrates dedication to achieving this goal and provides a path to get there. The reward will be the confidence that UC San Diego has not negatively impacted our environment through waste generation and disposal and reversed a trend detrimental to the world around us.