



University of California, Irvine SOLID WASTE DIVERSION PLAN (SWDP) 2019

Anne Krieghoff
Facilities Management- Sustainability & Recycle Program Manager
University of California, Irvine
Irvine, CA 92697



EXECUTIVE SUMMARY

Abstract

This report summarizes UCI approach to waste diversion and waste minimization. UCI is currently at a diversion rate of 80% as we are working towards the UCOP goal of 90% diversion rate. In 2018, UCI reached a 16% Total Waste Reduction per weighted campus user (WCU). This meets the UCOP goal to reduce per capita total waste by 15% from FY2015/16 levels by 2020.

Our approach has been multi-layered as we work with the many different campus units and businesses. Not all processes work with every building on campus, but we have been able to implement standardized bin types, colors, and signs that are useful in all areas. Although organics are produced throughout campus, we focus our resources on the largest producers which are dining areas, animal bedding and grounds keeping. This focus on organics has greatly reduced the amount of material sent to landfill in the last 8 years.

UCI has come a long way in the last 15 years improving solid waste processes but the place that will have long term benefits will be in education, helping people understand how their choices in solid waste affect the environment.



TABLE OF CONTENTS

Table of Contents

<i>EXECUTIVE SUMMARY</i>	1
<i>TABLE OF CONTENTS</i>	2
<i>SITE OVERVIEW: WASTE REPORTING BOUNDARIES AND FACILITIES INCLUSIONS</i>	3
<i>Weighted Campus User (WCU)</i>	4
<i>Context</i>	4
<i>Zero Waste Goal</i>	5
<i>Commodities List</i>	5
<i>CURRENT SITUATION</i>	6
History of Waste Diversion at UCI	6
LOGISTICS: HAULING AND DISPOSAL	6
Material Recovery Facilities used by UCI – Self Hauling	6
Sign Standardization	7
Green Waste	9
Food Waste	9
Diversion Cost VS Landfill	11
<i>WASTE DIVERSION AND REDUCTION AT UCI</i>	12
Collection Locations	12
<i>WASTE USE OVERVIEW</i>	14
Housing	14
Dining	15
Laboratories	17
Athletics	17
<i>Campus Education and Outreach</i>	17
New Educational Signs on the BigBellys	18
Earth Week	18
Multimedia	19
Student Sustainability Hand Guide	20
RecycleMania – Go UCI!	20
Zero Waste Training for Campus Event Planners	21
Sustainability Fundamentals Training for Campus Staff	21
Facilities Management Staff Training	22
<i>Waste Audits</i>	22
<i>Progress to Date</i>	23
Waste Reduction	23
Why 2018 diversion rate has decreased	24
<i>Future Projects and Funding</i>	25
<i>Best Practice Benchmarks</i>	26
Zero Waste Locations	26
<i>Summary of Waste Activities</i>	26

SITE OVERVIEW: WASTE REPORTING BOUNDARIES AND FACILITIES INCLUSIONS

Waste Reporting Boundaries Definition- Campus Solid Waste Boundaries Map



The SWDP applies to all waste generated within the UCI Campus. The Waste Reporting Boundaries include Main Campus, Health Sciences, Sports Complex, Student and Event Center, Student Housing, Recreation Center, Central Plant, and EH&S. In addition, North Campus is included which is Parking, Fleet Services, Facilities Management, and the Arboretum.

- **Site size- 1,500 acres**
- **Population- 35,958 students; 11,093 staff/faculty**
- **Number of labs- 300**
- **Number of offices- 6,000**
- **Number of classrooms- 200**
- **50% of student population lives on campus**
- **200 buildings**
- **5 campus housing communities**

Exclusions to the boundaries are the UCI Medical Center, which is located in the City of Orange. Additional exclusions are Faculty Housing and off campus rented Office space.

Weighted Campus User (WCU)

Definition:

To determine WCU, UCI uses the Association for the Advancement of Sustainability in Higher Education's (AASHE) method (1 x number of on-campus residents) + (0.75 x number on non-residential or commuter full-time students, faculty, and staff members) + (0.5 x number of non-residential or commuter part-time students, faculty, and staff members). When using Weighted Campus User, state whether fall-quarter/semester headcount, three quarter/two semester average headcount, or another measure was used in the Weighted Campus User calculation.

- Inclusions are Student, Staff, Faculty
- Exclusions are Faculty Housing, UCI Med Center
- 2015-2016 baseline WCU: 30,735
- 2017-2018 current WCU: 34,271
- Estimated 2018-2019: 36,000

Context

California Legislation and Regulations regarding Solid Waste

- AB 1826: Organic Waste
 - On and after January 1, 2019, a business that generates four cubic yards or more of commercial solid waste, as defined in Section 42649.1, per week, shall arrange for recycling services specifically for organic waste in the manner specified in subdivision.
- AB 341 (Chesbro, Chapter 476, Statutes of 2011) sets forth the requirements of the statewide mandatory commercial recycling program. To reduce GHG emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California. California's goal is to recycle 75 percent of its' solid waste by 2020.
- SB 1383- Short-lived climate pollutants: methane emissions: organic waste: landfills. Organic waste in landfills emits methane as it decomposes, prompting California to encourage the elimination of green waste from garbage dumps. The bill would dictate a 75 percent cut in organic waste by 2025.

Zero Waste Goal

UC Policy on Sustainable Practices



Zero Waste Goals

- Zero Waste = 90% diversion rate by 2020 not including C&D
- Reduce per capital total Waste by 15% by from FY2015/16 levels by 2020
- Reduce per capita total Waste by 25% from FY2015/16 levels by 2025
- By 2020, prohibit the sale, procurement, or distribution of EPS/Styrofoam

UC Irvine strives to achieve the Zero Waste goal from the University of California Office of the President (UCOP) by 2020. We plan to reach this goal by continuing to reduce, reuse, recycle, and compost our campus waste. The objective of Zero Waste is to decrease the amount of material going to landfill and increasing the amount of material that is composted or recycled which helps us maintain a cleaner environment.

Zero Waste, as defined by UCOP, is diverting 90% or more of campus municipal solid waste from landfills—making the amount of waste produced from the university as close to zero as possible. The UCI campus recycles and composts 25 different commodities. UCI has met the UCOP 2020 goal for waste minimization.

Commodities List

At UCI, the successful operation of the Solid Waste Diversion Plan and responsibility for the achievement of program goals rest with the Facilities Management Sustainability Manager, Anne Krieghoff. Specific sub-areas of assignment are allocated as follows.

Waste Category	Name	Title	Contact
Overall Waste Coordinator	Anne Krieghoff	Facilities Management Sustainability Manager	akriegho@uci.edu (949) 824-9097
Ongoing Consumables	Anne Krieghoff	Facilities Management Sustainability Manager	akriegho@uci.edu (949) 824-9097
Durable Goods- Furniture and Appliances	Helen Chang Wessel	Equipment Manager	helen.wessel@uci.edu (949)824-6111
Durable Goods- E-waste	Helen Chang Wessel	Equipment Manager	helen.wessel@uci.edu (949)824-6111
Other Waste	Anne Krieghoff	Facilities Management Sustainability Manager	akriegho@uci.edu (949) 824-9097
Universal, Bio, Chemical Waste	Kirk Matin	Environmental/Hazardous Waste Manager	kmatin@uci.edu (949) 824-4578

CURRENT SITUATION

HISTORY OF WASTE DIVERSION AT UCI



UCI's recycling program has been in effect since 2005. It started at a grass roots level with students collecting CRV and eventually evolved into a waste reduction program managed by Facilities Management. UCI creates an average 10,000 tons of solid waste annually. In 2018, the campus diverted 8,001 tons of material that were either recycled, composted, reused, or donated. UCI's self-hauling program uses 2 front loaders and 1 roll off allowing the flexibility to choose between local transfer stations as well as vendors for commodity sales.

Every year, UCI has been successful in reducing the amount of material sent to landfill, proving that the campus excels in both recycling and waste reduction. 1,997 tons of material has been sent to landfills 2018, which demonstrates a consistent reduction in landfill disposal over the past seven years.

LOGISTICS: HAULING AND DISPOSAL

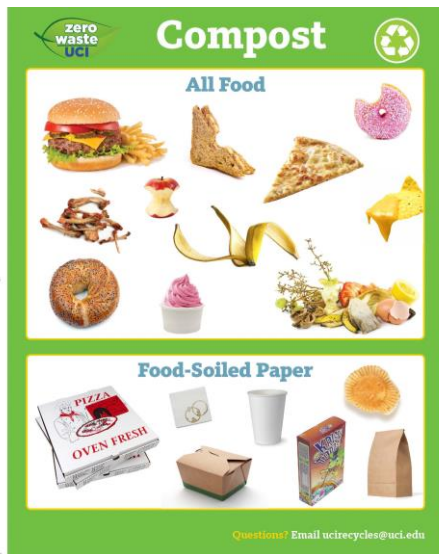
UCI maintains a variety of waste diversion programs to accommodate almost all types of waste exiting the UCI campus. Our programs have the capacity to recycle the following materials: mixed paper, plastics, cardboard, wood, glass, metals, concrete, asphalt, carpet, batteries, e-waste, toner cartridges, lamps, construction waste, and cooking oil. In addition, green waste are collected and composted off-site. Food waste is anaerobically digested off site.

MATERIAL RECOVERY FACILITIES USED BY UCI – SELF HAULING

Category	Company	Data	Address	Contact
Commingled Recycle, Green Waste, Construction Debris	Waste Management MRF	Certified Weight Ticker for each load	16122 Construction Cir E, Irvine, CA 92606	(949) 345-1546
MSW	Republic Services MRF	Certified Weight Ticker for each load	17121 Nichols Lane, Huntington Beach, CA 92647	(800) 299-4898
Styrofoam Recycling	Dart Container Corporation	Certified Weight Ticker for each load	150 N Maple St, Corona, CA 92880	(951) 735-8115
Metal Recycling	SA Recycling	Scale photo	3200 E Frontera St, Anaheim, CA 92806	(714) 630-8901
Food Waste	Waste Management	Certified Weight Ticker for each load	1931 N Batavia St. Orange, CA 92865	(714) 282-0200
Animal Bedding	Viramontes Express	Certified Weight Ticker for each load	17130 Hellman Ave. Corona, CA 92880	(909) 597-7232

SIGN STANDARDIZATION

Our current campus standard signage has evolved over the last 10 years to create a better understanding of how to recycle on campus. These current signs use more images than words and use color standardization in both the signage and on the bins to create instant recognition.



Compost Sign



Landfill Sign



Recycling Sign



Lab Recycling Sign



Printer Cartridge/Battery Recycling Sign



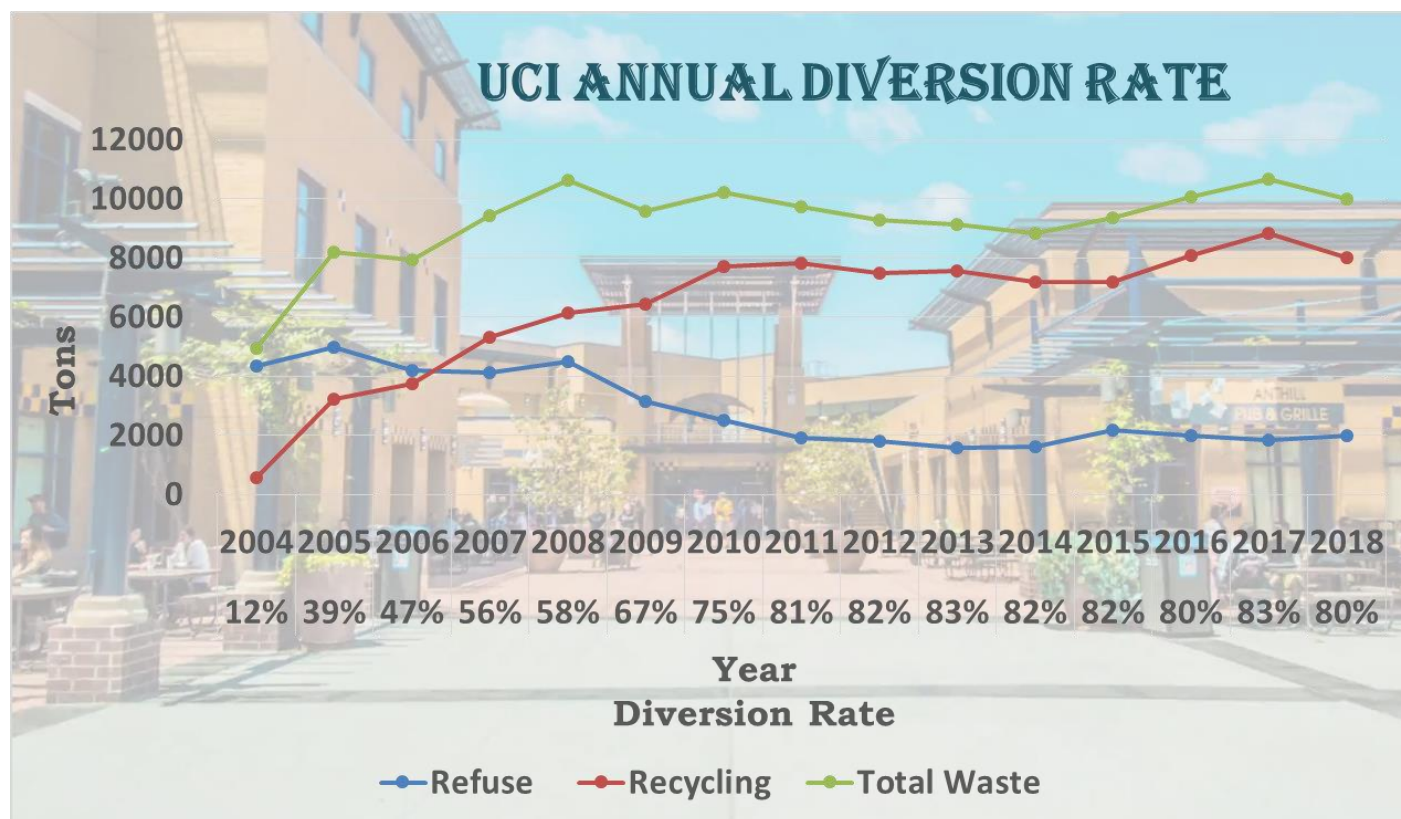
Styrofoam Recycling Sign



4 Yard Exterior Loading Dock Bins Sign

1. DIVERSION RATE ACHIEVEMENTS

UCI has an 80% diversion rate, meaning that 20% of its solid waste is going to landfill, while the remaining 80% of waste is recycled, reused or composted. The areas to target in order to maximize recycling potential in 2019 are offices, labs, lecture halls, student housing communities, and campus events.



2. COMMINGLED RECYCLING PROGRAM

UCI’s commingled recycling program which collects glass, paper, plastics, and cardboard in one stream began in 2010. This program continues to be a great success! Our most recent expansion converted the mixed paper recycling bins in offices and copy rooms to be commingled recycling bins.

We converted approximately 10,000 recycling bins in offices and copy rooms from “mixed paper only” bins to commingled recycling bins (if the material is CLEAN and DRY). The program most recently was expanded to 200 general assignment classrooms.

Prior to 2017, campus cardboard was source separated as its own waste stream. The conversion to collecting it with all the commingled recycling has resulted in reduced recycle sales revenues for this commodity but has also eliminated the need for a separate truck and staff to pick it up. The reduction of labor costs has resulted in a financial savings far greater than the revenue lost.

UCI Commingled Recycling Program 2009-2018



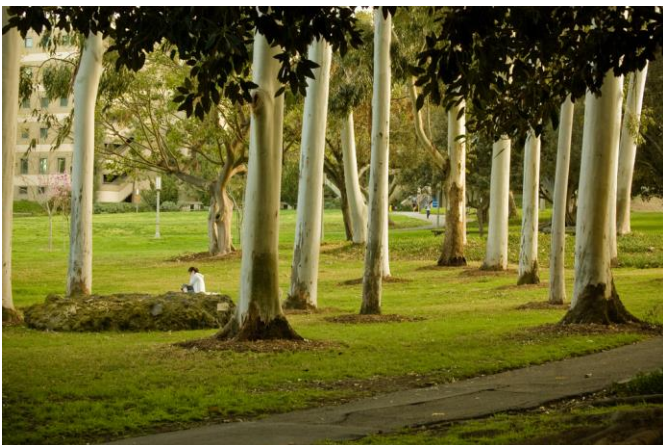
Until 2018, every ton of material diverted saved \$54 in landfill costs and the resale of this commodity was \$40/ton.

This fee structure has all changed since the China's National Sword Policy reducing the plastics purchased from the U.S. The cost to recycle commingled material is now only

slightly less than landfilling it. This 1,285 tons of material could potentially cost \$69,420 annually.

3. ORGANICS

GREEN WASTE



UCI's 19 acre Aldrich Park and surrounding landscape generate 3,000 tons of Green Waste. Approximately 1/3 of the Green Waste is kept on campus through self-mulching mowers and chipping material for ground cover, weed abatement, and trail management. The remaining Green Waste is hauled to the Great Park in Irvine where it is ground up and wind row composted. None of this material is landfilled or used for alternative daily cover.

FOOD WASTE

In 2010, UCI Facilities Management and Dining began the Food Scrap Program at Mesa Commons. Since then, the program has grown to include all 26 campus dining locations and student housing. The EPA estimates that only 5% of the nation's food waste is diverted from landfills; UCI greatly exceeds the national average, diverting upwards of 860 tons of food waste annually. The food scraps are then anaerobically digested, which generates power for a Southern California water treatment plant.



UCI RECYCLE BIN IMPROVEMENT PROJECT

CLASSROOM BINS



The Facilities Management Sustainability Team recently won a \$37,000 grant from The Green Initiative Fund (TGIF) to fund the UCI Classroom Recycle Bin Improvement Project.

The grant allowed for the purchase of more than 160 connected landfill and recycling bins that were distributed in general assignment classrooms. The bins are color-coded, connected, and have campus standardized signage to make recycling easier. The Recycle Bin Improvement Project will help UCI get closer to the goal of Zero Waste by 2020 by increasing diversion in classrooms.

An additional grant was won through Keep America Beautiful for \$15,000 that allowed the expansion of these bins to be used for indoor public areas including libraries, lobbies, conference rooms, etc.

BIG BELLY BINS



Big Belly bins are a set of landfill and recycling bins that compact material using energy from built-in solar panels. A Wi-Fi enabled sensor keeps measurement of the percent capacity in each bin. These new and innovative compactors hold up to five times more material than a standard street bin. Once the bins are nearly full, a notification is sent out to have the trash or recycling picked up.

Our current deployment of 17 bin sets covers 25% of our pedestrian pathways on campus. These bins have been deployed in high traffic areas on campus. These bins have become the campus standard for new campus buildings.

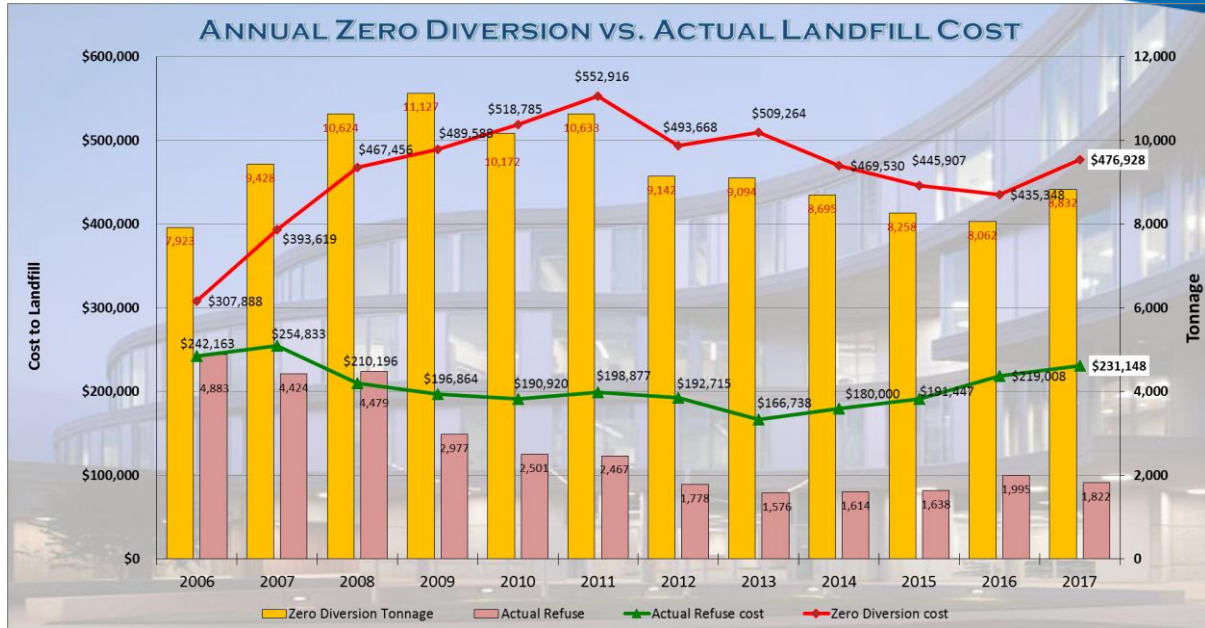
Big Belly bins have increased the amount of recyclable materials collected from 20% to 50%. These new innovative resources are helping us keep our campus clean while also reducing our carbon footprint!

PEDESTRIAN PATHWAY BINS

The remaining concrete bins around Ring Road have been revamped with new labels that use more images to help simplify recycling. With universal signage, students, staff and campus visitors are more likely to make better waste disposal decisions by quickly identifying the items that belong in each bin. This project is part of the campus program to improve recycling education through consistent signage.



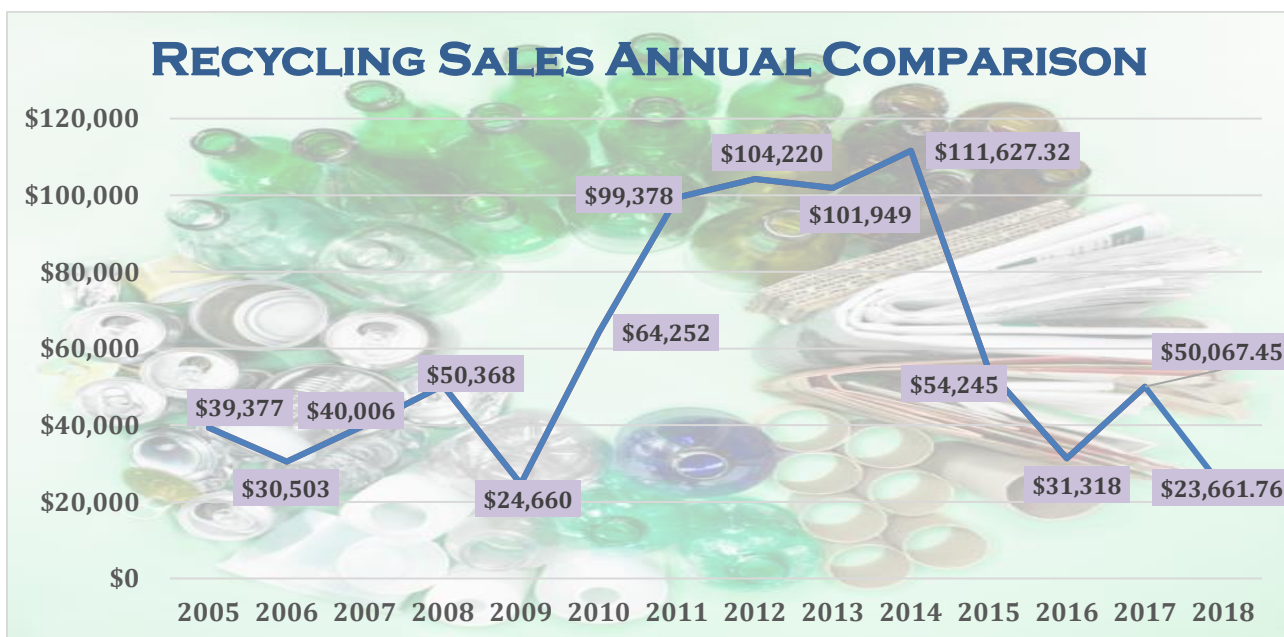
DIVERSION COST VS LANDFILL



Landfill costs are rapidly increasing – in 2006, the cost to dispose of waste was just \$38.86 per ton. Fast forward to 2018 where the cost increased to \$56 a ton; this is a 34 percent increase in just 12 years. If UCI disposed of all municipal solid waste in landfill, the cost would be \$476,928, but through a robust recycling program, the campus paid just \$231,148. Due to China’s National Sword Policy, UCI’s cost to recycle material will increase by approximately \$60,000 annually.

The sale of recycled commodities fluctuates based on world demand. UCI negotiates bi-annually with several companies in order to receive the highest value for each commodity sold. In 2017 the price of recycled commodities dropped tremendously and the trend has continued downward in 2018.

Different types of recycled commodities have different sale values. In 2018 UCI anticipates generating a revenue of \$23,661 mostly through the sale of Metal \$20,224.



COLLECTION LOCATIONS

Battery and Printer Cartridge Recycling

Facilities provide 89 green bins labeled “Batteries & Inkjet Cartridges,” located in the lobbies and copy centers of campus buildings. The bins are collected weekly by the UCI Recycling team.

Commingled Recycling

Over 12,000 commingled recycle bins have been provided for the collection of commingled material inside student housing, campus restaurants, commons, and laboratory buildings. Commingled material is also collected in the 160 general assignment classrooms and 6,000 offices. Commingled materials include: all plastics, glass, metal, paper, and cardboard. The commingled recyclable material is collected on the inside of the buildings and transferred to the 4 yard commingled recycling bins at the exterior of the buildings by residents at student housing and custodial staff on Main Campus.

Construction Waste

FM Trades and Renovations waste is transferred from the job site to an appropriate 40 yard container at either Building and Grounds Recycle Yard or North Campus Recycle Yard. There are bins at both locations for sorting of metal, furniture, wood, concrete, and asphalt separately.



CRV Recycling Collection

The 140 CRV bins have been eliminated and the material (plastic bottles, aluminum cans, and glass bottles) is now deposited throughout campus in the commingled recycling bins.

Food Waste Composting Bins

Food waste from campus restaurants and residential commons is collected in food bins to be placed in exterior custom made bins for collection. The material is hauled by the UCI Recycling team to an off-site location to be anaerobically digested.

Green Waste

Grass leaves and branches are transferred daily by the grounds crew to the Buildings and Grounds Yard. This material is collected in 40 yard containers and is taken off-site to a composting facility by the UCI Recycling team.

Hazardous Waste

Environmental Health & Safety handles all hazardous waste i.e., chemical, biomedical, radioactive, mercury containing lights, and controlled substances. A pick up request must be made online at EH&S website for disposal. The items must be labeled with the required information. Controlled substances are handled by EH&S controlled substance coordinator.

Reusable Items

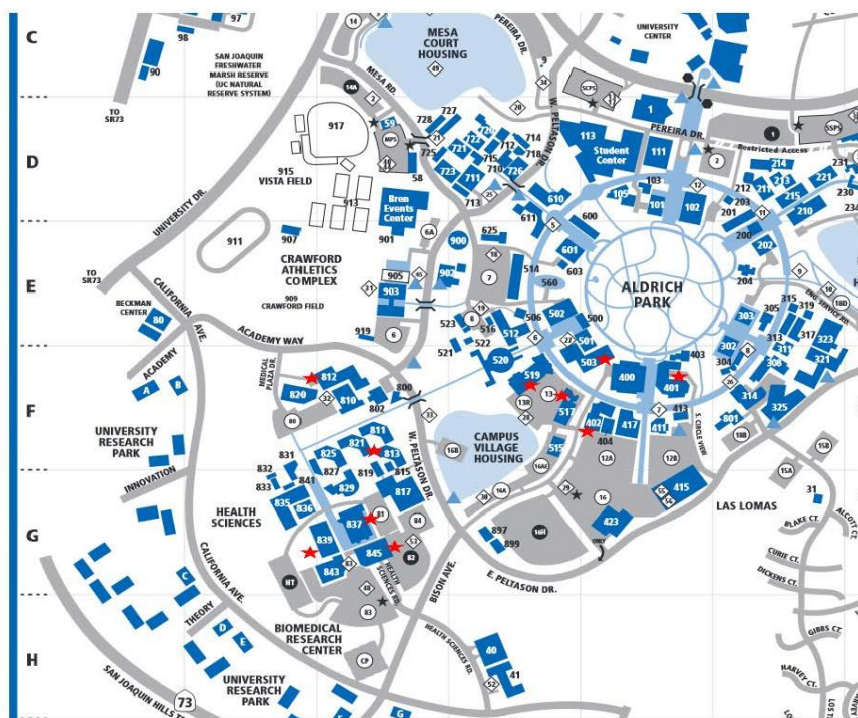
Reusable items such as furniture, clothing, household items, and food are donated or sold to be reused. Campus owned surplus items can be sold on surplus website through Peter’s Exchange. Peter’s Exchange sells an average about 80 tons each year. For student owned material, collection bins are located in housing areas year round. Campus Move-Out event is held in June to ensure material is collected and donated instead of trashed. Goodwill bins are available in all student housing communities for the collection of reusable items. Between all the housing communities, 4-5 tons are collected each month.

Styrofoam Recycling



UCI’s Styrofoam Program collects EPS from laboratory and health science buildings in 10 locations on campus. These large pieces of Styrofoam are primarily from the shipping of cold stored material to the labs. Our program does not accept peanuts, cups, plates, or any small Styrofoam pieces. The average collection is 1.5 tons each month. The material is taken to a facility in Corona (40 miles away) where it is densified into large 1 ton cubes. This puts the material into a recyclable/sellable state, ready to produce other Styrofoam products.

Styrofoam Bin Locations:



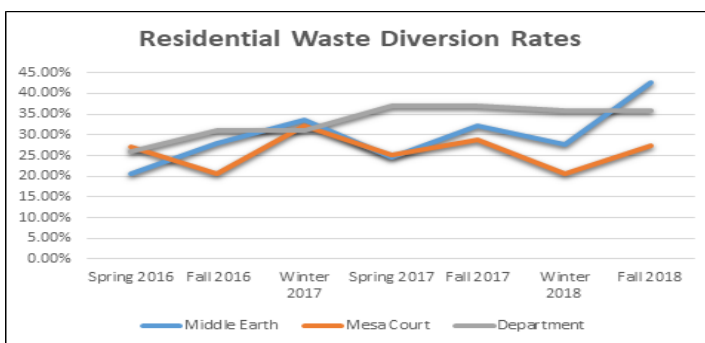
Key:

1. Reines — 401
2. McGaugh — 503
3. NatSci I — 517
4. NatSci II — 402
5. Gillespie — 837
6. Gross — 845
7. Hewitt/Sprague — 839-843
8. Medsci — 813-821
9. Med Surge — 812
10. Bio Sci III — 519

WASTE USE OVERVIEW HOUSING

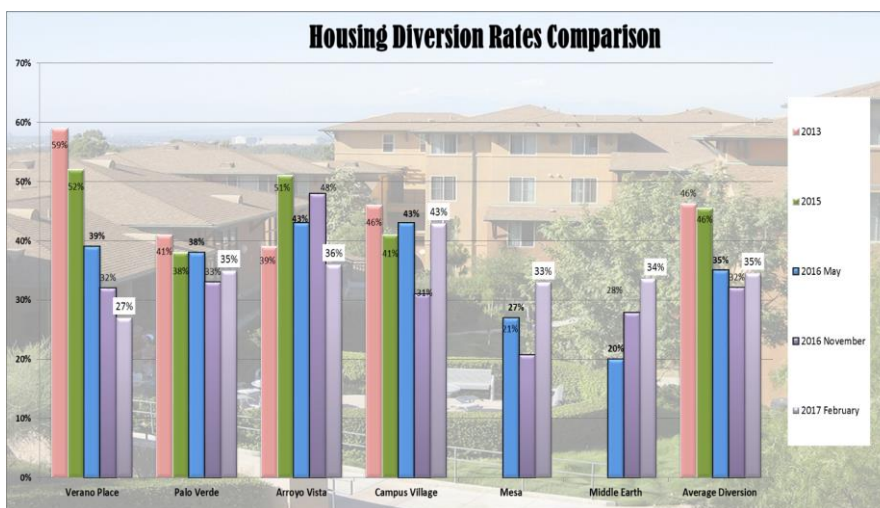
National Average Diversion Rate for Multi-Family Housing is 30% . UCI Housing averages 35% Diversion. Student Housing supports the UCOP goal of Zero Waste by 2020 through a series of zero waste trainings given to student EarthReps Ambassadors during the academic year. Prior to Move-In, the incoming class of EarthReps were given a training on UCI’s Zero Waste by 2020 goals as well as how to properly sort waste. On Move-In weekend 2018, EarthReps volunteers helped save and divert over two tons of cardboard from landfill. Recycling bins were notably fuller than any of the available landfill bins in both Mesa Court and Middle Earth. During week five of the Fall quarter we had another zero waste training for new EarthReps in preparation for waste audits in the housing communities. Additionally, interns assist with a sustainability and zero waste training for all housing student staff and professional staff each fall.

Waste audits at the individual housing communities serve two purposes: one to measure diversion rate improvement as well as serve as an educational event where students can learn more about recycling and composting. Diversion rates in dorms have increased from 25% to 35% in the past 2 years.



All 5 student housing communities have compost bins. 2018 highlights include compost education in our graduate and family housing apartment complexes. For example, this Fall Verano Place featured compost education at its annual welcome day and gave out over 125 countertop bins to residents.

Dorm-style student housing has a 35% Diversion Rate



To reduce waste and promote reuse, student housing has implemented two new features: Reusable Party Kits and Clear Stream Bins are available for check-out at the Global Sustainability Resource Center. The Green Party Kits are available for any on campus or residential hall event and include place setting for over 32 people. This avoids the costs of buying disposables, and supporting our effort of zero waste by encouraging reusing and reducing.

Apartment-style student housing has a 35% Diversion Rate

After using our Green Party kits, various communities including Mesa Court and Middle Earth have opted to purchase their own kits and make them available for Residential Advisors when they host hall events. Mesa Court is restricting RAs from purchasing any disposable plates and cutlery. The Clear Stream Waste Bins are available in both “recycling” and “compost”. Communities or departments may check these out free of charge, for any event.

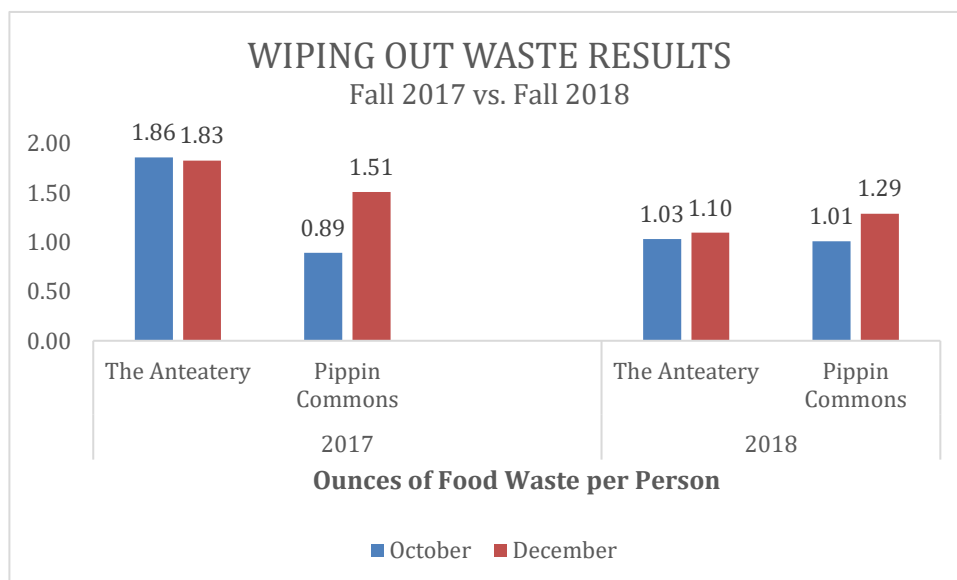
DINING

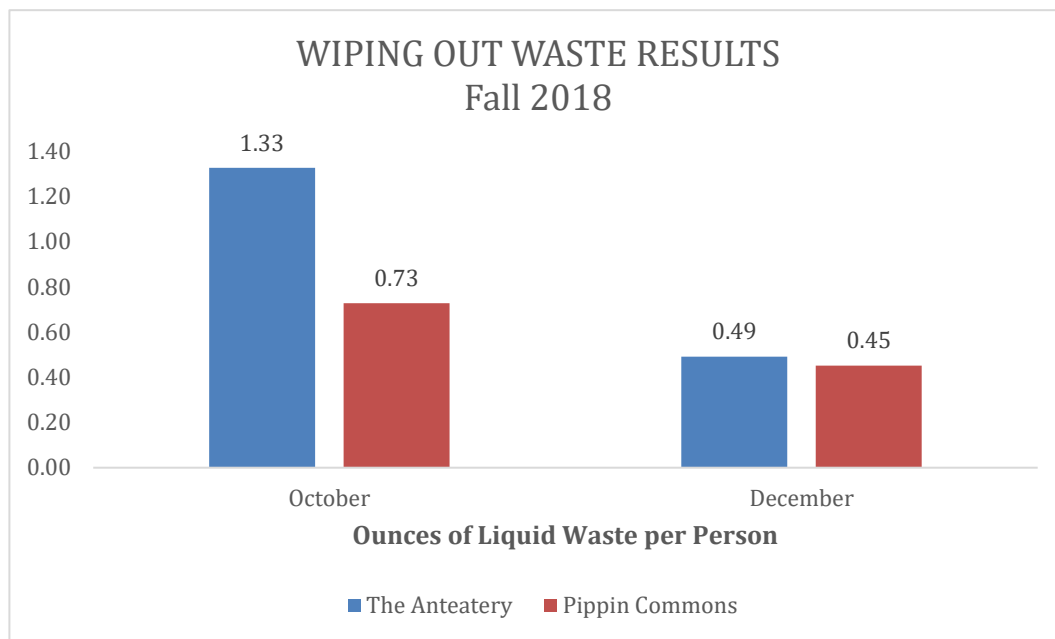
In Dining, the focus is on zero waste through the collection of food waste, both pre and post-consumer, recycling, and waste minimization. Recycling and food waste composting is done at all 6 dining locations.

2018 Food Waste totaled 1,029 tons but reducing food waste is the primary concern. Using the LeanPath system, all food waste is weighed, photographed, and categorized to determine the source of the waste. This system identifies the reason for loss (spoilage, over production, fruit and vegetable trimmings, etc.), and teaches how we can prevent losses in the future. In one year, 56.43% of pre consumer food waste was decreased using the Lean Path.

Wiping Out Waste Educational Events

Each quarter, the food waste is weighed at each of our dining commons. We consistently see a reduction of food waste from quarter to quarter and year to year. These events raise student awareness and bring us closer to zero waste.





Plastic Clamshell boxes for salads at East Food Court and Phoenix Grill are made from recycled bottles, however they can't be recycled again. Winter 2019, they were changed to paper bowls, which can be composted. Customers are offered a \$0.50 cent reusable discount for sodas and coffee (except Starbucks). Promotion of this discount is ongoing.

Changes in Serve Ware to Promote Zero Waste

- In 2018, straws were removed from all dining halls.
- All plastic cups from the soda stations and only given upon request at the cash register.
- All plastic coffee stirrers changed to wood stirrers.
- The dining halls will use wood utensils for the to-go program.
- The reusable to-go container program has been in use for a few years in the dining halls. In 2018, we added the Cupanion cup to the program as well.
- Catering is using wood utensils
- Working with Catering on more sustainable boxed lunches. It's a working progress because we've been focused on making the menu healthier and more nutritious.
- Educational programming or presentations, especially to staff and faculty, on making sustainable Catering choices. For example, many don't know that they can opt-in for creamer in carafes, items on platters, reusable service-ware, etc.
- Innovations
 - Liquids and ice bin collection is going well in West Food Court. Waste audits demonstrate reduced liquids and ice contaminating the recycling bin. We're putting in the bins at East Food Court next quarter. Data from the program is TBD.
 - One Mile Meals program: vertical gardens at The Anteatory reduce packaging waste, transportation fuel, and water usage (90% less water than traditional farming).

LABORATORIES



Green Lab Fair

The Green Lab Fair was held to spread the word on sustainable practices in UCI labs and to introduce more labs to the Green Lab program. A collaborative effort between various

campus organizations such as Administrative Business Services, the Office of Sustainability, Purchasing, Facilities Management, and Equipment Management, the event aimed to

engage with students and faculty to demonstrate different ways that we can make our labs greener. Boothers encouraged energy conservation in labs by the use of brush coils to clean under lab freezers, as well as zero waste through the practice of recycling, proper disposal, and minimizing supplies packaging waste; such as taking advantage of bulk packaging where 3x more gloves are shipped into a single boxed package to prevent the waste of more boxes.



ATHLETICS

Won a \$39,616.00 grant to purchase triple bin stations to update the athletics zero waste program. These bins are intended to educate both students and guests on waste diversion.



Campus Education and Outreach

- In order to educate students, staff, and faculty we provide a variety of educational opportunities:
- Several presentations annually, on the commingled housing recycling program to residents of Arroyo Vista, Palo Verde, Verano Place, Mesa Court, Middle Earth and Campus Village to inform them about what can be recycled in their homes.
- Guest lectures in numerous sustainability courses
- Presentation and posters for the commingled recycling program in Health Science and Biological Science laboratories.
- Presentations to the campus restaurants and commons on the commingled recycling program and **composting** of the food waste.

- For credit, internship programs are available to students in the Recycling Department, which receives about 12 students each year
- Posters, cardstock flyers, bin signs
- E-mail blasts are sent to update new information on the recycling program
- Speaking and Tabling on Ring Road and at sustainable events (Welcome Week, Celebrate UCI, Earth Week, Higher Education Sustainable Conference)
- Competitions (RecycleMania, Sierra Club “Cool School”)
- Articles in campus newsletters
- Campus Move-Out/ Reuse and Recycle Program gives students an opportunity to sustainably release their unwanted goods through recycling and donation. In 2018, 20 tons were diverted from landfill through this program.
- Goodwill donation boxes are available all year long in each of the campus housing communities and average collections are 3.5 tons each month.
- Solid Waste and Recycling team provides support in a Clean Out/Move Out program for all campus offices and laboratories. This free service provides bins and hauling to ensure the proper recycling of unwanted materials.

NEW EDUCATIONAL SIGNS ON THE BIGBELLYS



A \$4093 TGIF Grant helped fund the new educational signage on the Big Bellies along pedestrian pathways. Diversion rate from 18% to 34% in the first month. Students let us know through a survey that there were interested in learning how to reduce their own carbon footprint as well as Sustainability events and accomplishments on campus on future signs.



EARTH WEEK

The UCI campus produces nearly 8,000 pounds of landfill waste every day. This is equivalent to the weight of almost 100 anteaters! In honor of Earth Week this year, the Facilities Management Sustainability Team organized a display called Mt. RecycleMore, which represented 17% of material that is landfilled daily. The display was intended to visually showcase to students how much waste is produced on an everyday basis while emphasizing the importance and value of properly sorting trash. The Sustainability Team talked to

students and staff about Mt. RecycleMore's meaning and demonstrated that many of the waste found in landfills can be recycled. See more of Mt. RecycleMore on our Earth Week video!

<https://www.youtube.com/watch?v=aoeYn8gcHRI>

MULTIMEDIA

Each year, the UCI FM Sustainability Team focuses on spreading the knowledge of Zero Waste and the importance of sustainability to students and staff through peer-to-peer education and social media platforms such as Facebook and YouTube. The team created informative videos on how to be sustainable and contribute to UCI's goal of Zero Waste by 2020. Check out our videos to learn more about Zero Waste:

How to be Zero Waste at UCI

<https://www.youtube.com/watch?v=Z-Rr6VTzdTw>

Meet the MRF

https://www.youtube.com/watch?v=pv__pNb84ZA

Sharing the Knowledge of Sustainability

<https://www.youtube.com/watch?v=8SQldEal-Kc>

Recycling at UCI

<https://www.youtube.com/watch?v=PAiHzZqBDLo>

Mini-Bin, Big Change

<https://www.youtube.com/watch?v=qBQApXJJ2q0>

UCI's Food waste program

<https://www.kcet.org/shows/social-connected/a-great-use-for-uc-irvines-garbage>

UCI Office Sustainability 101

<https://youtu.be/UUOgvYnDBwo>

Spread the Green

<https://www.youtube.com/watch?v=4o8Ez0jDYgI>

Bottle-Filling Stations

<https://www.youtube.com/watch?v=O7mBRwChyIY>

What Does Recycling Mean to you? (UCI Earth Week)

<https://www.youtube.com/watch?v=aoeYn8gcHRI>

Takeout creates a lot of Trash. It doesn't have to.

<https://www.vox.com/videos/2018/1/3/16842068/climate-lab-takeout-food>

ASUCI How to Properly Dispose of Boba

<HTTP://TINYURL.COM/UCIHOWTOBOBA>

Our UCI Recycled Facebook Page: <https://www.facebook.com/UCIRecycles/>

UCI Facilities Management Recycle Website: <http://dev.fm.uci.edu/units/recycling-refuse.html>

UCI Sustainability Website: <https://sustainability.uci.edu/sustainablecampus/wastestream/>

STUDENT SUSTAINABILITY HAND GUIDE



A Student Sustainability Hand Guide was created for incoming students in order to provide them with an informational guide on UCI's sustainability programs. The guide includes information on what recycling and composting is, as well as how to get involved with the program. Additional information, such as facts about the California drought is provided to educate students on ways to conserve water. [Sustainability Hand Guide](#)

RECYCLEMANIA – GO UCI!



Every year, colleges across the United States participate in the annual RecycleMania competition. The 8-week competition runs from February through April. UCI has consistently placed in the top 10 over the past five years of RecycleMania.



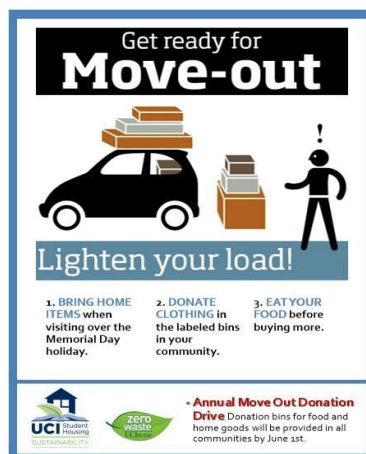
The competition aims to improve and promote on-campus recycling. This year, RecycleMania featured 350 schools participating from 48 states within the US, the District of Columbia and Canada, with combined enrollment of 4.4 million students.

UCI has sealed its rank in the top 5% of the nation again this year. We have achieved the Top 10 standing in the competition for the past 6 years. In this year's RecycleMania, our rank in the national standing is 9th in overall Diversion and 6th in Total Recycling for the Bragging Rights category.

2018 Housing Move-Out Donation

During our annual campus move-out in 2018, 37 tons of reusable goods were donated to Goodwill of Orange County through our campus donation drive.

Bins, trucks, and manpower are provided by Goodwill in order to support the two-week long program. These donations spike the sales of Goodwill and help students create a habit of helping others by donating.



ZERO WASTE TRAINING FOR CAMPUS EVENT PLANNERS



The FM Sustainability Team hosted the **2018 Zero Waste Event Planners Training**. 52 of the UCI Event planners came together to participate and see first-hand how small changes to planning an event can make a big difference environmentally. The 5 campus guest speakers representing the FM Sustainability Team, UCI's Hospitality & Dining, FRESH Basic Needs Hub, and the head of the Events Council shared new ideas and focused on sustainable purchasing options, event waste reduction techniques, zero-waste meal planning, and greener options for decorations.

SUSTAINABILITY FUNDAMENTALS TRAINING FOR CAMPUS STAFF



The UCI Office of Sustainability offers sustainability professional development and training opportunities to encourage greater sustainable actions and principles in the workplace. This training is made available to all campus staff twice a year. Content offered includes a range of environmental, social, and economic sustainability topics delivered by on-campus subject matter experts, many of whom are national leaders in their fields. Previous topics include an overview of sustainability efforts at UCI and in the UC System, climate change research, waste reduction, energy efficiency, and sustainable commuting.

These professional development opportunities are in alignment with UCI's 2016 Strategic Plan goal to implement an ethos of sustainability for all campus staff. By offering recurring training, the UCI Office of Sustainability aims to generate a greater culture of sustainability on campus, a culture that is well-informed of campus climate and sustainability goals and encourages staff to be an integral part in helping to meet these goals. In addition to providing in-person trainings, UCI hopes to adhere to a larger audience in the future by developing an online version of the training.

FACILITIES MANAGEMENT STAFF TRAINING

Zero Waste Custodial Training Guide

UCI University of California, Irvine

Recycle Bin

Clear bags with bathroom paper towels

Blue bags

Cardboard

All 3 go into the recycling bin.

UCI University of California, Irvine

2018 was a big year for staff training. All of the 300 FM staff (Carpenters, Lock Shop, HVAC, Carpenters, Sheet Metal shop, Grounds and Custodians) were trained on Zero Waste processes. In addition the Department of Finance and Administration 300+ were trained on the importance of reducing your carbon foot print through recycling.

<http://sustainability.uci.edu/wp-content/uploads/sites/5/2018/04/FM-Recycling-and-Sustainability-ABS-Town-Hall-Jan-17.pdf>

Waste Audits



Waste audits are combined with sustainability fairs so they become teachable moments where students are welcome to learn about what we are doing such as minimizing waste and proper waste sorting. The fair activities usually include DIYs, sustainable transportation, recycling games where they can make or win reusable products. Waste audits are done in our dorm (first-year housing) communities all three quarters to demonstrate to students that they are improving their recycling skills. In the apartment-style housing (family/graduate housing), an annual waste audit is done. Main campus waste audits are also done for the MSW and commingled recycle annually at the transfer stations to determine the contamination percentage of each waste stream. Big Belly waste audits are done to learn what items are making it into MSW and what should not to improve signage.

ZERO WASTE BY 2020

Spring Quarter Waste Audits & Fair

AUDITS: 9 - 10 AM
FAIR: 11 AM - 1 PM



Today's Results

Tonnage:	722	Per Resident:	.41 lbs
Landfill:	80%		
Total Diversion:	19%		
• Recycling:	18%		
• Compost:	1%		

Today's Diversion from Landfill!

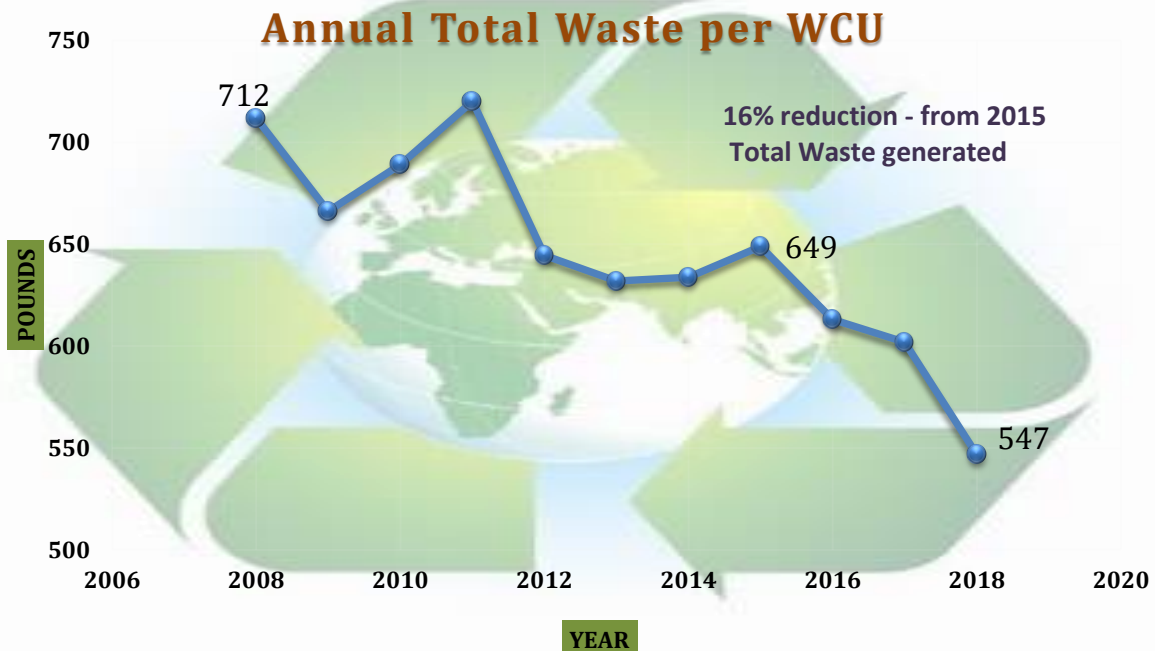


Progress to Date

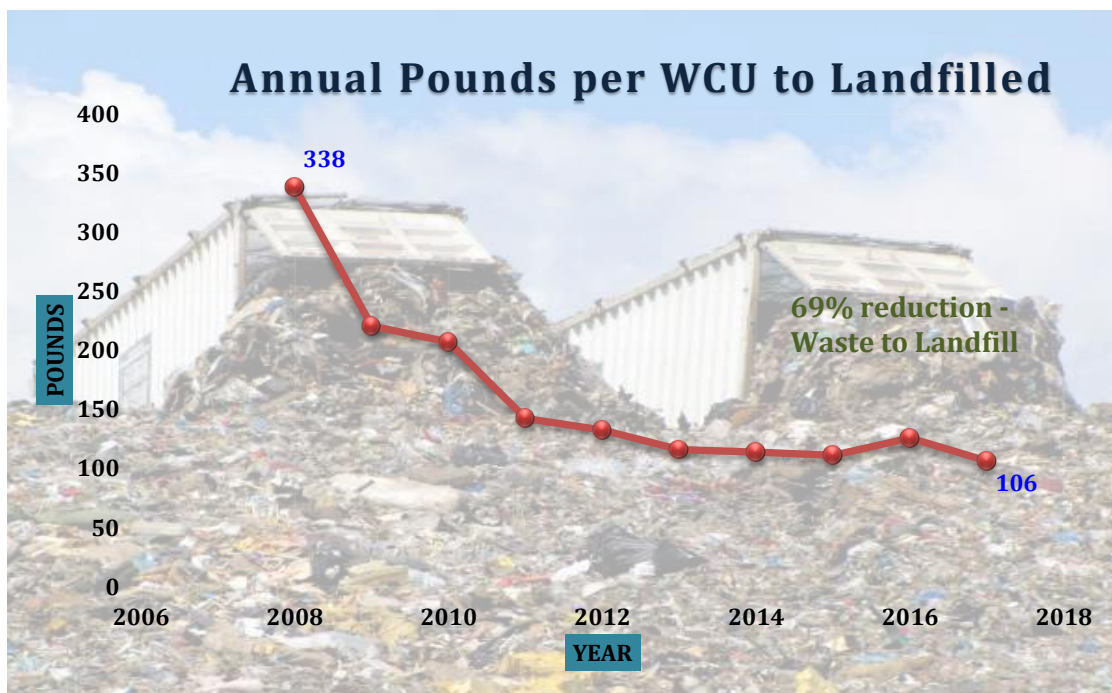
WASTE REDUCTION

The UCOP Waste Reduction Goals are:

- Reduce per capita total Waste by 15% from FY2015/16 levels by 2020
- Reduce per capital total Waste by 25% from FY2015/16 levels by 2025

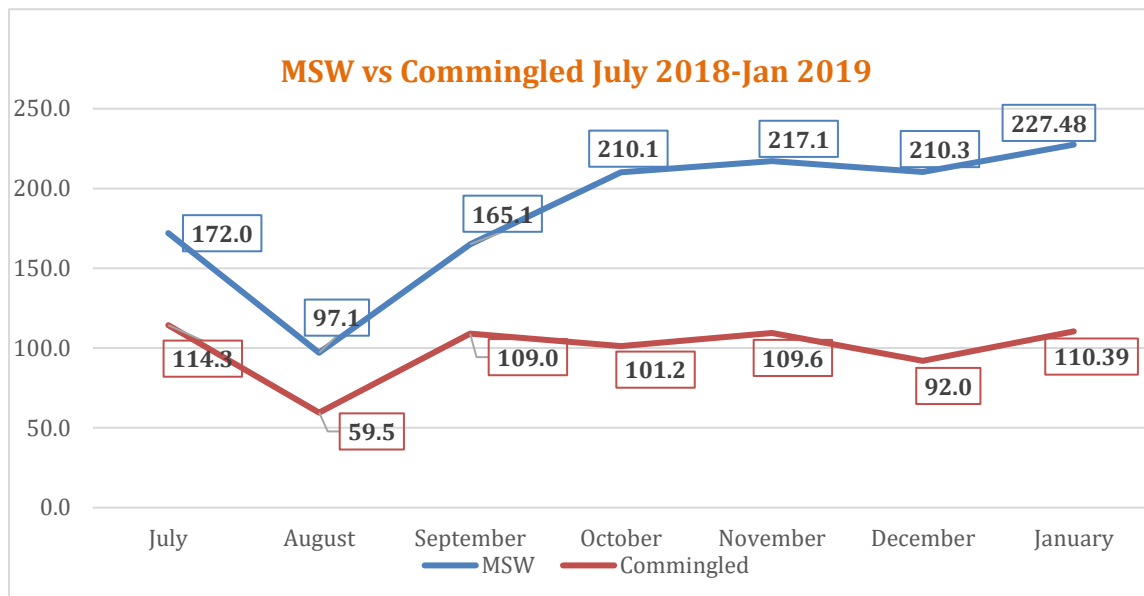
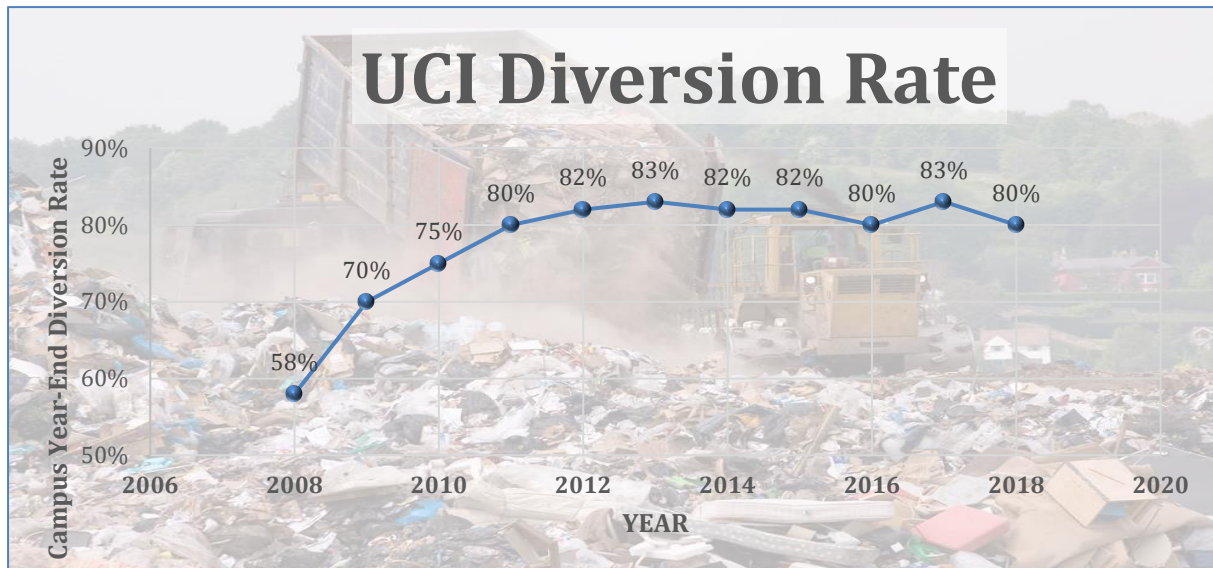


In 2018, UCI reached a 16% Total Waste Reduction. To meet the 25% reduction due in 2025, we are enlisting the support of Procurement and Dining to help reduce waste by procuring items in reusable containers thus eliminating waste of more cardboard boxes. This has potential to further reduce Total Solid Waste by about 5-7%. The biggest area to minimize Total Waste is through reduced single use plastic. This will take a UC policy change and could reduce Total Solid Waste by 10-15%.



Where UCI has really shined is minimizing Waste to Landfill. This is a 69% drop in the past 10 years

WHY 2018 DIVERSION RATE HAS DECREASED



As of 2018, UCI's Diversion Rate was at 80% which is lower than previous years. This drop is due to our recycled material ending up in our landfill bins. As seen on the graphs, a significant increase in MSW occurred in September. There are multiple reasons for this drop in diversion rate such as putting wet items into recycling bins resulting in the loads being rejected at the transfer station due to contamination. UCI trucks have broken down, therefore one truck has been used to pick up both waste streams. Cardboard often ends up in landfill when recycle bins are full. A change of custodial crew from a night to day schedule has resulted in all custodial staff working in a different building than they had worked in previously. As of September, custodians now pick up trash and recycling. These custodial changes may have resulted in more material to landfill and less to recycling. In addition, we have found a higher incidence of cardboard due to E-Commerce ending up in the MSW in student housing.

The beauty of data is that it shows us where our problem lies and now we are addressing issues with cardboard and contamination rates of our recycled material in both our main campus and housing communities.

1. Regional Location for Organic Anaerobic Digester Waste Program – (Estimated Cost \$2 million) additional Diversion Potential 3%

UCI's Food Waste Program is limited because it cannot accept compostable serve ware in the current anaerobic digestion process at Waste Management. The next closest facility is 64 miles away that can accept this material. This severely limits the campus ability to do the best job possible on post-consumer waste. The Southern California Gas Company is interested in a regional solution that can accept green waste and food waste as this system could put natural gas back into the pipeline. A local facility or campus specific system would be the best long term solution for this 3,000+ tons of material generated by UCI annually.

2. Zero Waste Buildings – (Cost \$100,000) Potential Diversion Increase 3%

Some areas on campus with huge potential for teaching and re-enforcing recycling efforts. These areas will need signage, one compactor & bins but most of all need facility buy in to embrace the campus recycling and composting programs.

1. Bren Events Center – Collegiate games with both students, staff and many non-campus guests.
2. Anteater Ballpark – Collegiate games with both students, staff and many non-campus guests.
3. Student Center – 2 million guests annually, numerous conferences and events that do not all follow zero waste practices

These 3 additional locations would be prime showcases to run zero-waste full time. Videos played before games to talk briefly about UCI Zero Waste efforts would help guests deposit their waste in the correct bins as well as share with them, the campus Zero Waste Goals.

3. University of California Training Center (UCLC) – Required Recycling/Compost Video (Estimated Cost \$10,000) additional Diversion Potential 4%

Training taken by new employees and recurring training ever 3 years. This professionally designed video training would talk about campus recycling goals, provide recycling/composting tips for the office, conference rooms, dining and at events. Our campus customers are doing a great job of recycling but we find that whenever we are able to train staff about recycling or waste minimization we hear, "I did not know that" most often. Getting the message out that reduce and reuse are a higher priority than recycling is a concept that is new to many staff members.

4. Single Use Plastics Ban (Estimated Cost \$5,000) Potential Diversion Increase 5%

A single use plastic ban requires a UC policy. The policy would encompass all plastics related to packaging of product and food. Currently, most plastics are not recyclable and are resulting in contaminating our current commingled recycling program. A reduction of plastic use would increase diversion rate by minimizing what goes to landfill and if compostable (dining) packaging is used instead, this would increase our organics collection.

5. Focus on Waste Minimization- direct opposition to Diversion Rate (Estimated Cost \$10,000)

Teaching reduce and reuse has been a primary goal 2018-2019. It is very difficult to capture reduce even though we see it happening. For example, the reduced usage of paper from mail and copiers is occurring, but it is very difficult to quantify that reduction of paper use. However, the campus is actually recycling less paper. Continued focus on waste minimization will require more educational events, posters, videos, and training. In two short years, UCI is showing results from waste minimization focus. A secondary benefit to waste minimization is a reduction from landfill and recycling costs.

Best Practice Benchmarks

ZERO WASTE LOCATIONS

UCI is well on its way to achieving the goal of Zero Waste by 2020. Five buildings have been certified as Zero Waste facilities:

- Anteater Commons
- Pippin Commons
- Brandywine Commons
- Phoenix Grill
- Anteater Recreation Center


To achieve Zero Waste, a building must have a commingled recycling and a food composting program in addition to landfill. B.C. Cavern and The East Food Court are using their Zero Waste bin systems and are moving closer to becoming zero waste facilities.











Facilities Management, UCI Dining and Athletics are working together to convert the Bren Events Center and the Baseball Field into Zero Waste Facilities. Both of these locations have Zero Waste bins in their facilities (style pictured above), which were funded through a grant by The Green Initiative Fund (TGIF).

Summary of Waste Activities

Each major waste category is described briefly in the table below:

Type	Material	Disposal Method	Handling Procedure	Hauler
Batteries & Printer Cartridges		Facilities Management provides 80 green bins labeled “Batteries & Ink Jet Cartridges” located in the lobbies and copy centers of campus buildings.	<p>The bins are collected weekly by the UCI Recycling team. The batteries are sorted and stored in barrels and then delivered to EH&S. The cartridges are collected and sold monthly to Discount Laser.</p> <p>http://apps.adcom.uci.edu/cms/public/FacilitiesManagement/RecyclingRefuse/BatteryandInkProgram.pdf</p>	UCI Custodial Team

Type	Material	Disposal Method	Handling Procedure	Hauler
Commingled		Commingled Material is collected inside of student housing, campus restaurants & commons as well as in laboratory buildings. UCI Facilities Management has provided over 6,500 bins for the collection of Commingled material. The material is transferred from the interior into the 4yd commingled rolling dumpsters by the custodial and Recycle Team.	The 4yd Rolling Recycle bins are collected by the UCI Recycling team in a front loader compaction truck. This commingled recycled material is taken to Rainbow Environmental Transfer station.	UCI Recycle Team
Construction Waste	 (Metal, concrete, asphalt, drywall, wood)	The construction material is transferred to the appropriate 20 or 40 yd. container at either the Building and Grounds Recycle Yard or the North Campus Recycle Yard. There are bins in both locations for sorting the metals, concrete and asphalt separately. Mixed construction debris not worthy of sorting is put in a separate 40 yd container.	Once the bins are full they are hauled to the appropriate location. Metal is taken and sold to S&A Metals. Concrete, asphalt are taken to Ewles Concrete, while wood and mixed construction debris are hauled to Waste Management Sunset Transfer Station in Irvine.	UCI Recycle Team
Electronic Waste & Universal Waste	EH&S-Universal Waste  UCI Peter's Exchange E-Waste 	Departments must fill out a pick up request form (at http://apps.adcom.uci.edu/expresso/econtent/Content.do?resource=3129) The e-waste is then picked up by Equipment Management and the hauler recycles the items.	All e-waste must be labeled as "Universal Waste-CRT" or "Universal Waste-Electronic Waste" with the date when it was first generated. It is then transferred to Equipment Management—Peter's Exchange within 9 months of being generated.	Electronic Recyclers International, Inc.

Type	Material	Disposal Method	Handling Procedure	Hauler
Food Waste		At campus restaurants and residential commons, the food waste is collected in food bins to be placed in exterior custom made bins for composting.	The food waste bins are taken weekly for composting by Waste Management.	Waste Management
Green Waste		Grass, leaves and branches are transferred daily by the ground crew to the Buildings & Grounds yard. The green waste is taken for composting weekly.	The green waste is dried for 1-2 days, and is then loaded into 40 yd containers with a back hoe. The UCI recycling team hauls these green waste containers a WW transfer station where they are ground and taken to the Great Park in Irvine for windrow composting.	UCI Recycle Team and Waste Management.
Reuse & Donate	 (Furniture, clothing, household items, food)	Collection bins are located at each of the campus housing areas year round. During Campus Move Out in June, a donation drive is done to ensure this material is collected & donated instead of trashed. Leftover food is donated to Fresh Basic Needs Hub.	Items are placed by students into Goodwill Collection Bins in the residence halls and housing areas.	Goodwill.
Styrofoam Recycling		10 campus laboratory buildings have collection sites for the large igloo-type refrigeration transport Styrofoam.	Custodians collect the material from inside the halls and place it on the Styrofoam collection bins at the loading docks. This material is taken monthly to DART in Corona for recycling.	UCI Recycle Team

Type	Material	Disposal Method	Handling Procedure	Hauler																																		
Hazardous Waste Chemical	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="text-align: center;">Hazardous Waste</td> </tr> <tr> <td colspan="2" style="text-align: center; font-size: small;">University of California, Irvine Irvine, CA 92697</td> </tr> <tr> <td style="font-size: x-small;">PL/Signs: Kirk Math</td> <td style="font-size: x-small; text-align: right;">Ext: 4-4278</td> </tr> <tr> <td style="font-size: x-small;">Date Waste First Generated:</td> <td style="font-size: x-small; text-align: right;">10/13/05</td> </tr> <tr> <td style="font-size: x-small;">Transfer to EH&S Before:</td> <td style="font-size: x-small; text-align: right;">4/11/06</td> </tr> <tr> <td style="font-size: x-small;">Chemical Name</td> <td style="font-size: x-small; text-align: right;">Conc.</td> </tr> <tr> <td style="font-size: x-small;">Methanol</td> <td style="font-size: x-small; text-align: right;">60%</td> </tr> <tr> <td style="font-size: x-small;">Acetone</td> <td style="font-size: x-small; text-align: right;">20%</td> </tr> <tr> <td style="font-size: x-small;">Hexane</td> <td style="font-size: x-small; text-align: right;">15%</td> </tr> <tr> <td style="font-size: x-small;">Water</td> <td style="font-size: x-small; text-align: right;">5%</td> </tr> <tr> <td colspan="2" style="text-align: center; font-size: x-small;">Physical State</td> </tr> <tr> <td style="font-size: x-small;"><input type="checkbox"/> Gas</td> <td style="font-size: x-small;"><input checked="" type="checkbox"/> Liquid</td> </tr> <tr> <td colspan="2" style="text-align: center; font-size: x-small;">Hazard Category</td> </tr> <tr> <td style="font-size: x-small;"><input type="checkbox"/> Flammable</td> <td style="font-size: x-small;"><input type="checkbox"/> Corrosive</td> </tr> <tr> <td style="font-size: x-small;"><input type="checkbox"/> Air/Water Reactive</td> <td style="font-size: x-small;"><input type="checkbox"/> Oxidizer</td> </tr> <tr> <td style="font-size: x-small;"><input type="checkbox"/> Solid</td> <td style="font-size: x-small;"><input type="checkbox"/> Toxic</td> </tr> <tr> <td style="font-size: x-small;"><input type="checkbox"/> Explosive</td> <td></td> </tr> </table> <p>(Chemical, biomedical, radioactive, mercury containing lights, and controlled substances)</p>	Hazardous Waste		University of California, Irvine Irvine, CA 92697		PL/Signs: Kirk Math	Ext: 4-4278	Date Waste First Generated:	10/13/05	Transfer to EH&S Before:	4/11/06	Chemical Name	Conc.	Methanol	60%	Acetone	20%	Hexane	15%	Water	5%	Physical State		<input type="checkbox"/> Gas	<input checked="" type="checkbox"/> Liquid	Hazard Category		<input type="checkbox"/> Flammable	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Air/Water Reactive	<input type="checkbox"/> Oxidizer	<input type="checkbox"/> Solid	<input type="checkbox"/> Toxic	<input type="checkbox"/> Explosive		<p>Chemical: Chemical waste is handled by EH&S. The waste is either recycled, incinerated, or sent landfill by hauler</p>	<p>Chemical: Must contain a label with the words “Hazardous Waste,” University name, chemical name and concentration, physical and hazard category. This waste must be transferred to EH&S for disposal within 6 months of being generated</p>	<p>Chemical: Asbury, Clean Harbors, Safety-Kleen</p>
Hazardous Waste																																						
University of California, Irvine Irvine, CA 92697																																						
PL/Signs: Kirk Math	Ext: 4-4278																																					
Date Waste First Generated:	10/13/05																																					
Transfer to EH&S Before:	4/11/06																																					
Chemical Name	Conc.																																					
Methanol	60%																																					
Acetone	20%																																					
Hexane	15%																																					
Water	5%																																					
Physical State																																						
<input type="checkbox"/> Gas	<input checked="" type="checkbox"/> Liquid																																					
Hazard Category																																						
<input type="checkbox"/> Flammable	<input type="checkbox"/> Corrosive																																					
<input type="checkbox"/> Air/Water Reactive	<input type="checkbox"/> Oxidizer																																					
<input type="checkbox"/> Solid	<input type="checkbox"/> Toxic																																					
<input type="checkbox"/> Explosive																																						
Hazardous Waste Biomedical		<p>Biomedical: EH&S collects all biomedical waste. It is autoclaved and then sent to landfill by hauler</p>	<p>Biomed: Must contain a label with the words “Biohazardous Waste” or with the international symbol and the word “Biohazard.” Must be contained separately from other waste in a red bag that is securely tied and placed in a rigid, leak-resistant secondary container. Sharps must be placed in an approved biohazardous sharps container. Solids must be transferred to EH&S within 7 calendar days of being generated, Solids must be transferred to EH&S within 7 calendar days of being generated, being approximately 2/3 full. For liquids, mix 1 part household bleach to 9 parts liquid biomedical waste. Wait 30 min. and pour down sanitary sewer drain. Solid & Sharp disposal: request pickup via the internet: www.ehs.uci.edu/programs/enviro</p>	<p>Biomedical: TCI</p>																																		

Type	Material	Disposal Method	Handling Procedure	Hauler
<p style="text-align: center;">Hazardous Waste Radioactive</p>		<p>Radioactive: Radioactive waste is handled by EH&S and is incinerated and then sent to landfill by hauler</p>	<p>Radioactive: Separate radioisotopes by waste type and within each type, segregate radioisotopes by half-life. Labels and containers are provided by EH&S. Liquids must be placed in secondary containment to adequately contain all contents. Storage areas must be marked with “Caution Radioactive Material” signs that include the magenta trefoil radiation symbol. Keep containers closed when not in use.</p>	<p>Radioactive: Thomas Gray & Associates</p>
<p style="text-align: center;">Hazardous Waste Mercury</p>		<p>Mercury containing lights: EH&S collects mercury containing lights to be recycled</p>	<p>Mercury: Mercury containing lights are placed in a sturdy box or container and labeled as “Universal Waste-Mercury Containing Lamp,” and include the date when the waste was first generated. Used mercury containing lights must be transferred to EH&S within 9 months of being generated. Pick up request via the internet: www.ehs.uci.edu/programs/enviro</p>	<p>Mercury: Veolia</p>
<p style="text-align: center;">Hazardous Waste Controlled Substances</p>		<p>Controlled substances: DEA allows controlled substances to be burned in an approved incinerator. This method requires that the registrant, a federal official to be witnesses to the destruction of the substance. Empty bottles are destroyed by the EH&S controlled substances coordinator only.</p>	<p>Controlled substances: Per DEA requirement, all controlled substances, including empty vials, expired, and mix are collected by the EH&S controlled substance coordinator only. Expired and mix drugs are returned to DEA via Student Health Pharmacy and a reverse distribution facility.</p>	