

# CAMPUS TO COMPOST:

## IMPLEMENTING POST-CONSUMER COMPOSTING ON CAL POLY

### WHY COMPOSTING?



**FOOD WASTE IS A WATER PROBLEM**

**FOOD WASTE EMITS GREENHOUSE GASES**



- The agriculture industry uses 70% of US water
- 25% of this water gets wasted as food is thrown away



### 1-CURRENT INFRASTRUCTURE

### HISTORY OF CAL POLY COMPOSTING

- previously composted
- ran for a year
- shut down due to concerns
- worried about birds, water quality, food safety and avian flu



**Cal Poly currently composts almost all of its animal manures and campus green waste**

### WHERE?

- at the on campus composting facility run by the Agricultural Operations department.



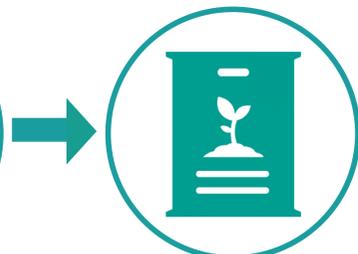
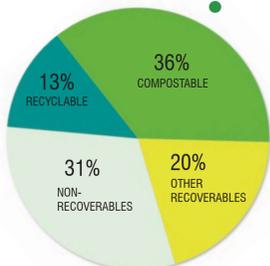
### CURRENT TRASH & RECYCLING INFRASTRUCTURE

### AMOUNTS

Cal Poly produces approximately 5260 tons of waste per year



Portland State University shows: 36% of our landfill waste is likely compostable **FOOD WASTE** and fibers



This would mean that approximately **295 TONS** of Cal Poly's landfill waste is actually food waste that could be composted.

### LEARN BY DUMPING?

CAL POLY:

- Is one of the highest ranked undergraduate schools for multiple majors including architecture and engineering
- Is considered the "UC" of the "CSUs"
- Ranks Top 40 in the nation for smartest students according to Business Insider
- Is one of the Best Colleges for Overall Value according to Money Magazine
- Has a slew of other notable recognitions
- Is currently failing to sustainably address the university waste stream!

**SO HOW IS IT THAT A SCHOOL THAT IS NATIONALLY RECOGNIZED FOR ITS EXCELLENCE COULD BE FAILING SO SPECTACULARLY AT ADDRESSING ONE OF THE BIGGEST ISSUES OF THE CURRENT AGE?**

- Only 17% of our current comingle bin waste is diverted from the landfill while only 62% of all
- Campus waste (including green waste and construction, etc.) is diverted from the landfill.
- The CSU system just mandated that at least 80% of our waste must be diverted by 2020 – Cal Poly is a long way off of that goal
- Lack of education and regulation allows hundreds of tons of recyclables to end up in the landfill unnecessarily.
- Lack of a system of post-consumer composting results in hundreds of tons of food waste and other compostable ending up in a landfill where it further harms the environment

### UNIVERSITIES THAT HAVE POST-CONSUMER COMPOSTING COLLECTION ON CAMPUS:

- |  |                                    |
|--|------------------------------------|
| University of California, Berkeley (UC Berkeley)           | University of New Hampshire        |
| University of California, Davis (UC Davis)                 | North Carolina State University    |
| University of California, Irvine (UC Irvine)               | Soochow University                 |
| University of California, Los Angeles (UCLA)               | University of Louisville           |
| University of California, Merced (UC Merced)               | University of Wisconsin            |
| University of California, Riverside (UC Riverside)         | Washington University in St. Louis |
| University of California, San Diego (UC San Diego)         | University of Vermont              |
| University of California, San Francisco (UCSF)             | University of Washington           |
| University of California, Santa Barbara (UC Santa Barbara) | Duke                               |
| University of California, Santa Cruz (UC Santa Cruz)       | Harvard                            |
| University of California, Santa Cruz (UCSC)                | Columbia University                |
| Stanford University  | University of Alaska Fairbanks     |
| Humboldt State University                                  | Arizona State University           |
| San Francisco State University                             | Northern Arizona University        |
| Stanford University  | University of Arizona              |
| University of Southern California                          | Carnegie Mellon University         |
| Santa Clara University                                     | Colorado State University          |
| University of Michigan                                     | University of Northern Colorado    |
| Ohio University  | Syracuse University                |

### THE MUSTANG WAY

**PRIDE RESPONSIBILITY CHARACTER**

**WE ARE FOCUSED ON EXCELLENCE**  
Learn by doing is the foundation of our engaged pursuit of knowledge and scholarly achievement.

**WE EMBRACE ONE ANOTHER**  
Mustangs strive to create an atmosphere of mutual respect, celebrating the positive differences that make us unique.

**WE ARE ONE COMMUNITY**  
Personal commitment and participation in the Cal Poly community is the cornerstone of the Mustang experience.

**WE ACCEPT RESPONSIBILITY**  
Mustangs support one another while also taking pride in accepting personal responsibility, thus strengthening the Cal Poly family.

**WE LEAD BY EXAMPLE**  
Mustangs face all actions and decisions with perseverance, honor, and character.

**As Mustangs, we are united under these principles, honoring those who came before us and inspiring the Mustangs who follow. The privilege of being a Cal Poly Mustang is celebrated for a lifetime.**

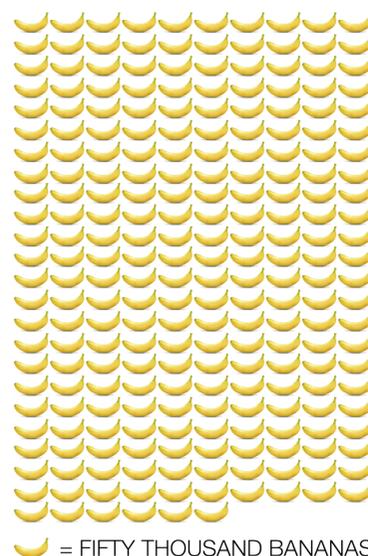
CAL POLY.

### PROPOSED ADDITION:

**WE ARE PART OF OUR WORLD**  
Mustangs commit to reducing our impact on the natural environment and ensuring the beauty of our earth is available for generations of future students.

### 2522 TONS COMES DIRECTLY FROM RECYCLING AND GARBAGE BINS ON CAMPUS

- Only about 560 tons of this is recycled. The rest – **1962 TONS** ends up in a landfill.
- This is equivalent to the weight of **11.8 MILLION BANANAS**



- This works out to each person on campus (Faculty, Staff, and Students) throwing away approximately **182 POUNDS OF GARBAGE PER YEAR!**
- That is about the same weight as a **MALE COLLEGE STUDENT**. All of this ends up in the landfill.





## HOW IT IS COLLECTED

- currently: 100 outdoor trash & recycling bins on campus
- additional trash bins in dining facilities, classrooms & housing
- Facilities handles waste collection from outdoor bins
- Campus Dining handles waste collection from dining bins
- Housing handles waste from dorms/apartments

ALL OF THIS >> PLACED IN LARGE DUMPSTERS



In 2013,  
**249 TONS**  
**OF FOOD**  
waste from  
Cal Poly was  
composted.



## WHERE IT GOES

- San Luis Garbage collects the waste from the dumpsters and transport it to Cold Canyon Landfill.
- Once at the Landfill, the recycling is sent to on site sorting center, where it is sorted and sent on to be reused. The trash is buried in the landfill.

## WHERE DOES IT COME FROM?

### CAMPUS DINING



## HOW IS IT COLLECTED?

- 1 bins
- 2 custodians
- 3 trash truck
- 4 compost container

- 1 Engel & Gray
- 2 Santa Maria Valley
- 3 Harvest Blend compost
- 4 Fertilizer

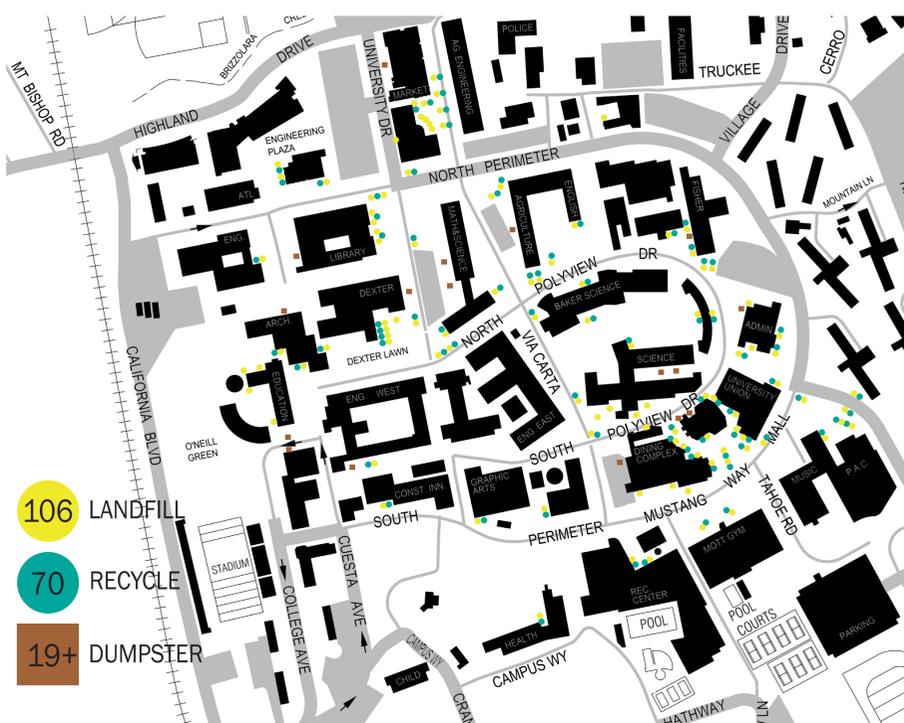


## 2-PROPOSED INFRASTRUCTURE

### BINFRASTRUCTURE

Implementing a unitized bin system leads to a more efficient infrastructure of collecting waste around Cal Poly

## WHERE ARE OUR CURRENT TRASH CANS?



## RECOGNIZE THESE? LET'S IMPROVE THEM.



STANDARD TRASH & RECYCLE



ASI TRASH & RECYCLE



RANDOM TRASH CANS

WHY DON'T WE SIMPLIFY AND UNIFY OUR WASTE BINS?



## STAFFING

“There are too many trash cans on campus, we empty them all every day but not many of them are full. A much better system would be to have 3-bin stations in the hallways outside of classrooms.”  
(Monica Cantu & Kevin Shaw)

- adding post-consumer bins would NOT increase any additional work for the current 71 custodians
- 2 employees empty the compost “dumpsters” into the 40 yard Engel & Gray bins
- Engel & Gray collect the 40 yard bins
- one new dumpster bin needed for post-consumer composting

## OBSTACLES

- a second vehicle needed to transport the compost from the small dumpsters to the large Engel & Gray dumpsters
- some type of sorting may be needed to ensure there are no non-compostable materials mixed in
- sorting education would hopefully be addressed through student education such as SOAR, WOW and campus graphics



1. custodial staff empty bins daily in separate rounds, bringing each category of waste to its respective collection points

2. the compost is brought to the Engel & Gray collection bin by the same campus pickup trucks used by staff today for the collection of garbage and recycling.

- due to the additional bin proposed to the existing bins, there would be slight increase in custodial hours and staffing
- 2 extra custodians needed to transfer compost dumpsters to Engel and Gray bin
- additional vehicles needed for this transfer



## 3-COST: MONEY MONEY MONEY

### CURRENTLY

1961 Tons of WASTE per year go to Cold Canyon at a price of **\$93.19 /Ton**  
225.5 Tons of COMPOST per year go to Engel & Grey at a price of **\$71.77/Ton**

\* These costs include all aspects of trash/compost collection, disposal etc... including the cost per ton to dispose at Cold Canyon and Engel and Grey. This means that it costs LESS to compost than dispose of organic waste!

By using a comparative university, we can expect that 35% of our landfill waste is actually viable organic material to compost. **This means that 706 Tons of our current waste can be composted. That is an immediate savings of \$15,000 a year for our university!**

### FUNDING

#### Sustainability Initiative Student Fee Increase - \$5/per student

This would create a steady flow of \$270,000 per year to help enact the project, maintain services and potentially give students the opportunity to get biodigesters on campus in the following years

#### NRCS Conservation Innovation Grant – up to \$ 20,000,000

This grant is given yearly by the Department of Agriculture for projects. To apply, there is a pre proposal and full proposal process. The purpose of the CiG grant is to “Stimulate the development and adoption of innovative conservation approaches and technologies”

#### Cal Recycle Grant – up to \$3,000,000

“The purpose of this competitive grant program is to lower overall greenhouse gas emissions by expanding existing capacity or establishing new facilities in California to reduce the amount of California-generated green materials, food materials, and/or Alternative Daily Cover being sent to landfills.”

## IMPLEMENTATION

Cal Poly already has a unit for Engel and Gray on campus

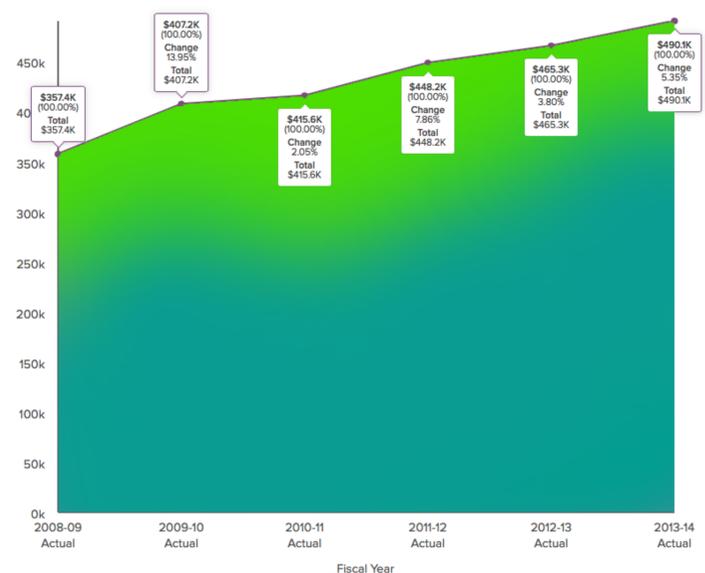


**Proposed 3-bin system: 1 Time Cost of \$386,272.80**

(highest probable cost not including discount of bulk purchase)



## NON-HAZARDOUS WASTE EXPENSES



## CURRENT WASTE PROGRAM

	Total Cost/Year	Amount (Tons)	Cost/Ton
Waste Expenses	\$182,746	1961	\$93.19
Compost Expenses	\$16,185	222.5	\$71.17
<b>TOTAL</b>	<b>\$198,931</b>		

## PROPOSED WASTE PROGRAM

	Total Cost/Year	Amount (Tons)	Cost/Ton
Waste Expenses	\$116,915.80	1255	\$93.19
Compost Expenses	\$65,561.477	931.5	\$71.17
<b>TOTAL</b>	<b>\$182.477</b>		

**SAVINGS: \$16,454/ YEAR**



## 4-STUDENT INVOLVEMENT

### POTENTIAL STUDENT INVOLVEMENT

#### 1 PILOT PROGRAM

Clubs like EPC and Zero Waste plan to set up a pilot program in the UU and on Dexter Lawn, which will feature the 3-bin waste collection system and representatives standing by to instruct student where each piece of their waste should be tossed. Zero Waste has done this once before, but without much media or student attention, so the advertising of the program will absolutely be emphasized next time around. This pilot program will be a consistent ordeal, with bins and representatives in the UU and Dexter Lawn once or twice weekly at the same times on the same days so students can expect to see us there and begin to form habits around it. The program is meant to educate students about the proper practices of post-consumer composting and get them excited about permanently getting the 3-bin system on campus.



JOIN CLUBS ON CAMPUS!

#### 2 OPEN HOUSE

This is Poly Permaculture's booth at Open House, but Zero Waste and EPC also plan to have booths educating about how to compost and the benefits of it. Zero Waste also plans to set up the 3-bin system for waste collection at the event.

#### 3 EARTH WEEK

Earth Week happens every year in April and spreads awareness about many issues of sustainability. Composting will be a hot topic this coming year and related clubs hope to host educational activities at Earth Week events.

#### 4 WOW ORIENTATION AWARENESS PROGRAM

An awareness presentation during the Week of Welcome, similar to the presentations on Diversity, Health, etc, would really emphasize the educational aspect of composting and indoctrinate students into the system immediately as they enter Cal Poly as freshmen.

#### 5 EVENTS: CHANGE THE STATUS QUO



#### 6 FLYERS

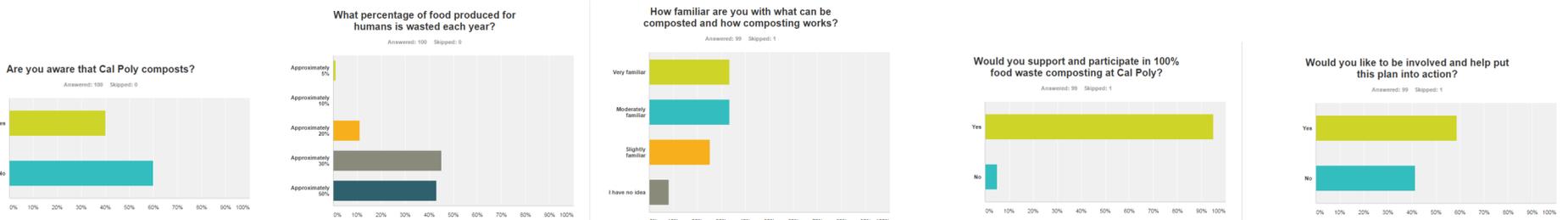


COMPOST CAL POLY

COMING SOON TO YOUR CAMPUS

Follow Empower Poly Coalition on Facebook for more information

### WHAT DO CAL POLY STUDENTS SAY?



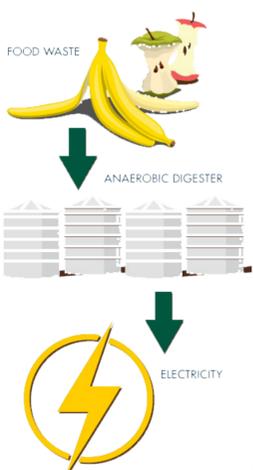
## 5-FUTURE PROPOSAL

implement a **BIODIGESTER**



One example of a potential biodigester manufacturer is **Impact Bioenergy**

- Use
- Transport
- Composting/Biodigestion/biogas harvesting
- Compost/leachate/electricity generation used on Cal Poly lands to grow food for campus dining and power our campus
- Excess distributed amongst the community



GOAL: **CLOSED LOOP SYSTEM**

## UC DAVIS COMPOST CASE STUDY

### BACKGROUND

In 2001 pre-consumer food scraps were collected from campus dining kitchens as part of a pilot program. As of 2009, nearly **98 percent of all organic** matter from University Dining Services, including kitchen scraps and uneaten food, is composted. About 1,000 pounds of organic matter are collected every day.



### WHAT IS COLLECTED

Dining collects all pre- and post-consumer waste for composting. Pre-consumer kitchen scraps from dining commons are collected separately from the rest. Uneaten food and soiled paper goods are collected at all dining halls, Gunrock Pub, Aggie Stadium and University Catering events. In 2010, compost bins were added to the Memorial Union, with a student-led campaign to inform campus consumers how to most efficiently sort their trash among recycling, compost and landfill options. Compostables are also collected from Student Housing, which began as a pilot project "Bucket Program" and has since expanded. **All three residence halls now have organic waste collection bins.** One hall has bins in every room. Student Housing also collects paper towel waste from restrooms in five buildings for composting.

### WHERE IT GOES

Some organic matter collected on campus is sent to a nearby industrial compost facility to create compost for local farms, with other food scraps going to the Biogas Energy Project to test the **UC Davis-developed biodigester.**

### HOW IT IS COLLECTED

Several days a week, truckloads of pre-consumer kitchen scraps are also transferred from campus kitchens to the **Student Farm for soil conditioning**, with the help of Project Compost student staff and volunteers. This student-run program is being done in conjunction with Sodexo, which manages campus dining services.

UC Davis in the "Wastewise Game Day Challenge," by the numbers:  
**0.072 pounds compost per person**  
**0.045 pounds recycling per person**  
**0.012 pounds landfill trash per person**  
**0.129 pounds total waste per person (which includes recycling, compost and trash)**  
**89.83% waste diversion rate**