

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



WHERE?

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



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



CURRENT TRASH & RECYCLING INFRASTRUCTURE

AMOUNTS

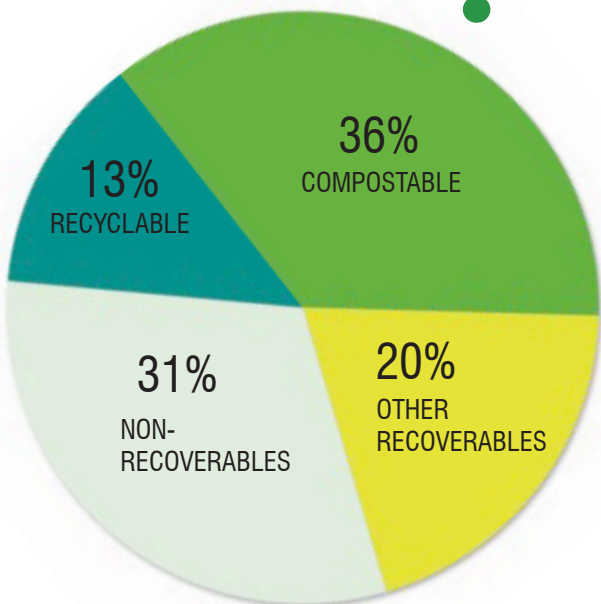
Cal Poly produces approximately 5260 tons of waste per year



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)	Boston 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
Humboldt State University	Columbia University
San Francisco State University	University of Alaska Fairbanks
Stanford University	Arizona State University
University of Southern California	Northern Arizona University
Santa Clara University	University of Arizona
Ohio University	Carnegie Mellon University
	Colorado State University
	University of Northern Colorado
	Syracuse University

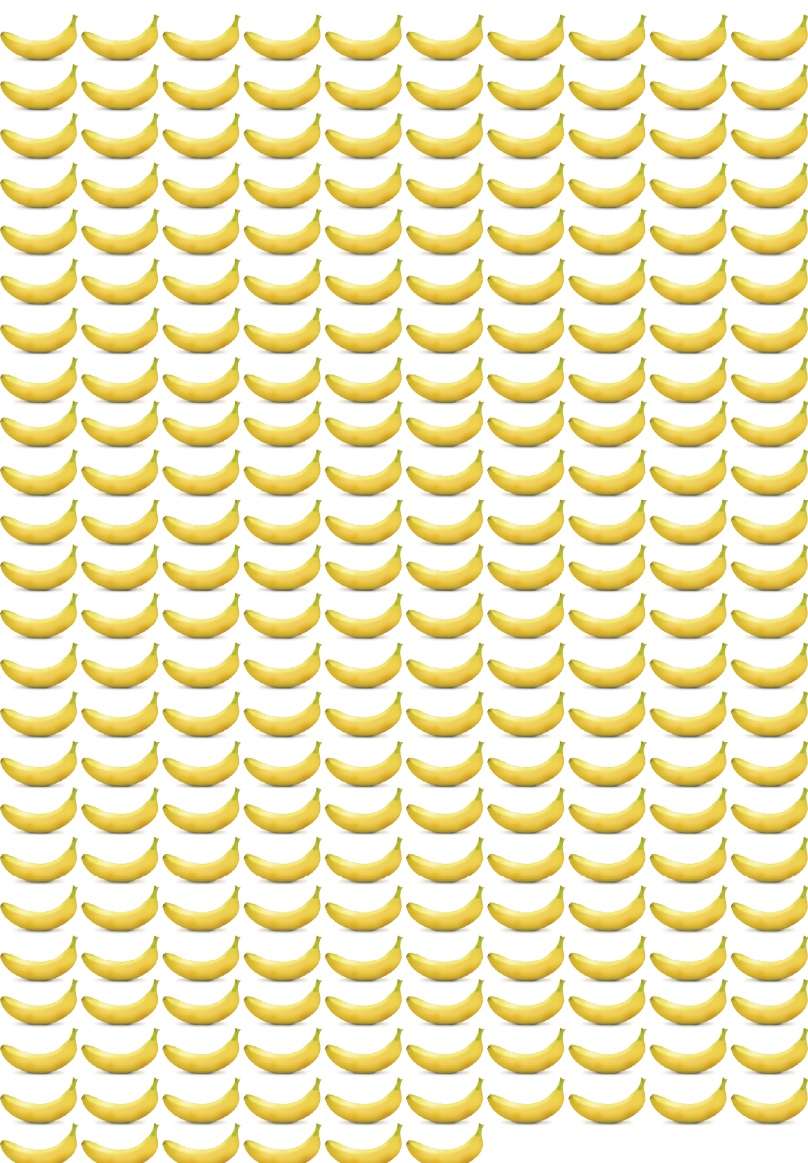


PROPOSED ADDITION:

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**



🍌 = FIFTY THOUSAND 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

WHERE ARE OUR CURRENT TRASH CANS?



BINFRASTRUCTURE

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

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?



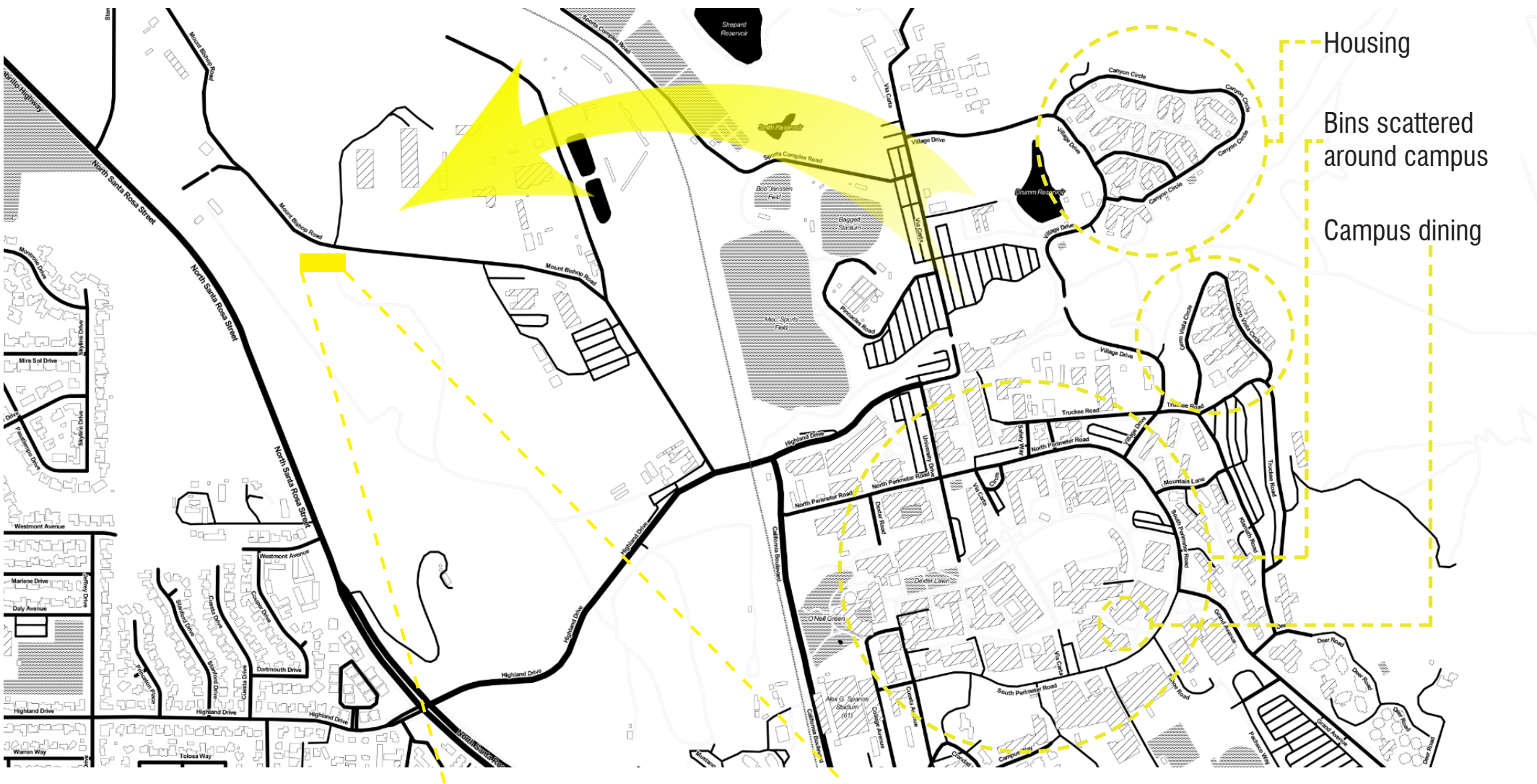
STAFFING

“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 seperate 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 then 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

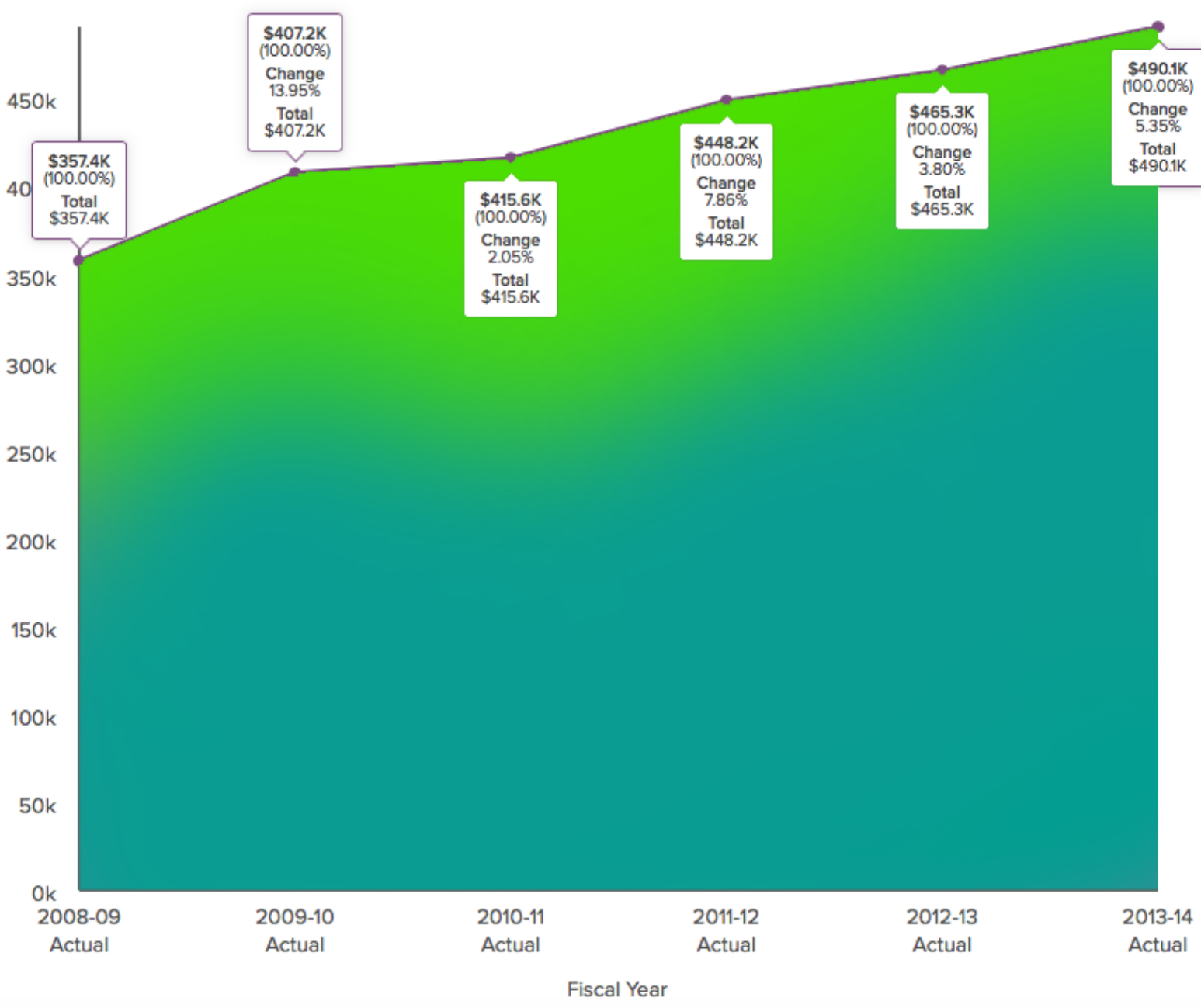
Cal Poly already has a unit for Engel and Gray on campus

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
TOTAL	\$198,931		

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
TOTAL	\$182.477		

SAVINGS: \$16,454/ YEAR

GROUP E ••• EDES 408 ••• WINTER 2015

SHANE BENNETT • CASSIDY BOYCE • MEGAN VAN HAMERSVELD • PATRICIA HANSEN • AMELIA KRAUS • JESSICA KUHLMAN • CONOR SASS



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



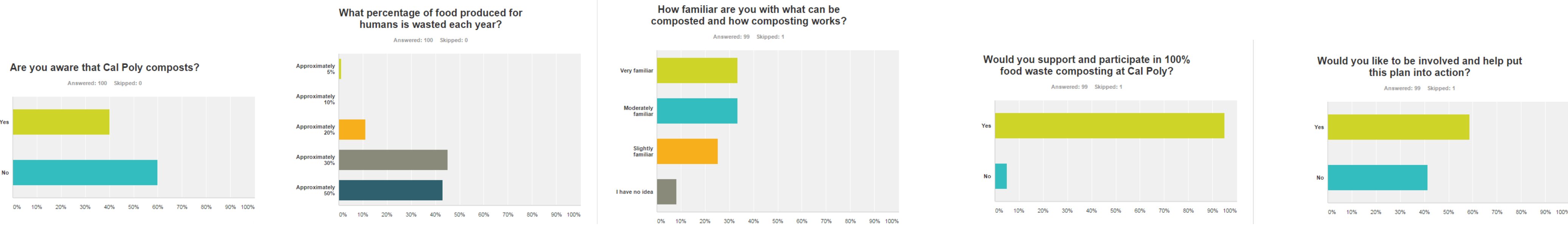
6 FLYERS

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

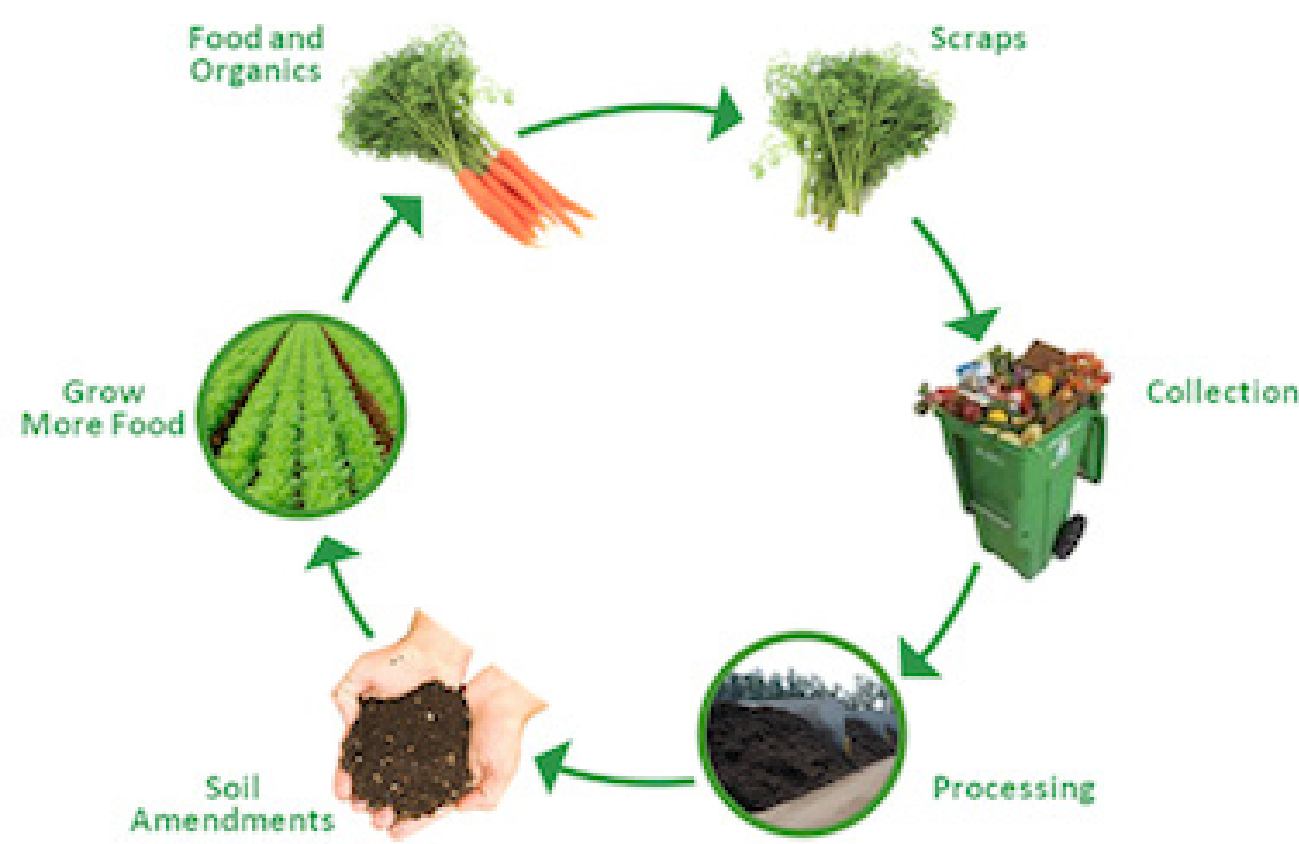
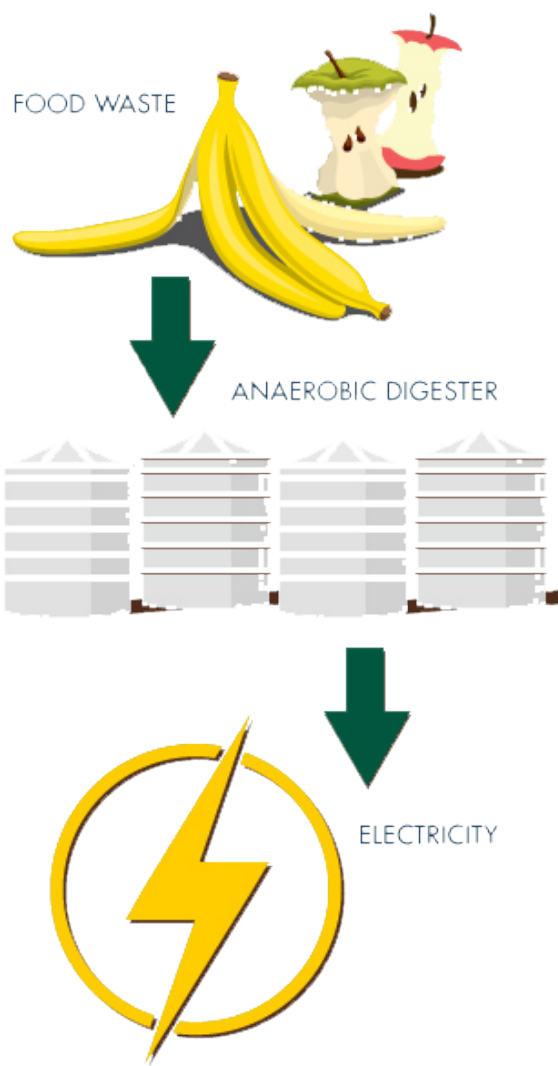
implement a BIODIGESTER



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