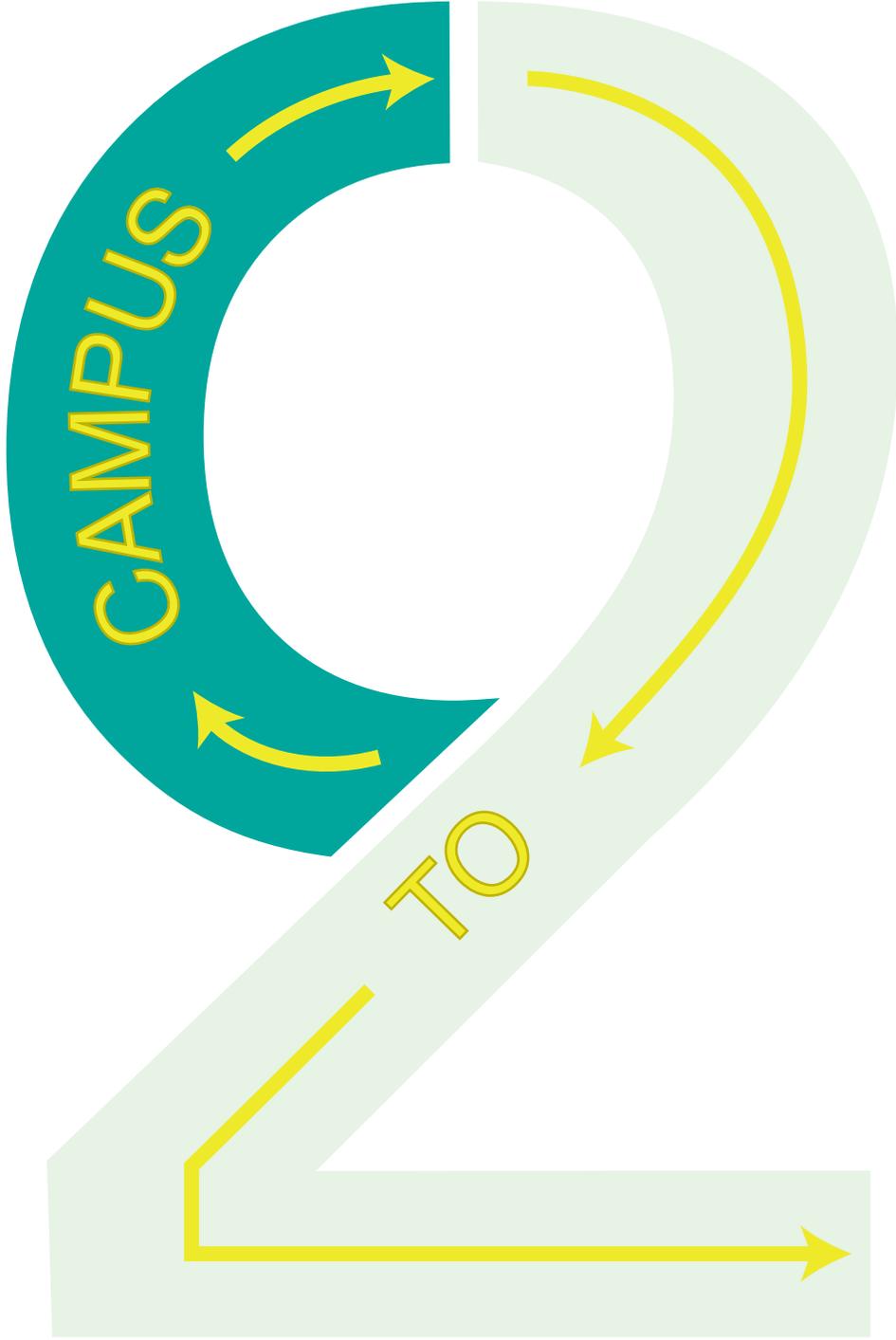


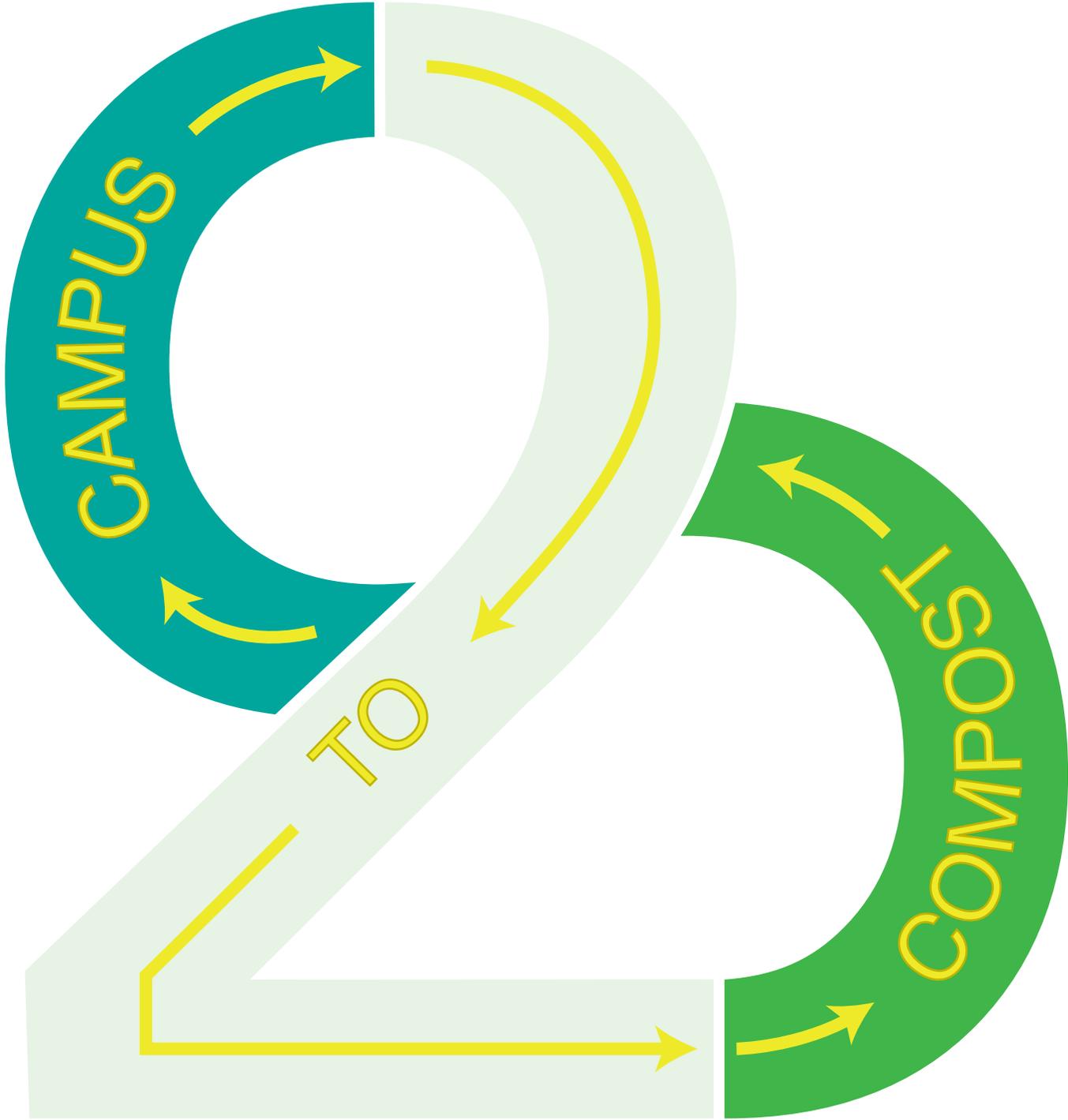
CAMPUS TO COMPOST



EDES 408
GROUP E







WHY COMPOSTING?



- **FOOD WASTE IS A WATER PROBLEM**



- **FOOD WASTE CAUSES GREENHOUSE GASES**



- the agriculture industry uses 70% of US water

- 25% of this water gets wasted as food is thrown away

TABLE OF CONTENTS



- ① CURRENT INFRASTRUCTURE
- ② PROPOSED INFRASTRUCTURE
- ③ COST
- ④ STUDENT INVOLVEMENT
- ⑤ FUTURE PROPOSAL

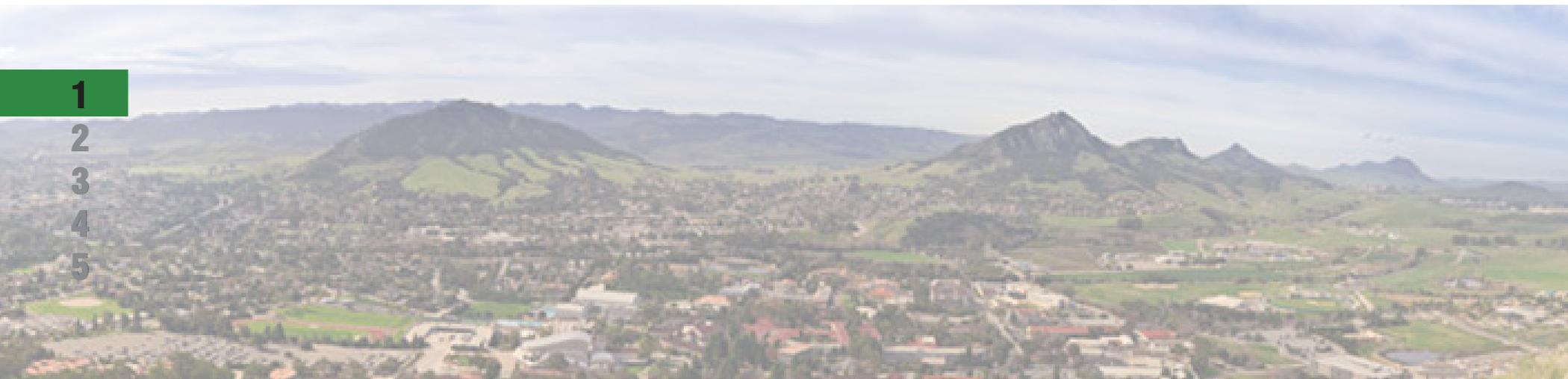
1-CURRENT INFRASTRUCTURE



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

which breaks down into

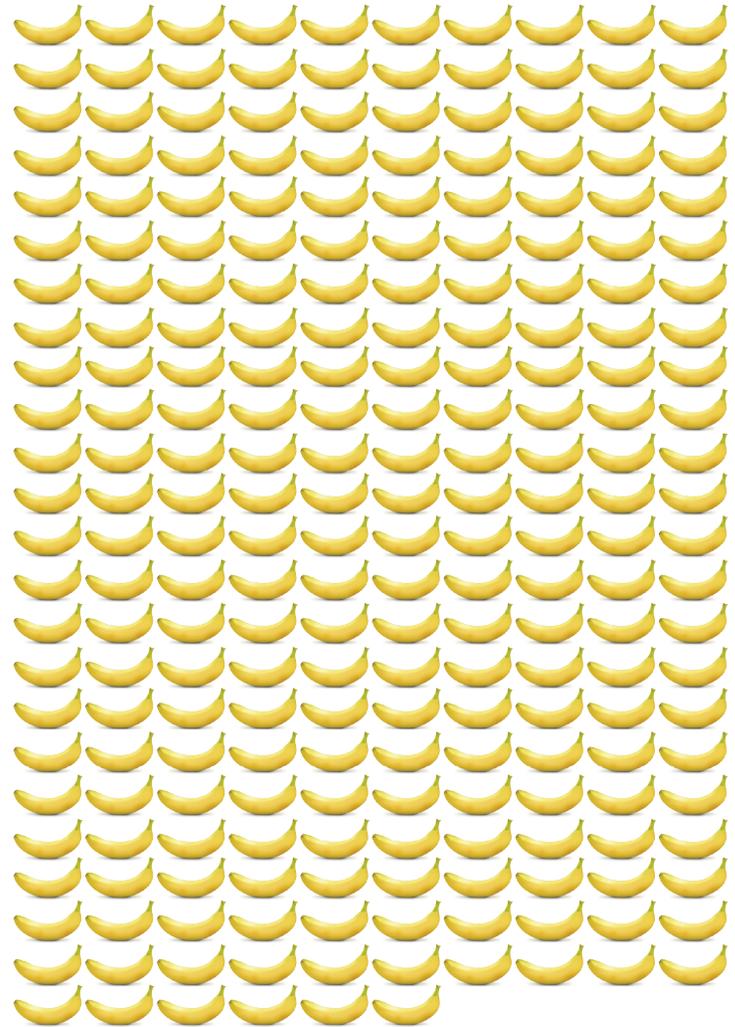


- composted green waste,
- recycled shredded documents
- other recycling (cardboard, metals, etc.)
- e-waste
- construction waste
- waste from on-campus bins



Of this, about **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

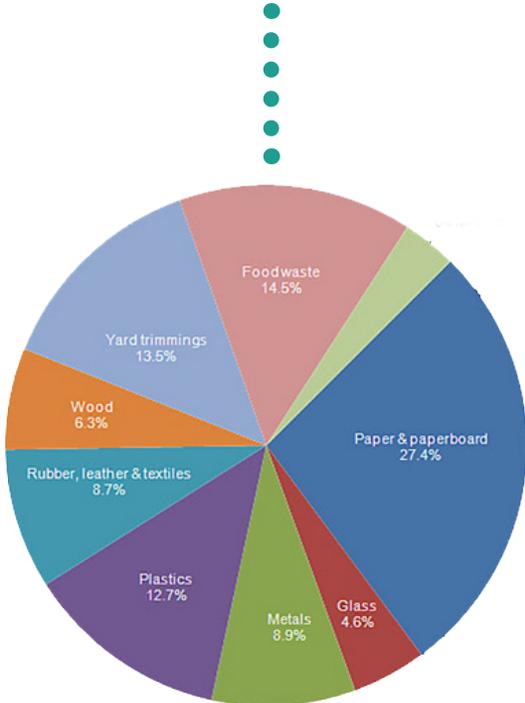
- This works out to each person on campus (Faculty, Staff, and Students) throwing away approximately **182 POUNDS OF GARBAGE PER YEAR!**
- That is about the same weight as a **MALE COLLEGE STUDENT.** All of this ends up in the landfill.



According to the EPA, the average municipal solid waste trash bin contains about

15% food waste.

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



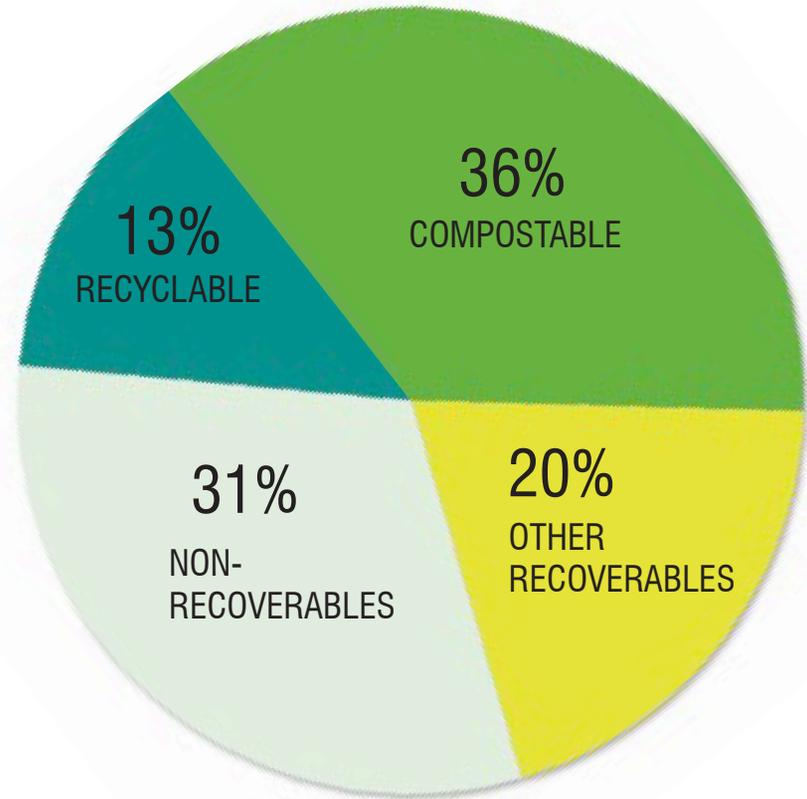
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Portland State University shows:

36% of our landfill waste is likely compostable FOOD WASTE and fibers

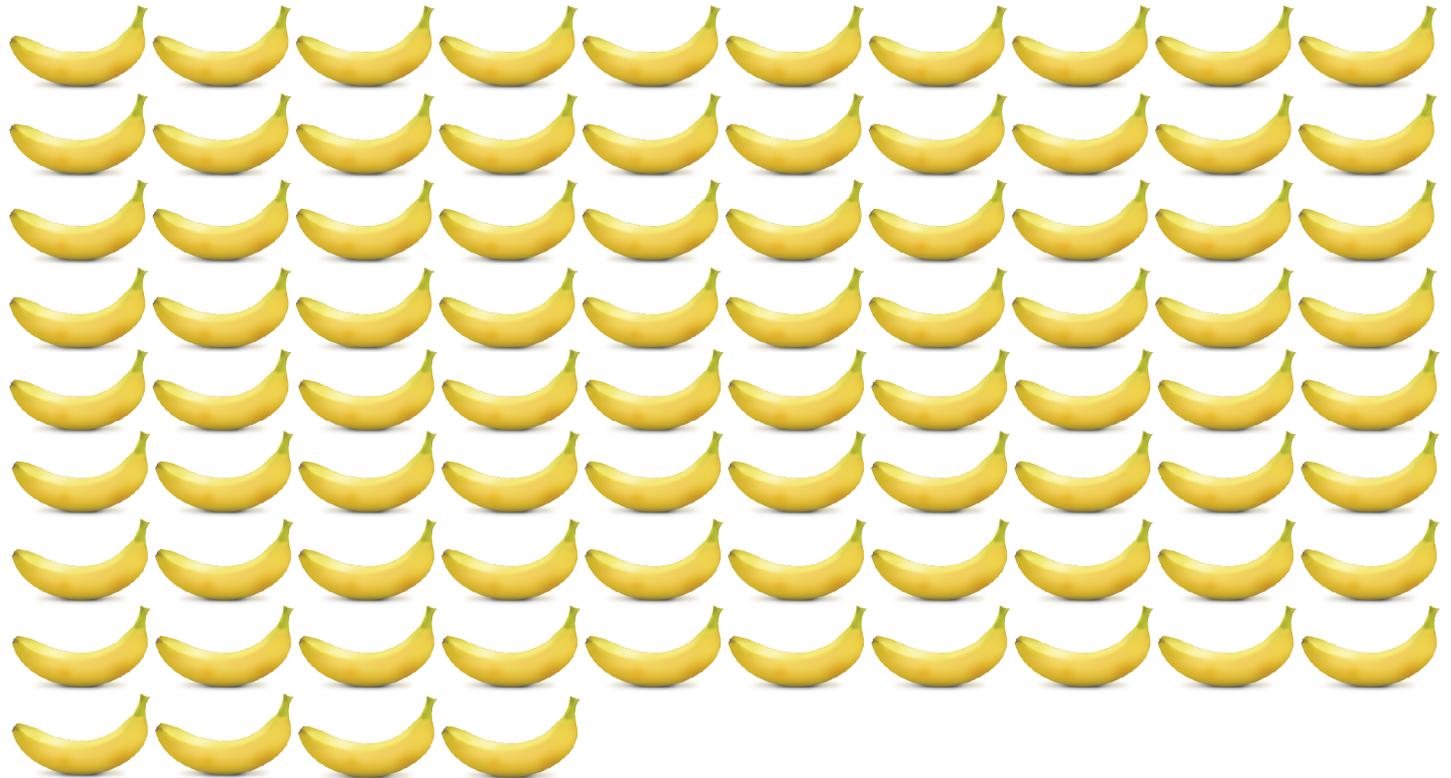


25% of which is food waste alone.



- Approximately **706 TONS** of our landfill waste is compostable material that is currently emitting dangerous greenhouse gases into our atmosphere and could instead be diverted from the waste stream.

- This is the same as about **4.2 MILLION BANANAS!**



 = FIFTY THOUSAND BANANAS

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



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.



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CURRENT FOOD WASTE COMPOSTING INFRASTRUCTURE

In 2013, **249 tons of food waste** from Cal Poly was composted. This food waste came from pre-consumer kitchen waste in the campus dining facilities. Since then, that number has increased slightly because campus dining has begun collecting post-consumer eat-in food waste left on dishes and trays and adding it to the food waste for composting.

WHERE DOES IT COME FROM?

- campus dining

HOW IS IT COLLECTED?

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

WHERE IT GOES?

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

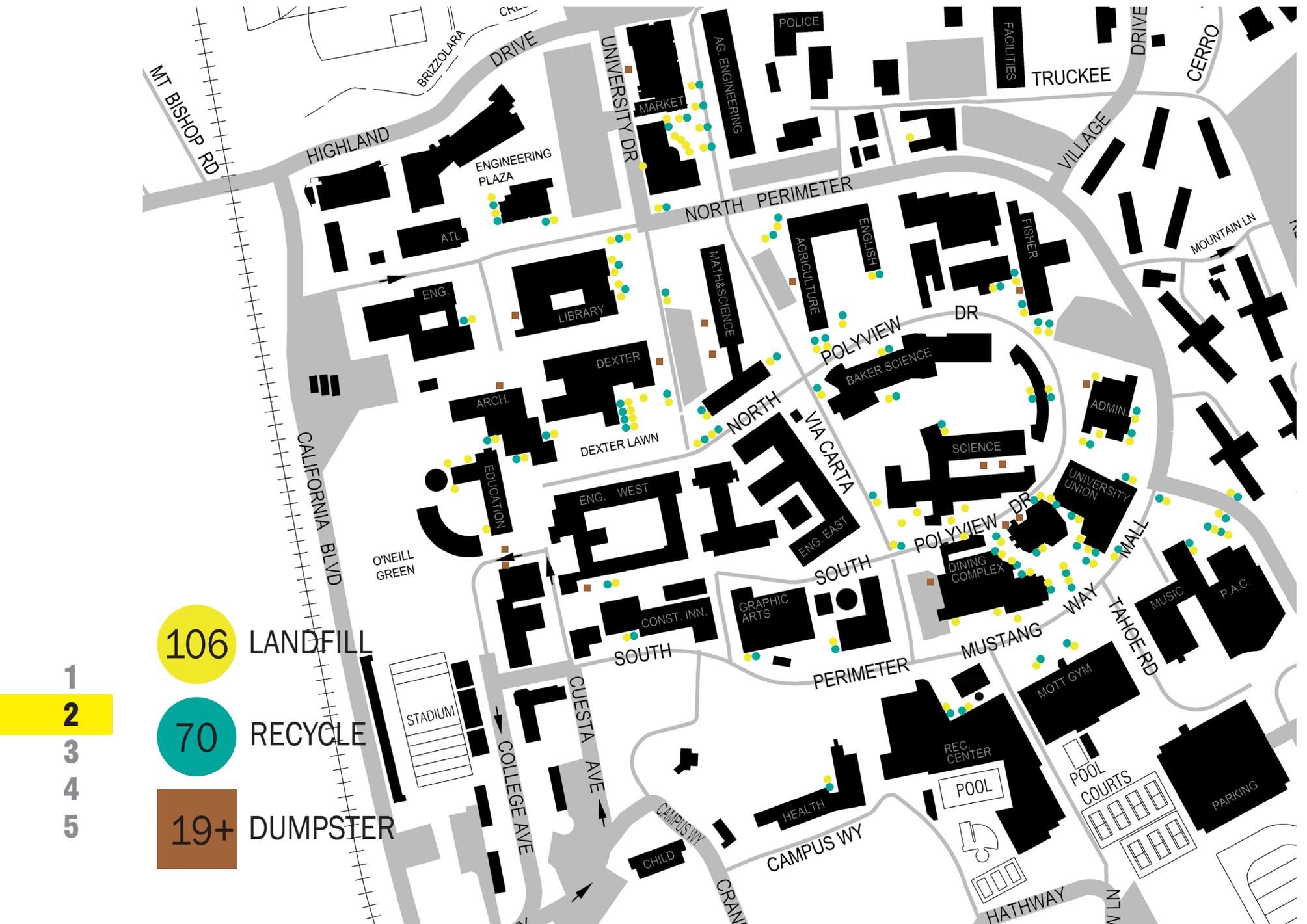


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2-PROPOSED INFRASTRUCTURE



WHERE ARE OUR CURRENT TRASH CANS?



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106 LANDFILL

70 RECYCLE

19+ DUMPSTER

RECOGNIZE THESE? LET'S IMPROVE THEM.



**STANDARD
TRASH &
RECYCLE**



**ASI
TRASH &
RECYCLE**



**THOSE
RANDOM
TRASH CANS**

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



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LEARN BY DUMPING?

**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?**

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BINFRASTRUCTURE

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



Roof Options

Choose between Standard, Vail, Reverse Vail, and Curved Top roof styles.

Restrictive Openings

Helps prevent cross contamination by restricting input and provides quick and visual reference.

Opening ID's

Clearly labeled waste and recycling streams help identify openings and reduce cross contamination.

Interchangeable Graphics

Interchangeable graphics add interest and direction to your units.

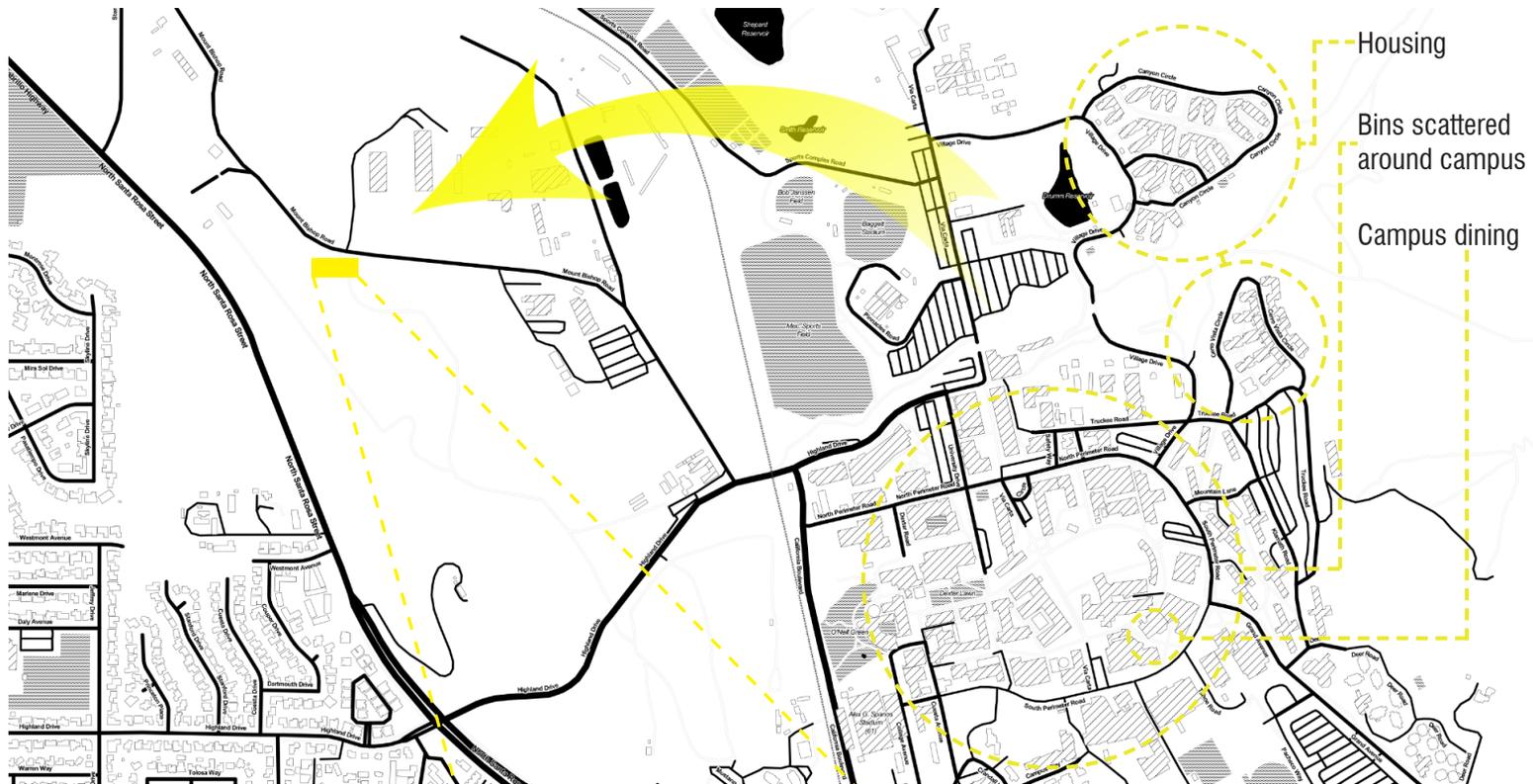
Color Options

Make recycling efforts known by changing the colors of each of your units.



- 1
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COLLECTION



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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



CURRENT WASTE PROGRAM

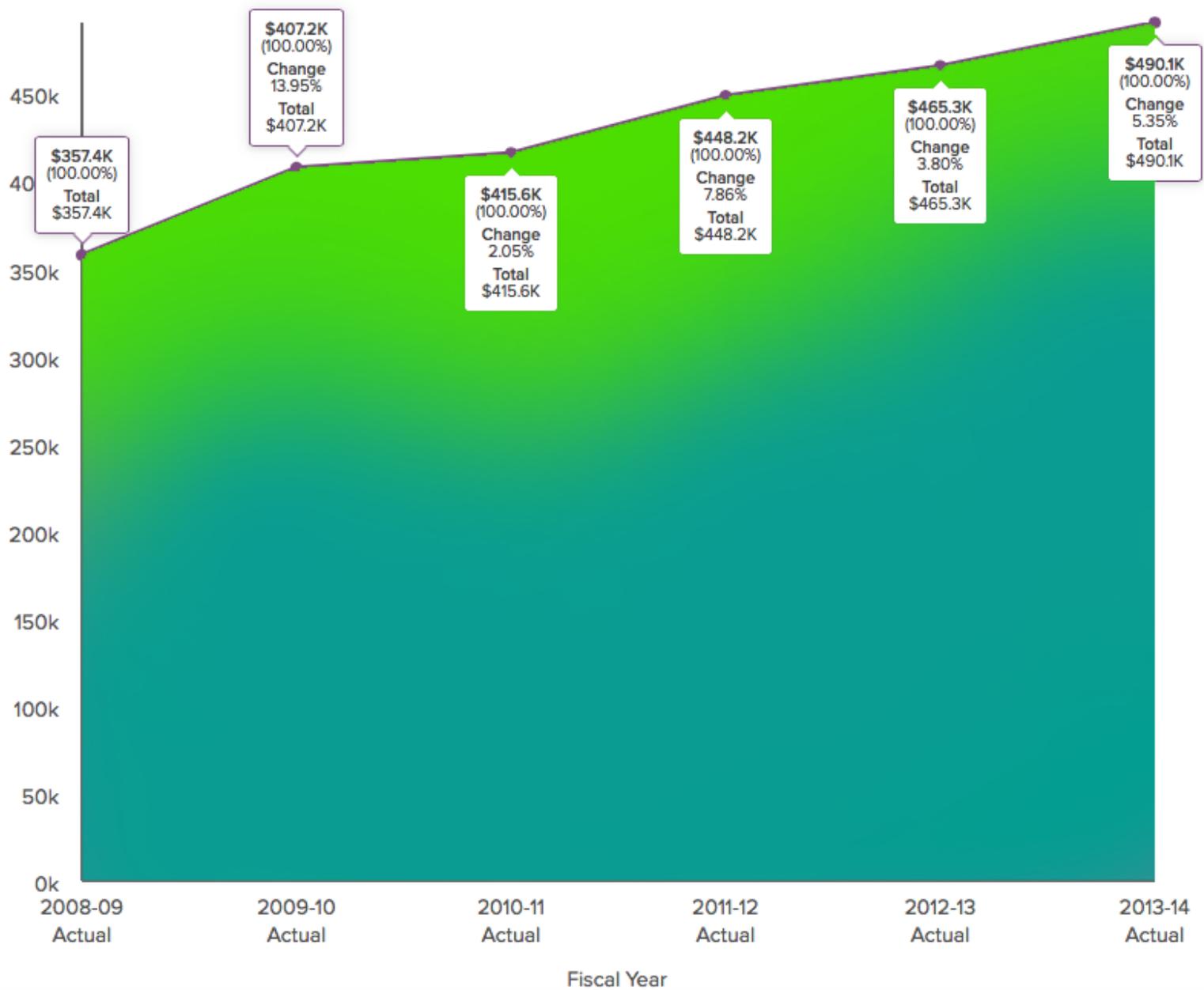
	Total Cost/Year	Amount (Tons)	Cost/Ton
Waste Expenses	\$182,746	1961	\$93.19
Compost Expenses	\$16,185	222.5	\$71.17
TOTAL	\$198,931		

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

NON-HAZARDOUS WASTE EXPENSES



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HOW DO WE PAY FOR COMPOSTING?

- ▶ **CSU/STATE MONEY**
- ▶ **PRIVATE DONATIONS**
- ▶ **SPONSORSHIPS**
- ▶ **GRANTS (CSU, STATE, EPA)**



4-STUDENT INVOLVEMENT



HOW DO STUDENTS GET INVOLVED?

COMPOSTING



SOILED PAPER AND PAPER DISHWARE

VEGETABLES

FRUIT

MEAT

TEA BAGS

BONES

VEGETABLE BASED COMPOSTABLE DISHWARE AND SILVERWARE

NAPKINS

COFFEE GRINDS

GLASS	PAPER	CANS	PLASTIC
GLASS BOTTLES, JARS AND FOOD CONTAINERS	NEWSPAPER OFFICE PAPER MAGAZINES JUNK MAIL CARDBOARD BOXES DRY FOOD CARTONS	ALUMINUM CANS METAL CANS CLEAN FOIL STEEL BOTTLE CAPS	#1, #2, #4, #5, #7 PLASTIC FOOD AND BEVERAGE CONTAINERS
			

RECYCLING

EASY AS 1-2-3! JUST SAY "TEACH ME"



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JOIN THE EPC OR ZERO WASTE CLUB!

ZERO WASTE CLUB



EMPOWER POLY COALITION



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JOIN THESE FRIENDLY PEOPLE!

GO TO EVENTS LIKE “CHANGE THE STATUS QUO!”



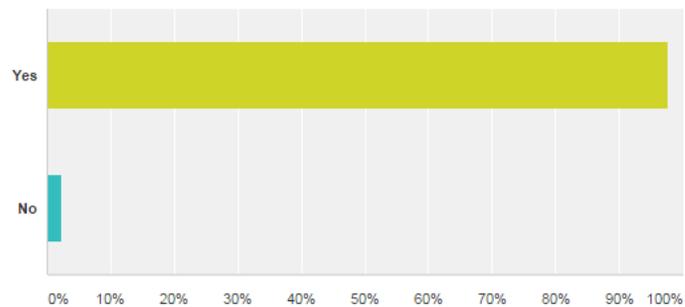
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WHAT DID STUDENTS HAVE TO SAY?

Q4

Would you support and participate in 100% food waste composting at Cal Poly?

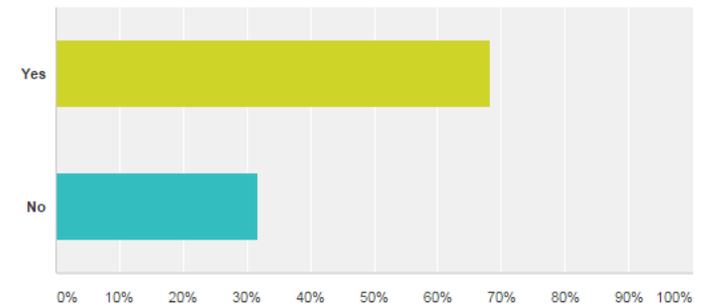
Answered: 42 Skipped: 0



Q5

Would you like to be involved and help put this plan into action?

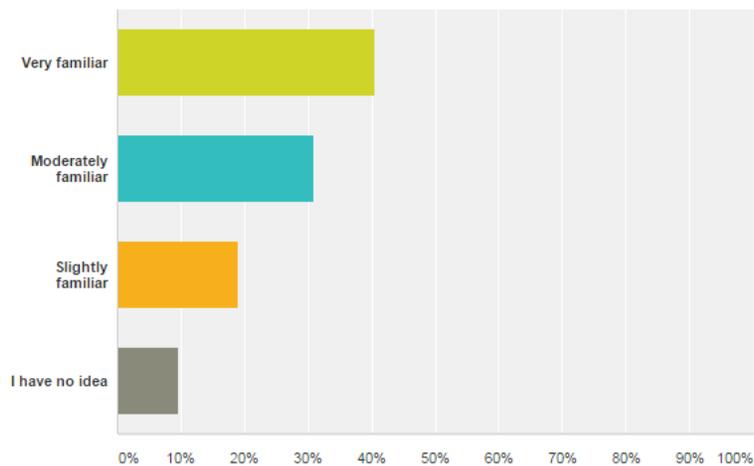
Answered: 41 Skipped: 1



Q3

How familiar are you with what can be composted and how composting works?

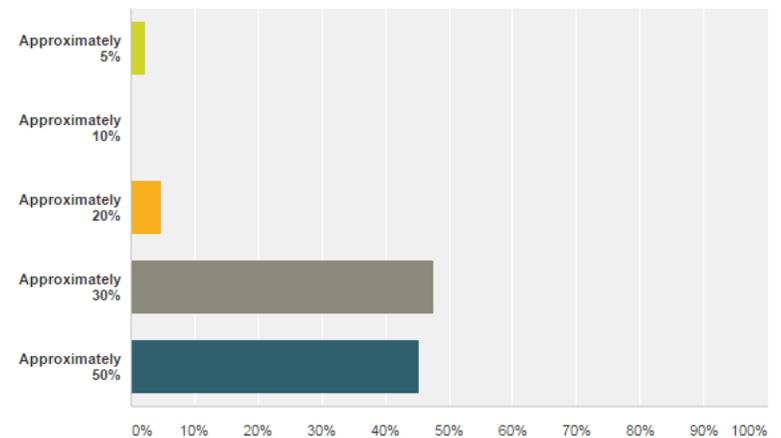
Answered: 42 Skipped: 0



Q2

What percentage of food produced for humans is wasted each year?

Answered: 42 Skipped: 0



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SIGN PETITIONS AND MAKE IT REAL...

C2C - Campus to Compost

We are working to create a detailed, comprehensive report for how to enact post-consumer food compost collection on our campus. We are hoping that our report can help the university create a system of bins integrated with the current trash and recycling bins which can collect organic waste to be sent off campus for composting.

Do you support this plan?

By typing my name and email below, I hereby support C2C's goal and urge Cal Poly to integrate post-consumer composting into the current waste collection infrastructure.



Name	Cal Poly Email
Megan van Hamersveld	mvanhame@calpoly.edu
Kate Grossmith	kgrossmi@calpoly.edu
Shane Bennett	sbenne01@calpoly.edu
Cher Lei	clei03@calpoly.edu
Kaitlyn Johnke	kjohnke@calpoly.edu
Charlotte Mountain	clmounta@calpoly.edu
Crystal Van	crvan@calpoly.edu
Joey Persico	jpersico@calpoly.edu
Dani Berton	dberton@calpoly.edu

5-FUTURE PROPOSAL



WHAT DOES THAT MEAN?

All organic waste will stay within the confines of the campus:



- **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**

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There will be no need to truck our waste to Santa Maria, all composting will be done in-house!



WHAT DOES THE FUTURE HOLD?

- implement a **BIODIGESTER**

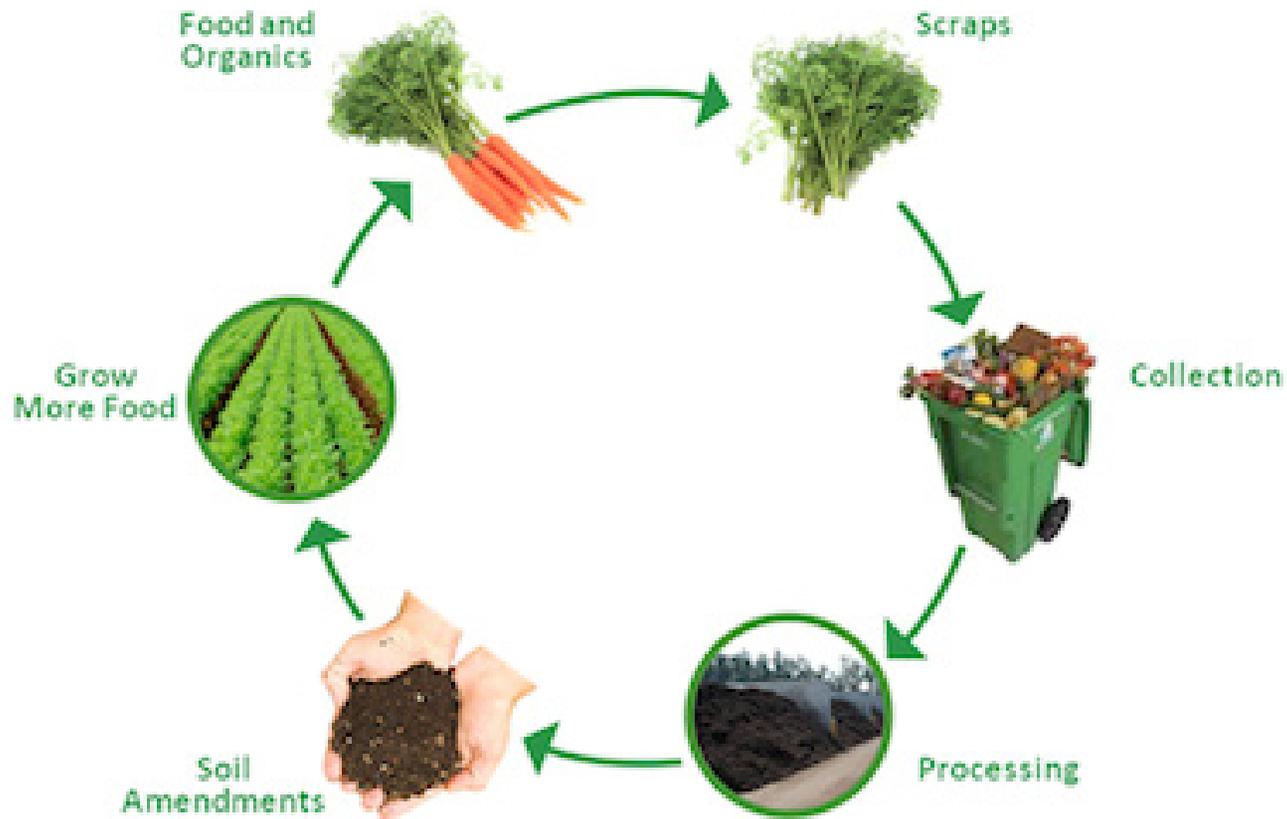


- One example of a potential biodigester manufacturer is **Impact Bioenergy**



OUR ULTIMATE GOAL AT CAL POLY?

BECOME A **CLOSED LOOP SYSTEM**



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HOW CAN WE MAKE THIS HAPPEN?

ENGINEERING SENIOR PROJECT(S)

- **Contact: Tryg Lundquist**
- **Need a biodigester**
- **Need a grinder**
- **Need biogas storage and filtration**
- **Need biogas electricity generator**
- **Green Initiative Fund**



GRANTS

- **Funding**

SOURCES

FINANCE

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WATER PROBLEM

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FUTURE PROPOSAL

Impact Bio Energy Club. 2013. Jan Allen. "185 Series."

YES, EVEN MORE..

CURRENT INFRASTRUCTURE

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Non-Data Images Courtesy of Google Earth

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THANK YOU



QUESTIONS?