

Waste to Watts

Decreasing Landfill Waste Through Organic Digestion

WEST LAFAYETTE GO GREENER COMMISSION

PURDUE STUDENT SUSTAINABILITY COUNCIL

PURDUE OFFICE OF SERVICE-LEARNING AND ENGAGEMENT

ENVIRONMENTAL & ECOLOGICAL ENGINEERING



Our Team

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Program Overview



FOOD WASTE



ANAEROBIC DIGESTION



DIVERSION & MITIGATION



PARTNERSHIPS

Purdue Dining Court Program

Initial Metrics

- 3 tons per weekday
 - 4,600,000 lbs diverted since inception
 - Provides 18% of WWTP Electricity
- Boiler Bytes: Food waste helping provide energy source
- 681 kwh per weekday
 - \$3,500 monthly energy savings

Potential/Max Capacity

- 18 tons of food waste per day
- Provide 100% of WWTP Electricity



What is Acceptable Food Waste?

Yes

Unpackaged and Degradable Food Products

- ✓ Fruits
- ✓ Meat
- ✓ Dairy
- ✓ Bread
- ✓ Vegetables
- ✓ Processed Food



No

Non-Degradable Materials, Packaged Products, or Yard Waste

- x Bones
- x Wrappers
- x Utensils
- x Packaging
- x Yard Waste (twigs, plants, leaves)

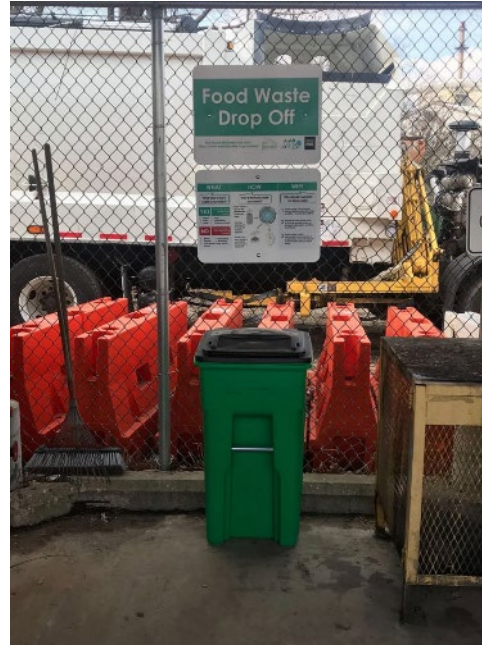


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For drop-off locations visit the
West Lafayette Streets and Sanitation Department website at:
www.westlafayette.in.gov/street/

Meet You At
Armi's™



Drop-Off Location

Community = 200 lbs/week

- Individual/home drop off

Dining Courts = 3,000 lbs/day

Education Efforts



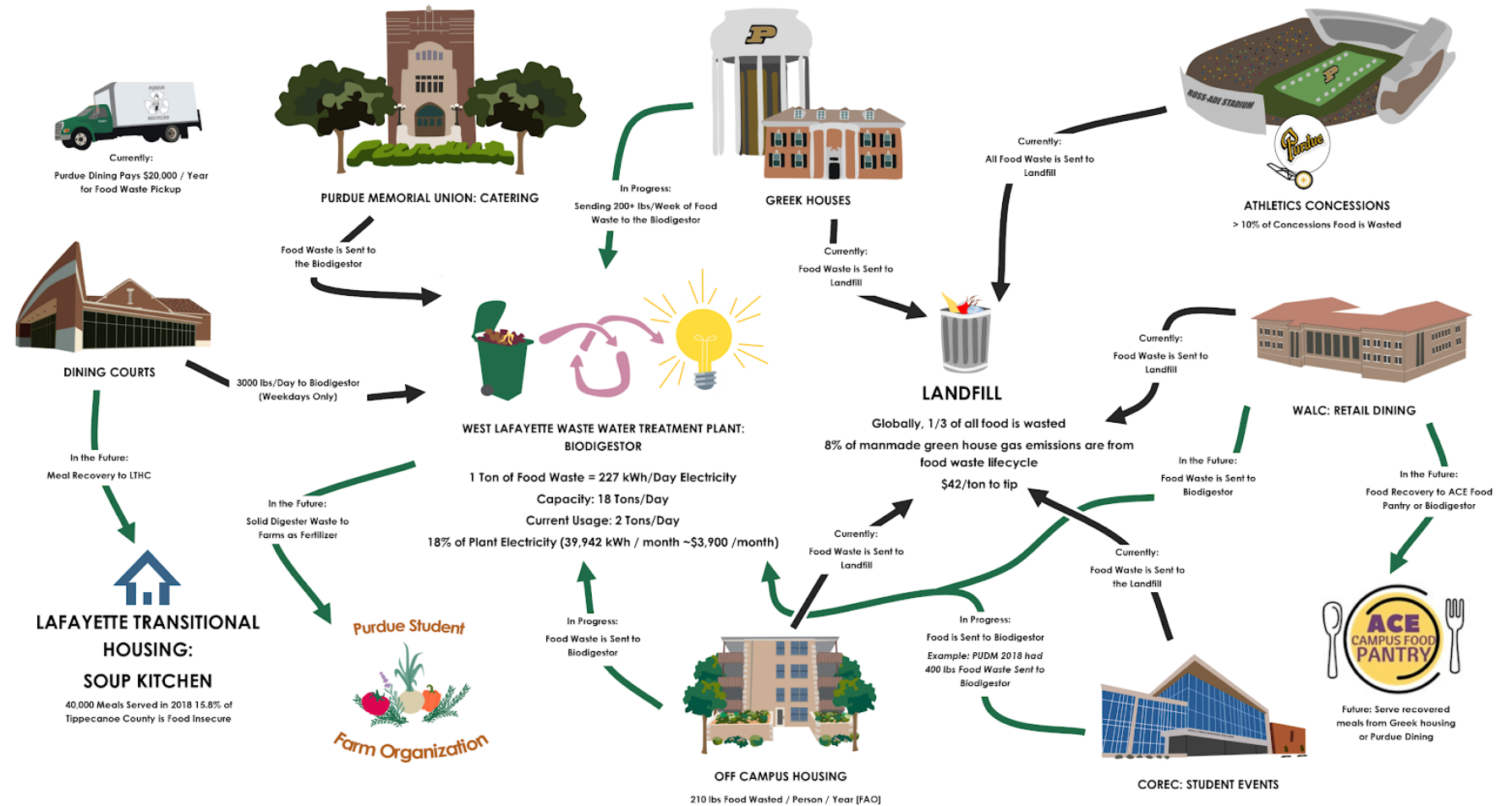
Coffee shop talk with composting and organic digestion experts



"With the West Lafayette Food Waste Program, we have reduced our trash pick-up (for 2 people) to one lightweight 13-gallon bag per week. We thought at first it would be a lot of work; but it is so easy!"

Honors College Scholarly Project

Program Expansion to Purdue Campus



Questions Explored:

Where does campus food waste exist and how is it managed?
What is the potential for Purdue to increase program contribution?

Greek Life Program



West Lafayette Go Greener Commission

- manages contracts
- coordinates funding

Purdue Office of Engagement

- Provides \$\$ in grant funding to pay for collection containers

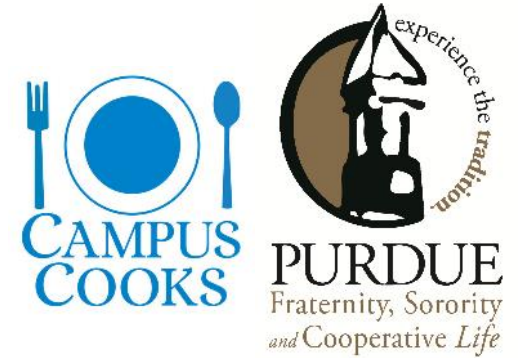


Purdue Campus Master Planning and Sustainability

- Provides Interns to transport food waste

Purdue Student Sustainability Council

- program management
- education of Greek Houses



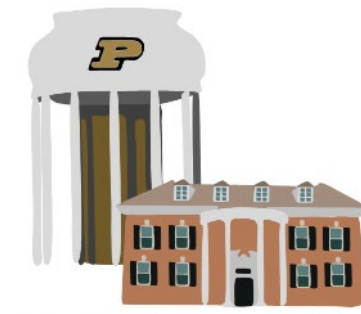
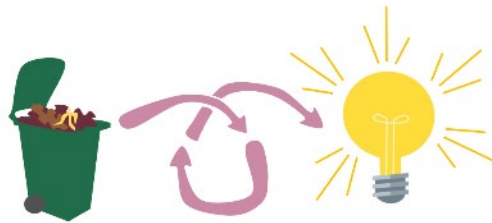
Greek Life Organizations

- coordinate food waste flow internally
- pay for collection services

Education Materials

EFFORTS TO COUNTERACT TURNOVER AND PREVENT CONTAMINATION

- Provide signage (left)
- Education Guide for kitchen staff
- Brief presentations to house residents



FOOD WASTE DONATION

DON'T:

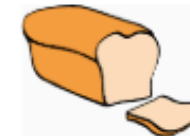


Bones
Pineapple tops
Avocado pits
Wrappers
Chopsticks/Utensils
Napkins / Paper
Any non-foods



AVOID:

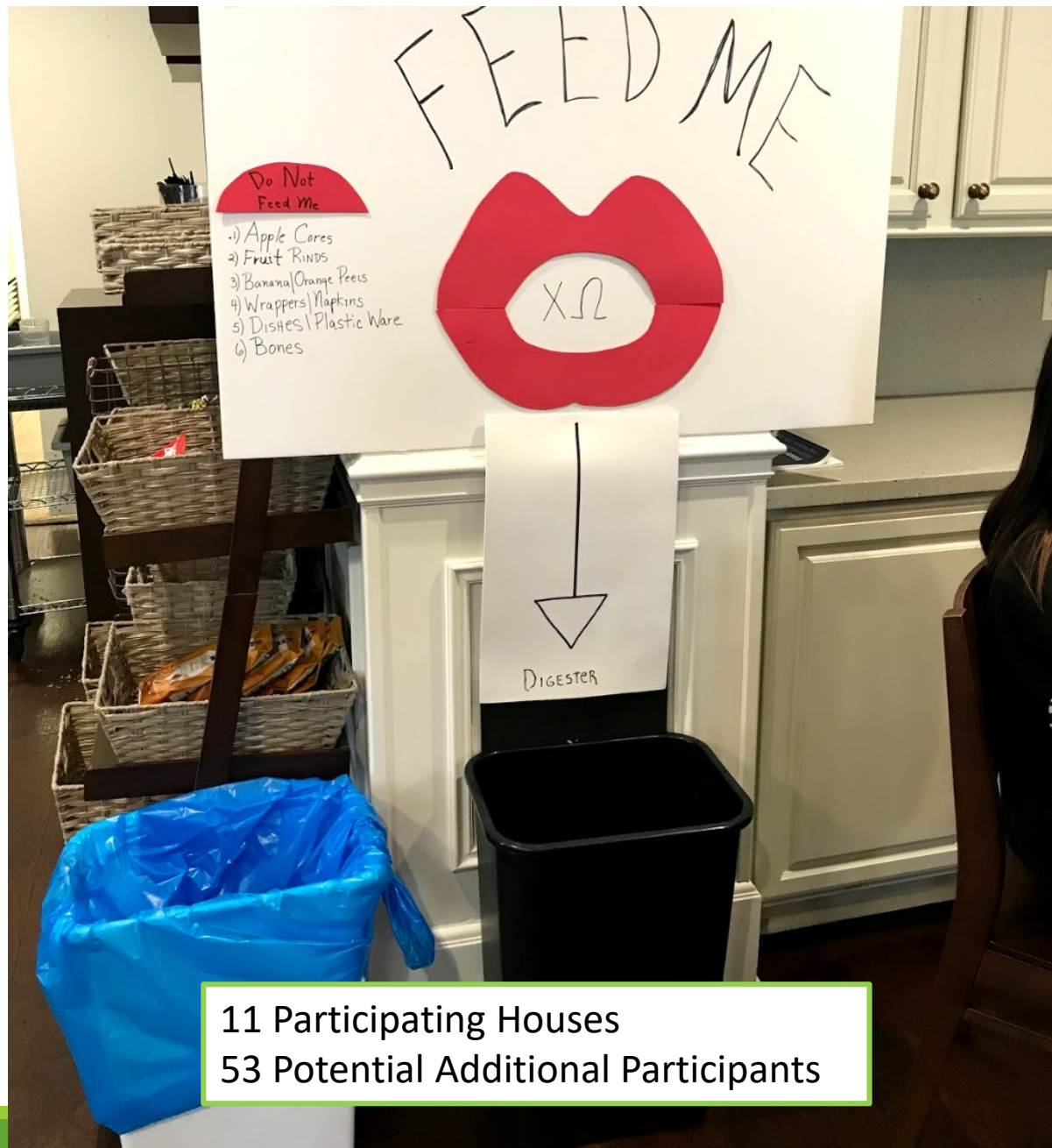
Large quantities of
Sloppy things (salad dressing, mashed potatoes)
Fruit rinds (too much can be hard grind up)



DO DONATE:

Any other food!





11 Participating Houses
53 Potential Additional Participants

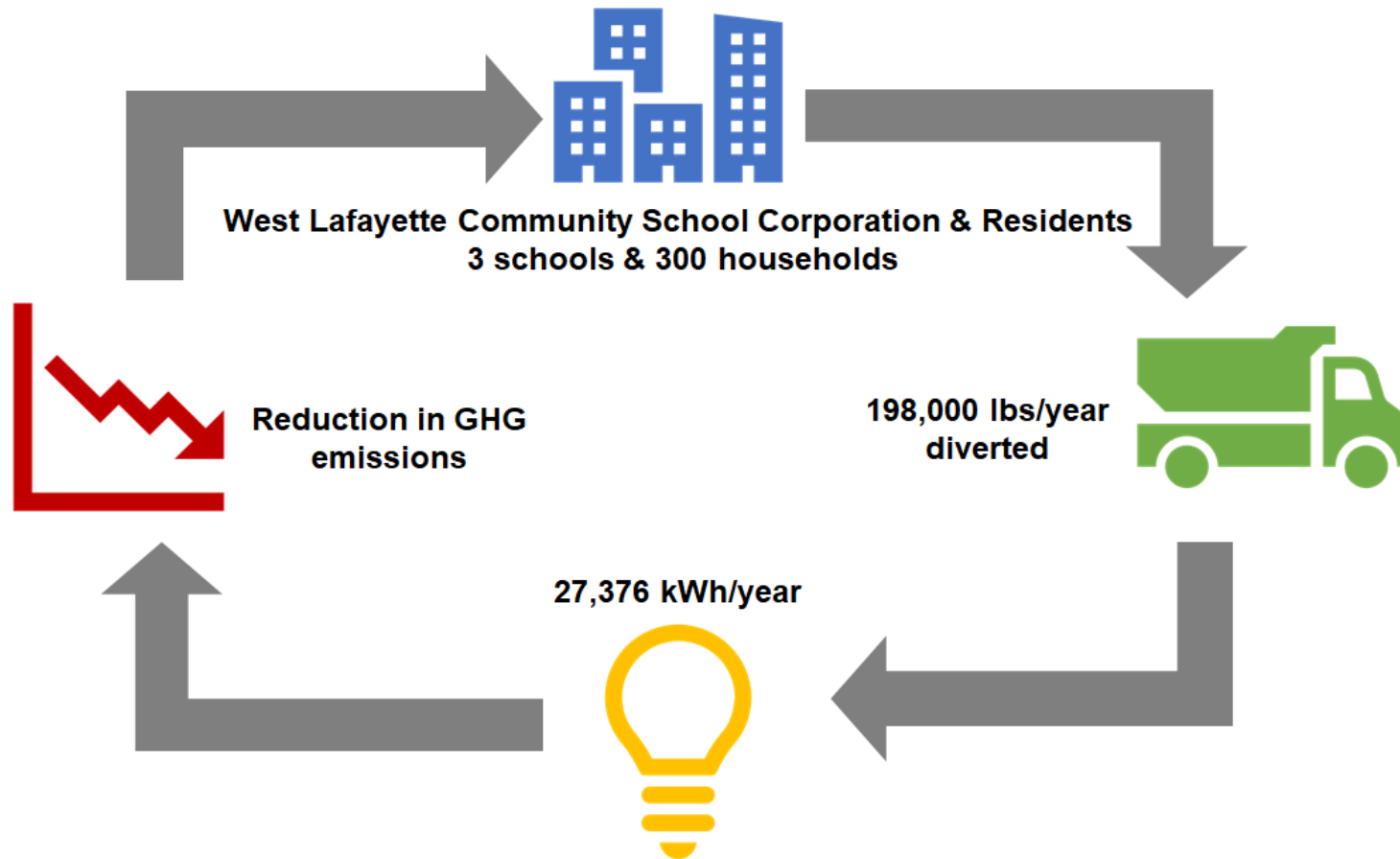


140 lb/week diverted per house
Project ~1500 lb/week diverted in Fall 2019



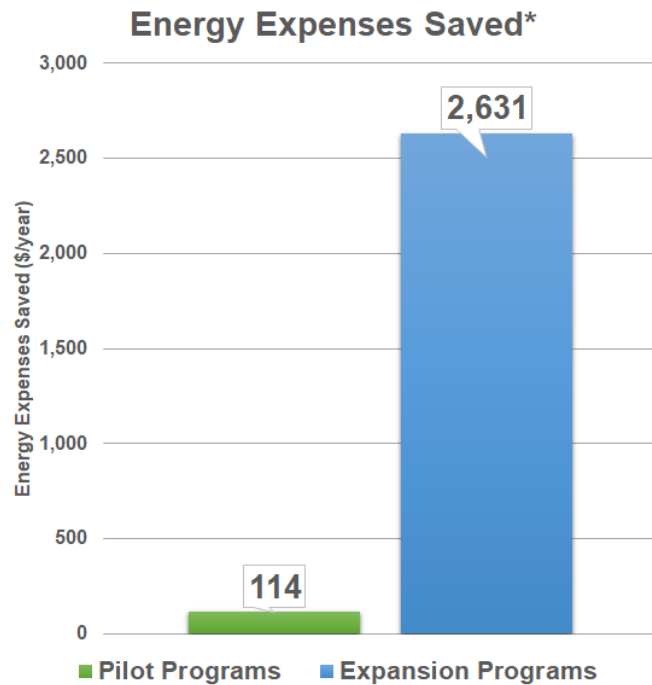
170.25 kwh/week energy savings
~\$17.00 savings/week

Further Expansion Potential

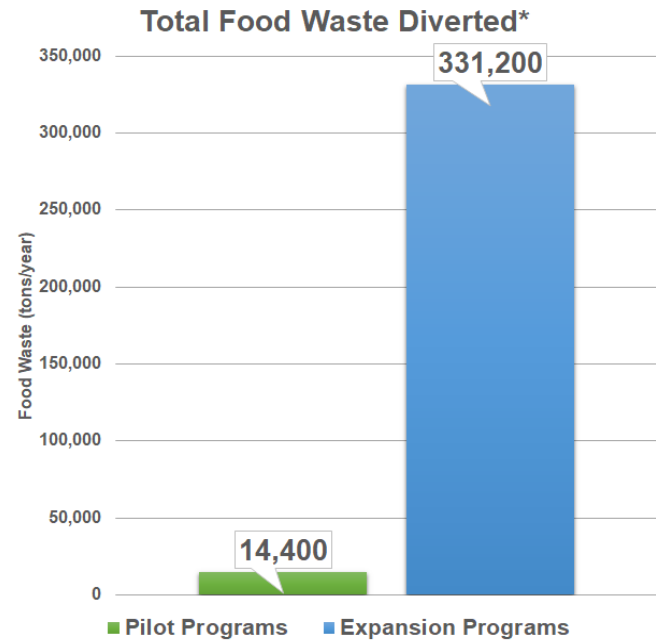


Challenges

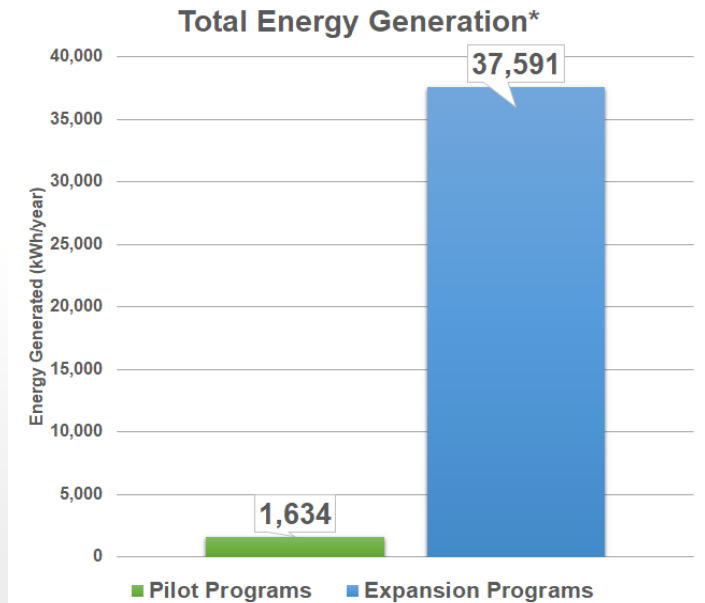
- Restrictive WWTP Design
- Transportation
- Education/Outreach
- Funding



*Based upon \$.07/kWh



*Based upon Spring 2019 pilot data from Greek houses and drop-off location, and West Lafayette Community School Corporation Schools



*Based upon 227 kWh per 1 ton of food waste

Next Steps: Environmental and Ecological Engineering Senior Design

- ✓ Feasibility Study Comparing...
 - Digestion
 - Composting
 - Fossil Fuels
- ✓ Diversion Methods "Calculator"
- ✓ Plan for at Least 1 Community Partner



How much do we need to expand to make it "worth it" in terms of cost savings, reduction in fossil fuel use, increasing city recycling, and mitigating GHG emissions?



Questions?
