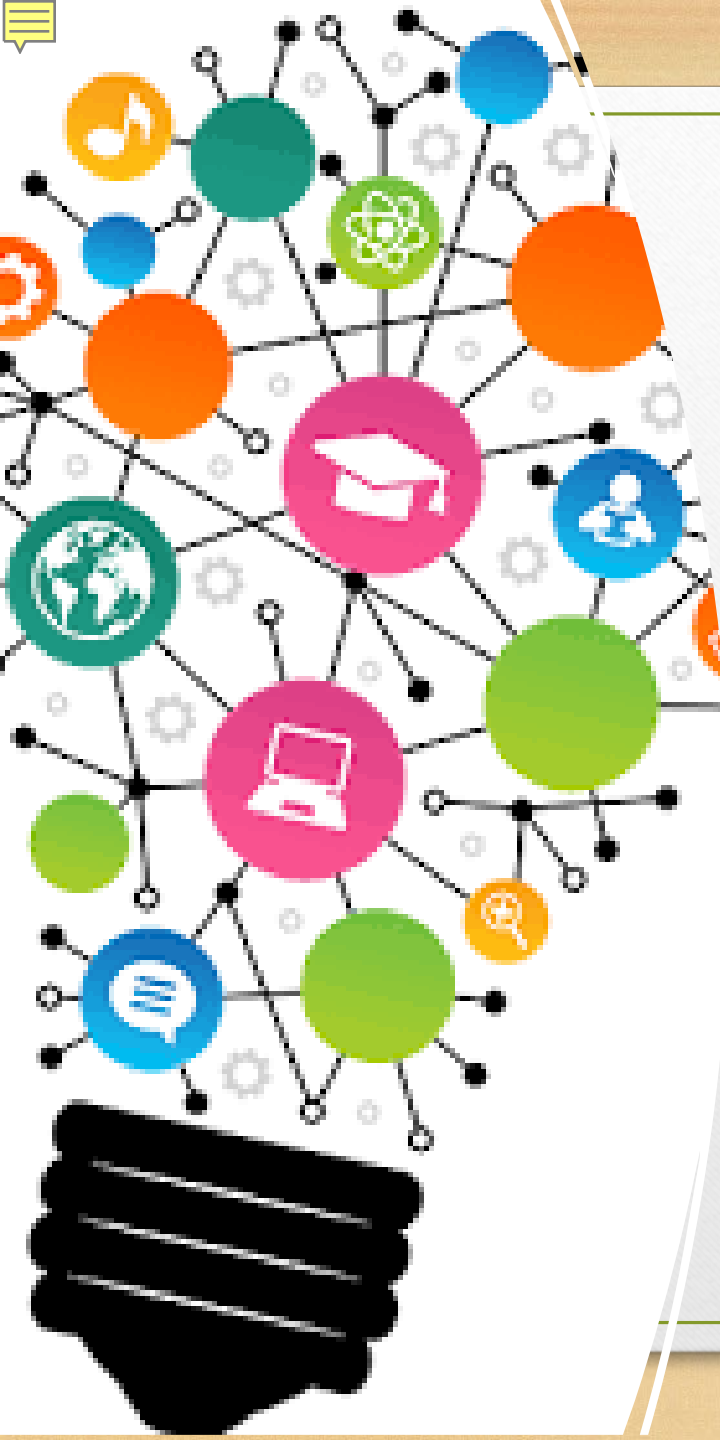




SWANA – 51st Annual WRS April 6th, 2022

Sunnyvale Food Scraps Collection and Processing Program

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What you'll learn:

- Sunnyvale's FoodCycle Program
- Food Scraps processing @ Sunnyvale Materials Recovery and Transfer Station (SMaRT Station®)
- Processing of food mash
- How things are going so far
- Future

WHY FoodCycle Program



- 2017 - Introduced food scraps collection program branded as the FoodCycle program to single-family households
- GOAL - Divert organics disposed in the garbage
- DRIVER = City's Zero Waste goal and state mandates.
- Sunnyvale Collection Program = Accepts all food including meat, bones, pits, peels, & dairy, leftovers, spoiled food, even pet food
- NO paper products (e.g. napkins, paper towels, coffee cups)
- Clean Green – Collected separately - lower tip fee/ higher value compost with yard trimmings only
- Prevents ~8,000 tons per year of food going to landfill

Pilot Program

- 9-month pilot in 2015 – 500 households, 5 diverse neighborhoods
- Cart exchange and rollout
 - 64-gallon split cart (50/50)
 - Extensive outreach & instructions
 - Countertop Pail and 2 boxes of compostable liners
- Extensive Data collection - Lid flipping, Floor sorting, Cart audit, Written survey
- Survey Results - 62% of available food captured, Average of 8.1 lbs. of food collected/household/week
- Council approved city-wide expansion in September 2016



2018 - Rollout Details

OOPS!

Only food, food-soiled paper, paper egg cartons and pizza delivery boxes belong in the **YELLOW SIDE** of the cart.

Thank you for using your **YELLOW** and **BLACK** cart correctly!

The average pilot household disposes of 10 pounds of food and food-soiled paper per week. **YELLOW** cart content audits indicate an average 73% of residents are separating their food and garbage.

Thanks to you, the pilot is working!

Food Scraps Pilot

Category	Percentage
Food	73%
Garbage	27%

- New carts - 29,000 single family and mobile home households
- Cart ratio changed - 70% garbage, 30% food scraps
- Rollout - 12 weeks
- Issues –
 - cart exchange challenges
 - assembly issues
 - Some confusion over use of countertop pail

Common questions during program rollout

Why is the food scraps side of cart so large?

Why did you reduce my garbage side and raise my rates?

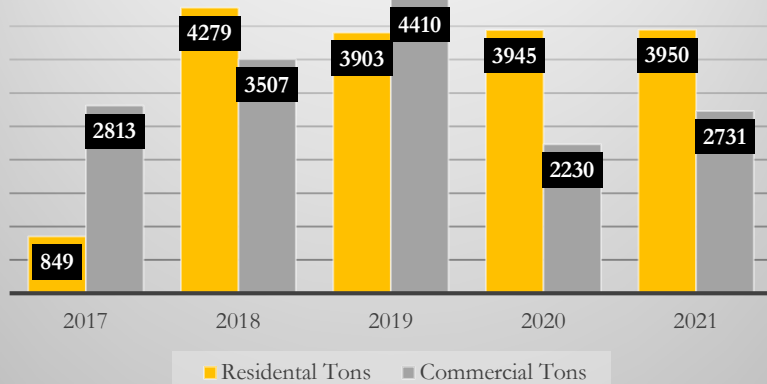
What to do if I have a family member using adult diapers and it fills up garbage side?

Why can't we put food in yard trimmings cart like other cities?

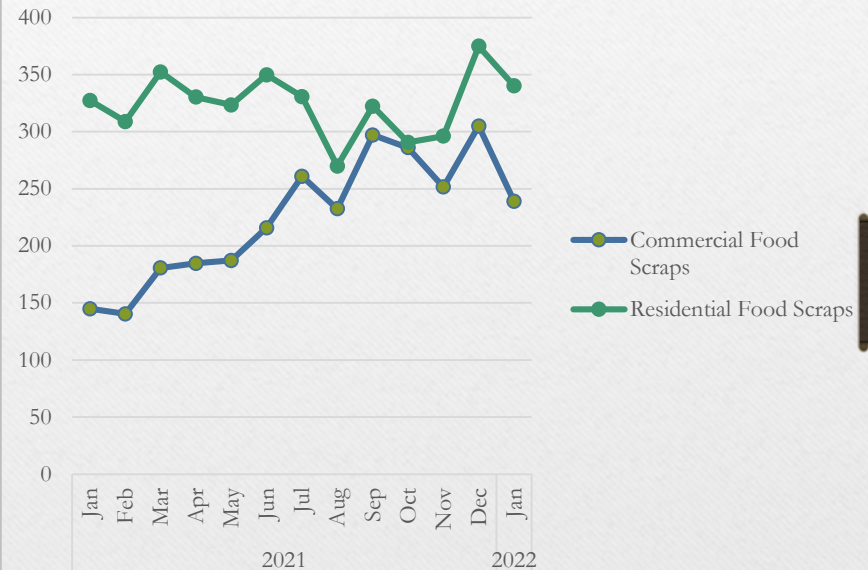
Aren't the food scraps bad for the animals they are being fed to?

Food Scraps History

Sunnyvale Food Scrap Tonnages 2017-2021



Food Scraps Program, Tons Processed



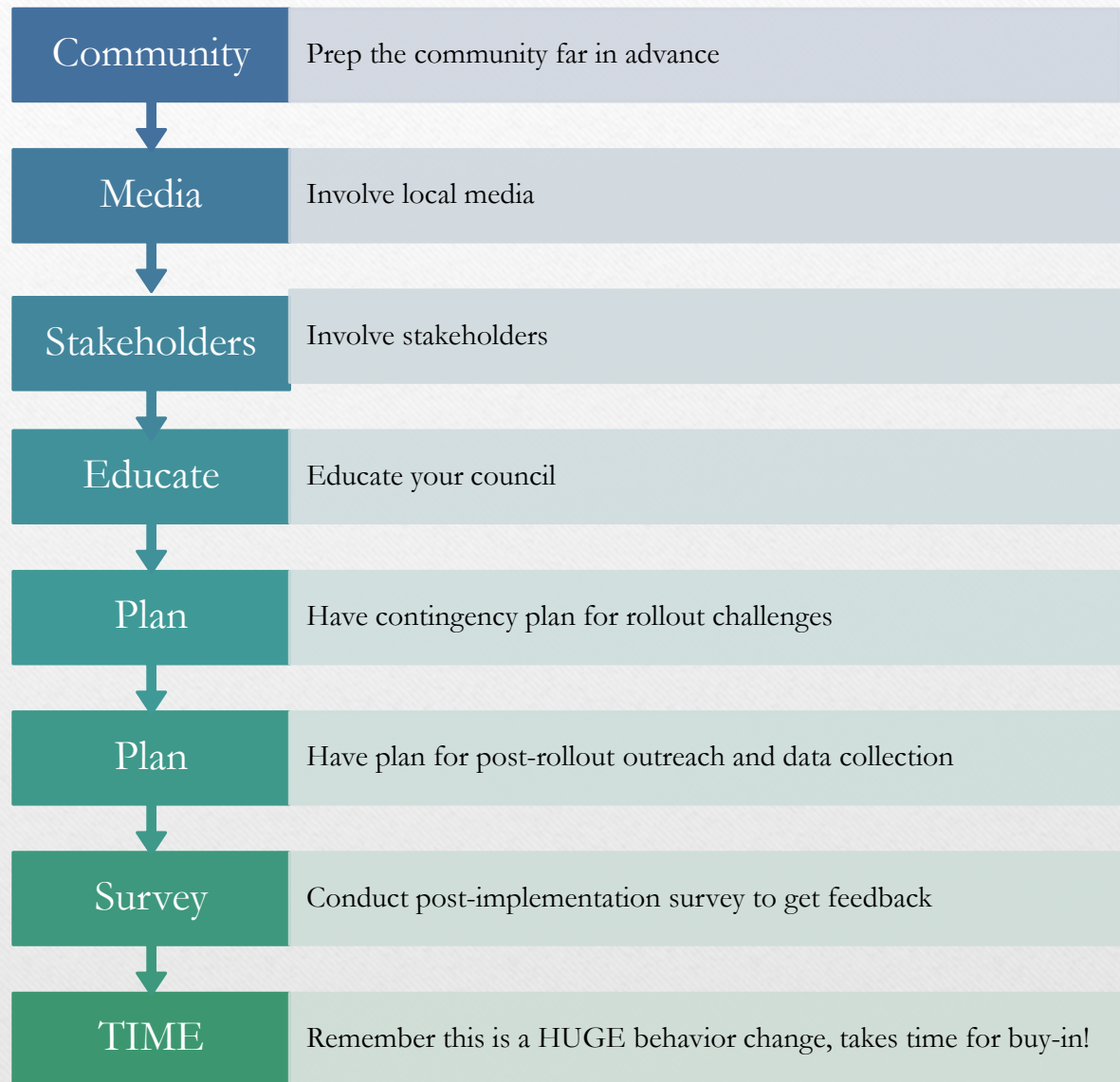
Commercial collection happening since 2011. started residential from 2017/18.

FoodCycle Video



Lesson Learned

Recommendations
for your food
scraps program:



Remember - residents will get creative...



Cart altering



Sabotage during pilot



Good old duct tape



Unclear on where pail belongs



Food Scraps Processing

- Process source separated food scraps from commercial and residential routes
- Commercial in front load trucks & residential in 70/30 split side load trucks
- Commercial - from restaurants, grocers, businesses with food service & large employee cafeterias





SMaRT Processing

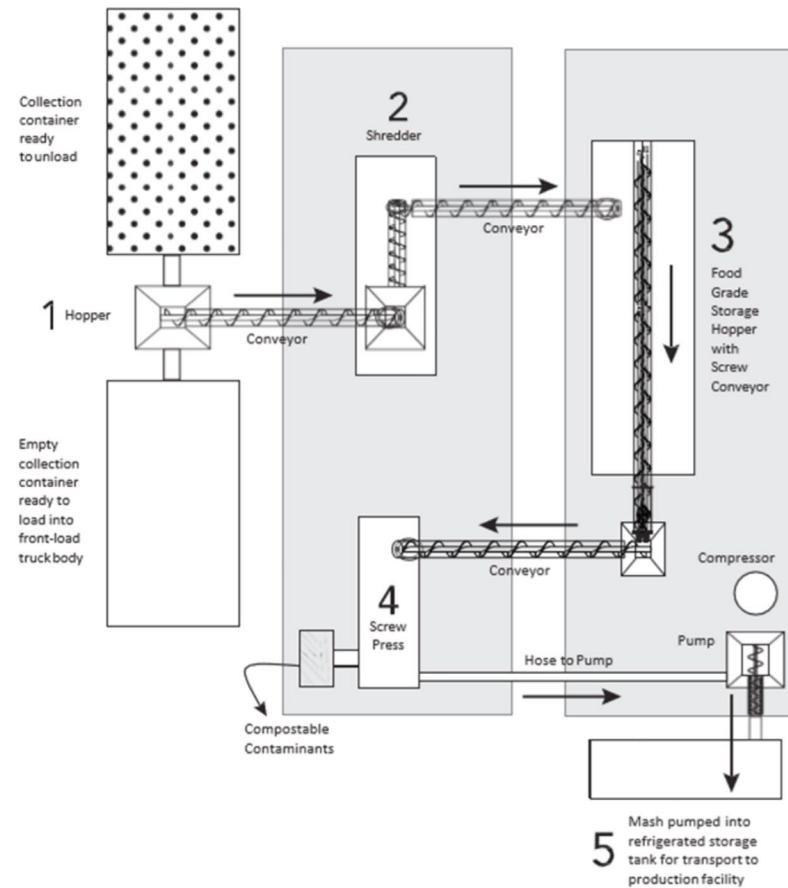
Operational since
2018 –

- Designed/
permitted to
handle up to 99
tons per day
- 40 trips/day
- Diversion rate –
70%

SMaRT Processing

How food
scraps get
converted into
nutrient-rich
food mash

SAFE EXTRACTION PROCESS



1. Collection container positioned to empty into hopper with screw conveyor.
2. Material conveyed to shredder, removing contaminants and preparing material for screw press.
3. Food grade storage hopper conveys material to screw press.
4. Screw press separates compostable contaminants and produces liquid mash.
5. Liquid mash pumped to refrigerated storage tank for transport to production facility.

SMaRT Processing



Dumped into a hopper

Food scraps are shredded using big rotating knives.

Large ccontaminants are manually removed.

FOOD SCRAPS

THE BIO-PRESS MACHINE

SMaRT Processing

Bio-Press machine separates out nutrient-rich mash & residue

NON-FOOD

NUTRIENT-RICH
"MASH"





Clean “mash” goes to SOS – FOG & dehydrated mash into pellets

Pellets used as an ingredient in animal food and fertilizer.

FOG goes to create biodiesel.

Residue/Overs are sent for secondary screening on-site/Landfill

Future



Future Collection Program

- Phased approach- Multi-family dwellings (MFDS) – To 27,600 cart/bin customers & 800 homes
- Goal- Complete by March 2023
- Slight delay - due to COVID/supply chain disruptions
- Expansion to all commercial sites – complete by September 2023 (200 sites already had service pre-Covid)

FoodCycle

HOW To Keep it Clean and Fresh

- 1 Use a clear plastic bag as a liner
- 2 Keep food scraps in the fridge or freezer until collection day
- 3 Empty your pail every few days into the food scrap cart or bin.

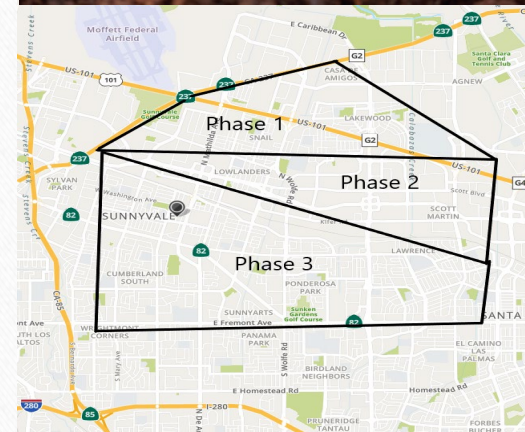
If you don't want the countertop pail, you can drop it off at the SMaRT Station (301 Carl Rd.) or City Hall Annex (850 W. Olive Ave.). Contact Utilities at 408-730-7400 if you have questions.

WHY FoodCycle?

When we put our food scraps in the brown cart or bin each week, we accomplish great things for Sunnyvale. It reduces waste by not sending thousands of tons of food scraps to a landfill each year. Keeping food out of landfills also prevents methane, a powerful greenhouse gas that causes climate change. Instead, the nutrients from our food scraps are captured and put to innovative use.

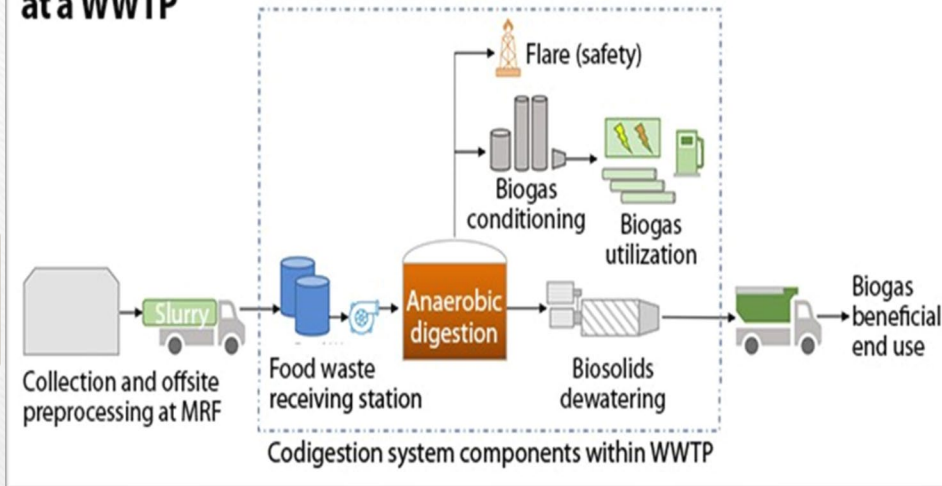
Your food scraps have been turned into:

- Fertilizer amendment that keeps soil healthy
- Electricity (energy production) through an anaerobic digester
- FDA-approved animal feed ingredient for chicken, pigs and fish



Future - Organics to Energy - 2025/26

Figure 2. Key Processes required for food waste codigestion at a WWTP



Food Mash to Water Pollution Control Plant for co-digestion.

- Landfill gas production decreasing (landfill closed in 1992)
- Energy demand increasing – new primary/secondary treatment facility
- **6- month pilot study in 2019** - To efficiently blend food waste with the solids generated at the Plant before digestion.
- Sufficient digester capacity

Results-

- 35% increase in digester gas
- 1 wet ton food scraps = 117kWh of energy
- Improvements – Upgrade Co-gen Engines, excess ammonia removal, and solids thickening process modifications.
- **Total Cost ~\$18- \$20M**



Co-Benefits

- SB1383 procurement requirement
- GHG emission reduction
- Less Transportation Cost/Tip Fee
- Renewable energy source
- Less dependency on PG&E
- Perfect candidate for grants



Organics Grant Award

Composting and
Anaerobic Digestion Project

- \$3 million award
- 26,196 tons diverted (projected)
- 12,500 trash truck miles/yr. reduced (projected)



Sunnyvale



Courtesy @mssmittyb

CalRecycle Organic Grant Recipient FY 21-22

Questions



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