# Launching a Regional Organics Recycling Program

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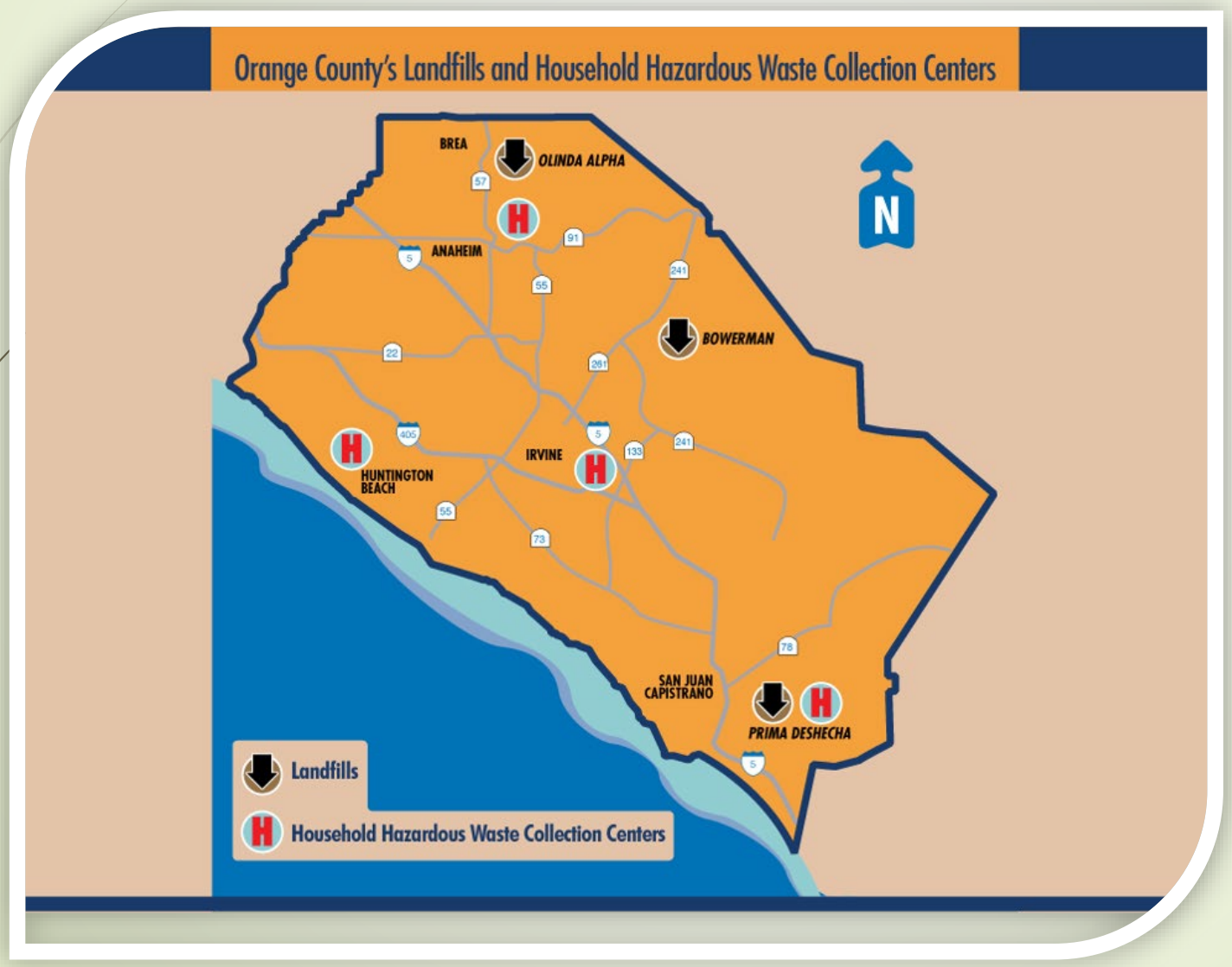
County of Orange

# OC Waste Disposal System



# OC Waste Disposal System (Continued)

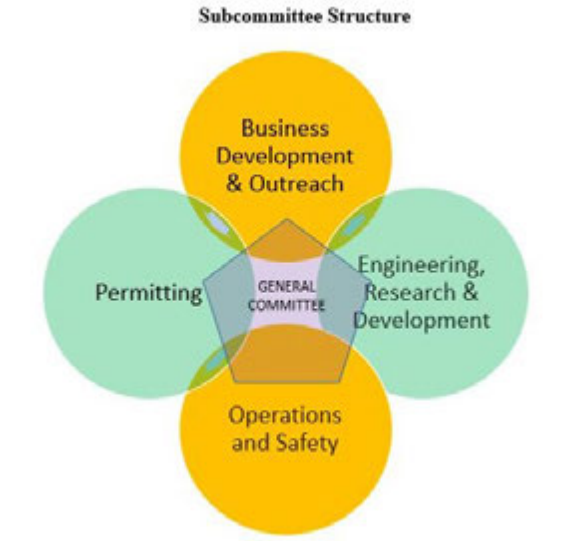
| Landfill | Permitted Tonnage (TPD) | Remaining Refuse Capacity (million tons) | Service Area |
|---|---|---|---|
| **Olinda** | 8,000 | 18.3 | North County LA, Riverside, San Bernardino |
| **Frank R. Bowerman** | 11,500 | 113.6 | Central County LA, Riverside, San Bernardino |
| **Prima Deshecha** | 4,000 | 77 | South County San Diego |

# Orange County Green Waste Snapshot

- OC Landfills utilizes approximately 2,000 tons of Processed Green Waste (PGM) for Alternative Daily Cover (ADC) each day
- Orange County uses more PGM for ADC than any other County in California
  - 589,000 tons in 2017
  - Recent Waste Characterization (2017)
    - 38% Organic Materials

# Launching the Organics Initiative Sub-Committees

- Evaluate options to manage the PGM received as ADC
- Develop and commission organic feasibility studies (rate structure, market analysis and site assessments)
- US Compost Council 40 hr Compost Operations Manager Training Course – UC Davis
  - 11 sub-committee members attended
- Pilot Project Development and Implementation




## News and Updates



Pictured l-r: **Ben Castillo, Aaron Crane, Alvin Ulloa, Kevin Hanson and Isaac Novella.**



Central Region's **Nan Harrold** and Southern Region's **Laura Ferguson** were partnered with others from TILZ, Waste Management, AQMD and LMS Guam at the UC Davis compost training.

### Organics Initiative Subcommittees making progress

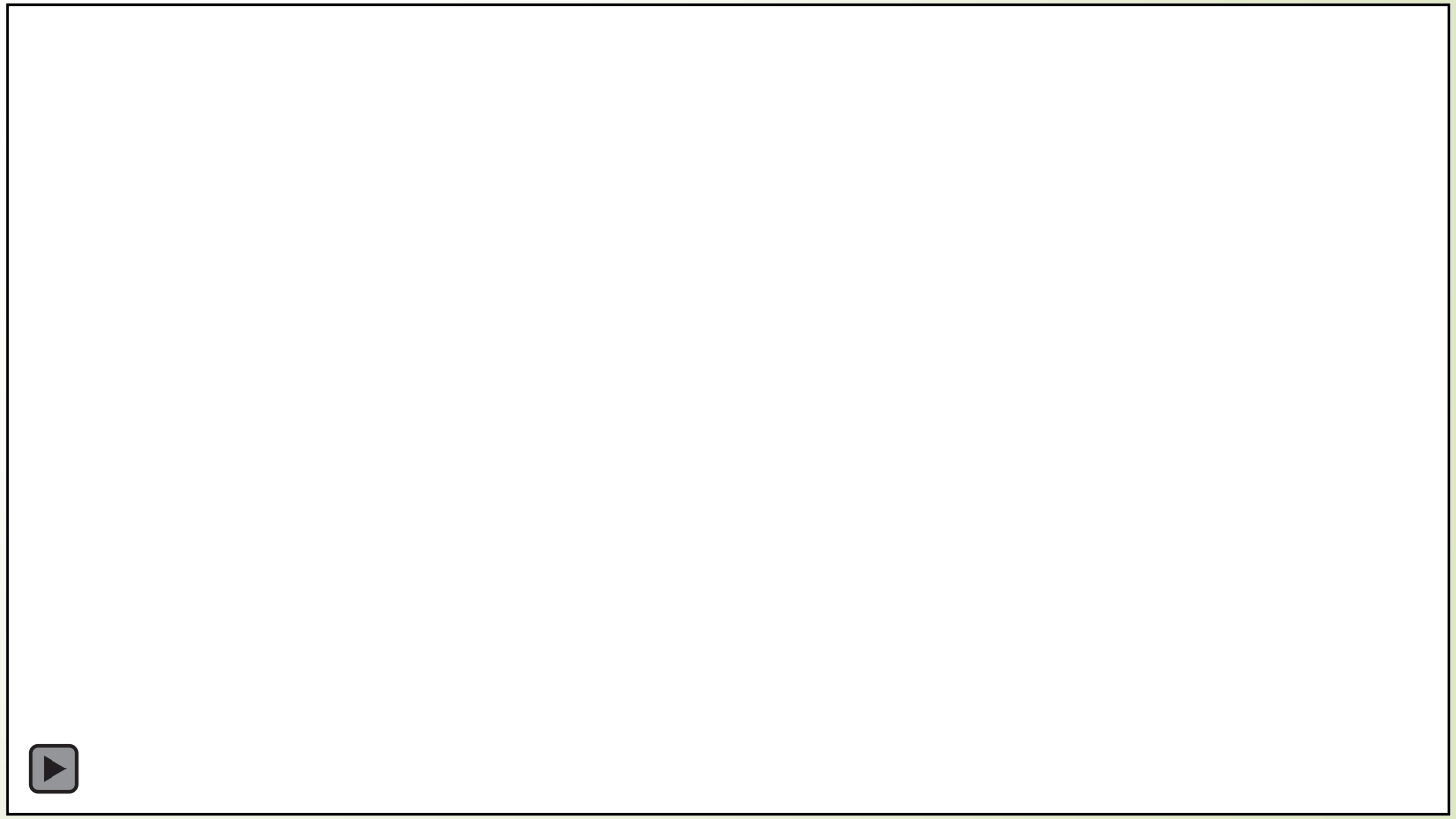
The first quarter of 2018 has been marked by important progress in the Organics Initiative, which is designed to help OCWR pivot from simply promoting recycling to executing it.

The first milestone was to create pilot composting projects at each site which officially activated the week of March 26 at all three locations. These are small (approximately 92 cy in size) compost piles that will use feedstock from current deliveries of processed green material normally used as alternative daily cover. These pilot projects will provide important information on the characteristics of the feedstock to produce quality compost and provide an opportunity for the department to understand the processes in compost

- ✔ Process flow model for pilot composting operation complete.
- ✔ Purchase of compost pile monitoring equipment (i.e., temperature probes, scales, and Solvita test)
- ✔ Preparation of permit registration documents for SCAQMD in process.
- ✔ CEQA addendum preparation underway; LEA and Regional Boards notified of the pilot projects.
- ✔ Labs for material and bacterial testing have been selected.
- ✔ Development of fire prevention plan and identification of PPE complete.

# Day 1

- Compost Pilot Project – March 29, 2018
  - Tierra Verde (Irvine)- Residential Greenwaste
  - Approx. 66 tons (3 ½ transfer loads)
  - Bulk Density – 820 lb/yd3
  - Initial Moisture Content – 60%
  - Initial Composite Temp 101° F
  - Water Use - 6,000 gallons



# Day 09

- Compost Pilot Project – April 07, 2018
  - Composite Temperature Hit 131° F (PFRP phase)
  - Windrow Pile turned for the first time
  - Moisture Content – 50%
  - Pile shrinking in volume and trash visible
  - Pile smells fishy with faint smell of egg
  - South side much warmer then the North side
    - Consistent offshore winds from the West

# Day 24

- Compost Pilot Project– April 20, 2018
  - Composite Temperature 135° (15 days PFRP)
  - Windrow Pile Turned for Second Time
  - Moisture Content 55%
  - Pile rotated 90° to improve offshore wind exposure
  - After turning, pile visibly steaming, actinomycetes white streaks visible and the pile smelled Earthy!

# Day 48

- Compost Pilot – May 16, 2018
  - Composite Temperature 148° (40 days PFRP)
  - Solvita Maturity Test Results:
    - Carbon-Dioxide (CO2)
      - Maturity Rate: **6**
    - Ammonia (NH3)
      - Emissions Rate: **5** (low)



# Windrow Daily Monitoring Form

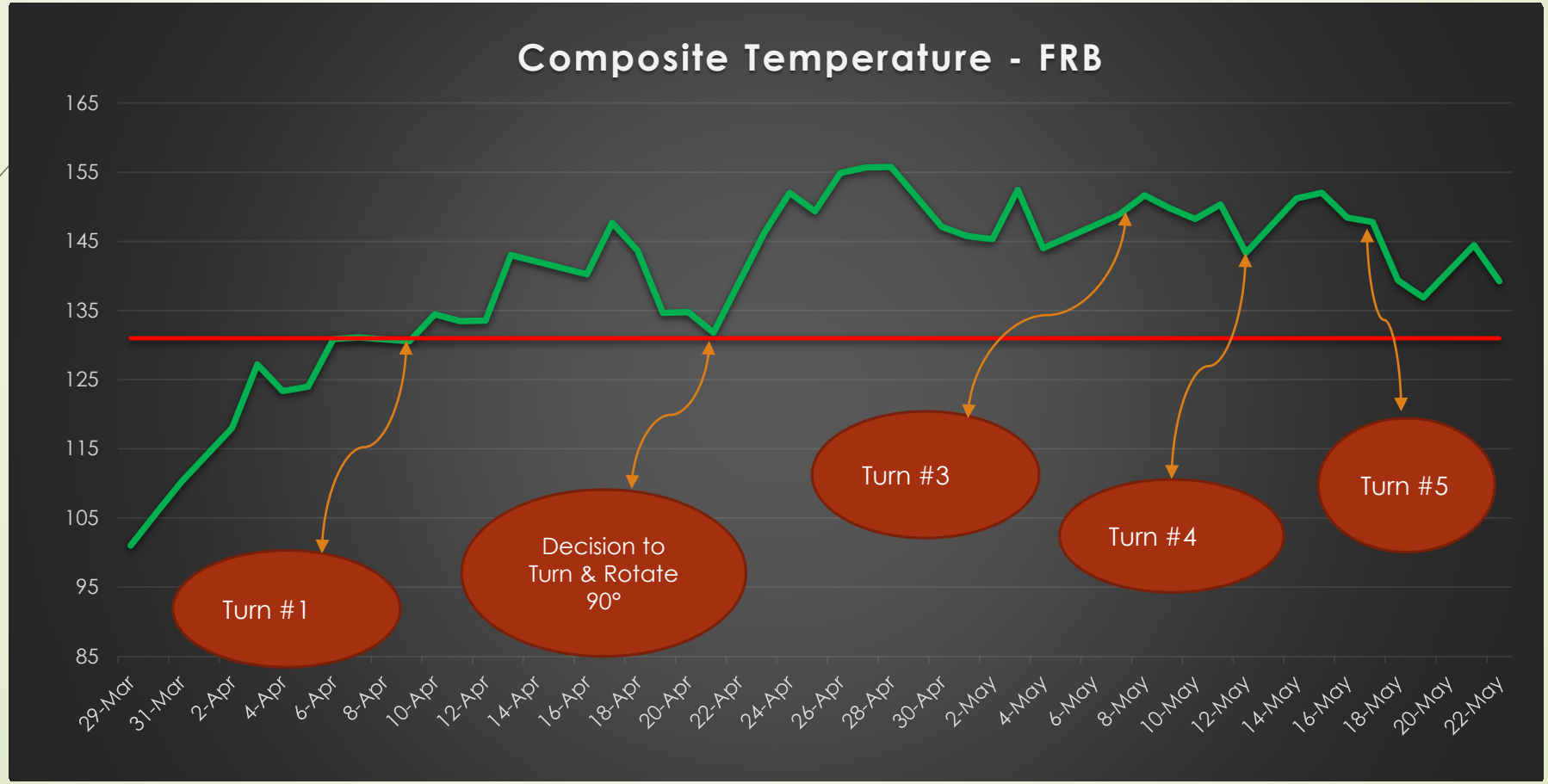
- Compost Pile Tracking Methods
  - 9 Daily Temperature and Moisture Content Readings
  - Composite Temperature
  - Current Compost Phase (Active, PFRP,Curing)
  - Water Applied
  - Turned (Y/N)


**WINDROW DAILY MONITORING FORM**

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Windrow ID (ex; Prima-No.1.): | | FRB | | | | | | Feedstock Source (ex; Republic, Rainbow): | | | | | | TVT - | | Irvine | | | | | | | | | |
| Windrow Start Date: | | 3/29/2018 | | | | | | Start Bulk Density[2]: | | | 820 | | | | | Free Air Space (FAS): | | | | | | | | | |
| Windrow End Date: | | | | | | | | End Bulk Density[3]: | | | | | | | | Final Contamination: | | | | | | | | | |
| Date | Inspector Initials | Phase (Active, PFRP, Curing) | Temperature[1,4,5] and Moisture | | | | | | | | | | | | | | | | | | | | Comp. Temp. [2] | Water Applied (Gal) | Turned (Y/N) |
| | | | A | | | | | | B | | | | | | C | | | | | | | | | | |
| | | | S (South) | | N (North) | | T (Top) | | S (South) | | N (North) | | T (Top) | | S (South) | | N (North) | | T (Top) | | | | | | |
| | | | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | Temp. | Moist. | | | | | |
| 29-Mar | IN | Active | 98 | 60% | 92 | 60% | 99 | 60% | 106 | 60% | 101 | 60% | 100 | 60% | 99 | 60% | 120 | 60% | 94 | 60% | 101 | 6,000 | N | | |
| 30-Mar | BC | Active | 106 | 55-60% | 110 | 55-60% | 106 | 55-60% | 106 | 55-60% | 110 | 55-60% | 110 | 55-60% | 99 | 55-60% | 102 | 55-60% | 102 | 55-60% | 106 | 400 | N | | |
| 31-Mar | BC | Active | 110 | | 102 | | 118 | | 118 | | 106 | | 120 | | 102 | | 108 | | 108 | | 110 | 400 | N | | |
| | | | No Measurements (Easter Sunday) | | | | | | | | | | | | | | | | | | | | | | |
| 2-Apr | KH | Active | 118 | 50-55% | 112 | 50-55% | 102 | 50-55% | 130 | 50-55% | 112 | 50-55% | 124 | 50-55% | 124 | 50-55% | 112 | 50-55% | 128 | 50-55% | 118 | 400 | N | | |
| 3-Apr | IN | Active | 140 | 50% | 114 | 50% | 126 | 50% | 136 | 50% | 111 | 50% | 124 | 50% | 140 | 50% | 122 | 50% | 132 | 50% | 127 | 400 | N | | |
| 4-Apr | IN | Active | 128 | 50% | 115 | 50% | 110 | 50% | 140 | 50% | 111 | 50% | 120 | 50% | 150 | 50% | 115 | 50% | 121 | 50% | 123 | 400 | N | | |

# Composite Temperature - Pile #1

- Process to Further Reduce Pathogens (PFRP) - 53 days and counting!



# Next Steps

- Screening (Test Equipment)
- Soils Testing

# Day 92 – Screening & Soil Testing

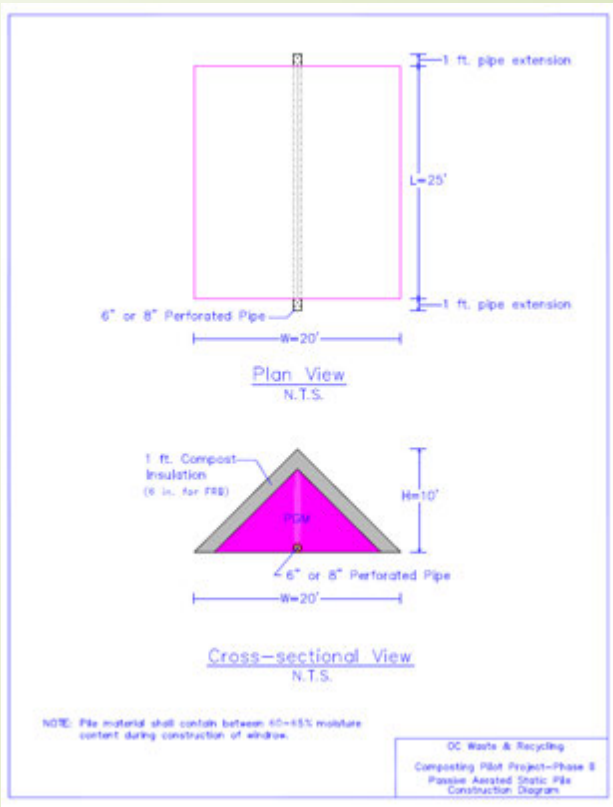
- Doppstadt 720 Trommel Screen (Tier 4)
  - 5/8 inch screen
  - Approx. 225 - 250 cubic yards per hour
- Finished Compost Bulk Density – 1,496 lb/cy
- Fines: 31.65 tons (52%)
- Overs: 29.85 tons (48%)

# Screening & Soil Testing (Continued)

- Soil Control Labs
  - Pathogen Reduction – Is it Safe Regarding Public Health?
    - Fecal Coliform – *Pass*
    - Salmonella – *Pass*
    - Metal Containments - *Pass*
  - Physical Contaminants (% by weight)
    - < .5% - *Pass*
- Final Interpretation
  - Compost is Stable
  - Provides Average Nutrient Value
  - Rated as "Good for All Uses"

# Bee Canyon Greenery Compost Pilot Project Phase II

- Passive Aerated Static Pile #2 - July 7, 2018
  - 25 (L)x20 (W) x10 (H) Windrow w/ perforated 6' pipe
    - Achieved PFRP 2x Faster
    - Capped with 6 inch finished compost for odor control, moisture retention and heat insulation
- Discovery on Composting Methods (Windrow, **PASP**, CASP)
- Collaborating with Key Regulators (LEA, OC Fire Authority and South Coast AQMD on Short-Term and Long-Term Permitting Requirements




COMPOST!
OC Waste&Recycling
BUILDING A BETTER FUTURE

# Thank You!


Bee Canyon
Greenery