Public Works
LOS ANGELES COUNTY

Roadmap to a Sustainable Waste Management Future

February 19, 2020

Agenda

Wednesday, February 19, 2020

8:00 A.M. – 4:00 P.M.

1.	Check-in and Table Discussion	8:00 a.m.
2.	Welcome and Introductions	9:00 a.m.
3.	Recap of Kickoff Meeting	9:10 a.m.
4.	Breakout Sessions	9:20 a.m.
5.	Breakout Sessions Recap	11:00 a.m.
6.	Lunch	11:30 a.m.
7.	Organics Overview	12:30 p.m.
8.	Tetra Tech Workshop	12:45 p.m.
9.	Closing Remarks	3:45 p.m.

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LOS ANGELES COUNTY

Kickoff Meetings Recap

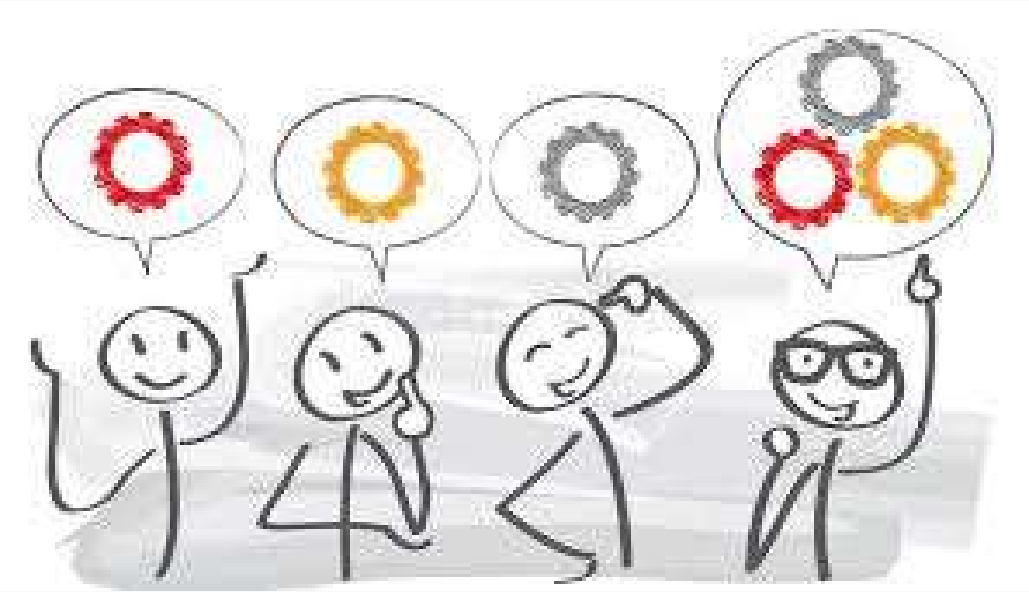
- Stakeholders
- Roadmap 2020
  - Recycling markets-China Sword, etc.
    - Need to develop new infrastructure and markets
    - Create County Ordinances for Extended Producer Responsibility and single-use plastic restrictions.
  - New organics regulations (SB 1383)
- Dot Democracy Results
  - Top topic: Organics Infrastructure and Markets
  - Infrastructure
    - Lack of infrastructure for organics
    - Need to incentivize the development of infrastructure

Breakout Sessions

- **Main Hall**
- **Sustainability Room**
- **Carbon Capture and Utilization Room**

The rooms can be found at the rear of the Main Hall to your left.
We will have approximately 25 minutes for each session.

Breakout Sessions Recap



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Food DROP Video

https://vimeo.com/389569372

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TETRA TECH

County of Los Angeles
Organics Management Workshop
From Collection to End Markets

February 19, 2020

Introductions

Tetra Tech Team:

- Christine Arbogast, Project Manager
- Cesar Leon, Sr. Environmental Planner
- Wilbert Yang, Sr. Environmental Engineer
- Tamara Shulman, Sr. Environmental Planner
- Matt Cotton, Principal, Integrated Waste Management Consulting

Workshop Objectives

- Summarize Regulatory Requirements for Organics Collection
- Provide Overview of Countywide Organic Waste Management System and End Markets
- Present Summary of Existing Collection Systems and Jurisdiction Best Practices Review

Workshop Objectives

- Provide Overview of Collection Approaches and Education/Outreach
- Obtain Input on Proposed Analysis of Collection Scenarios and Associated Infrastructure
- Obtain Input on Proposed Analysis of Factors Affecting End-Product Marketability

Workshop Agenda

- Introductions
- Organics Regulatory Requirements
- Countywide Organic Waste Management System
- Collection Overview
- First Group Discussion
- Collection Approaches
- Education/Outreach
- Second Group Discussion
- Next Steps

Organics Regulatory Requirements

TETRA TECH

AB 341

75% Statewide Diversion by 2020

Business

AB 1826

Mandatory Organics Recycling for Businesses

Jurisdiction

AB 876

Organics Infrastructure Planning

GHG Reduction

SB 1383

Short-Lived Climate Pollutants

AB 341

75% Statewide Diversion by 2020

Business

AB 1826

Mandatory Organics Recycling for Businesses

Jurisdiction

AB 876

Organics Infrastructure Planning

GHG Reduction

SB 1383

Short-Lived Climate Pollutants

JURISDICTION RESPONSIBILITIES

Provide Organics Collection Services to All Residents and Businesses

Establish Edible Food Recovery Program

Conduct Education and Outreach to Community

Procure Recyclable and Recovered Organic Products

Secure Access to Recycling and Edible Food Recovery Capacity

Monitor Compliance and Conduct Enforcement

CalRecycle

Provide Organic Waste Collection Services

- Includes all residents and businesses.
- Includes green waste, wood waste, food waste, manure, fibers, etc.
- Containers to have prescribed colors (any shade of grey or black for trash, green for organic waste and blue containers for traditional recyclables)
- Container labeling and contamination monitoring requirements
- Current collection programs to be assessed for expansion or change.

Countywide Organic Waste Management System

TETRA TECH

TETRA TECH

SOLID WASTE MANAGEMENT - FLOW DIAGRAM

SINGLE FAMILY HOME

MULTI FAMILY HOME

INDUSTRIAL/COMMERCIAL/ INSTITUTION

CONSTRUCTION/DEMOLITION

SOURCE

PUBLIC

PRIVATE

DEPOTS

COLLECTION

PUBLIC

TRANSFER STATION

PRIVATE

TRANSFER STATION

TRANSFER

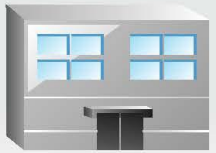
MATERIAL RECOVERY FACILITY

COMPOST FACILITY

WASTE-TO-ENERGY

FUTURE DIVERSION TECHNOLOGY

PROCESSING



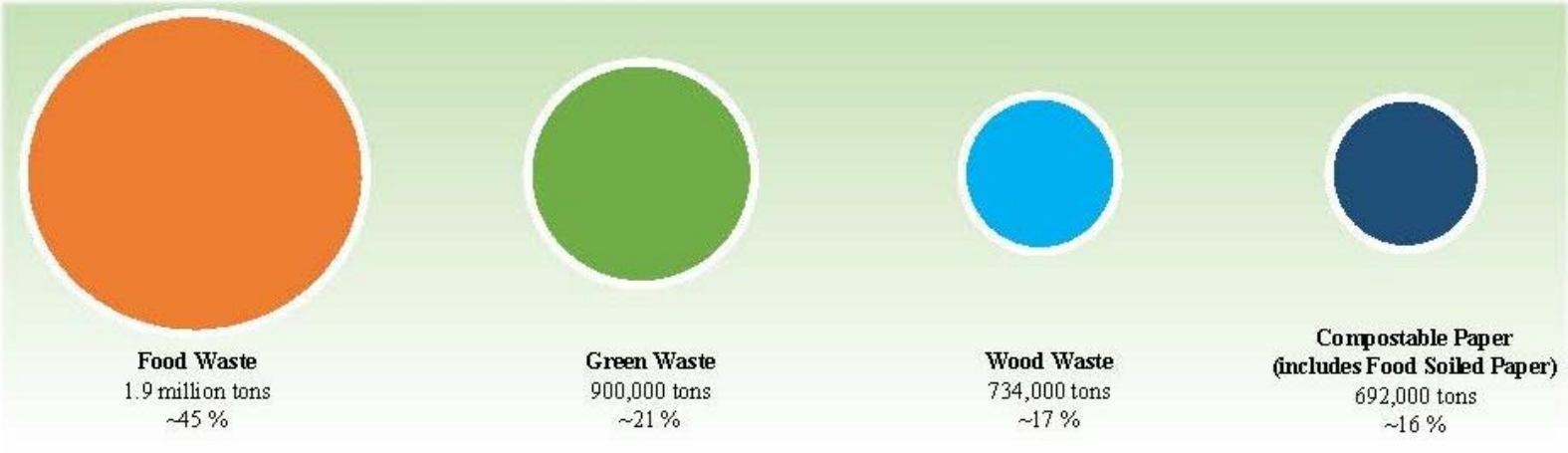
MARKET

LANDFILL

END POINT

Organics Diversion Demand – LA County

(Breakdown of Organic Waste Disposal By Material Type in 2018)



	Organic Waste Generation	Organic Waste Disposal	Organic Waste Diversion
	A	B	C = A-B
Tonnage	6,792,842	4,224,572	2,568,270
Percentage	100%	62%	38%

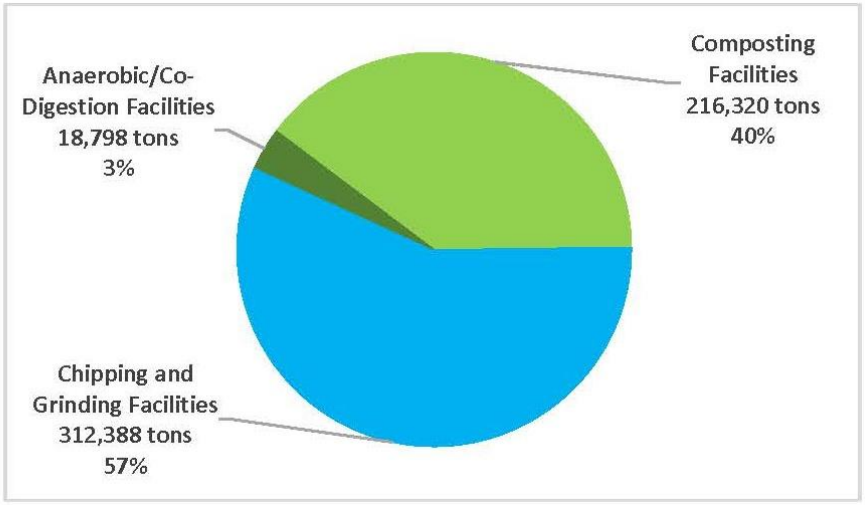
Source: Los Angeles County Public Works, 12-2019

STATUS OF INFRASTRUCTURE AND MARKETS

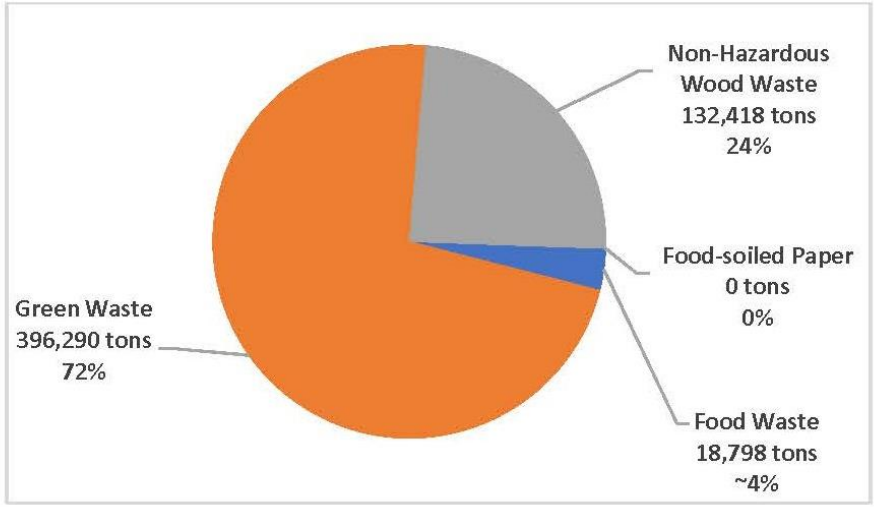
Infrastructure Capacity – In-County

(Annual Net Available In-County Organic Waste Recycling Capacity - 2018)

Net Available Processing Capacity = Capacity that is Not Currently Being Utilized at a Facility, but is Available to Process Additional Organic Waste



By Facility Type



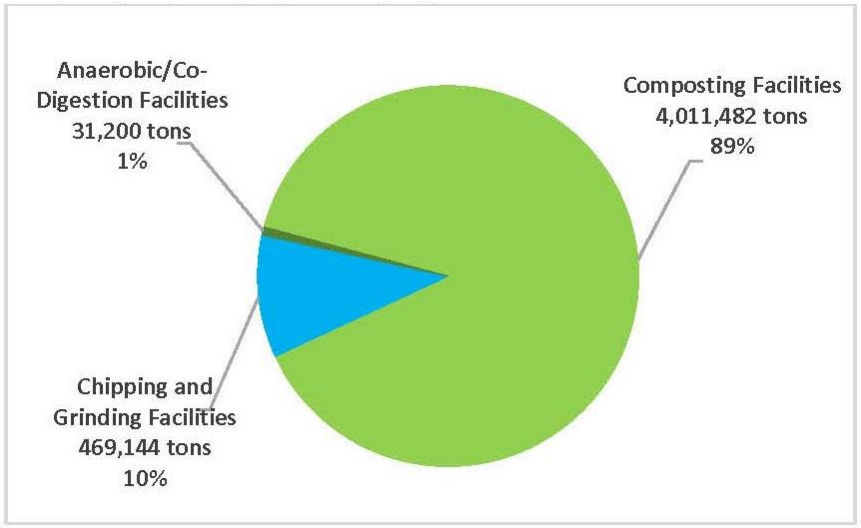
By Material Type

Source: Los Angeles County Public Works, 12-2019

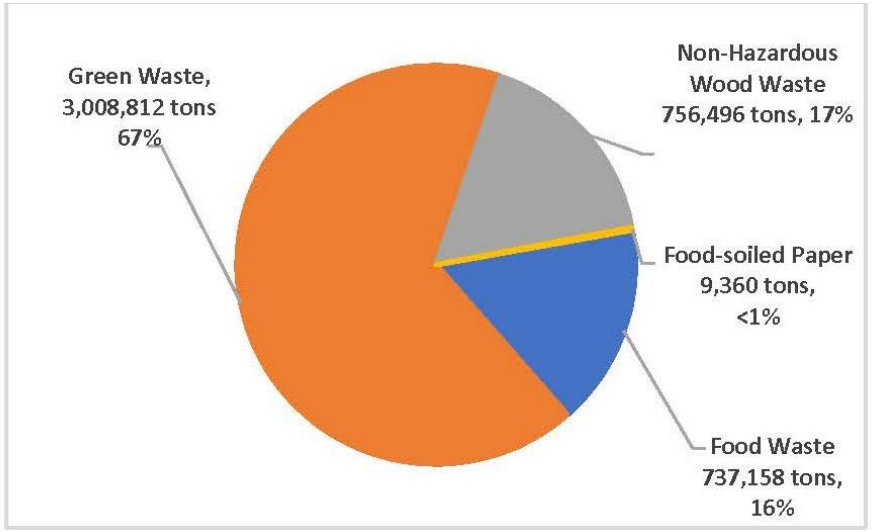
Infrastructure Capacity – Out-of-County

(Annual Net Available Out-of-County Organic Waste Recycling Capacity - 2018)

Out-of-County = Kern, Orange, Riverside, San Bernardino, and Ventura Counties



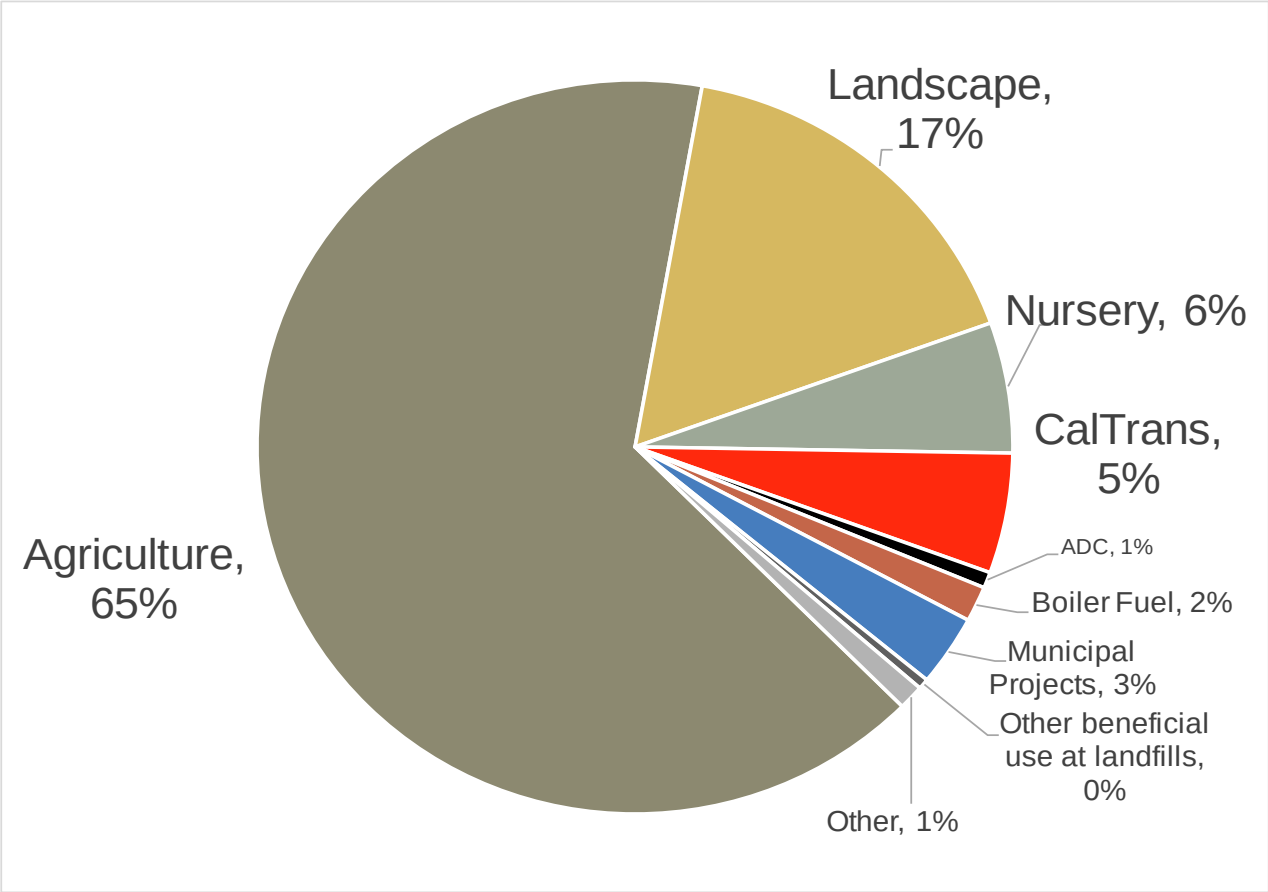
By Facility Type



By Material Type

Source: Los Angeles County Public Works, 12-2019

Market Segments



Source: CalRecycle, 2019

AB 1594

Phasing out ADC Diversion Credit

GGRF Funds

Using Cap & Trade Funds to Support Organics Processing Infrastructure

MWELO

Requiring Compost Use on New Landscape Projects

Healthy Soil

Encouraging Compost Use as part of Carbon Farm Plans

Organic Waste End Use Markets Report, LA County

LA COUNTY MIRRORS STATEWIDE TRENDS

- Reliance on Biomass ↓
- Diversion Credit for ADC ↓
- Land application ?

- Compost to Agriculture ↑
- Landscape ↑
- Carbon Farming ↑

Issues: Compost Quality
Contamination
Compostable Service ware?

Factors Affecting Organics Marketability

- Economic Considerations
  - Cost pressure from competing products
  - Alternative disposal cost
  - Transportation costs

- Noneconomic Considerations
  - Availability of adequate and clean feedstocks
  - Quality of end products
  - Product procurement policies
  - Availability of Processing infrastructure
  - Market and consumer (end user) knowledge

SB 1383 Procurement Requirement

Procurements Requirements

Procure a quantity of recovered organic waste, such as compost and renewable natural gas, that meets or exceeds the organic waste product procurement target as determined by CalRecycle (procurement may be satisfied by direct service provider to the jurisdiction) (12.1)

Purchase at least 75% of paper products with recycled content of at least 30 percent (by fiber weight, postconsumer fiber (12.3)

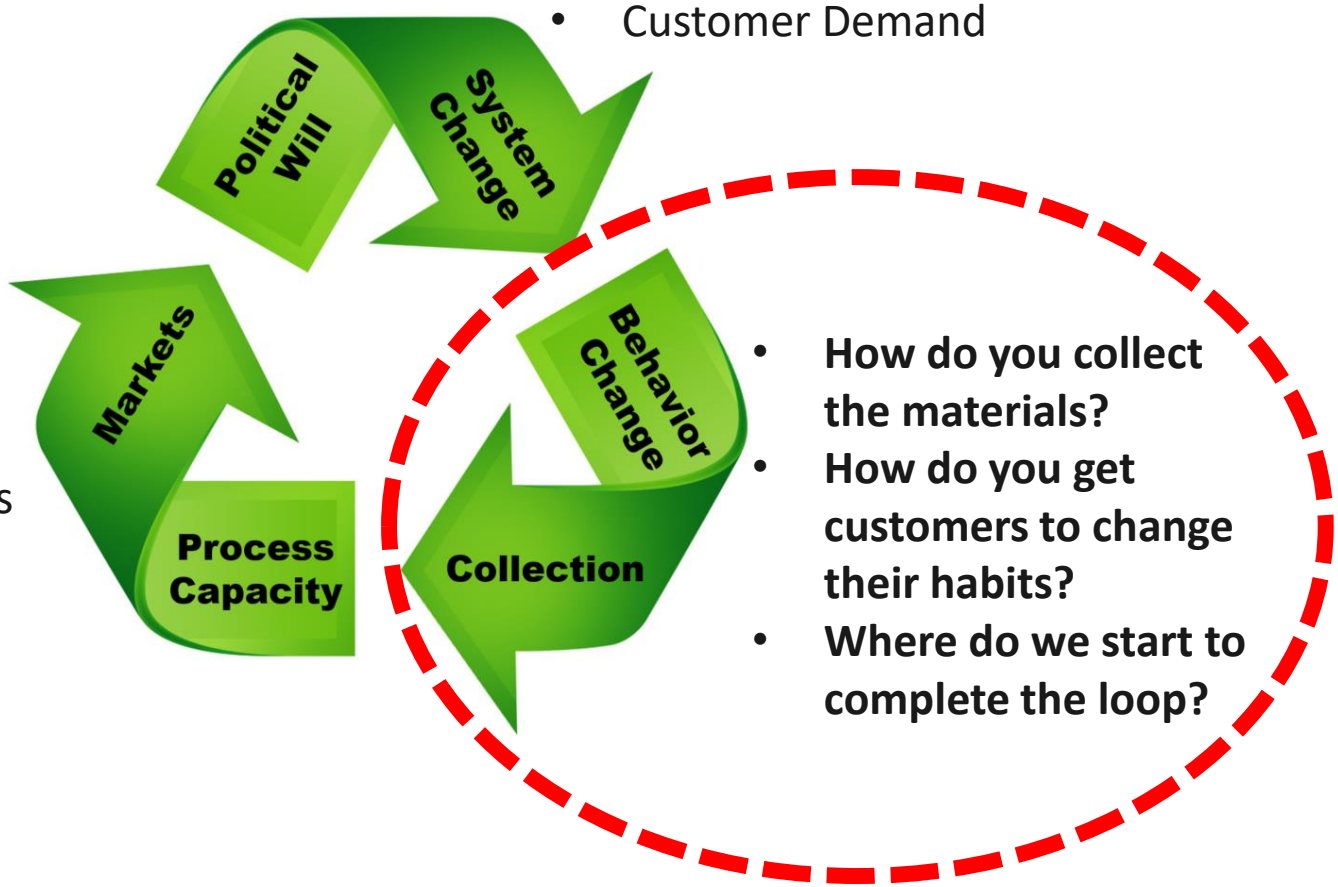
Compost, Mulch, Digestate, Renewable Energy

Per capita procurement target = 0.08 tons of organic waste per resident per year.

Collection Overview

Key Elements for Organics Diversion

- Regulatory Requirement
- Disposal Capacity Issues
- Financial Benefit
- Customer Demand

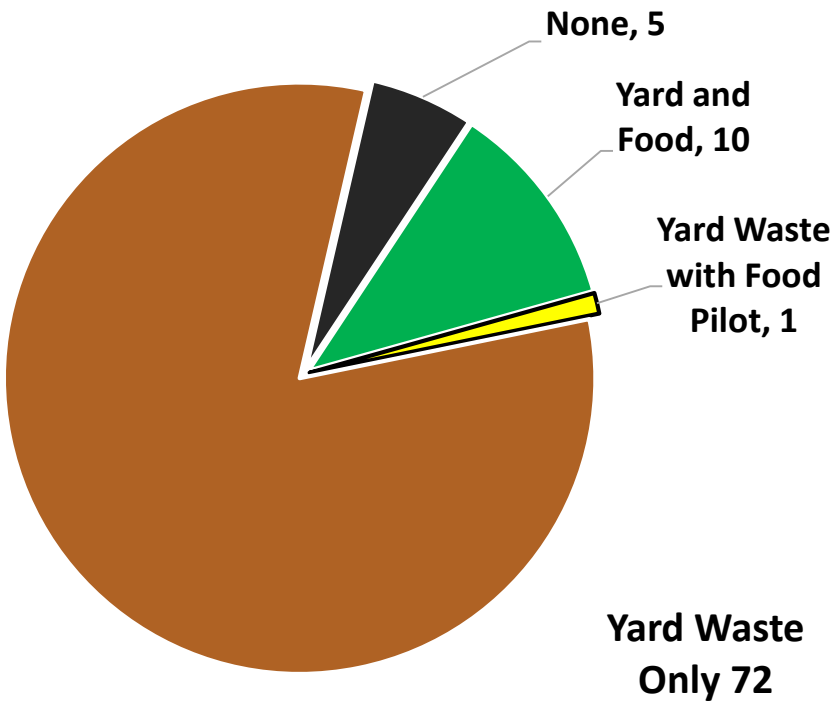


- Capacity to Process
- Markets for the Processed Materials
- Ability to Process without Issues

- **How do you collect the materials?**
- **How do you get customers to change their habits?**
- **Where do we start to complete the loop?**

Organics Collection is Evolving

- LA County jurisdictions are starting to collect organics w/ food scraps
- 75% of LA County jurisdictions recognize AB1826 on their websites.
- Less than 15% of LA County jurisdictions are collecting food scraps for SF Residential Sector



Comparison of collection programs from 2015 to 2020

Collection Approaches

SB 1383 IN ACTION

JURISDICTION REQUIREMENTS

Provide organics collection service to all residents and businesses

Organic Waste Collection Services

Three-Container "source separated" Collection Service

- Organics prohibited from black container
- All organic waste segregated for collection and recycling

Two-Container Collection Service

- One container for collection of segregated organic waste
- One container for collection of mixed waste (subject to 75% organic content recovery standard)

One-Container Collection Service

- One container for collection of mixed waste (subject to 75% organic content recovery standard)

- Minimum contamination monitoring and reduction requirements
- Collection waivers authorized for certain documented circumstances

CalRecycle

Collection Program Summary

	SF Residential	MF Residential	Commercial
Accepts Food Scraps	11%	65%	73%
3 Stream	76%	37%	41%
2 Stream	23%	48%	36%
1 Stream	1%	-	-
Unknown/No Data	-	15%	23%

- Collection programs in LA County
- Food Scraps collected with yard waste

3 Container Collection Service

- 3 stream service for:
  - Trash (Black/Grey),
  - Recyclables (Blue) and
  - Organics (Green)

- Most LA County jurisdictions currently use a 3 stream system (+75%) for SF residential customers
- Mixed waste processing typically not required

	Option 1	Option 2	Option 3	Option 4
Trash	Weekly	EOW/Smaller bin	EOW/Smaller bin	Weekly, EOW/Smaller bin
Recycling	Weekly	Weekly	EOW	Weekly or EOW
Organics	Weekly	Weekly	Weekly	Weekly – Food Scraps Only
Other				Yard Waste self-hauled

EOW – Every Other Week

2 Container Collection Service

- Wet-Dry collection approach
- Mixed waste processing required (for one or both streams)
- Simple concept that has limitations
- Only about 25% of LA County jurisdictions use this approach

1 Container Collection Service

- Materials collected in one cart/can and it goes to a mixed waste MRF where 75% of organics and some recyclable materials are recovered
- Only one LA County jurisdiction uses this approach
- Quality of processed organics and recyclables are typically lower

Changing Service Model

- Collection approach can depend on the jurisdiction's preference and/or contractor's system
- Nearly 90% of LA County jurisdiction contract services to private sector haulers
- **<u>Opportunity:</u>** Change contracts through negotiations or renew contract with new requirements when contract expires

Changing Behaviors

- **Education** is critical to behavior change
- Changing behavior is the biggest challenge in the waste industry
- Local support is getting easier because of climate change

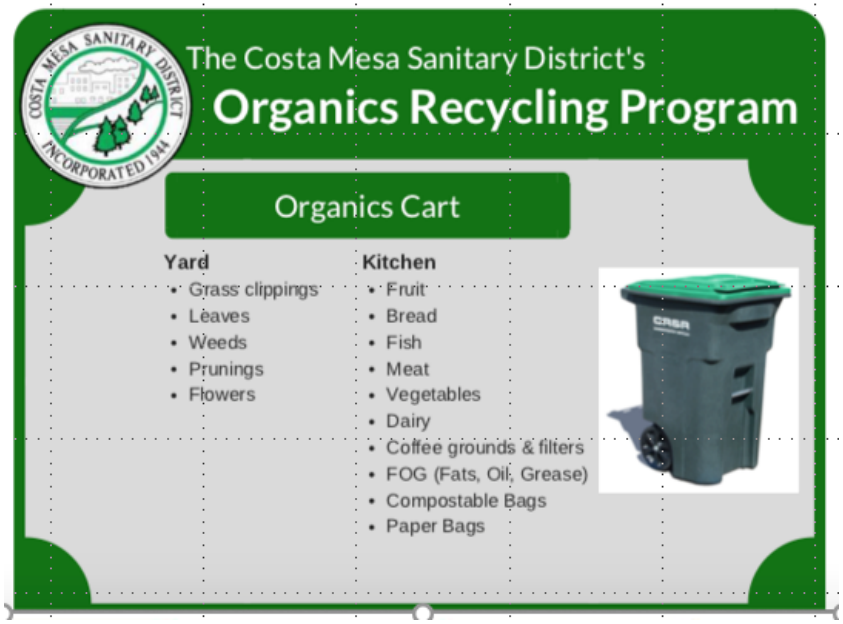
Jurisdiction Review

- 3 Container – Food Scraps and Yard Trimmings
  - Costa Mesa
  - Santa Monica
  - Portland
- 3 Container – Food Scraps Only
  - Toronto suburb
- 3 Container – Yard Trimmings Only
  - San Jose
- 2 Container – Wet & Dry
  - Edmonton

Jurisdiction Review – 3 Containers, Food and Yard

Costa Mesa – 2015 Launch

- Collection
  - Private hauler responsible for weekly organics collection
  - Opt-in; organics cart is included in the base rate, semi-automated
  - Weekly collection – all streams
  - Food, yard, bags x2 (not paper)
- Processing/End Products
  - Anaerobic digestion (CR&R)
  - Clean renewable biogas
  - Compost - soil amendment



Jurisdiction Review – 3 Containers, Food and Yard

Costa Mesa - Lessons

- Establish contracts with processing facilities to secure processing capacity
- Secure processing capacity prior to rolling out a organics collection program
- Provide community outreach
  - Conducted workshops
  - Collection program transparency (e.g., potential rate unity outreach increase)
  - Conducted community survey
  - Reached over 80% of trash diversion support
  - Educate residents on sorting materials with online videos and flyers
  - Provide bilingual outreach including presentations and flyers in different languages
  - Advertise in newsletters, newspapers and social media
  - Hold Town Hall meetings and provide recordings online

Jurisdiction Review – 3 Containers, Food and Yard

Santa Monica – 2013 Launch

- Collection
  - City provides mandatory collection
  - Cart-based collection, semi-automated
  - Food, yard, food soiled paper (including plastic lined items)
- Processing/End Market
  - Composting, windrow (Agromin in Oxnard)
  - Compost - soil amendment

City of Santa Monica

Jurisdiction Review – 3 Containers, Food and Yard

Santa Monica - Lessons

- Provide outreach for community
- Anticipate higher participation and contamination from single family homes
- At start of program, place emphasis on source separation of organics for businesses
- Provide continual community education primarily for restaurants
- Provide easy to find information about waste and recycling within city (i.e., My Waste app)

Jurisdiction Review – 3 Containers, Food and Yard

Portland – 2011 Launch

The CITY OF PORTLAND Oregon

- Collection
  - Franchised hauler collection (12)
  - Cart-based collection – semi-automated
  - Every other week trash with weekly Green Bin collection service
- Processing/End Product
  - Composting windrows (Nature's Needs and Regional Compost)
  - Compost – soil amendment

Jurisdiction Review – 3 Containers, Food and Yard

Portland – Lessons

- Work with processer to determine what materials to collect to avoid changes over time
- For implementation start with pilots to gauge the number of calls and inform resourcing needs for broad scale roll out
- Maintain education and behavior change programs over time – Portland produces a twice yearly Curbsider newsletter to share program progress and changes, continues to offer a “train the trainer” style Master Recycler Program, and provides public event recycling
- Use education materials that emphasize images over words and provide translated materials

Kitchen compost container

While neither the City of Portland nor your garbage and recycling company provide kitchen pails, just about any container with a lid will work for collecting your food scraps. The key is to choose a size and location that makes it easy to use, to empty (into the green composting roll cart), and to keep clean. Metro sells the Sure Close kitchen composter for $8. Call 503-234-3000 for details.

Jurisdiction Review – 3 Containers, Food

Toronto Suburb (Durham) – 2003 Launch

- Collection
  - Manual collection
  - Food only year round ; seasonal yard trimmings
  - Limits trash volume, ‘Look for the Logo’ campaign
- Processing/End Product
  - Composting, windrow (Miller Waste)
  - Anaerobic digestion (in progress for food only, aligns with other regional jurisdictions)
  - Compost - soil amendment

COMPOSTABLE
www.composable.info

BPI ®

COMPOSTABLE
IN INDUSTRIAL FACILITIES
Check locally, as these do not exist in many communities. **Not suitable for backyard composting.** CERT # 0000000

DURHAM REGION

Accepted materials

Food waste

- Baked goods
- Bread and cereal
- Coffee grounds and filters
- Dairy products
- Eggs and egg shells
- Flour and grains
- Fruits
- Meat, bones, fish and shellfish
- Nuts and shells
- Pasta, couscous, rice and potatoes
- Tea bags
- Vegetables

Paper products

- Paper egg cartons and drink trays
- Paper towels and napkins

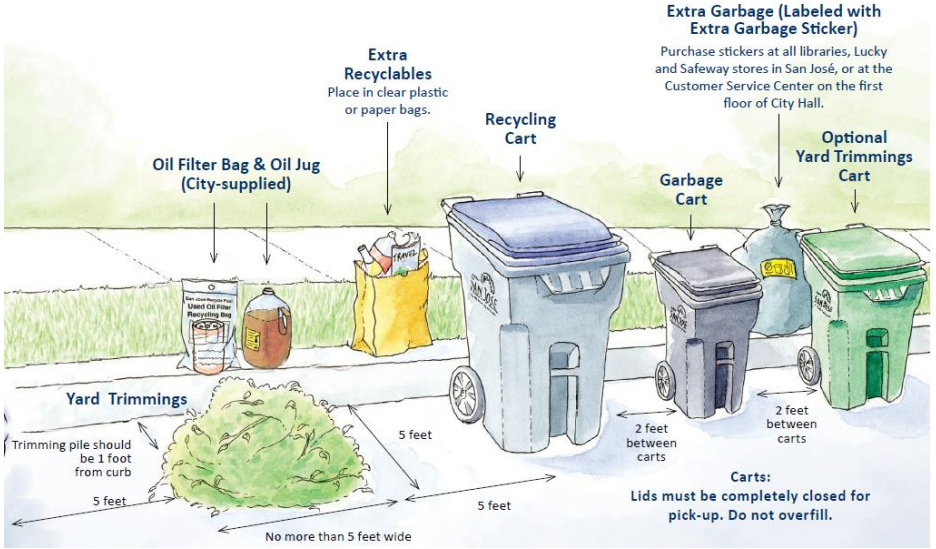
Other compostable items

- Dryer lint
- Feathers
- Hair
- Houseplants
- Pet fur
- Sawdust and wood shavings

Jurisdiction Review – 3 Containers, Yard Trimmings

San Jose

- Collection
  - Yard trimming only
  - Cart-based, semi-automated
  - Trash includes food scraps and is sent to a mixed waste materials recovery facility (MRF) to recover organic materials for composting
- Processing/End Product
  - Composting, windrow (Z-Best Composting Facility)



Jurisdiction Review – 2 Containers

Edmonton– 2000 Launch

- Collection
  - Since 2000, yard trimmings and food scraps have been included in the trash, went to a mixed waste MRF, and were composted at a large-scale indoor in-vessel facility
  - Green Bin pilot for food scraps and yard trimming is underway; broadscale cart-based roll out is scheduled for 2020
- Processing/End Product
  - Compost – in-vessel with soil amendment
  - Due to compost quality issues, facility decline, and political influence, the current facility has been closed.

EWMC
Waste reimagined

Organics pilot project sets the tone for Edmonton's future waste system

Of the 8,000 households in the organics pilot, only 13 have refused to participate

Natasha Riebe · CBC News · Posted: Sep 01, 2019 7:00 AM MT | Last Updated: September 1, 2019

First Group Discussion

Current Status of Organics Collection - Poll

- Yard Trimmings
  a) Collection
  b) Processing

- Food Scraps
  a) Collection
     i. Type – if implemented
     ii. Anticipated
  b) Processing
     i. Type – if implemented
     ii. Anticipated

Break

Collection Approaches

TETRA TECH

Evaluating Organics Collection Programs

- Examine Pros and Cons of each collection approach
- Summarize Evaluation criteria for selection of collection approach

Commercial (includes Multi-Family Residential)

- Source separated organics
- Mixed waste processing
- Self-haul
- On-site processing

3 Container Collection System

Advantages	Disadvantages	Comments
Less pre-processing requirements	Behavior change training required	Customers need to separate out organics
	More space required for bins/carts	Extra cost to supply three bins/carts and customers need to have enough space
	Up to 3 trips required to collect materials weekly	Trucks can be split load to reduce number of trips. Each trip has a cost.
Better quality end product		Better markets for the end products after processing
Less expensive to process		Less contamination to remove/dispose and better price for end product
Most jurisdictions using a 3 container system already		

2 Container Collection System

Advantages	Disadvantages	Comments
	Mixed waste processing required – extra cost	Additional cost to pre-process wet and/or dry streams
Less complex for the customer		Education requirements seen intuitive
	Quality of end products tends to be poorer quality which affect marketability	Some jurisdictions moving from 2 stream system to 3 stream system because of better markets for end products
Only two trips required to collect materials		Less collection costs
Less space required for bins/carts		Less bins/carts to supply

1 Container Collection System

Advantages	Disadvantages	Comments
Little to no education required		Just need to know when garbage collection day is
Only one trip required to collect waste		Only one LA County Jurisdiction doing this
	Mixed waste processing required	Extra cost to process materials
	Quality of end products are typically poor	Affects marketability of end products
	End-products with no markets are typically disposed/landfilled	

Self-Haul System

Advantages	Disadvantages	Comments
Materials delivered directly to the transfer station or processor		Collection approach not required
	Additional Infrastructure - transfer station needs to accommodate this waste stream	Applicable to jurisdictions with their own facilities such as transfer stations
	No control when materials are entering the facility	
	Will require contracts to process this material	
	Tracking of diversion efforts difficult to report	

On-Site Processing System

Advantages	Disadvantages	Comments
On-site processing of organic materials		High collection and processing costs might drive customers to undertake on-site processing of organics
	Typically more costly than sending it to a large processing facility	
	Infrastructure and training required to manage facility properly	Additional requirements/ responsibility for facility owners.
	Requires markets for the end products	Need to ensure there are markets available

Considerations and Criteria for Evaluating Organics Collection Programs

Evaluation Criteria	Considerations
Cost	• Typically accounts for processing costs. • Dropped off location would affect collection costs. • Are there public education cost to consider?
Ease of Implementation	• How will this affect the current collection method? • Are there infrastructure changes required? • Will this be easy for customer to adapt to?
Waste Diversion	• How much more diversion will this lead to? • Relates to target items and/or materials
GHG Reduction	• Diverting more organics will lead to more GHG reduction.
Processing Options	• Are there a few local processing options? • This determines what can be collected.
End Markets	• Strong end markets support long term viability of this option/program.

Education/Outreach

Education & Implementation – Best Practices

- Understand your customers
- Understand your current service model
- Work with your hauler(s) and processor(s)
- Understand what type of materials can be collected
- Develop consistent and simple messaging
- Be prepared for anything

Case Study: City of Vancouver Residential

Implementing and Evaluating Vancouver's Green-Bin Program

- Provided strategic planning for program pilot and City-wide launch
- Trained Green Team Outreach Ambassadors
- Promoted program compliance through door-to-door and community events
- Assessed implementation through surveys and back lane assessment

Case Study: City of Vancouver Residential

Results - Waste Diversion Success

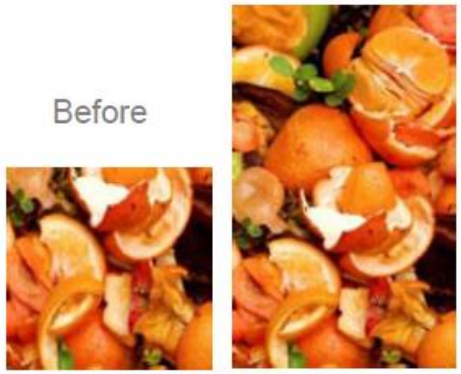
Before

After

39% less curbside garbage

Before

After



64% increase in organics collected

Before

After

~10% more recyclables diverted

CITY OF VANCOUVER

Case Study: Township of Langley Residential

- 38% reduction in garbage
- 37% increase in Green Bin participation

**5 years into food scraps collection program*

Lessons Learned

- **System Change**
  - Get buy in to adjust each aspect of the system - especially waste avoidance ($) – then promote to optimize capture
- **Goals**
  - Set interim goals while pursuing zero waste goal
- **Measure and Monitor**
  - Can't manage what you can't measure
- **Build from Best Practices**
  - Don't reinvent the wheel; find out what's worked and innovate from there
- **Organics, Organics, Organics**
  - Develop each stage of the organics cycle, from point of generation through end market

LASAN – Curb Your Food Waste LA

Community-Based Social Marketing Approach

- Target specific behavior changes
- ID barriers and motivators
  - 'Yuck factor', pest concerns, too much work
  - Good for environment/ mitigate climate change, right thing to do, others are doing it

LASAN – Curb Your Food Waste LA

- Employ specific behavior change tools
  - Communications – vivid, clear messages; reinforce motivators, address barriers
    - How to brochure, door hanger, contamination tag, website, videos
  - Prompts - @ point of use
    - Kitchen pail with color image sticker, cart tag, give aways (also incentive)

LASAN – Curb Your Food Waste LA

- Employ specific behavior change tools
  - Social Diffusion and Norm Setting – we are guided by behaviors of those around us
    - Introduction letter, door to door campaign, community events
  - Feedback – measured progress to date
    - Newsletter, website updates, video showcasing events to date

Group Discussion 2

Group Discussion 2

1. Collection Programs: understanding service levels and changes to existing programs
2. Outreach and Education: Customer training to adopt new behavior
3. Processing Infrastructure/End Market Considerations and Opportunities

Next Steps

Next Steps

- Future Workshops
- Conduct Analysis on Collection Scenarios and Associated Infrastructure
- Conduct Analysis of Factors Affecting Organic Waste End-Product Marketability

TETRA TECH

QUESTIONS?

Thank you

Thank You

Questions or comments?

Roadmap@pw.lacounty.gov

www.RoadmapLA.com