The background image shows an outdoor community event. In the foreground, there are several grey bins filled with food waste, including vegetable scraps, meat, and bones. A person wearing a green apron is visible in the middle ground, likely a volunteer or staff member. In the background, there are blue and white tents, a white van, and multi-story buildings under a clear sky.

# Local Strategies to Curb Waste Sector Methane Emissions & Benefit Communities

April 11, 2024

# Agenda & goals for today's webinar

- Provide an overview of the **key sources of methane** from solid waste and the **win-win strategies** to prevent & reduce emissions, while benefiting communities
- Highlight **specific local examples** of programs and policies to curb waste sector methane emissions, sharing **lessons learned**
- Share **technical resources & funding opportunities** that can support additional local efforts to reduce methane



# Opening Remarks



## Gina McCarthy

**First White House National  
Climate Advisor and Former U.S.  
EPA Administrator**

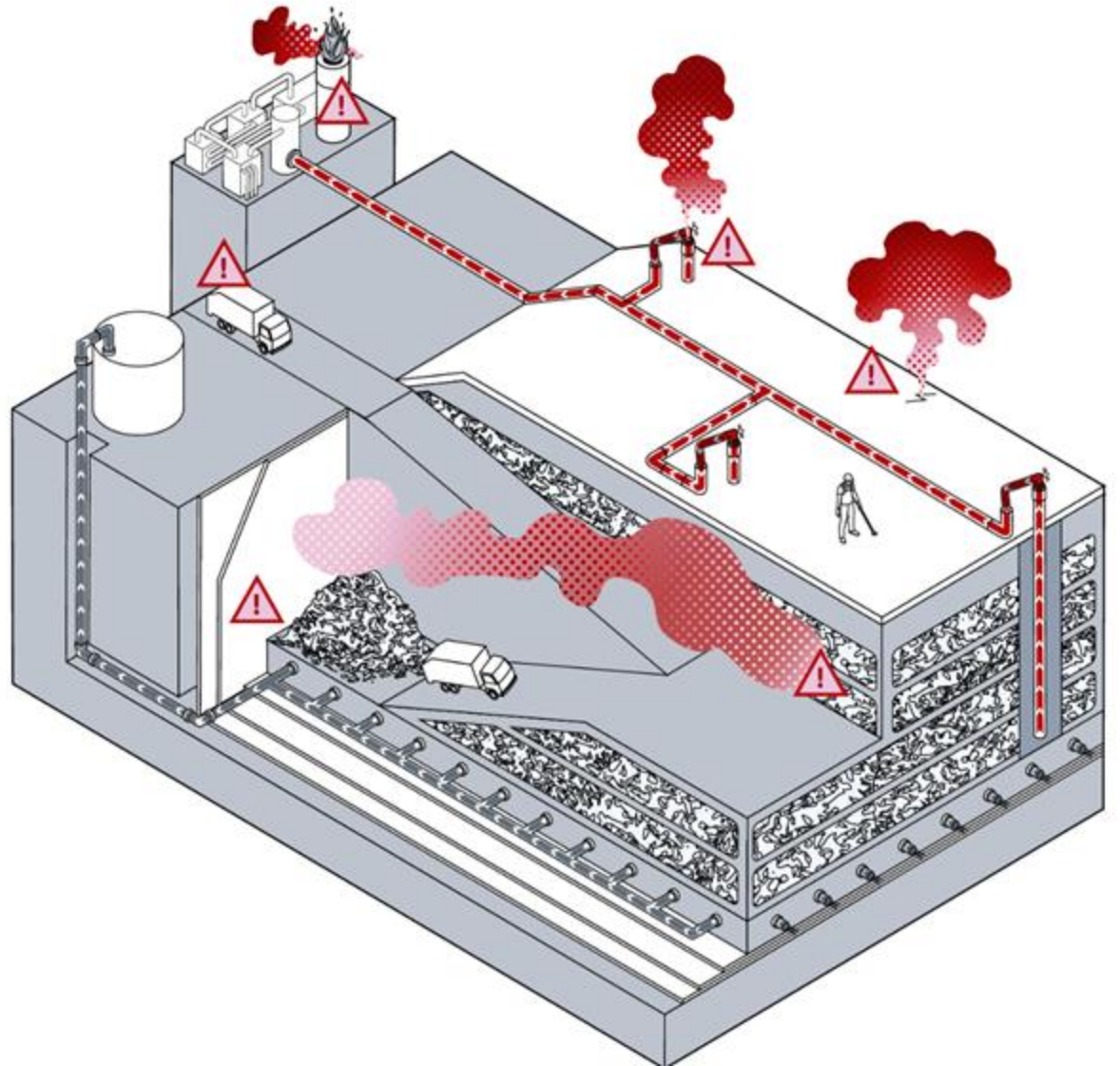
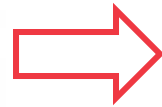




# Waste Methane Overview

Tom Frankiewicz  
Waste Methane, Subject Matter Expert

# How does trash contribute to climate change?



# A Two-Pronged Approach to Reduce Waste Methane



**Prevention**  
Avoid landfill  
methane  
generation

Waste reduction &  
food donation

Organics recycling



**Mitigation**  
Reduce methane  
from waste-in-  
place

Smart landfill design  
& operations

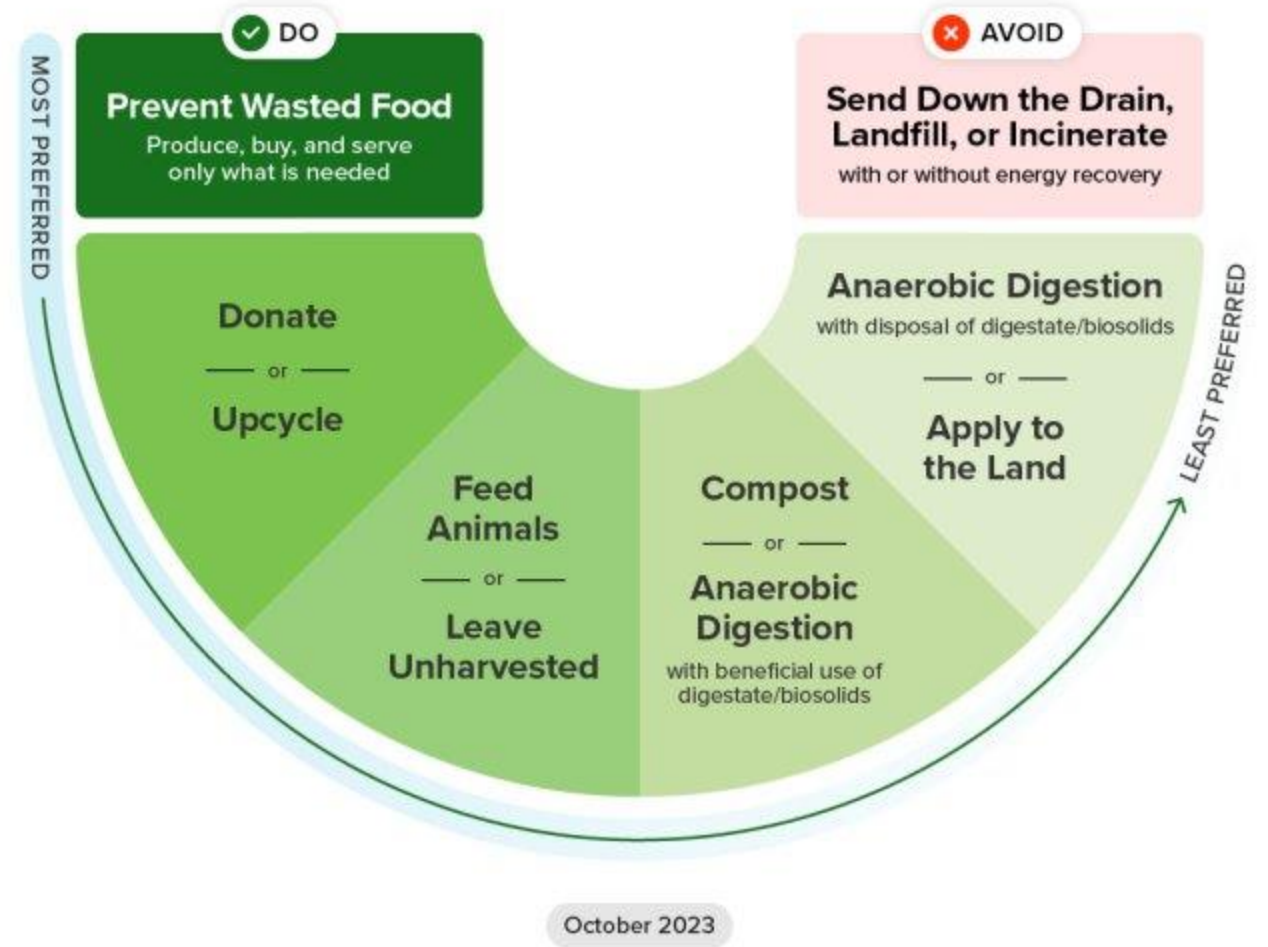
Advanced leak  
detection & repair

**Prevention** strategies keep organic waste out of landfills through **source reduction, edible food donation, and organics recycling** to **prevent future methane generation**

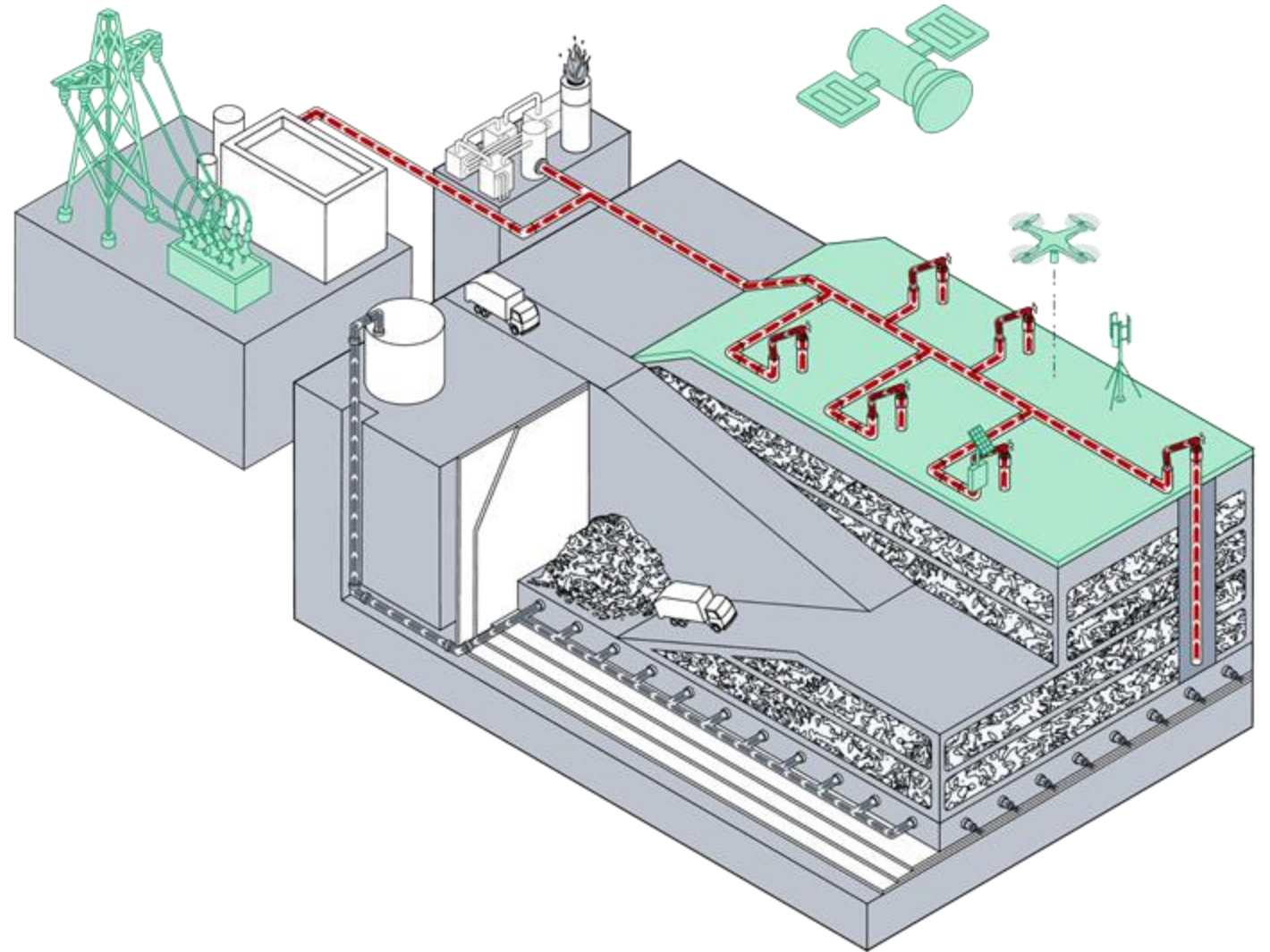


## Wasted Food Scale

How to reduce the environmental impacts of wasted food



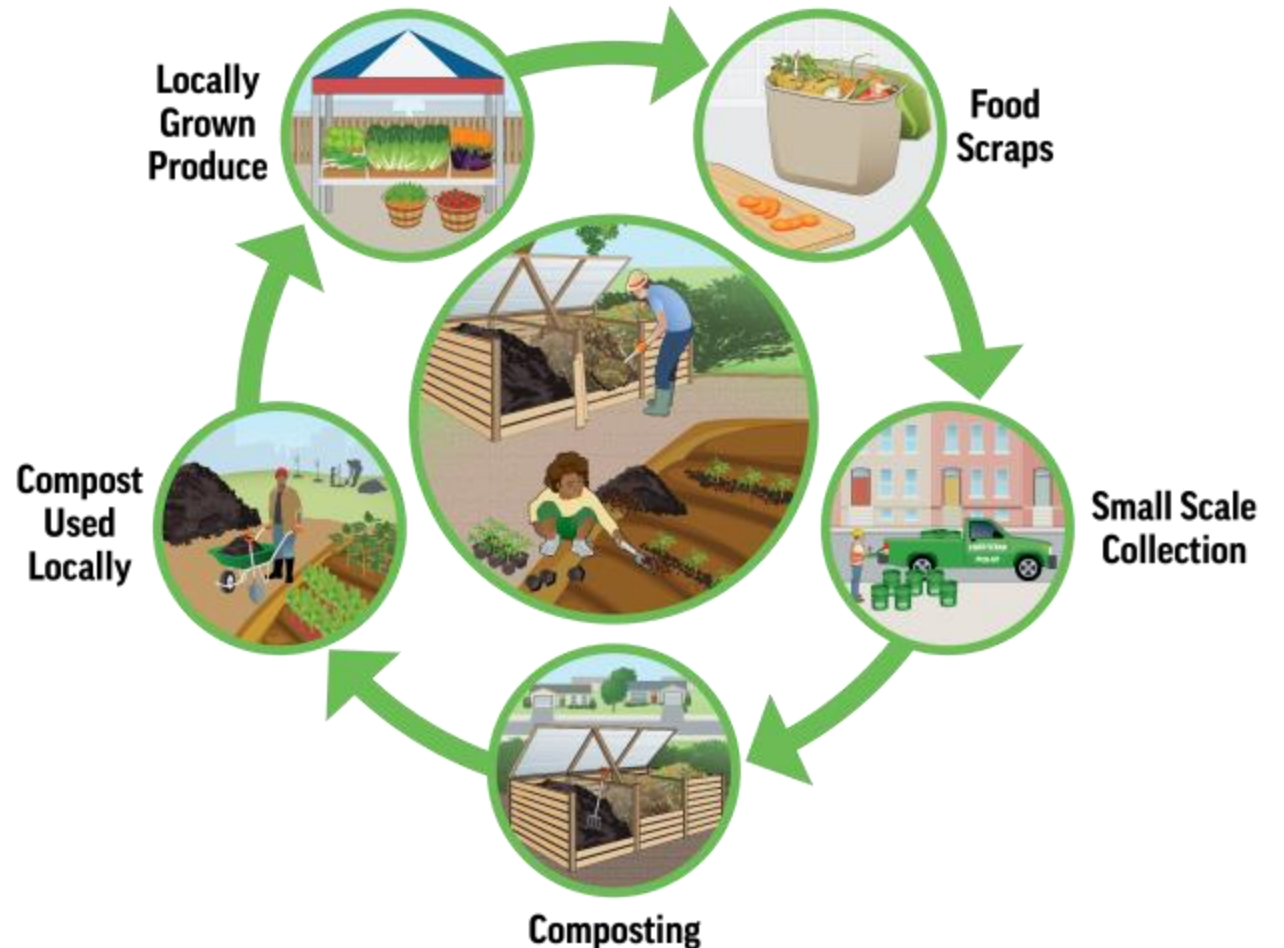
**Mitigation** strategies optimize landfill **design, monitoring, and operations** to increase methane capture and reduce fugitive emissions from waste-in-place.



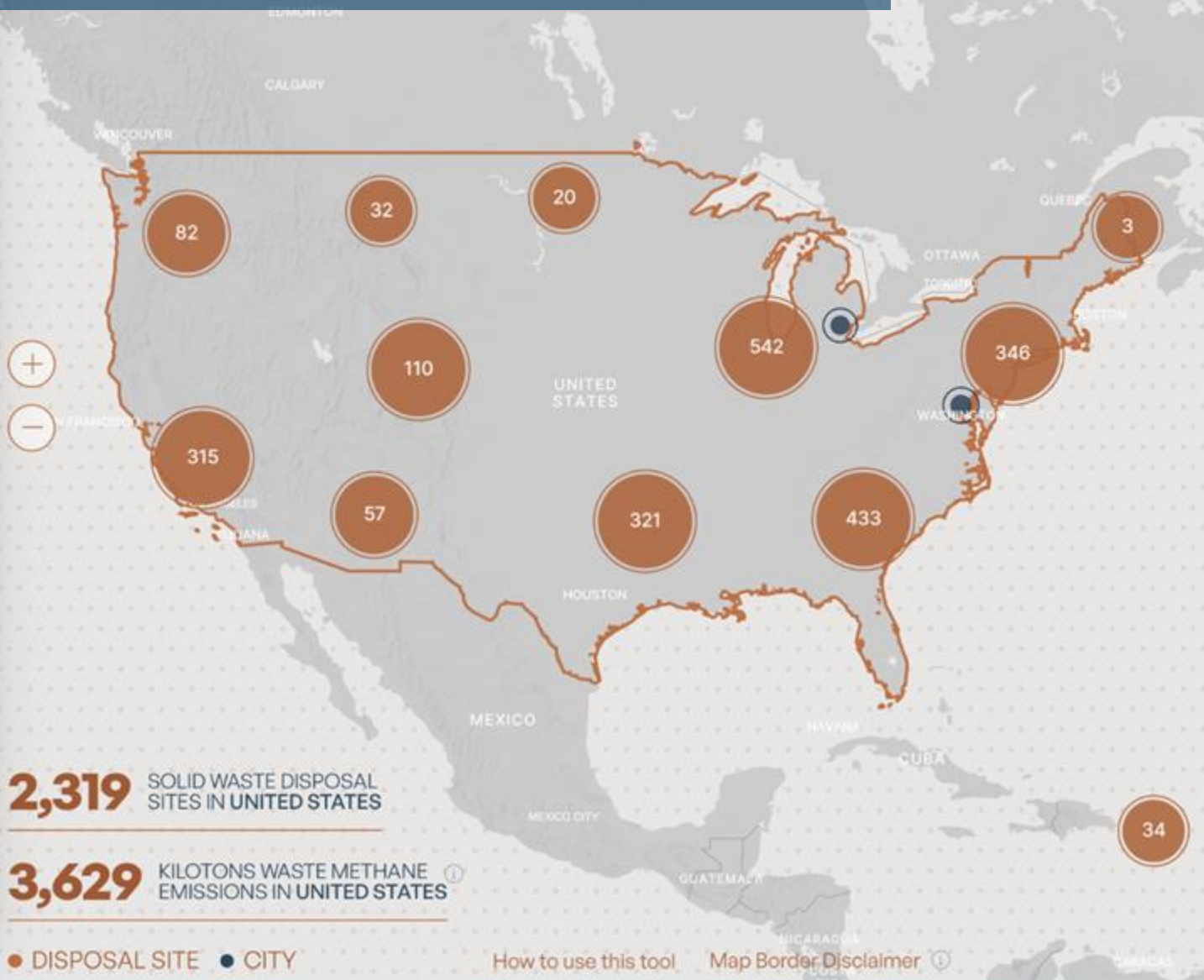


# Local opportunities, local benefits

- ✓ **Air quality**
- ✓ **Public health**
- ✓ **Local food systems**
- ✓ **Job creation**
- ✓ **Economic development**



# WasteMAP.earth



## Deploying Advanced Monitoring Technologies at US Landfills: How Landfill Operators and Municipalities Can Leverage New Tools to Reduce Methane Emissions and Deliver Powerful Benefits

(1 FILE)

This playbook is intended to provide an overview of strategies to monitor and mitigate emissions that may be appropriate for US landfill operators to consider based on their evaluation of site-specific, technological, and operational conditions. The playbook also contains some case studies and highlights the community and economic benefits of reducing methane emissions.

# Local Government Solutions Panel

# Local Government Solutions Panel



**Aryeh Alex**

City of Columbus, OH  
*Sustainability Manager &  
Keep Columbus Beautiful  
Executive Director*



**Michael Martinez**

LA Compost  
*Founder &  
Executive Director*



**Roxanne Wienkes**

Dane County, WI  
*Deputy Director  
Department of  
Waste & Renewables*



**Tom Koutroulis**

Orange County, CA  
*Director  
OC Waste & Recycling*

THE CITY OF  
**COLUMBUS**

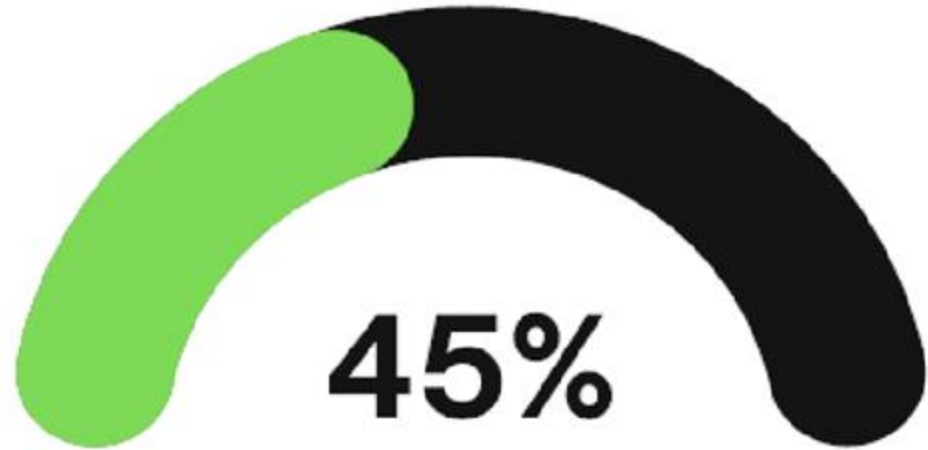


# Climate Action Plan Organic Waste Reduction

THE CITY OF  
**COLUMBUS**  
ANDREW J. GINTHER, MAYOR

DEPARTMENT OF  
PUBLIC SERVICE

# Our Ambition



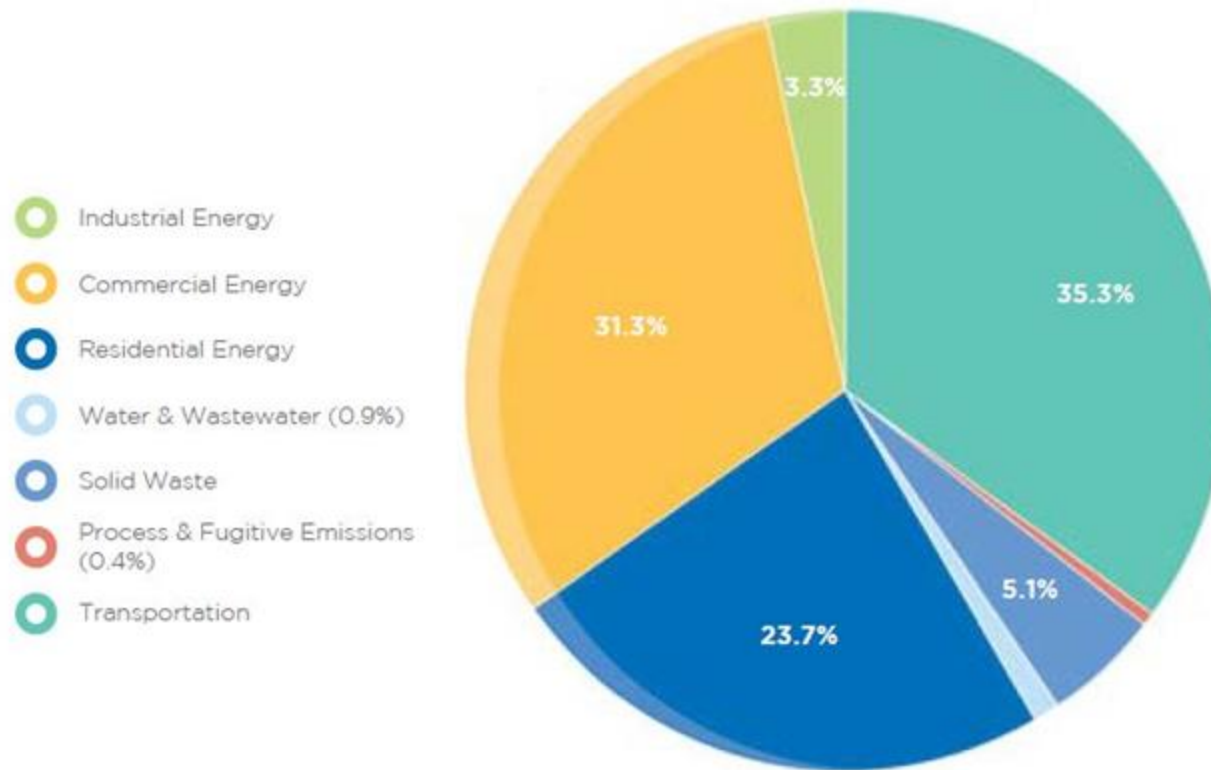
**2030** GHG Reduction Goal



**2050** GHG Reduction Goal

# Benchmarking Community GHG Emissions

2013 BASELINE INVENTORY BY SECTOR





# Columbus Climate Action Plan

## Reduce Landfilled Organic Waste

- 50% Reduction by 2030 and 90% Reduction by 2050 – 133,784 MT of GHG Impact

## Support Circular Economy Organizations

- 1,000 green job creation related to the circular economy by 2030 and 100% increase in circular economy organizations from 2030 to 2050



**100%**  
**CARBON NEUTRAL**  
**COLUMBUS BY**  
**2050**

[www.columbus.gov/sustainable/cap](http://www.columbus.gov/sustainable/cap)

# The Waste Challenge

<b>2019 Waste Characterizations Report</b>	<b>Tons per year</b>	<b>%</b>
Other compostable fiber	22,980	7.20%
Yard waste	18,239	5.70%
Edible food scraps – non-packaged	17,724	5.60%
Edible food scraps – packaged	15,363	4.80%
<b>Total:</b>	<b>74,306</b>	<b>23.3%</b>

## NRDC, SWACO Announce Seven Ohio Recipients of Food Waste Reduction Grants

May 17, 2023

COLUMBUS, OH – NRDC (Natural Resources Defense Council) and SWACO (Solid Waste Authority of Central Ohio) have partnered with the City of Columbus and Franklin County to announce the recipients of the Central Ohio Food Waste Reduction Capacity Grant, supporting community-driven initiatives that advance the central Ohio region's efforts to reduce food waste 50% by 2030.



# Columbus Signs Milan Urban Food Policy Pact

February 5, 2024



A public park on the banks of the Scioto River in Columbus, Ohio, with the city skyline in the distance.

In January, 2024, the city of Columbus, Ohio, one of NRDC's [Food Matters partners](#), has signed the [Milan Urban Food Policy Pact \(MUFFP\)](#), an international protocol aimed at addressing food-related issues at the urban level. The pact establishes a network of global cities dedicated to developing and implementing sustainable food systems. City leaders committed to the pact pledge to provide accessible and nutritious food to all, safeguard biodiversity, and combat food waste. To date, over 270 cities, of which more than 20 are from the U.S., including [Cincinnati](#), Madison, and Chicago, have pledged their commitment to this agreement.



- Fruit peels
- Vegetable waste
- Coffee grounds
- Tea bags
- Non-colored and shredded paper
- Small chunks of bread and grains

- Meat
- Dairy
- Citrus fruits
- Salty food
- Salty food products
- Sweetest
- Carbon and/or bleached paper
- Grass clippings from treated lawns

**THE CITY OF COLUMBUS**  
 ANDREW J. GINTHER, MAYOR  
 DEPARTMENT OF PUBLIC SERVICE

Questions: Call, text, or email  
 Aryeh at 614-338-5004 or  
 www@cityofcolumbus.gov

**THE CITY OF COLUMBUS**  
 ANDREW J. GINTHER, MAYOR  
 DEPARTMENT OF PUBLIC SERVICE

**Warm Composting Pilot**  
 Instructions and Frequently Asked Questions

Things to feed your worm bin include:

- Fruit
- Vegetables
- Paper
- Bread and Pantries
- Eggshells
- Coffee
- Meat
- Paper
- Tea Bags
- Bones
- Milk
- Lawn Clippings (yard, fresh clippings may heat up and kill the worms)
- Animal Manure (not dog or cat)

Here is a more basic list of what to feed and to the worm bin:

- Dairy Products

**COMPOST**

**Worm Compost Pilot Project**

<p><b>Acceptable:</b></p> <ul style="list-style-type: none"> <li>• Fruit scraps</li> <li>• Fruit peels</li> <li>• Vegetable waste</li> <li>• Coffee grounds</li> <li>• Tea bags</li> </ul>	<p><b>Not Acceptable:</b></p> <ul style="list-style-type: none"> <li>• Meat</li> <li>• Dairy</li> <li>• Citrus fruits</li> <li>• Salty food</li> <li>• Salty food products</li> </ul>
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# Vermicomposting Pilot

A worm bin is a great way to recycle your food scraps and yard waste. It's a simple, easy-to-use system that can help you reduce your carbon footprint and create a natural fertilizer for your garden.

Try to keep a balance of browns and greens. Browns and greens are important for different types of organic matter to use in composting. Browns are high in carbon or carbohydrates, that, they are organic carbon sources. These foods supply the energy that most soil organisms need to survive. Carbons also help absorb the offensive odors and capture and help prevent some of the organic nitrogen in the pile from escaping by evaporation or leaching. Carbons are also essential in the faster formation of humus from the organic matter in a composting process. Greens are high in nitrogen or protein, that organic nitrogen sources. These products help the composting microbe to grow, breed, and multiply fast in the pile, that creating extreme internal temperatures in hot compost piles. A hot pile is a more effective at killing pathogens and it is "finished" as a "compost" in to use it, and wait a few

• Non-colored and shredded paper  
 • Small chunks of bread and grains

• Sweetest  
 • Carbon and/or bleached paper  
 • Grass clippings from treated lawns

**THE CITY OF COLUMBUS**  
 ANDREW J. GINTHER, MAYOR

Questions: Call, text, or email  
 Aryeh at 614-338-5004 or  
 www@cityofcolumbus.gov

# Food Scraps Drop-Off Program



# Mail to Residents

**SAVE MORE THAN FOOD**  
MAKE A DIFFERENCE

THE CITY OF **COLUMBUS**  
OHIO'S CAPITAL CITY

**FOOD SCRAP DROP-OFF PROGRAM**





**REGISTER FOR THE CITY OF COLUMBUS FOOD WASTE RECYCLING PROGRAM**

The food scrap drop-off service is **free and open to all Columbus residents**. Register at [Columbus.gov/foodwaste](http://Columbus.gov/foodwaste) or scan the QR code.

Register early and receive a bucket to collect and transport your food scraps, 300 buckets are available.

**REGISTER NOW!**



OR GO TO:  
[Columbus.gov/foodwaste](http://Columbus.gov/foodwaste)

**WHERE DO I GO?**

Collect your kitchen scraps at home and simply bring them to one of our NEW food scraps drop-off sites, available 24/7.

**YOUR DROP-OFF LOCATION**

Anheuser-Busch Sports Park  
4990 Olentangy River Road  
Columbus, Ohio 43214

**WHAT FOOD SCRAPS CAN I RECYCLE?**

<p><b>ACCEPTED</b></p> <p>Items that are accepted include bones, cheese, coffee grounds and filters, eggs, fish, fruit and vegetables, meats, BPI compostable serviceware, and paper (napkins, cardboard, newspapers, etc.).</p>	<p><b>NOT ACCEPTED</b></p> <p>Items that are NOT accepted include animal waste, bulk oils and fats, chemicals, food packaging, glass, foil, metal, plastic materials, wood, or products labeled "biodegradable" but not "compostable."</p>
--	--

A full list is available at [columbus.gov/foodwaste](http://columbus.gov/foodwaste).

QUESTIONS? Visit us online at [columbus.gov/foodwaste](http://columbus.gov/foodwaste)

**DON'T STOP AT COMPOSTING**

**PREVENT FOOD WASTE AT HOME**

A family of 4 spends about \$2,000 each year on food that spoils or gets thrown away.

Check out the resources on [SaveMoreThanFood.org](http://SaveMoreThanFood.org) that can help you save money and feed your family and the soil instead of the landfill!



Food Storage Guide



Composting Resources



Food Waste Quiz



**EVERY DAY in central Ohio, 1 MILLION POUNDS of food is landfilled.**

Return Name  
Return Address  
Return City, State Zip

4" min.

2" min.

Bar Code Zone - NO PRINTING  
MUST REMAIN WHITE

**SAVE MORE THAN FOOD**  
MAKE A DIFFERENCE

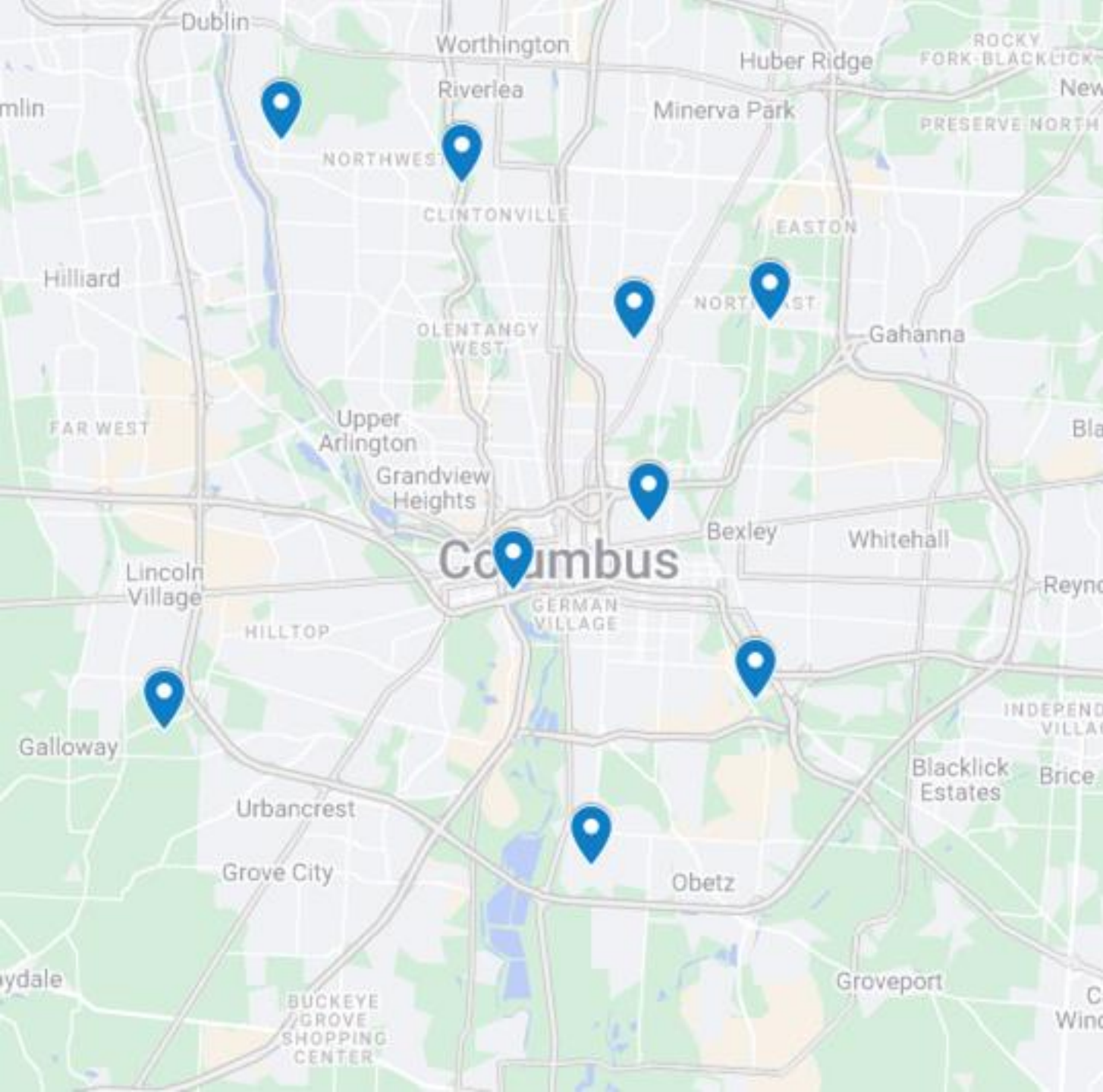
THE CITY OF **COLUMBUS**  
OHIO'S CAPITAL CITY

**SWACO**  
SOLID WASTE AUTHORITY OF COLUMBUS

Collected 50,496 pounds as of February 2024







**Expanding to 9  
locations by end  
of 2024**

# Wastewater Capacity

Wastewater treatment accounts for 9% of emissions

Current wastewater plants have 100% beneficial reuse of biosolids that are captured in the treatment process

Bioenergy Project is expanding anaerobic digestion capacity for growth, and constructing a food waste and fats, oils and grease receiving station to take in organic material

Provide a new outlet for these materials, diverting waste from the landfill and creating more biogas to produce power and heat





THE CITY OF  
**COLUMBUS**

ANDREW J. GINTHER, MAYOR

---

DEPARTMENT OF  
PUBLIC SERVICE

**THANK YOU!**

Aryeh Alex, Sustainability Manager,  
Department of Public Service  
Email: [awalex@columbus.gov](mailto:awalex@columbus.gov)  
Phone: 614.645.3171

**LA**  **COMPOST**  
**SOIL & PEOPLE**



# About Us:

**We work to restore lost connections to the soil and one another.**

Starting in 2013, LA Compost collected food scraps with 4 bikes and trailers. A year later we began forming a decentralized network of community compost hubs.

We have now evolved to 27 staff, thousands of volunteers, and a presence across LA with over 50 locations including Compost Hubs, Farmers' Markets, and Park Hubs.



• CAL STATE UNIVERSITY Northridge

# SAN FERNANDO VALLEY

Highland Hall Waldorf School

OUR Backyard Homes

- Shift Our Ways Collective Backyard Farm (SOW)
- Cottonwood Urban Farm

Atwater Village Neighborhood Council

Atwater Village Farmer's Market

• Monrovia High School

• Bob Lucas Library

• FOODED

• Monrovia Community Garden

• El Sereno Community Garden

# NORTHEAST LA

Jardin Del Rio Community Garden

• Occidental College

• Arlington Gardens

Sunny Sew Shop

# GRIFFITH PARK



Regional Compost Hub

Elysian Valley Food Scraps Collection

Elysian Valley Community Garden

✓ EAST Hollywood Community Garden

Larchmont Village Farmers' Market

Silver Lake Farmer's Market

• Solano Canyon Community Garden

Wellington Square Farmer's Market

• Metabolic Studios LA RIVER Farmer's Market

Highland Park Farmer's Market

Audubon Center at Debs Park

# HILLSIDE LA



Regional Compost Hub

• Eco Urban Garden

# SAN GABRIEL VALLEY

Regional Compost Hub  
EARTHWORKS FARM

• Mariposa-Nabi Community Garden

• Motor Ave Community Garden

• Safe Place for Youth

• Eastwind Gardens

• Mac Vista Gardens

Climate Emergency Mobilization Office

• Good Earth Community Garden

Los Angeles Dept of Water and Power (LADWP)

• Crenshaw Farmer's Market

# WESTSIDE

• Playa Vista Farmer's Market

California Alliance for Community Compost

• Zapata King Neighborhood Council

• Little Green Acres Community Garden

• Rebel Garden

• Coronado del Norte Gardens

# DOWNTOWN

• Spring St Community Garden

LA City Recreation & Parks

• Roots for Peace

• Rooftown LA

• Central Avenue Farmer's Market

# SOUTH LA

FREMONT HIGH SCHOOL

• City of Paramount Community Garden

JACCC LACAN

LA Sanitation



Regional Compost Hub

• Cal State LA

East LA Learning Garden & Molt Street Urban Farm

GROW GOOD URBAN FARM

Prospering Backyards











**Target**

**Eliminate organic waste\* going to landfill by 2028**

Baseline: An estimated 722,725 tons of organic waste was sent to landfill in 2011  
 Source: City of Los Angeles Bureau of Sanitation Zero Waste Progress Report, UCLA 2013, Sunshine Canyon Landfill Comprehensive Waste Characterization Study, 2016  
 \*Organic waste refers to food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste



**Milestones & Initiatives**

2021

**Establish food scraps drop-off locations at all city farmers markets**

- Partner with local organizations to ensure food scraps are composted locally first

2021

**Launch citywide residential food scraps collection**

- Expand the City's anaerobic digestion capacity
- Develop a composting master plan to expand community and regional composting infrastructure

2025

**Recover and distribute at least 30% of discarded edible food**

- Ensure all food businesses have food rescue options available through their recycLA waste hauling service
- Standardize food donation options for businesses through recycLA
- Identify and engage major point sources of food waste throughout the city on food recovery programs and organics recycling



**Partner Initiatives**



**LA Compost**

*Closing the Loop on Food Waste*

LA Compost supports community scale composting through programs such as educational workshops, household organics drop off locations, and community compost hubs. Since its creation, LA Compost has diverted over 500 tons of food scraps from landfills to be composted for use at urban farms, parks, gardens, and homes. Compost Managers, who live and work within the neighborhoods they serve, are trained in best management practices for healthy and safe composting at community hubs. By the end of 2019, LA Compost will increase its capacity to divert 70 additional tons of food "waste" to total 570 tons annually - the equivalent of removing 85.5 cars off the road each year - and will continue to expand its workforce and commitment to community wellbeing.

**L.A. LIVE**

*Promoting Change at the Workplace*

L.A. LIVE's food and materials diversion program, Green Star, provides diversion training to all new kitchen and housekeeping employees at campus restaurants and offices. Exemplary employees who consistently divert food and materials in the workplace are rewarded with their picture being featured on the "Wall of Green Stars" as well as with movie and sporting game tickets. The L.A. LIVE Management team is currently working with its waste hauler, NASA, to measure progress and set specific goals on increasing waste diversion.






- Home
- Solid Resources ▾
- Organics ▾
- CURBSIDE ORGANICS RECYCLING PROGRAM
- Farmers Market Drop-Off
- Food Rescue Program >
- Food Waste Prevention
- Free Composting Workshops
- Green Waste
- In-Sink Pilot
- Mulch Program
- MANDATORY COMMERCIAL AND MULTIFAMILY ORGANICS RECYCLING (RECYCLA)
- CLARTS and Landfills >
- Livability

## FARMERS MARKET DROP-OFF

The City of Los Angeles, in collaboration with LA Compost, has established a number of drop off locations for food scraps and other accepted compostable materials at multiple farmers' markets throughout the City. The collected material is processed locally to produce compost and provide quality soil amendments for local use. Community-scale composting is one way to prevent the landfill disposal of compostable organic waste while allowing individuals to engage with each other and learn from the process. The healthy soil that is created by a community compost hub stays in the community and is used locally to enrich the soil in the neighborhood in which it was created.

LA residents can bring their food scraps and other accepted compostable materials to their local farmers' market location, where LA Compost stations provide a drop-off service in addition to compost sales and volunteer event information. Residents can drop off items from the list of farmers' market acceptable materials below.

### Accepted Materials

Compost Co-ops & Farmers' Markets

Write to [info@lacompost.org](mailto:info@lacompost.org) with any questions regarding this list.

NOT ACCEPTED:

- ✗

Plastic including produce stickers

Human or animal waste
- ✗

Compostable plastics including bio bags

Meat and dairy

ACCEPTED GREEN ITEMS:

- ✓

Fruit and veggie scraps

Coffee grounds and
- ✓

Egg shells (shell only)

Green leaves and grass

# Community Composting for Green Spaces Grant Program

The [Community Composting for Green Spaces Grant Program](#) aims to increase the number and capacity of small-scale composting programs in green spaces of disadvantaged and low-income communities.



This grant program seeks to:

- Understand barriers to starting and managing locally-based composting programs.
- Provide resources for new and existing programs.
- Identify qualities of successful programs.
- Provide models for effective and sustainable community composting operations.

The program will help:

- Lower greenhouse gas emissions by increasing the number and efficiency of community composting sites throughout the state.
- Promote community activities that increase organic waste diversion in disadvantaged and low-income communities.
- Reduce food and organic waste disposed in landfills.
- Provide compost to:
  - Enhance community gardens

[Mayor Karen Bass](#)[About Mayor Bass](#)[Request City Services](#)[Get Updates](#)[Our Work](#)[Press Room](#)[Constituent Services](#)[Translate](#)

**LOS ANGELES SECURES FEDERAL FUNDING TO INCREASE COMPOSTING PRACTICES, REDUCE FOOD WASTE AND CONTINUE BUILDING A GREENER FUTURE**





[www.lacompost.org](http://www.lacompost.org)

[@lacompost](https://twitter.com/lacompost)

**Michael Martinez**

[michael@lacompost.org](mailto:michael@lacompost.org)







## ABOUT THE DANE COUNTY DEPARTMENT OF WASTE & RENEWABLES



Manage **300,000 tons** of our residents' waste each year at the landfill and recycling facilities.



Process over **70,000 tons** for recycling annually. Food waste composting, the first Sustainability Campus project, to start in 2024.



Produce the equivalent of **3,000,000 gallons** of gasoline annually at the renewable natural gas (RNG) plant.



Reach over **3,000 community members** annually with education & outreach programs.



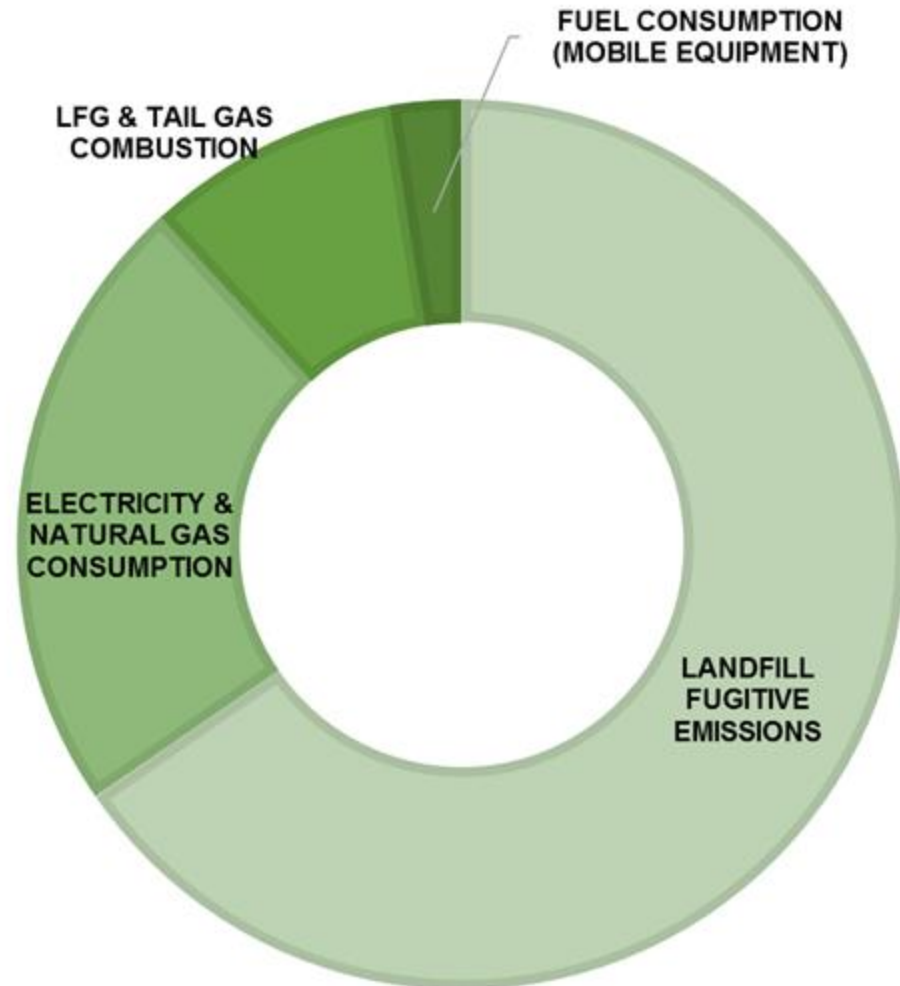
Roxanne Wienkes,  
Deputy Director  
608.509.6681  
[Wienkes.Roxanne@countyofdane.com](mailto:Wienkes.Roxanne@countyofdane.com)

# CARBON EMISSIONS REDUCTION STRATEGY

- Dane County (Wisconsin) aims to reduce its operation's GHG emissions 50% by 2030 and be carbon-neutral by 2050.
- Role the landfill plays:
  - When counted, landfill emissions account for a large portion of the organization's emissions.
  - W&R hired a full time Carbon Offset Program Manager to help us try to get to net zero.



# W&R's CARBON STRATEGY



1

## QUANTIFY AND TRACK EMISSIONS

- Improve our estimates for fugitive emissions
- Track impacts of the improvements already making.

2

## FOCUSING ON LARGEST EMISSION SOURCES FIRST

- Controlling fugitive emissions
- Renewable energy use and production
- Carbon capture and beneficial reuse

3

## IDENTIFY WASTE DIVERSION MEASURES

- Composting, prevent the emissions!
- Optimize C&D recycling operations
- Implement other recycling programs such as mattresses, refrigerant containing items, etc.

4

## OTHER PROJECTS TO OFFSET ANY REMAINING EMISSIONS

- Native prairie cap
- Tree planting
- Wetland restoration

# BACK TO BASICS

- Additional well monitoring and maintenance staff
- Installation of horizontal gas extraction wells early and often
- Good daily and intermediate cover
- Proper maintenance and liquids management



# LEVERAGING TECHNOLOGY

## Automated LFG Wellheads

**RDFGW129**

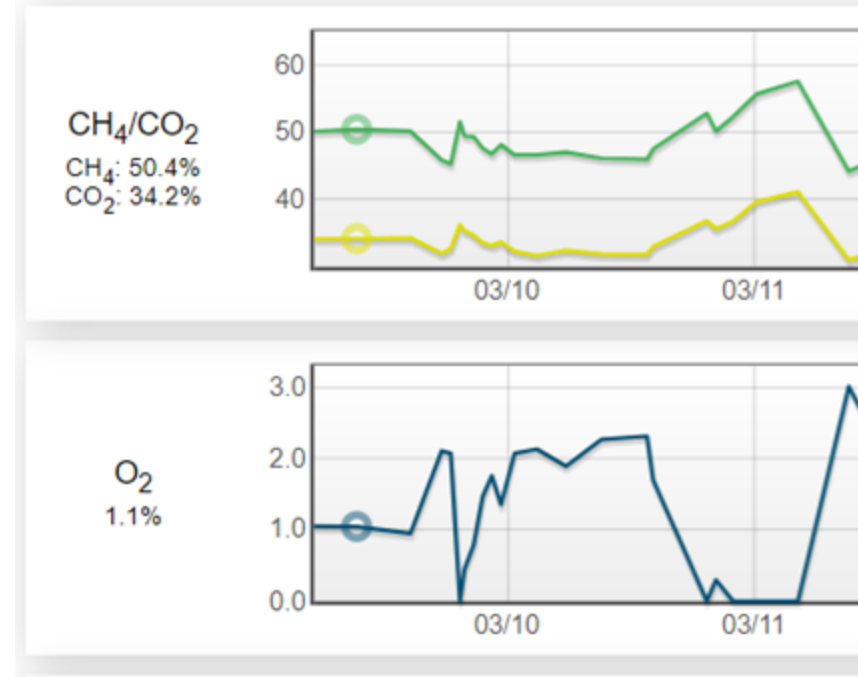
Valve Pos: 44

CH <sub>4</sub> : 48.8 %
CO <sub>2</sub> : 35.9 %
O <sub>2</sub> : 0.0 %
Balance Gas: 15.3 %
LFG Flow Rate: 44 SCFM
CH <sub>4</sub> Flow Rate: 21 SCFM
Pressure Above Loci Valve: -14.1 in. H <sub>2</sub> O
System Vac: -23.4 in. H <sub>2</sub> O
Temperature: 86 °F

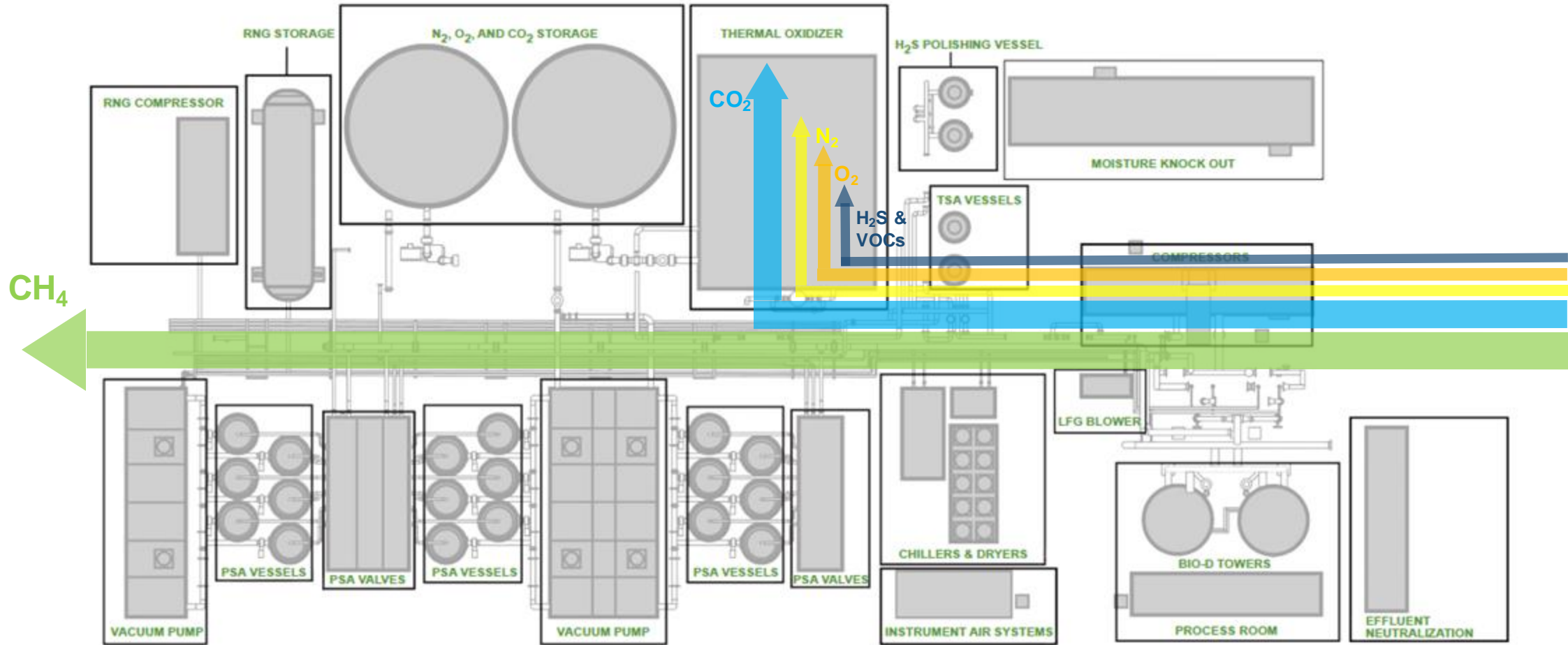
Last updated Mon, Mar 15 19:08  
[Detailed History](#)



Tue, Mar 09, 03:28



# POTENTIAL FOR CARBON CAPTURE



# CONSTRUCTION & DEMO RECYCLING

- Accepts over 70,000 tons of material per year for recycling
- Recycles metal, wood, shingles, tires, vinyl siding, cardboard, aggregate, and other materials
- Recycled materials potentially has a large impact on net emissions.





# What's next? THE VISION

- Current landfill will reach capacity in 2029.
- Dedicating 30 acres of the property to a sustainable business park.
- Composting and food waste is the first initiative slated for the project.
- Issuing RFI's this fall to find other potential partners.



# ORGANICS & FOOD WASTE DIVERSION

- Partnering with a local composting company to expand food waste diversion options for Dane County.
- Dane County recently received \$400,000 to expand food waste drop off locations in the County.
- Roll out kiosks in 2025.



The Town of Cary, IN completed a one-year food waste pilot program in 2023, which involved residents dropping off food waste at the location pictured left. Credit: Town of Cary



Waste &  
Recycling  
COUNTY OF ORANGE



“The world as we have created it is a process of our thinking. It cannot be changed without changing our thinking.”

– Albert Einstein



Creating opportunity out  
of challenge...

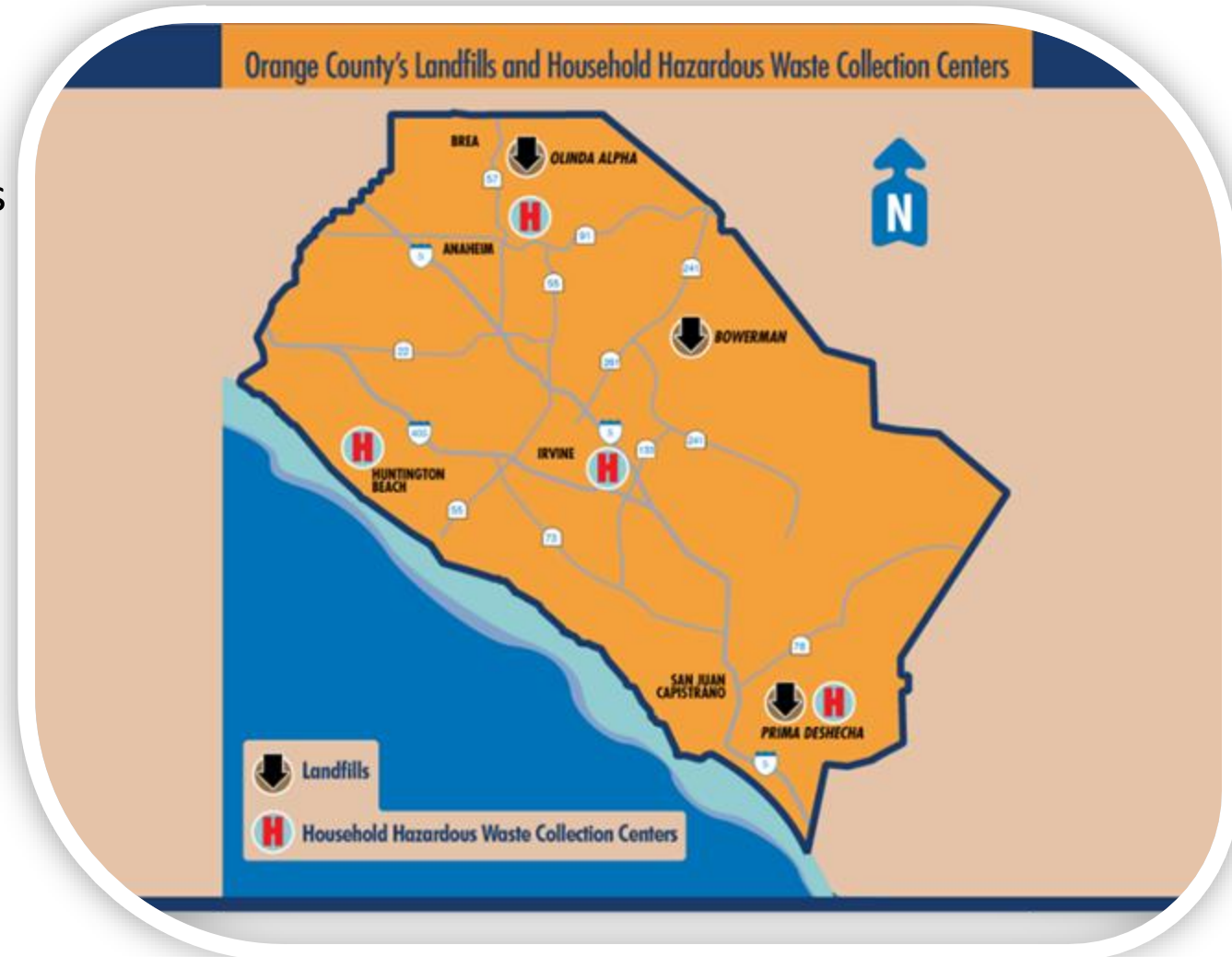


OCWR Infrastructure Saga

Tom Koutroulis, Director

# OC Waste & Recycling – Overview

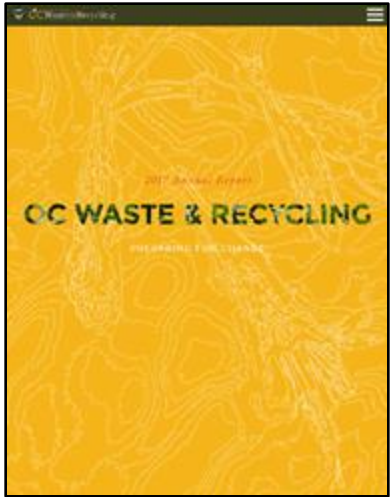
- IWMD/OCWR – Established in 1940's
- 20 closed sites, 4 HHW's, 11 Franchise Agreements
- Operate 3 Active landfills (1960, 1976, 1990)
- Rich culture of landfilling history
- SB1383 need for infrastructure & industry experts
- Concept and Approach: Crawl, Walk, Run
- Compost facilities (2020, 2021, 2023)
- LFG to REG with planned LFG to RNG



# OCWR SB1383 Journey – Annual Report



2017 Preparing for Change



2018 Coming Together for Change



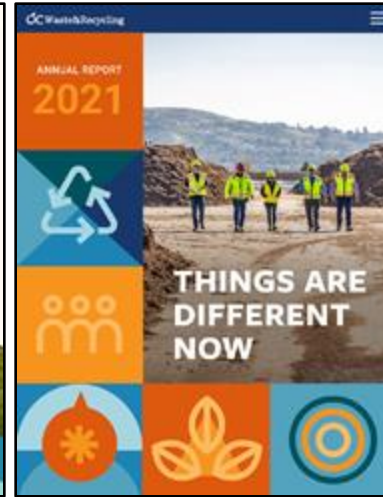
2019 Leading Change



2020 Year of Pivot and Progress



2021 Things are Different Now



2022 Imagine what can be



Culture Trumps Strategy



Location, Location, Location.



“Haters Gonna Hate”



N.I.M.B.Y. To Y.I.M.B.Y.



Skill vs Luck

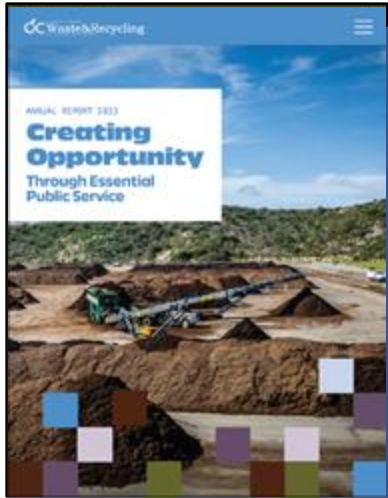


Kaizen Mindset



# Future for OCWR: Kaizen Mindset Continues....

2023 Creating  
Opportunity



- Windrow – In Operation
- CASP – In Development
- SSO/Co-digestion – In Development
- AD – Potential for infrastructure (FS)
- Solar Farms Feasibility – SB100 (FS)
- Emerging Technologies & Processes
- Incubation for Recycling Infrastructure



WISE Agreement:

Waste  
Infrastructure  
System  
Enhancement

- WDA to WISE Agreement – In Development
  - Organics & Edible Food Regional Approach
  - Market Creation & Development
  - Procurement & Compliance
  - Regional Standardization
  - Regional Collaboration

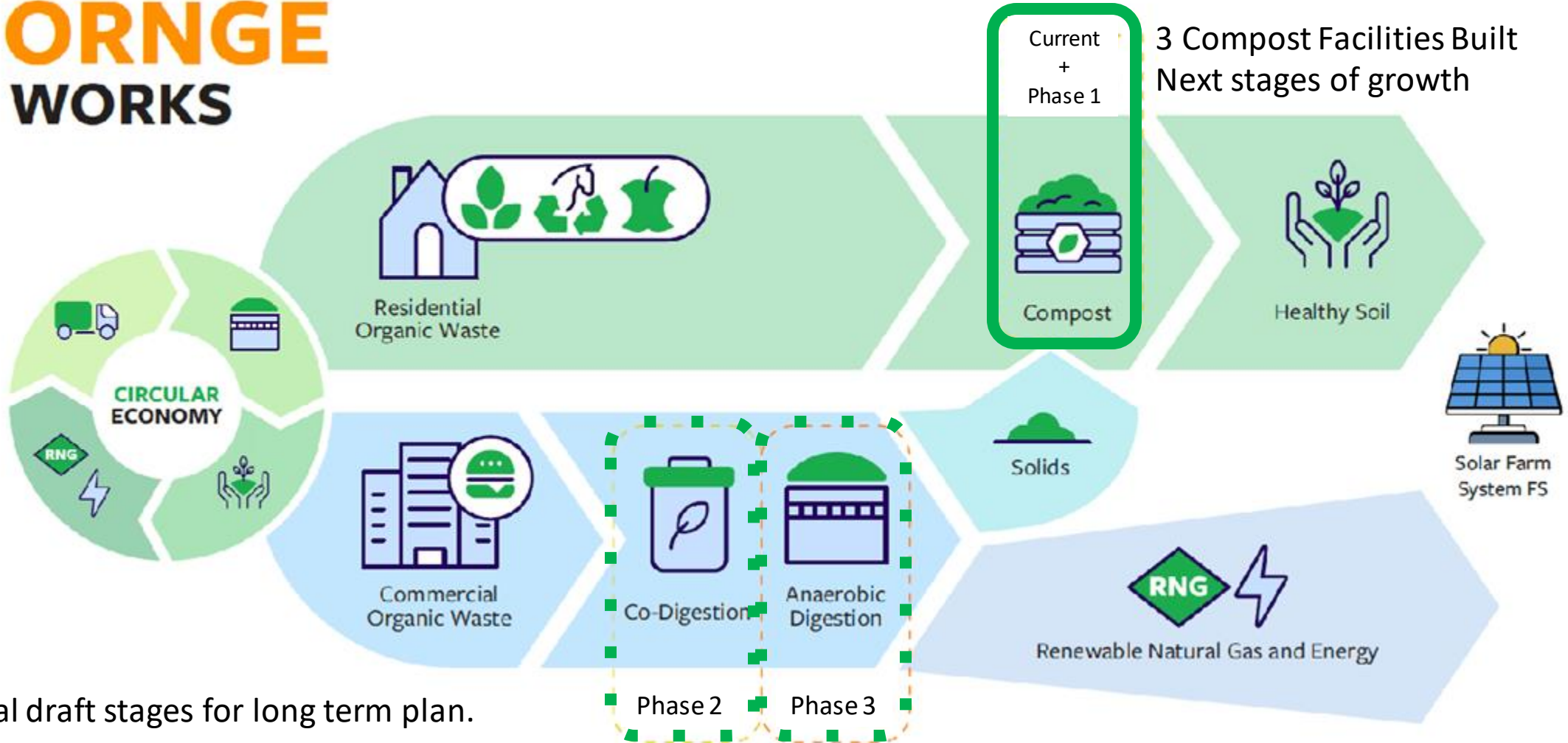


# ORNGE is the New Green – System Concept

Organics to Renewable Natural Gas and Energy



## HOW ORNGE WORKS



In final draft stages for long term plan.



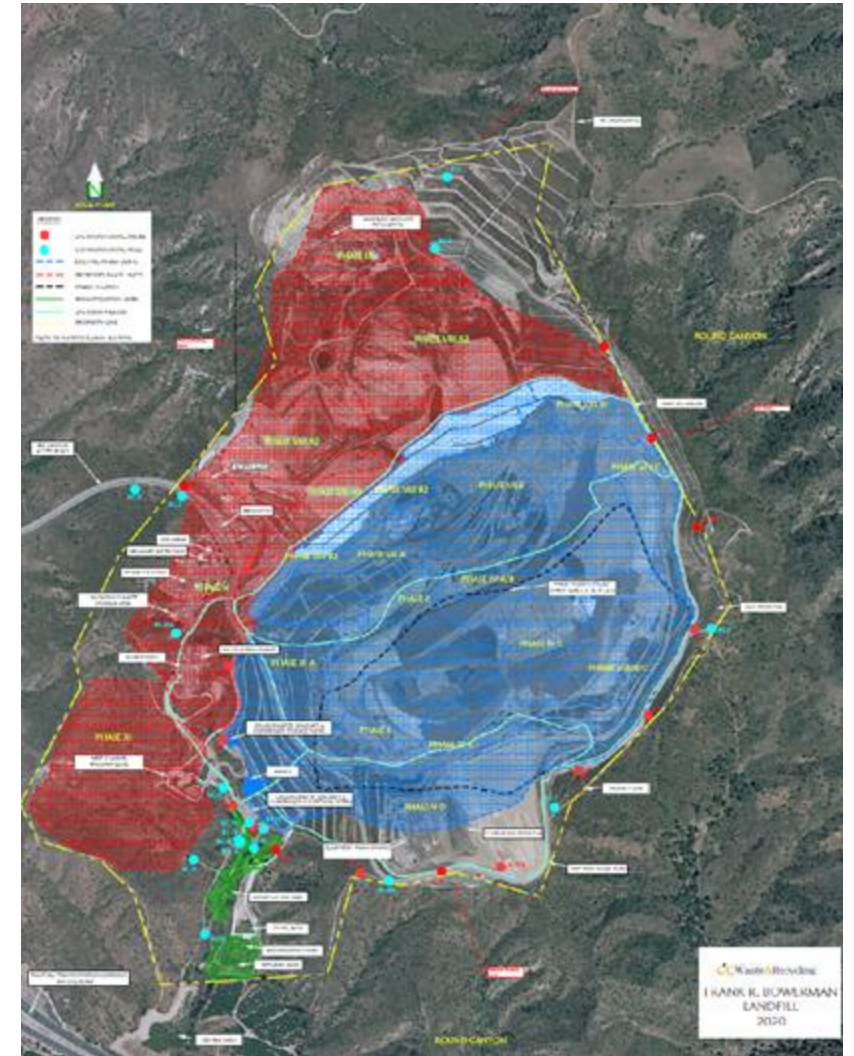
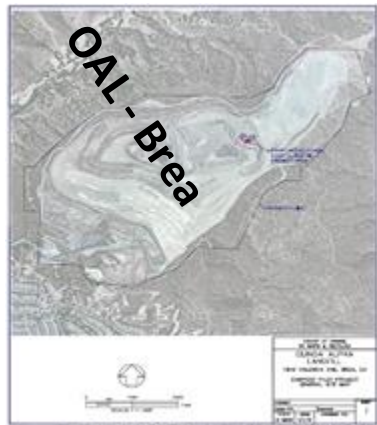
# OCWR Greener System – Phase 1A



# ORNGE is the New Green – Smart Landfill Program

## Smart Landfill Program

- Automate LFG collection to collect real time data
- Use SCADA to monitor and manage well field real time
  - Goal to improve LFG collection
- Drone Technology for inspection and maintenance
  - Reduction of LFG emission with BAT



# Climate Pollution Reduction Grant (CPRG)

## Smart Landfill Program Impacts

- Collection efficiency increase approximately 13%.
- Funding request was > \$25 million.
- The increase in methane gas capture:
  - ✓ 2,173,770 MT CO<sub>2</sub>e between 2025-2030.
  - ✓ 4,218,379 MT CO<sub>2</sub>e between 2030-2035.
  - ✓ 10,010,241 MT CO<sub>2</sub>e total between 2025-2050.
- Cost of implementing the program is approximately \$11/MT CO<sub>2</sub>e.



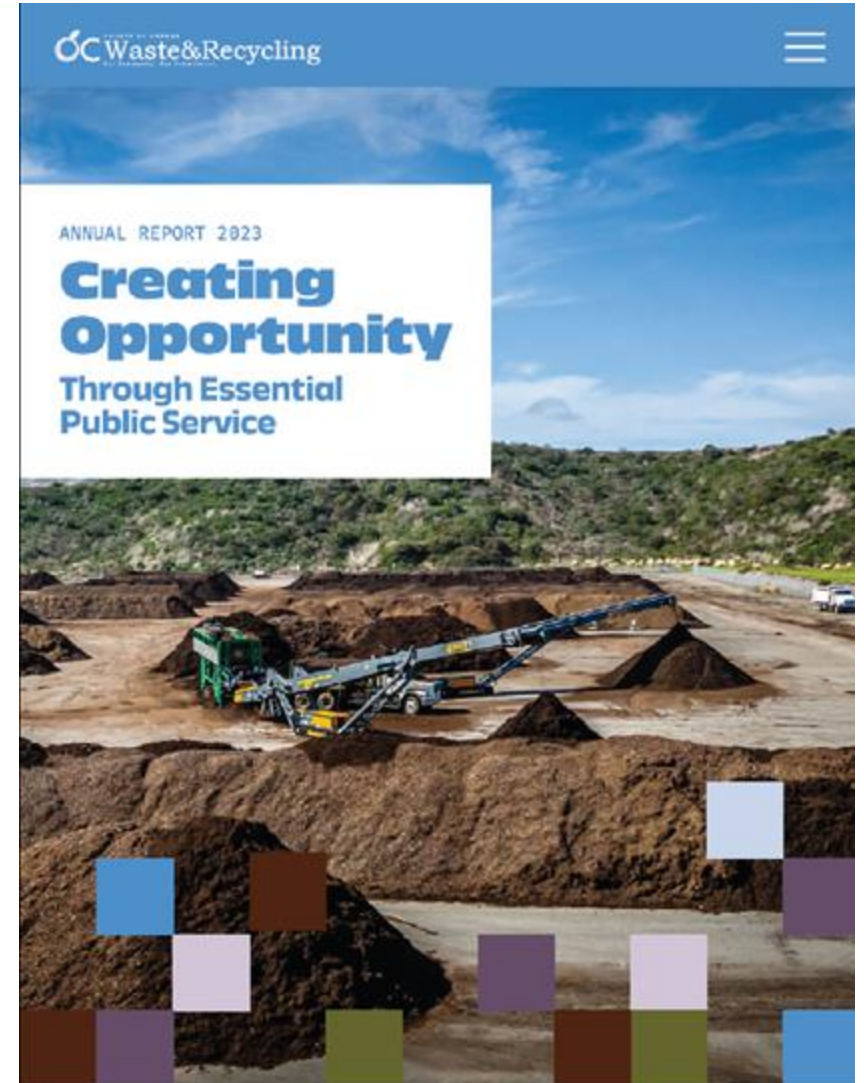
# The OCWR Kaizen Saga Continues...

“Nothing wilts faster than laurels that have been rested upon.” - Shelley



<https://oclandfills.com>

[Tom.Koutroulis@ocwr.ocgov.com](mailto:Tom.Koutroulis@ocwr.ocgov.com)





# Funding Opportunities & Technical Resources

# Funding Opportunities & Technical Resources



**Claudia Fabiano**

*Sustainable Management of Food Team  
Office of Resource Conservation & Recovery  
U.S. Environmental Protection Agency*



**Klara Zimmerman**

*Landfill Methane Outreach Program &  
Global Methane Initiative  
U.S. Environmental Protection Agency*



# EPA RESOURCES AND FUNDING OPPORTUNITIES

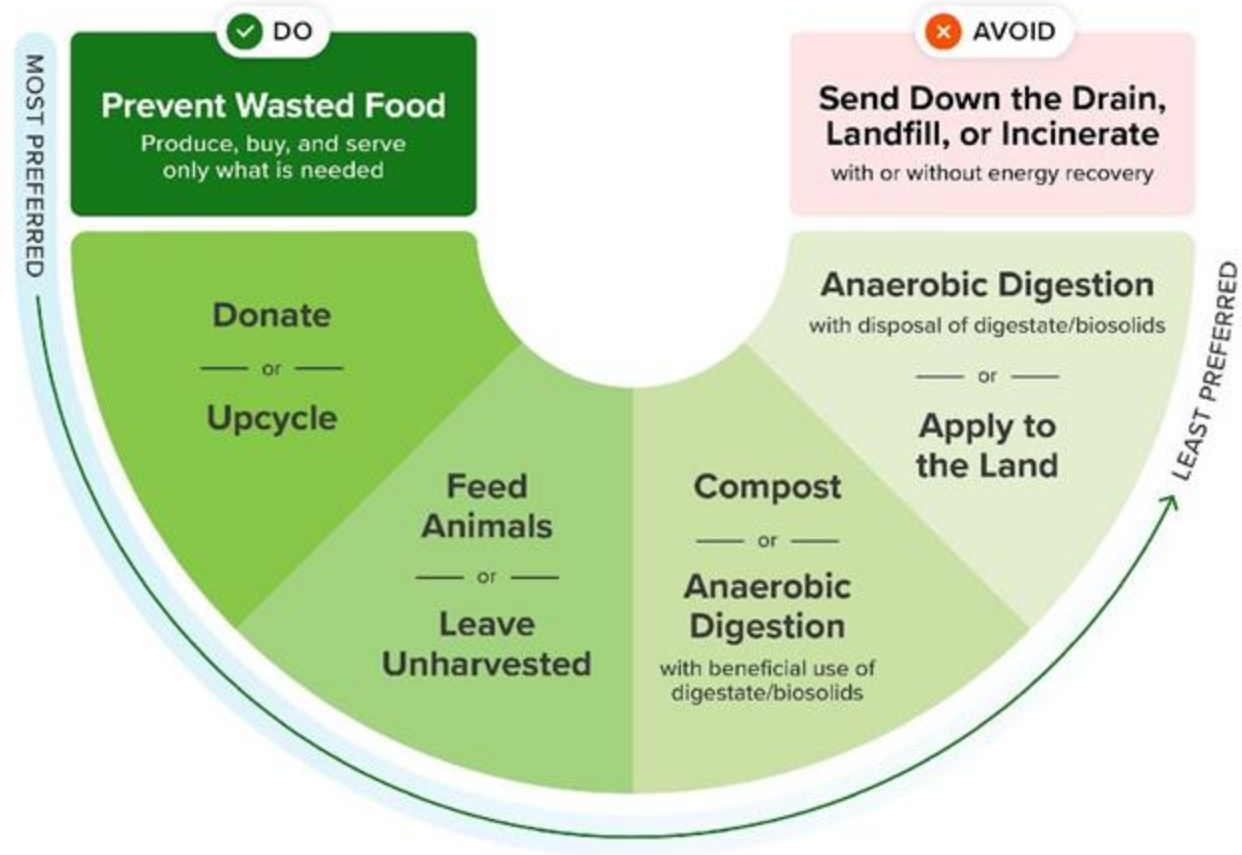
RMI Webinar – April 11, 2024

Claudia Fabiano and Klara Zimmerman  
U.S. Environmental Protection Agency



# Wasted Food Scale

How to reduce the environmental impacts of wasted food



October 2023

<https://www.epa.gov/sustainable-management-food/wasted-food-scale>



# EPA – Sustainable Management of Food Tools and Resources

## Waste Reduction Model



Composting Food Scraps  
in Your Community:  
A Social Marketing Toolkit

June 2023 EPA 530-R-23-009



Preventing Wasted Food  
in Your Community:  
A Social Marketing Toolkit

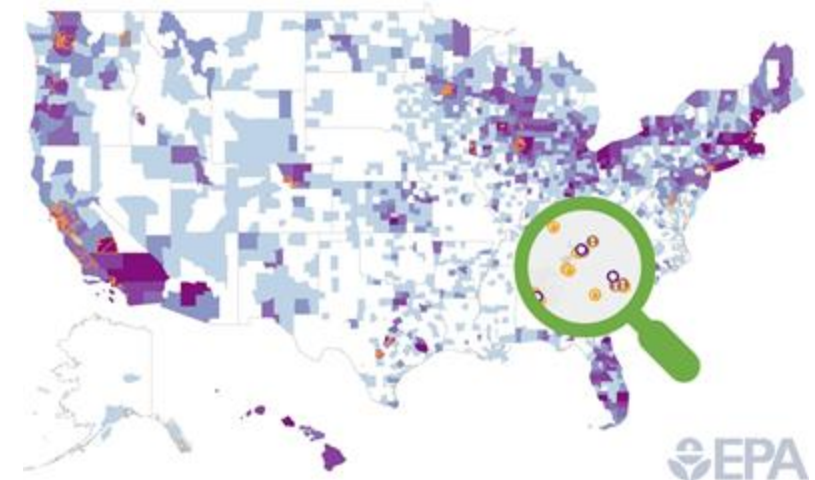
April 2023 EPA 530-R-23-008

## Example Government Climate Action Plans that Address Materials Management and Waste

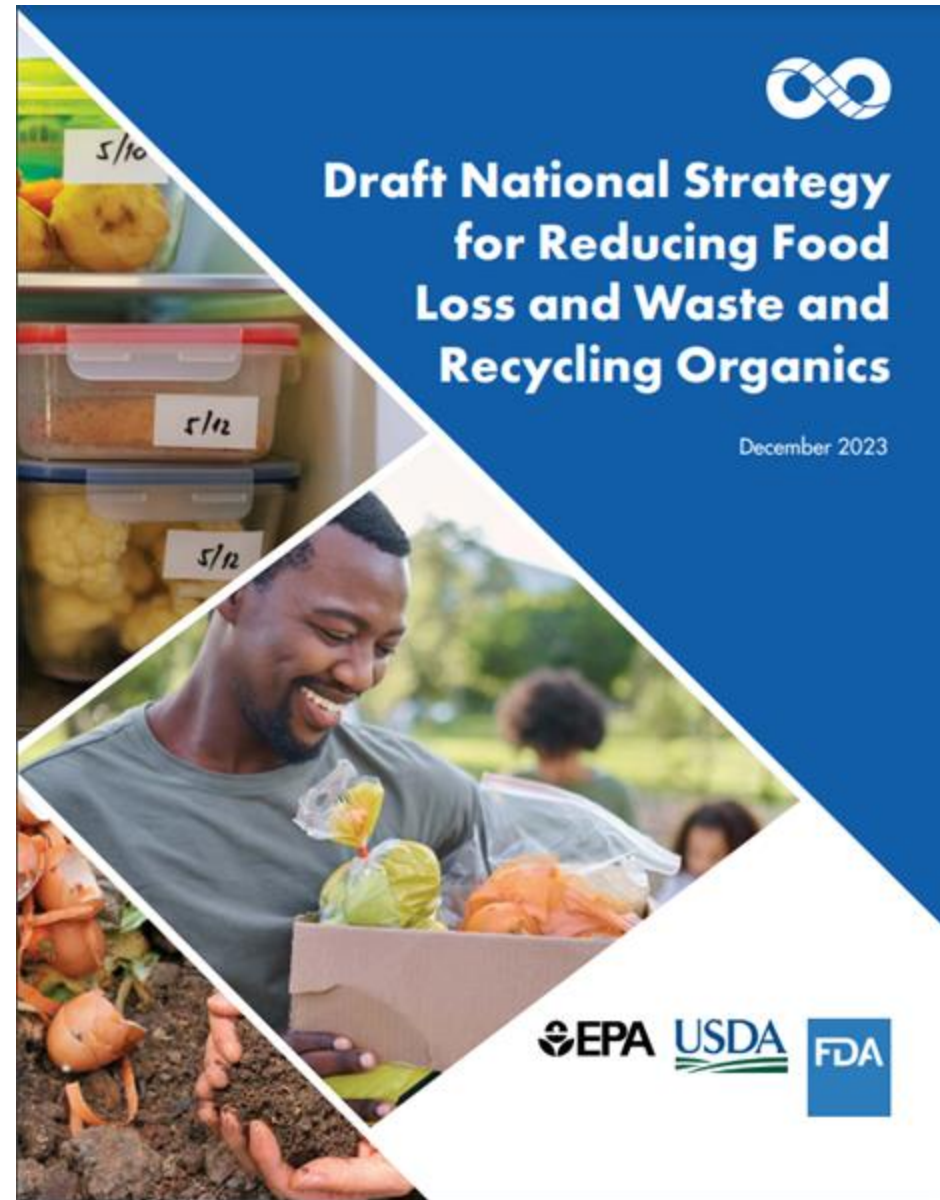
EPA maintains a list of Climate Action Plans from states, Tribes, and local governments with materials management and waste actions. The examples below are not comprehensive, but give you an idea of what you can replicate in your community.

### New Plans

For additions, changes, or updates, please send new



# EPA, USDA, FDA Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics



<https://www.epa.gov/circulareconomy/draft-national-strategy-reducing-food-loss-and-waste-and-recycling-organics>

# Landfill Methane Outreach Program (LMOP)

- Established in 1994
- Voluntary program that creates partnerships among states, energy users/providers, the landfill gas (LFG) industry and communities

***Mission: Work cooperatively with industry & waste officials to reduce or avoid landfill methane emissions by encouraging the recovery & beneficial use of biogas generated from organic municipal solid waste.***



[epa.gov/lmop](http://epa.gov/lmop)

# LMOP Data and Resources

All available for free at  
[epa.gov/lmop](https://epa.gov/lmop)

## Data

- Excel database of **landfill gas (LFG) energy** projects and municipal solid waste landfills
- **National map** of landfills and projects with layers for environmental justice demographic data and Tribal lands

## Technical Resources

- Landfill Gas Energy **Cost Model** (LFGcost-Web)
- LFG Energy **Project Development** Handbook
- An Overview of Renewable Natural Gas (**RNG**) from Biogas
- Toolkit for Expiring LFG Electricity Power Purchase Agreements (**PPAs**)

## Webinars

- Recent: Projects for remote locations; detecting landfill methane emissions with drones; options for expiring PPAs
- Planning one or two webinars for 2024

# Funding Opportunities

- New EPA programs under the Bipartisan Infrastructure Law include:
  - Solid Waste Infrastructure for Recycling Grants and Recycling Education and Outreach Grants
- New EPA programs under the Inflation Reduction Act include:
  - Climate Pollution Reduction Grants
  - Low Emissions Electricity Program
  - Greenhouse Gas Reduction Fund
  - Environmental & Climate Justice Community Change Grants
- USDA Composting and Food Waste Reduction Grant Program
- USDA SARE Food Loss and Waste Training and Technical Assistance Grants
- USDA Rural Energy for America Program (REAP)
- DOE Energy Efficiency & Conservation Block Grant (EECBG)



# Thank you!

Claudia Fabiano

[fabiano.claudia@epa.gov](mailto:fabiano.claudia@epa.gov)

- [EPA: Sustainable Management of Food](#)
- [EPA, USDA, FDA Draft National Strategy](#)
- [Funding Opportunities](#) + [National Grant Tracker](#)

Klara Zimmerman

[zimmerman.klara@epa.gov](mailto:zimmerman.klara@epa.gov)

- [Landfill Methane Outreach Program](#)



# Questions?

Please type your questions into the Q&A feature in Zoom



# Thank you!

Please feel free to contact us at [egarland@rmi.org](mailto:egarland@rmi.org) & keep in touch about your waste methane progress and achievements!

Use the QR code below to view the event page

