TETRA TECH

MEMO

To:	Lane M Otsu; Michael Burke Marienna Jimenez	**Date:**	November 28, 2023
cc:	Hawai‘i DOH/OSWM	**Memo No.:**	4
From:	Tetra Tech Team (TT Team)	**File:**	197-2022-0127
Subject:	Hawai‘i Integrated Solid Waste Management Plan (ISWMP) Update Organics Potential Solutions		

1.0 INTRODUCTION

The Tetra Tech Team (TT Team) is providing the Hawai‘i State Department of Health, Office of Solid Waste Management (DOH/OSWM) herein with an issue statement and description of potential solutions evaluated for organics (i.e., green waste, food waste, and untreated wood) for inclusion in an update to the Statewide Integrated Solid Waste Management Plan (ISWMP). According to Hawai‘i Revised Statutes (HRS) Chapter 342G Section 29, OSWM must convene a state integrated solid waste management task force (Task Force) and incorporate their comments to revise and update the materials contained in the previous state ISWMP. A Task Force consisting of county, industry and non-profit representatives, and members of the public was formed and a meeting will be held on December 7, 2023, to discuss and receive input on how to manage organics.

Hawai‘i has rules and regulations currently in place to manage organics on the various islands including:

- Hawai‘i Revised Statutes (HAR) 342G-1 – Integrated Solid Waste Management Definitions
- Hawai‘i Administrative Rules (HAR) 11-58.1 – Solid Waste Management Control
- HAR 11-58.1-65 – Special Solid Waste Controls

However, more can be done to manage organics now and in the future, as well as the potential problems with illegal dumping, organics diversion, curbside organics contamination, and the need for additional food waste processing infrastructure. This memorandum will present potential solutions relating to the management of organics across the state. Once the Task Force meeting is held, additional feedback on potential Extended Producer Responsibility (EPR) legislation, government programs and subsidies, free market solutions, less wasteful alternatives, and public education components will be sought, as applicable.

2.0 ISSUE STATEMENT

2.1 Organics

Organics (i.e., food waste, green waste, and untreated wood) comprise a significant portion of Hawai‘i’s waste stream. When disposed of in landfills organics generate methane as they decompose. This is problematic as

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methane is up to 36 percent more effective than carbon dioxide at trapping heat in the atmosphere, making it a large contributor to global warming. While mulching and composting exist for untreated wood and green waste, outlets to manage food waste are limited. In addition, while Americans dispose of millions of tons of food, the U.S. Department of Agriculture estimates that about 13.7 million households are food insecure as of 2018. Concurrently, millions of tons of food are being discarded, including food that could be donated to foodbanks.

3.0 POTENTIAL SOLUTION CATEGORIES

There are many strategies to more effectively manage waste. The United States Environmental Protection Agency (US EPA) has categorized and prioritized these strategies from the most effective option to the least effective option. According to HRS 342G-2, solid waste management practices to be considered by the DOH (in order of priority) are source reduction, recycling and bioconversion, and landfill and incineration. The differences between the US EPA's waste management hierarchy and solid waste management priorities identified in HRS 342G-2 are minimal. As seen in Figure 3-1, the US EPA's waste management hierarchy includes energy recovery (e.g., incineration, which is referenced in HRS 342-G) as a solid waste management approach to be considered. The US EPA Waste Management Hierarchy also identifies reuse as an option, which is not explicitly identified in HRS 342G-2.

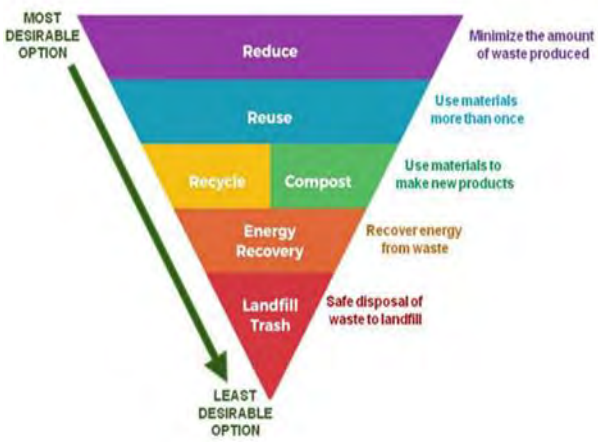

Figure 3-1: US EPA Waste Management Hierarchy

The 3R's must be considered in order to effectively manage waste, starting with the most effective:

- Reducing waste means purchasing less and minimizing the amount of waste we produce therefore disposing of less. There are many ways to reduce consumption such as better planning and preparation when we shop, or by evaluating if we can go without the product(s). Waste reduction can also be achieved by redesigning materials, products and services to be less resource intensive.
- Reusing items slows the process of purchasing new items and disposing of old items. We can reuse materials that were meant to be disposed of, giving them a second life, or we can choose materials that are intended to be reused, making sure to take good care of them and extending their lifespan.
- Recycling keeps valuable materials in the materials economy and prevents the environmentally harmful extraction process of raw materials, which benefits both the economy and the planet.

The potential solutions relating to the management of organics across the state were developed in consideration with potential EPR legislation, government programs and subsidies, free market solutions, less wasteful alternatives, and public education components, which were previously described in the Tires Potential Solutions memorandum.

4.0 POTENTIAL SOLUTIONS FOR ORGANICS

4.1 Potential Solutions to Consider

This section presents potential solutions that could be considered for management of organics. These potential solutions were identified through benchmarking other states with organics management programs. The DOH is seeking input from the Task Force and industry representatives, taking into consideration the solution categories identified in Section 3. These include:

- **Status Quo –** Existing organics management options are limited for each of the Counties and the State.
- **Outreach and Education –** In California, Senate Bill (SB) 1383 requires jurisdictions to conduct education and outreach on organics recycling to all residents, businesses (including those that generate donatable edible food) haulers, solid waste facilities, and local food banks and other food recovery organizations on an annual basis.

  Community outreach and education efforts can support resource reduction by promoting behavioral change (i.e., source separation of organics, backyard composting, creating a shopping list, meal planning, proper food storage, refrigerating or freezing leftovers, etc.).

  Some counties offer backyard composting workshops. The County of Kauaʻi offers residents free backyard composting bins and over the past two decades, the County has distributed over 8,000 composting bins. Residents can schedule an appointment to pick up a bin at the Kauaʻi Resource Center, Hanalei Initiative Creative Center, or at the Kīlauea Community Agricultural Center. Residents are required to watch an 8-minute educational video prior to pick up. The County offers additional educational resources on home composting and food waste reduction on their website.

  Maui Huliau Foundation is a non-profit organization that provides environmental education programs to Maui's Youth. One of the programs (Huliau Green Events program) provides training, pre-event planning services, zero waste stations, and food scraps recycling services for events with as many as 10,000 attendees. To date, over 29,000 pounds of material have been collected for composting through the Huliau Green Events program.

  West Maui Green Cycle has partnered with a handful of local schools to launch composting programs. Through the School Food Waste Composting and Reusables Program, over 92,000 lbs. of food waste have been diverted and composted. By Fall 2023, West Maui Green Cycle aims to launch a weekly curbside pickup for West Maui residents, which will be used to collect data. Due to the recent catastrophic wildfire, the program may experience delayed implementation.

- **Resource Reduction Alternatives –** SB 1383 requires that by 2025, California will recover 20 percent of edible food that would otherwise be sent to landfills to reduce food waste and help address food insecurity. The law requires the following:
  - Jurisdictions must establish food recovery programs and strengthen their existing food recovery networks
  - Food donors must arrange to recover the maximum amount of their edible food that would otherwise go to landfills
  - Food recovery organizations and services that participate in SB 1383 must maintain records

In all islands, some donatable foods are taken to foodbanks. Since 1994, Maui Food Bank has distributed 3.25 million pounds of food to provide hunger relief. "Waste Not, Want Not" is another non-profit organization that accepts unwanted harvested fruit for redistribution to the Maui Food Bank and other organizations that target food insecurity in Maui. Kauaʻi Independent Food Bank (KIFB) is a non-profit organization that partners with several businesses, grocery stores, schools, and farmers to reduce edible food waste. Each year, KIFB distributes nearly 200,000 lbs. of food, equaling over 435,000 meals. The Hawaiʻi Food Bank – Kauaʻi Branch collects, stores, and distributes perishable and nonperishable food through approximately 200 charitable agencies on Oahu and Kauaʻi. In FY 2018, they provided 1.4 million pounds of food to over 13,000 Kauaʻi residents. Both food banks also work with pig farmers to divert food waste from the landfill.

The majority of food scraps are donated from local businesses to pig farms. In 2017, it was estimated that approximately 226 pig farms existed within the State. The University of Hawaiʻi connects interested businesses in Honolulu with pig farmers.

Government Programs and Subsidies – The US EPA's Climate Pollution Reduction Grants program allocates $5 billion in grants to states, local governments, tribes, and territories for assistance in the development of comprehensive, innovative strategies for reducing pollution. In March 2023, the US EPA announced that it will award $3 million to the state of Hawaiʻi to support in the development of strategies to cut climate pollution and build clean energy economies across the state. The US EPA's Landfill Methane Outreach Program (LMOP) promotes the recovery and beneficial use of biogas generated from organic waste in landfills. LMOP establishes partnerships with communities, utilities, landfill owners, and other stakeholders to provide technical assistance and seek financing for landfill biogas projects.

The U.S. Department of Agriculture (USDA) has also allocated funding through various programs, including:

- Advanced Biofuel Payment Program
- Community Food Projects Competitive Grant Program
- Composting and Food Waste Reduction Program
- Rural Energy for America Program Energy Audit & Renewable Energy Development Assistance Grants
- Rural Energy for America Program Renewable Energy Systems & Energy Efficiency Improvement Guaranteed Loans & Grants
- Solid Waste Management Grants

The Bill Emerson Good Samaritan Food Donation Act (42 U.S. Code §1791) is federal act that protects individuals who donate and distribute food products from civil and criminal liability when certain criteria are met. The purpose of the act is to encourage the donation of food and grocery products to nonprofit organizations for distribution to those in need. Originally passed in 1996, the bill was amended by the Food Donation and Improvement Act in 2022, which expanded liability protection.

CalRecycle has allocated funding for the establishment of organics recycling and edible food recovery infrastructure in California through competitive grant programs as well as a loan program, including:

- Co-Digestion Grant Program
- Community Composting Grant Program
- Food Waste Prevention and Rescue Grant Program
- Greenhouse Gas Reduction Grant and Loan Program
- Organics Grant Program
- SB 1383 Local Assistance Grant Program

In California, jurisdictions are responsible for implementing SB 1383 regulations in their communities and must coordinate city and county planners, waste haulers, waste processing facilities, recyclers, commercial businesses, residents, and edible food recovery organizations. Under SB 1383, jurisdictions are responsible for:

- Evaluating the jurisdiction's readiness and capacity to implement SB 1383, including organics collection, recycling and edible food recovery capacity
- Providing organic waste collection services to all residents and businesses automatically and not relying on a generator subscription
- Establishing an edible food recovery program
- Conducting outreach and education to generators, haulers, facilities, edible food recovery organizations, and city/county departments
- Procuring recycled organic waste products (i.e., compost, mulch, renewable natural gas, and electricity)
- Inspecting and enforcing SB 1383 compliance and maintaining accurate and timely records

CalRecycle has published several resources for jurisdictions, including a model enforcement ordinance, franchise agreement models, and education materials.

Since 2018, CalRecycle has awarded $20 million to 68 food recovery projects, resulting in:

- 86 million meals
- 345 local jobs
- 103 million pounds of food kept out of landfills to date
- GHG reductions equivalent to approximately 21,600 cars off the road (approximately 100,000 MTCO2e less to date)

The State of California has established a four-tiered permitting system for Compostable Handling Facilities or Operations through 14 CCR § 17854 – 17862.1, which set forth the regulatory tier requirements. The four regulatory tiers include Full Solid Waste Facility Permit, Registration Permit Tier, Enforcement Agency (EA) Notification Tier, and Excluded Tier. Permitting tiers are contingent upon the types of materials processed (e.g., food waste, green waste, wood waste, and biosolids), processing capacity, the quantity sold or given away, and the degree of public health or environmental safety risks posed. Facilities applying for a permit must adhere to specific requirements (i.e., siting and design, environmental health standards). By renouncing a "one-size-fits-all" approach for permitting composting facilities, the State aims to eradicate regulatory overlap without increasing the financial burden on composters or impacting public and environmental health.

In New Hampshire, RSA 149-M:27,III(a) bans the disposal of green waste at landfills and incinerators. Therefore, some towns and cities host town-wide pick-up events. Effective beginning February 2025, the state also passed HB300, which bans landfill disposal and incineration of food waste for "any person" generating one or more tons of food waste per week. The bill also allocates $1 million into state's solid waste management fund; $500,000 will be used for grants to assist businesses or municipalities who develop infrastructure to keep food waste out of landfills.

In March 2022, the New Hampshire Department of Environmental Services revised its composting regulations to encourage the development of additional composting capacity within the state. The revised rules (N.H. Rev. Stat. § 149-M:7 Chapter Env-Sw 600) enable permit-by-notification facilities to process all food scraps, including meat and dairy. Prior to these revisions, composting of meat and dairy required a standard permit, which involves a more complicated permitting process. The new rules also added two key

permit exemptions for small-scale food waste drop-off sites and community composting facilities. The food waste drop-off exemption allows collection and storage of up to one cubic yard of food waste, enabling food co-ops or other community centers to function as collection points without needing a solid waste facility permit.

The State of Washington passed HB 1799 in 2022, requiring state and local governments, businesses, and other organizations to reduce the amount of organic materials disposed in landfills and increase the demand for processed organic materials such as compost. The legislation also calls for an increase in edible food recovery and amends many laws affecting organics management. Section 104 of the bill requires the State to contract a third-party consultant to study the adequacy of funding for local solid waste management by July 2023. Section 201 establishes a phased approach to collect commercial source-separated organics.

Section 402 requires the State of Washinton to establish the Washinton Center for Sustainable Food Management to work towards meeting statewide food waste reduction and recovery goals. Section 405 requires the State of Washinton to develop model ordinances that address solid waste collection and disposal by January 2025. Sections 103, 601, 602, and 603 set requirements for new and updated local comprehensive solid waste management plans in order to address the new requirements (i.e., providing organics collection and management to residential and non-residential customers). After January 2025, county comprehensive plans must allow siting of organics management facilities to provide the necessary capacity for organics collection. Part 7 of the bill updates Chapter 43.19A RCW related to the use of compost products in public projects and requires a reporting system to document compost purchases. By January 2023, jurisdictions with a population greater than 25,000 must adopt compost procurement ordinances. Beginning Dec. 31, 2024, jurisdictions must report the quantity of organics they diverted from the landfill, including the amount of compost purchased from specific sources.

In Hawaiʻi, HAR 11-58.1-65 requires solid waste disposal facilities to have a plan to ban or require source separation of green waste from entering the disposal facility. The plans must detail requirements for a 75 percent diversion rate of all commercially generated green waste and 50 percent of all residential green waste. If diversion rates are not met, commercial and residential green waste shall be banned from the facility.

In 2005, Hawaii County adopted Ordinance 05-27, establishing a 25 percent ($21.25 per ton) of the landfill disposal fee for source-separated green waste and acceptable organics. This was formerly codified in 2015 as HCC 20-49(a)(2)(B) and implemented on July 1, 2015. In 2008, the County approved Council Resolution No. 826-08, an ordinance that prohibits paper and compostable organics from County Landfills by 2012.

The County of Maui's Green Grants Program also allocates an estimated $100,000 for FY 2024 to support small-scale projects related to sustainability, environmental protection, natural resource protection, conservation, and restoration. The County's Recycling Grants Program allocates an estimated $500,000 for FY 2024 to support projects related to landfill diversion, zero waste initiatives, education, equipment upgrades, program expansion, materials collection, and the collection and processing of waste resource materials. A county-funded and managed program has proven to be a viable option to better manage organics.

In the City and County of Honolulu, approximately 160,000 households in Oʻahu can recycle certain organic materials into their green carts for biweekly collection by the City and County of Honolulu for transportation to Hawaiian Earth Products (HER) for composting. Acceptable items include grass clippings, leaves, branches, hedge trimmings, fruits and vegetables, palm fronds, and natural Christmas trees. Alternatively, green waste can also be dropped off at some convenience centers, transfer stations, or taken directly to Hawaiian Earth Products. The City of Honolulu also provides up to $2,000 in program start-up

reimbursement costs for multi-unit properties looking to establish a recycling program for the collection of recyclables, including green waste.

Each of the counties accept source-separated green waste at certain transfer stations. The County of Kauaʻi is considering a disposal ban on select C&D materials that could include untreated wood among other materials. Implementation of a C&D materials disposal ban would promote alternate sustainable solutions to disposal, including the diversion of organic waste found in C&D waste stream.

The Hawaiʻi Green Business Program is a free, state program that assists and recognizes businesses such as resorts and hotels, offices and retail spaces, restaurants and food service facilities, and green events that aim to operate in an environmentally and socially responsible manner. The program's missions is to help businesses reduce waste, conserve energy, and preserve natural resources.

- **Free Market Solutions –** There are several options for processing organic materials, including vermicomposting, open windrow composting, aerated static pile composting, in-vessel composting, fully enclosed composting, anaerobic digestion, and combustion (i.e., pyrolysis and gasification). These processing options convert organic waste into valuable resources such as fertilizer, compost, biogas, digestate, bio-oil, bio-char and syngas.

  Markets for wood waste include use as feedstock for engineered woods, landscape mulch, soil conditioner, animal bedding, compost additive, sewage sludge bulking medium, and boiler fuel. Because of the limited options available to reuse wood waste as building materials or feedstock for engineered woods, the largest markets for urban wood waste are as a feedstock for biomass fuel, mulch, and compost.

  There are a number of local composting operations on Oʻahu that provide an alternative to sending green waste to the landfill. Currently, HER is the largest composting operation in the state and is processing approximately 99,000 tons of green waste, wood, and a limited amount of food waste and coffee husk each year. The feedstock is turned into soil amendments, blends, mulching materials, and erosion control products for use throughout the state. As of November 2017, HER receives 70 percent of their material from City programs and 30 percent from other sources.

  The Oʻahu Compost Project (OCP) is a two-year pilot project that is funded through a grant awarded to the City and County by the U.S. Department of Agriculture Natural Resource Conservation Service as well as through supplemental funds provided by the Department of Environmental Services, Aloha Harvest, Sustainable Coastlines Hawaiʻi, and Zero Waste Oʻahu. The OCP aims to collect food waste from local food service businesses in Chinatown and turn it into compost for local farms. Currently, there are six participating restaurants. The collected food waste is sent to Full Circle Farms in Waimānalo for decomposition through aerobic digestion. Presently, Full Circle Farms has the capacity to process 1,000 lbs. of food scraps and create 500 lbs. of compost daily. Prior to the project, about 94,000 tons of commercial food waste were transported to Oʻahu's H-POWER facility each year for incineration and conversion into electricity. Depending on the results of the pilot project, the City & County of Honolulu plans to expand the program island-wide. The success of the pilot project will be measured by the amount of compost produced, reduction of trash pickups needed in the community, and the demand and sale of the compost product.