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RE: Comments on the Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics (EPA-HQ-OLEM-2022-0415)

Thank you for the opportunity to provide comments on the Draft National Strategy for Reducing Food Loss and Waste and Recycling Organics (“National Food Waste Strategy”). These comments are submitted on behalf of Just Zero, Charles River Watershed Association, Clean Air Action Network of Glens Falls, Ecological Health Network, Hanover Co-Op Food Stores of Vermont and New Hampshire, Mothers Out Front Jamaica Plain, Science and Environmental Health Network, Sheffield Saves, and Zero Waste USA.¹

Roughly 40% of the food produced in the United States each year isn’t eaten.² The vast majority of this uneaten food – roughly 80 million tons per year – ends up in landfills. In fact, food is the most common material found in landfills, where it contributes to roughly 60% of landfill methane emissions.³ Meanwhile, millions of people in the U.S. struggle with hunger and food insecurity.⁴ We produce more than enough food to feed everyone. The problem is that we don’t have sufficient systems in place to help food reach those who need it most, and to keep the rest out of landfills, incinerators, and sewers. Disposal-oriented waste management models have made landfilling and incineration the status quo. And it can be challenging to find services that donate excess edible food to those in need, or that collect and compost food waste. This must change.

We strongly support the development of a National Food Waste Strategy that will prioritize the reduction of food waste, increase donations of excess edible food to those in need, and the diversion of food waste to clean compost system where it can be recycled into nutrient rich soil amendments. The strategies, investments, and tools described in the National Food Waste Strategy are necessary for transitioning away from a disposal-centric food waste model, to one

¹ Hereinafter these organizations are collectively referred to as “we” and “our.”

² ReFed, [Food Waste in the United States](#).

³ Kevin Budris, [Compost Like Our Climate Depends on It \(Because It Does\)](#), Just Zero (Feb. 10, 2023).

⁴ U.S. Department of Agriculture, [Food Security Status of U.S. Households in 2022](#). (2023).

where resources are captured, used, and recycled. However, it is imperative that the Environmental Protection Agency (“EPA”), Department of Agriculture (“USDA”), and Food and Drug Administration (“FDA”)⁵ ensure that the systems and programs developed to recycle food waste minimize contamination and don’t jeopardize public health and the environment.

These comments are divided into two sections. The first section outlines the efforts the Agencies must take to increase food waste recycling to help expand organic recycling capacity in the United States. Specifically, the Agencies must provide support for state and city Food Waste Prevention and Recycling Laws and programs.⁶ The second section describes the actions the Agencies must take to ensure food waste recycling programs don’t jeopardize public health and the environment. This includes: (1) banning the co-digestion of sewage sludge and food waste; (2) banning the land application of sewage sludge and sludge derived compost products; and (3) developing guidance and regulations on the operation and role of depackaging facilities.

In support of these comments, we are attaching the following:

- Attachment A: Just Zero – Tackling Food Waste Through Prevention and Recycling Laws (July 2023).
- Attachment B: Just Zero – List of Food Waste Prevention and Recycling Laws (January 2024).

I. Efforts The Agencies Must Take to Increase Organic Waste Recycling.

We strongly support the emphasis the Agencies are placing on increasing the recycling rate for all organic waste. Recycling organic waste offers the opportunity to recover valuable resources, such as nutrients and energy, and create healthy soils, in a way that also promotes environmental justice. To support this important objective, the Agencies must provide technical and financial assistance to encourage the adoption of state and city level Food Waste Prevention and Recycling Laws.

Food Waste Prevention and Recycling Laws - sometimes called organic waste bans or mandatory food waste recycling laws – are a proven and effective way to address food waste. Whether in the form of state legislation or local ordinances, these laws reduce food waste, increase the amount of excess edible food that is donated, and help develop and expand food waste recycling programs.

These laws ban the disposal of food waste in landfills or incinerators for certain businesses and institutions – generally large generators of food waste.. Instead, these entities are required to reduce the amount of food waste they create, donate excess edible food that isn’t sold or utilized to hunger relief organizations like food banks and food pantries, and recycle everything else.

⁵ Hereinafter collectively referred to as “the Agencies.”

⁶ Sometimes called food waste disposal bans or mandatory recycling laws, Food Waste Prevention and Recycling Laws prohibit certain food waste generators from disposing food waste and instead requires them to donate excess edible food to the maximum extent practicable and recycle all other food waste. See Attachment A for more information.

Currently, nine states have enacted a version of this law.⁷ Additionally, several large cities such as Austin, TX, Boulder, CO, New York, NY, Portland, OR, San Francisco, CA, and Seattle, WA, have adopted versions as well.⁸ These policies have been extremely impactful at reducing food waste, addressing hunger, and strengthening access to organic waste recycling.

Massachusetts Case Study

Massachusetts was one of the first states to enact a Food Waste Prevention and Recycling law. Beginning in 2014, Massachusetts implemented a regulation that banned disposal of food waste by generators producing one ton per week, and then in 2022 lowered the standard to include those that generate half-a-ton of food waste per week or more. Massachusetts' program increased the annual food waste diversion tonnage from a baseline of 100,000 tons prior to implementation to 360,000 tons in 2022.⁹ During the same time period, the rescue of fresh and perishable foods grew by more than 50%.¹⁰ Meanwhile the number of businesses separating food scraps from disposal has increased from 1,350 in 2014 to 3,200 in 2020.¹¹ This expansion has dramatically increased the state's capacity to manage food waste through recycling programs and infrastructure. An analysis of the economic impact of Massachusetts law has also shown that this approach can be economically beneficial for states. Since the regulation was implemented, it has helped support over 900 jobs (a 150% increase over the estimated 360 jobs supported before it was enacted) and generated approximately \$175 million in economic activity.¹²

Vermont Case Study

Vermont is currently the only state in the country that has a Food Waste Prevention and Recycling Law that applies to all generators of food waste, including households. Through a slow, steady, and consistent phase-in between 2012 and 2022, Vermont created the most successful program in the country. Reports show that after the law became fully implemented in 2022, 71% of all food waste generated in Vermont is donated or recycled annually.¹³ Additionally, between 2014 and 2017 – the first phase of implementation – donations to the Vermont Food bank nearly ¹⁴~~tripled~~; This growth continued during the later stages, with donations doubling between 2017 and ¹⁵~~2022~~.

Given the impact these policies have on increasing organic and food waste recycling, the Agencies should support their expansion. This includes:

⁷ These are California (2014), Connecticut (2011), Massachusetts (2014), Maryland (2021), New Hampshire (2023), New Jersey (2020), New York (2021), Rhode Island (2014), and Vermont (2012). For more information on these laws and policies see Attachment B of this submission.

⁸ See, Attachment B.

⁹ Massachusetts Department of Environmental Protection, [Organics Action Plan](#). (Nov. 2023).

¹⁰ *Id.*

¹¹ *Id.*

¹² ICF, [Massachusetts Commercial Food Waste Ban Economic Impact Analysis](#), p. 19. (Dec. 2016).

¹³ Jenn Jarecki and Kevin Trevelyan, [University of Vermont Research Shows Promising Returns for State Compost and Recycling Rules, with Caveats](#), Vermont Public. (Feb. 15, 2023).

¹⁴ Katherine Cusumano, [Vermont Law Banning Food Waste Leads to More Compost – and “separation” Anxiety, The Counter](#). (Oct. 25, 2021).

¹⁵ *Id.*

1. Publicizing and Expanding the Use of the Excess Food Opportunities Map.

The Excess Food Opportunities Map is an important tool which the EPA must continue to expand and publicize. We support the EPA's focus on refining and expanding food donation infrastructure data in the Excess Food Opportunities Map.¹⁶ The EPA should work closely with state environmental agencies to ensure the list is accurate and up to date. The map can help state environmental agencies identify large food waste generators, food banks and food pantries, as well as organics recycling facilities. All of this information is necessary when implementing a Food Waste Prevention and Recycling program. Additionally, the EPA should host webinars to teach state environmental agencies how to use and navigate the Excess Food Opportunities map.

2. Direct Funding to Composters in States with Existing Food Waste Prevention and Recycling Programs.

We strongly support the financial assistance the Agencies are proposing to address food loss and waste. The proposed grants to support organics recycling infrastructure development are especially crucial. We urge the Agencies to consider prioritizing funding to organics recyclers in states with Food Waste Prevention and Recycling Laws. Most of the existing laws limit the class of covered generators to those that are located within a specific radius of organics recycling facilities.¹⁷ While these laws are ultimately less impactful than their counterparts that apply to all generators regardless of proximity to organic recycling facilities, they do offer a unique opportunity when it comes to leveraging federal funds for new or expanded organic recycling infrastructure. Providing funding to develop new or expand existing recycling facilities in the states with geographic proximity clauses will create a captive market which will result in a significant jump in food waste recycling. Providing funding to develop new or expand existing recycling facilities in these states will guarantee increased food waste recycling because the businesses and institutions located near this new capacity will have to utilize it to recycle their food waste.

Maryland provides a perfect example of the impact this can have on supporting the development of additional organic recycling capacity. Maryland passed its food waste prevention and recycling law in 2021.¹⁸ The law originally applied to businesses and institutions that generate at least two tons of food waste per week and are located within 30 miles of an organics recycling facility.¹⁹ However, this year the threshold dropped to 1 ton of food waste per week.²⁰ The Compost Crew, Maryland's largest food waste collection and compost company has rapidly expanded due to the law. In 2022, the company doubled its annual volume of food scraps and

¹⁶ [National Food Waste Strategy](#), p. 13. (2023).

¹⁷ See, Attachment B. Rhode Island's law only applies to generators located within 15 miles of an organic recycling facility. Connecticut and New Hampshire limit the applicability of their laws to generators located within 20 miles of an organic recycling facility. New Jersey and New York limit the applicability of their laws to generators located within 25 miles of an organic recycling facility. Maryland's law only applies to generators located within 30 miles of an organic recycling facility. Of the nine states with Food Waste Prevention and Recycling Laws, only Massachusetts and Vermont do not have a mileage component.

¹⁸ Md. Code Ann., Env. § 9-1724 (2021).

¹⁹ *Id.*

²⁰ *Id.*

increased the total number of businesses and residents it services to over 8,500.²¹ The law is largely credited with fueling the expansion.²² To prepare for the next wave of implementation, the company recently secured \$5.5 million in funding to expand its operations. The investment was made with the knowledge that expansion would guarantee new customers given the requirements of the law.²³

Additionally, we strongly urge the Agencies to consider providing funding to support the development of local organic waste haulers to help decrease the cost of composting and food waste recycling.

3. Providing Funding and Assistance to State Environmental Agencies to Develop these New Programs.

Finally, the Agencies should also provide funding, training, and assistance to state environmental agencies to help them support and expand existing Food Waste Prevention and Recycling programs and develop new ones. State's do not have good metrics for tracking, understanding, and addressing food waste. Most states lack sufficient data and programs to sufficiently characterize the sources, quantity, quality, and types of surplus food and food waste currently generated in general, by sector, and location. In fact, the Maine Department of Environmental Protection cited both a lack of departmental resources and of key data necessary to understanding the scope and breakdown of food waste in its opposition a bill that would create a Food Waste Prevention and Recycling Law.²⁴ This is not uncommon.

The Agencies should dedicate funding for state level food loss and waste generation studies as well as waste characterization. These studies will provide state agencies with important information that will help them develop tailored programs to address the root causes of food loss and waste.

II. Efforts the Agencies Must Take to Ensure Compost Programs Do Not Jeopardize Public Health and the Environment.

While we are supportive of the overall intention of the National Food Waste Strategy, we are concerned with the lack of attention paid to ensuring the development of organics recycling systems that protect public health and the environment and achieve Zero Waste goals. As the United States expands its organics recycling infrastructure and programs it is critical that the Agencies – especially the EPA – work to address contamination and push back on polluting practices that undermine the benefits of organics and food waste recycling.

²¹ Compost Crew, [Compost Crew Doubles Food Waste Diverted in 2022](#). (Feb. 28, 2023).

²² Cole Rosengren, [Compost Crew, Leading Mid-Atlantic Organics Recyclers](#), Sees Record Growth in 2022, Waste Dive, Feb. 28, 2023.

²³ *Id.*

²⁴ Carla Hopkins – Director of the Division of Materials Management for the Maine Department of Environmental Protection, [Testimony in Opposition to LD 1009: An Act Regarding the Reduction and Recycling of Food Waste](#). (Mar. 22, 2023).

1. The EPA Must Ban the Co-Digestion of Sewage Sludge and Food Waste.

We are extremely concerned about the greenwashing of food waste-to-sewer programs where valuable food scraps are mixed with sewage sludge, anaerobically digested, and land applied. While these systems do keep food waste out of landfills, it is a dangerous, expensive and short-sighted approach to food waste management. Getting this wrong will have profoundly negative consequences on human health, climate mitigation efforts, food safety, and farmers' livelihoods.

. Anaerobic digestion is sometimes used at large wastewater treatment plants (“WWTPs”) to reduce the volume of sewage sludge generated at the facility. Approximately half the volume of sludge is converted to gases, primarily methane, which is a powerful greenhouse gas. In some facilities, a portion of the methane is captured and used as an energy source. But all anaerobic digesters at WWTPs leak. A 2023 study showed that the EPA underestimates methane emissions from wastewater treatment plants by a factor of two.²⁵

While anaerobic digestion does help reduce the volume of sludge, it does not address the underlying toxicity of sludge. Sewage sludge is known to contain thousands of harmful chemicals such as per and polyfluoroalkyl substances (“PFAS”), dioxins, furans, and PCBs.²⁶ Mixing food waste with sewage sludge and co-digesting it only increases the mass of toxic sewage sludge. The resulting toxic output should never be spread on land as a fertilizer – it is too dangerous. If the food waste is anaerobically digested without toxic feedstock like sludge, the material at the end of the digestion process, a digestate, could safely be land applied, but food waste digestates often need further treatment such as composting for greater user acceptance.²⁷ Cambridge, Massachusetts illustrates a high-profile example of the greenwashing of composting by co-digestion operations. Cambridge offers a curbside collection program for food waste. The city calls this a “composting” program. However, the food waste is not being composted. Instead, trucks haul the food waste to the Greater Lawrence Sanitary District WWTP in North Andover, Massachusetts.²⁸ The food waste is then added to one of the facility’s anaerobic digesters where it is mixed with sewage sludge.²⁹ A similar system is developing in New York City, which recently announced a city-wide curbside food waste collection program.³⁰ Like Cambridge, New York City is branding the collection program as a “composting program.”³¹

²⁵ Moore, D. P., Li, N. P., Wendt, L. P., Castañeda, S. R., Falinski, M. M., Zhu, J.-J., Song, C., Ren, Z. J., & Zondlo, M. A. (2023). Underestimation of sector-wide methane emissions from United States Wastewater treatment. *Environmental Science & Technology*, 57(10), 4082–4090. <https://doi.org/10.1021/acs.est.2c05373>

²⁶ The most recent EPA report determined that “a total of 739 chemicals have been identified in biosolids to date; of which about 250 of these are dioxins, furans, and PCBs.” Others include plastics (such as polyethylene terephthalate), pesticides (such as DDT), pharmaceuticals (such as fentanyl), and industrial chemicals (such as trichlorobenzene). United States Environmental Protection Agency, Office of Science and Technology, Office of Water, “Biosolids Biennial Report No.9 (Reporting Period 2020–2021), December 2022.

²⁷ Citation: Dutta, S., He, M., Xiong, X., & Tsang, D. C. W. (2021). Sustainable Management and recycling of Food Waste anaerobic digestate: A Review. *Bioresource Technology*, 341, 125915. <https://doi.org/10.1016/j.biortech.2021.125915>

²⁸ Craig LeMoult, [Cambridge’s Composting Program Isn’t Actually Composting. It What They’re Doing as Good?](#) WGBH. (May 22, 2018).

²⁹ *Id.*

³⁰ Clio Chang, [Following the Smart Bin Compost Truck to Its Last Stop: It Doesn’t Go Where You Think](#), Curbed. (Apr. 6, 2023).

³¹ *Id.*

However, the collected food waste is being sent to a WWTP where it is co-digested with sludge.³²

The EPA should develop regulations which ban the co-digestion of food waste and sewage sludge. As the U.S. develops additional organics recycling capacity, this capacity must be focused on managing food waste in a beneficial way that not only keeps the material out of landfills, but provides valuable, toxic-free material to support soil health. As those regulations are developed, the EPA should not provide any funding for operations which co-digest sewage sludge and food waste. It is inappropriate for the EPA to shepherd federal funding to food scrap recycling projects that don't result in compost or digestate that can be used to replenish soils.

2. The EPA Must Ban the Land Application of Sewage Sludge and Sludge Derived Compost Products.

WWTPs are a significant source of PFAS and microplastics released into the environment. The land application of sludge from these facilities contributes to PFAS and microplastic contamination across the country.³³ Additionally, allowing these materials to be land applied undermines the end-markets for clean, uncontaminated compost.

Enough is known about the concentration of PFAS in sewage sludge and products derived from this material to warrant protective action to prevent the land application of this highly contaminated material.³⁴ Land application of sewage sludge and sludge-derived compost presents a significant threat of PFAS migration to surface and groundwater.³⁵ A 2022 study showed PFAS from land application of sewage sludge migrating as far as 17 meters to underlying groundwater.³⁶ Once spread, the PFAS that does not move to water can remain for years, adding to the PFAS burden in the soil from multiple land applications.³⁷

Additionally, sludge and sludge-derived compost products contain significant sources of microplastics. Microplastics are plastic particles less than 5 mm. They can enter municipal wastewater treatment plants from the wash water from the laundering of synthetic clothing, such as polyester and nylon, and from other sources such as landfill leachate, and stormwater. Because WWTPs concentrate microplastics and discharge them in effluent and sludge, they are a

³² *Id.* The overwhelming majority of food waste collected through New York City's program is taken to the Newton Creek WWTP where it is mixed with sewage sludge and anaerobically digested.

³³ See, Just Zero, et. al., [Comments on Draft National Pollutant Discharge Elimination System Permit No. MA0103284 \(MWRA Deer Island Treatment Plant\)](#). (Nov. 28, 2023).

³⁴ The most recent EPA report determined that "a total of 739 chemicals have been identified in biosolids to date; of which about 250 of these are dioxins, furans, and PCBs." Others include plastics (such as polyethylene terephthalate), pesticides (such as DDT), pharmaceuticals (such as fentanyl), and industrial chemicals (such as trichlorobenzene). United States Environmental Protection Agency, Office of Science and Technology, Office of Water, [Biosolids Biennial Report No.9 \(Reporting Period 2020–2021\)](#), December 2022.

³⁵ Scearce, A. E., Goossen, C. P., Schattman, R. E., Mallory, E. B., & MacRae, J. D. (2023). Linking drivers of plant per- and polyfluoroalkyl substance (PFAS) uptake to agricultural land management decisions. *Biointerphases*, 18(4). <https://doi.org/10.1116/6.0002772>

³⁶ Johnson, G. R. (2022). PFAS in soil and groundwater following historical land application of biosolids. *Water Research*, 211, 118035.

³⁷ Venkatesan, A. K., & Halden, R. U. (2014). Loss and in situ production of perfluoroalkyl chemicals in outdoor biosolids-soil mesocosms. *Environmental research*, 132, 321-327.

significant source of microplastics in the environment.³⁸ Most microplastics in a WWTP accumulate in the sewage sludge.³⁹ A 2021 study on microplastics in sludge stated that “the land application of biosolids in the U.S. alone could annually release 785-1080 trillion microplastics and that the concentration of microplastics in biosolids could be significantly underestimated.”⁴⁰ Another study showed the microplastic load in sludge from one WWTP ranging from 37.7–97.2 microplastics/g of sludge (dry weight).⁴¹ Other research demonstrated that a WWTP collecting the sewage from 650,000 people released 65 million microplastics into the receiving water every day.⁴²

The EPA should look to Maine as an example of the importance of imposing such a ban. In 2019, reports regarding PFAS contamination at Stoneridge Farm in Maine became public. In response, the Maine Department of Environmental Protection (“Maine DEP”) halted the spread of sludge until it was tested for three types of PFAS (PFOA, PFOS, and PFBS).⁴³ When Maine DEP began testing sludge for those three PFAS, over 95% of the sludge tested exceeded the Department’s screening levels.⁴⁴ The results of the testing coincided with additional findings of extremely high levels of PFAS contamination in areas where sludge application was routine.⁴⁵ Importantly, PFAS contamination was not limited to farmland and soil. Over 200 wells and water sources have been identified as contaminated.⁴⁶ Additionally a “do not eat” advisory was issued for deer harvested in the Fort Fairfield area where sludge was previously land applied.⁴⁷ As a result, in 2022, Maine became the first state to ban the land application of sludge and sludge-derived compost products.⁴⁸ Several states are expected to follow Maine’s leadership and seek similar bans.

The EPA must follow Maine’s lead. Banning the land application of sewage sludge and sludge derived products will help reduce PFAS and microplastic contamination. Additionally, banning the use of these contaminated materials as a fertilizer will help bolster end-markets for clean

³⁸ Sun, J., Dai, X., Wang, Q., Loosdrecht, M., & Ni, B. (2019). Microplastics in wastewater treatment plants: detection, occurrence and removal. *Water Research*, 152, 21-37. <https://doi.org/10.1016/j.watres.2018.12.050>

³⁹ Gatidou, G., Arvaniti, O. S., & Stasinakis, A. S. (2019). Review on the occurrence and fate of microplastics in Sewage Treatment Plants. *Journal of hazardous materials*, 367, 504-512.

⁴⁰ Koutnik, V. S., Alkidim, S., Leonard, J., DePrima, F., Cao, S., Hoek, E. M., & Mohanty, S. K. (2021). Unaccounted microplastics in wastewater sludge: Where do they go? *ACS ES&T Water*, 1(5), 1086–1097. <https://doi.org/10.1021/acsestwater.0c00267>

⁴¹ Harley-Nyang, D., Memon, F. A., Jones, N., & Galloway, T. (2022). Investigation and analysis of microplastics in Sewage Sludge and biosolids: A case study from one wastewater treatment works in the UK. *Science of The Total Environment*, 823, 153735. <https://doi.org/10.1016/j.scitotenv.2022.153735>

⁴² Murphy, F., Ewins, C., Carbonnier, F., & Quinn, B. (2016). Wastewater Treatment Works (WwTW) as a Source of Microplastics in the Aquatic Environment. *Environmental science & technology*, 50(11), 5800-8. <https://doi.org/10.1021/acs.est.5b05416>.

⁴³ Maine DEP. Requirement to Analyze for PFAS Compounds. March 22, 2019.

⁴⁴ Tom Perkins, I Don’t Know How We’ll Survive: The Farmers Facing Ruin in America’s Forever Chemicals Crisis, *The Guardian*. (Mar. 22, 2022).

⁴⁵ *Id.*

⁴⁶ Kevin Miller, Maine DEP Identifies 34 Towns with High-Priority Sites PFAS Chemical Testing, *Maine Public*. (Oct. 22, 2021).

⁴⁷ Meaghan Bellavance, MDIFW Reduces Size of PFAS Do Not Eat Advisory Area in Fairfield, *News Center Maine*. (Apr. 24, 2023).

⁴⁸ 38 M.R.S.A. §1304(20).

compost that can replenish soils and provide needed nutrients without threatening public health and groundwater.

3. The EPA Must Develop Regulations on the Operation and Use of Depackaging Facilities.

Additionally, to limit plastic and other contamination in the organics recycling stream, the EPA must develop regulations on the operation and use of depackaging facilities. As interest in alternatives to food waste disposal has increased, stakeholders (municipal governments, waste haulers, compost facility operators) have raised concerns about the increased presence of contamination in the food waste recycling stream, specifically plastic contamination.⁴⁹

The food we purchase and consume is increasingly heavily packaged. Most of this packaging consists of single-use plastic that is not compostable. Plastics like single-use plastic bags, food packaging, and produce stickers create a significant burden for composting facilities.⁵⁰ These facilities are burdened with the cost of dedicating staff to the contamination removal process and the disposal of contaminants.⁵¹ Additionally, when loads contain significant contamination, it limits the marketability of finished compost.⁵²

As demand for food waste diversion grows, there is an increased emphasis on the development of mechanical depackaging systems.⁵³ These systems take packaged organics and attempt to mechanically separate the organic material from inorganic packaging.⁵⁴ While depackaging systems may very well have an important role in managing certain materials streams, they are imperfect and result in contamination in the organic stream. Therefore, compost and fertilizer made from organics that have gone through depackagers often contain microplastics and even PFAS found in food packaging.

The lack of studies and standards regarding the use of depackaging equipment could lead to contamination in places where the material is applied. The EPA has acknowledged that it is unclear to what extent depackagers may inadvertently introduce microplastics or nano plastics into the end products.⁵⁵ For instance, in 2017, a dairy farm in Pennsylvania invested in depackaging equipment to assist in managing food waste from commercial generators.⁵⁶ The dairy farm then reached out to the Pennsylvania Department of Environmental Protection about using the food slurry from the depackager in other digestors, however the agency expressed concerns over the noticeable amounts of plastic particles in the fields where the digestate was spread.⁵⁷ These concerns prompted the department to amend the farm's permit for the

⁴⁹ U.S. EPA, [Emerging Issues in Food Waste Management: Plastic Contamination](#). (Aug. 2021).

⁵⁰ Arlene Karidis, [Compost Contamination is a Pain Point for Operators](#), Waste 360. (Apr. 14, 2021).

⁵¹ *Id.*

⁵² *Id.*

⁵³ Elizabeth Gribkoff, [As Organics Depackaging Equipment Market Grows, So Do Concerns Over Microplastics Contamination](#), Waste Dive. (July 18, 2022).

⁵⁴ *Id.*

⁵⁵ U.S. EPA, [Emerging Issues in Food Waste Management: Plastic Contamination](#), p. 39. (Aug. 2021).

⁵⁶ Nora Goldstien, [Pennsylvania Issues Operating Requirements for Food Waste Depackaging](#), Biocycle. (Jun. 1, 2021).

⁵⁷ *Id.*

depackager, requiring that there are “no visible plastic particles” in both the digestate and areas where its land-applied.⁵⁸

To determine the role that depackagers should play in a robust organic recycling system, the Vermont Legislature enacted new legislation.⁵⁹ The legislation created the Vermont Depackaging Stakeholder Group to evaluate the role of depackaging facilities in managing food waste.⁶⁰ The legislation also requires the Vermont Agency of Natural Resources to perform a study evaluating the levels of microplastics and PFAS in the food waste recycling system and develop recommendations to reduce these contaminants in the recycling system.⁶¹ Finally, the legislation also prohibits the development of new depackager facilities until the Vermont Agency of Natural Resources develops regulations on their use.⁶²

Thus far, the legislation has resulted in new draft guidance on the use of depackagers. Vermont is proposing to limit the use of depackagers except for managing heavily packaged organics which are defined as food that is difficult to separate from the enclosing packaging.⁶³ Additionally, the new guidance prohibits the commingling of source separated food residuals with heavily packaged food residuals.⁶⁴ The intent behind this requirement is that allowing source separated and unpackaged food waste to be commingled with packaged food and sent to a depackager both negates the labor and benefits associated with source separation and increases contamination in the final product.⁶⁵

We recommend the EPA adopt regulations similar to the new proposed requirements in Vermont. Source separation is the most effective strategy for keeping the organics stream clean and free of contamination. It is also entirely viable for the overwhelming majority of organics, including packaged organics. However, admittedly, there are instances and specific types of food waste streams that are impractical to separate by hand and should be left to mechanical depackaging. As such, national regulations that limit depackaging to heavily packaged food waste, while ensuring that all other food waste is source-separated by the generator are needed.

III. Conclusion

We appreciate the efforts the Agencies are taking to reduce food loss, keep food waste out of landfills and incinerators, and increase the availability of food donation and food recycling services. The National Food Waste Strategy is important to identifying concrete steps and complementary actions these Agencies will take over the next several years. It is therefore important that these steps include supporting the state-level policies that have been critical to expanding food donation and food recycling services, while also addressing the increased practices that undermine clean compost systems.

⁵⁸ *Id.*

⁵⁹ [Vermont Act 170, Sections 24 - 28](#) (2022).

⁶⁰ Vermont Act 170, Section 25. [Stakeholder Group on the Role of Depackagers in Managing Food Waste](#). (2022)

⁶¹ Vermont Act 170, Section 26. [Study on Microplastics and PFAS in Food Packaging and Food Waste](#). (2022)

⁶² Vermont Act 170, Section 27. [Rulemaking](#). (2022)

⁶³ Vermont Agency of Natural Resources, [Draft Policy for Source Separation of Food Residuals and Heavily Packaged Food Residuals](#). (February 2023).

⁶⁴ *Id.*

⁶⁵ *Id.*

Thank you for your time and consideration of these comments.

Respectfully submitted,

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Attachment A:

**Just Zero – Tackling Food Waste Through Prevention and Recycling Laws
(July 2023).**



Photo: Shutterstock

Tackling Food Waste Through Prevention and Recycling Laws

WRITTEN BY Peter Blair

Introduction: Our Food Waste Crisis

Almost [40% of the food produced](#) in the U.S. each year isn't eaten. The vast majority of that uneaten food – roughly [80 million tons](#) per year – ends up as waste. That's 80 million tons of food waste [producing methane](#) in landfills, burning in [climate-damaging incinerators](#), rotting in fields, and ending up as [toxic sewage sludge](#).

Food waste is a significant contributor to the waste crisis – and the climate crisis. It makes up almost 25% of all the trash we bury and burn each year. Meanwhile, millions of people in the U.S. [struggle with food insecurity](#).

We produce more than enough food to feed everyone. But we don't have good systems in place to help food reach those who need

it most, and keep the rest out of landfills, incinerators, and sewers. It is all too easy to just throw food into the trash or the garbage disposal. Disposal-oriented waste management models have made landfilling and incineration the status quo. And it can be challenging to find services that donate excess edible food to those in need, or that collect and compost food waste.

[Food Waste Prevention and Recycling Laws](#) are one of our best solutions to address these overlapping problems. Whether in the form of state legislation or local ordinances, these laws help reduce food waste, increase the amount of excess edible food that is donated, and bolster food waste recycling programs like composting.

CONSEQUENCES OF FOOD WASTE

SOCIAL

According to the U.S. Department of Agriculture, [one in ten Americans](#) – or about 38 million people, including 12 million children – are food insecure. Much of the food that we throw out is still perfectly good and safe for consumption and can be used to help feed those in need.

ECONOMIC

Wasted food in the U.S. has an estimated aggregate value of [\\$240 billion annually](#). This costs the average U.S. household about [\\$1,866 per year](#). Meanwhile, the average grocery store in the U.S. throws out between [\\$5,000 and \\$10,000](#) worth of food each week.

ENVIRONMENTAL

Food waste accounts for [8% of global greenhouse gas emissions](#). In the U.S. the carbon footprint of food waste is [greater than the entire airline industry](#).

SOURCES OF EMISSIONS



Growing, harvesting, processing, and transporting food that will eventually go to waste.



Methane production from the breakdown of food waste in landfills. Methane is a climate-damaging greenhouse gas that is 28 times as potent as carbon dioxide.



Burning carbon-rich food waste in trash incinerators.

Overview

At their best, Food Waste Prevention and Recycling Laws progressively ban all food waste from disposal in landfills and incinerators. Businesses, institutions, and eventually households are required to find more sustainable ways to avoid food waste and manage the waste they create. Initially, the ban only applies to large generators of food waste – usually those that generate two tons of food waste or more per week like food processing facilities, large grocery stores, universities, hospitals, and prisons.

Next, the ban expands to include businesses and institutions that generate one ton of food waste or more per week. This generally includes larger restaurants and smaller food service businesses, institutions, and grocery stores. After that, the threshold is lowered to those who produce at least half-a-ton of food waste per week. Eventually, the ban applies to individuals and households.

Photo: Shutterstock



A Pathway to Zero Waste

One of the most important aspects of these laws is that the ban is slowly phased in over a period of several years. Right now, most states don't have the necessary collection, hauling, donation, and recycling infrastructure.

The first phase of the ban, which only applies to businesses and institutions that generate an enormous amount of food waste (two tons or more per week) creates a relatively small class of large generators that must find alternative methods for managing the food waste they generate. Starting with a small class of large generators makes collection, hauling, and management simpler. Food banks and pantries can work with large generators to arrange the logistics of donations. Similarly, hauling costs are often the biggest barriers to entry when it comes to [composting](#) programs. Hauling large volumes of food waste from centralized locations is simpler and more economical than hauling small amounts of waste from more locations.

A clear phased-in schedule set in law helps generators and recyclers prepare and plan for each phase of implementation. Maryland

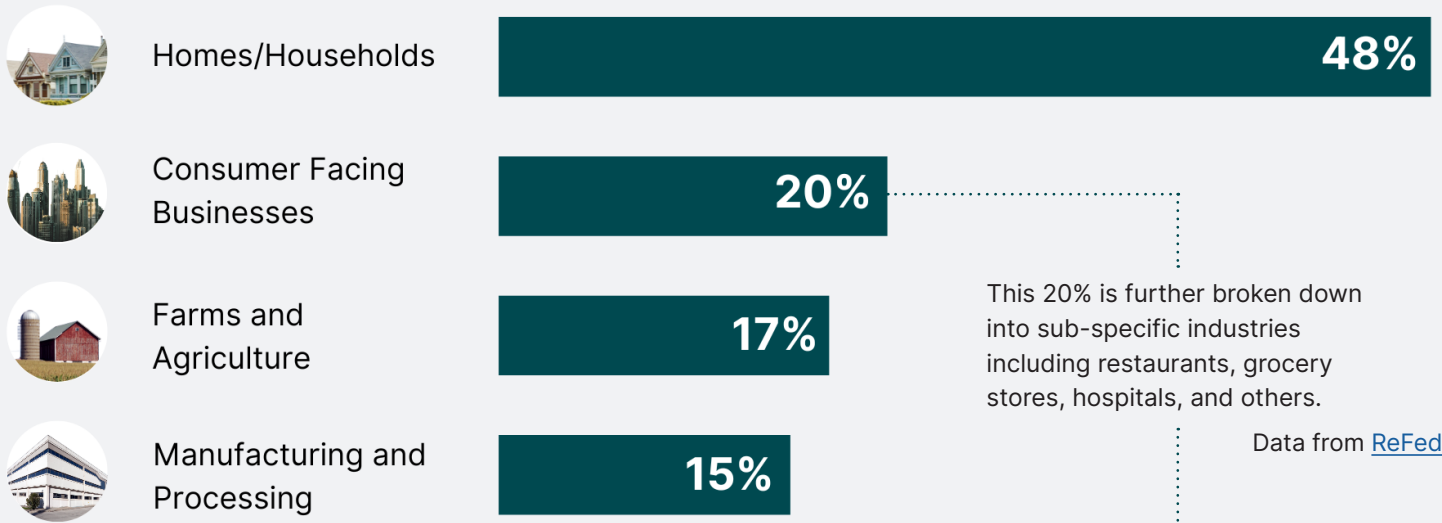
provides an example of this in action. Maryland passed its food waste prevention and recycling law in 2021. The law currently only applies to businesses and institutions that generate at least two tons of food waste per week and are located within 30 miles of an organics recycling facility. However, beginning in 2024, the threshold drops to 1 ton of food waste per week.

[The Compost Crew](#), Maryland's largest food waste collection and compost company has rapidly expanded due to the law. In 2022, the company [doubled its annual volume of food scraps](#) and increased the total number of businesses and residents it services to over 8,500. [The law is largely credited with fueling the expansion](#). To prepare for the next wave of implementation, the company recently secured [5.5 million in funding to expand its operations](#).

These laws create a market that allows for the expansion of existing businesses and the development of new ones that specialize in food donations and food waste recycling. All while keeping valuable material out of landfills.

Photo: Shutterstock

Where Does Food Waste Come From?

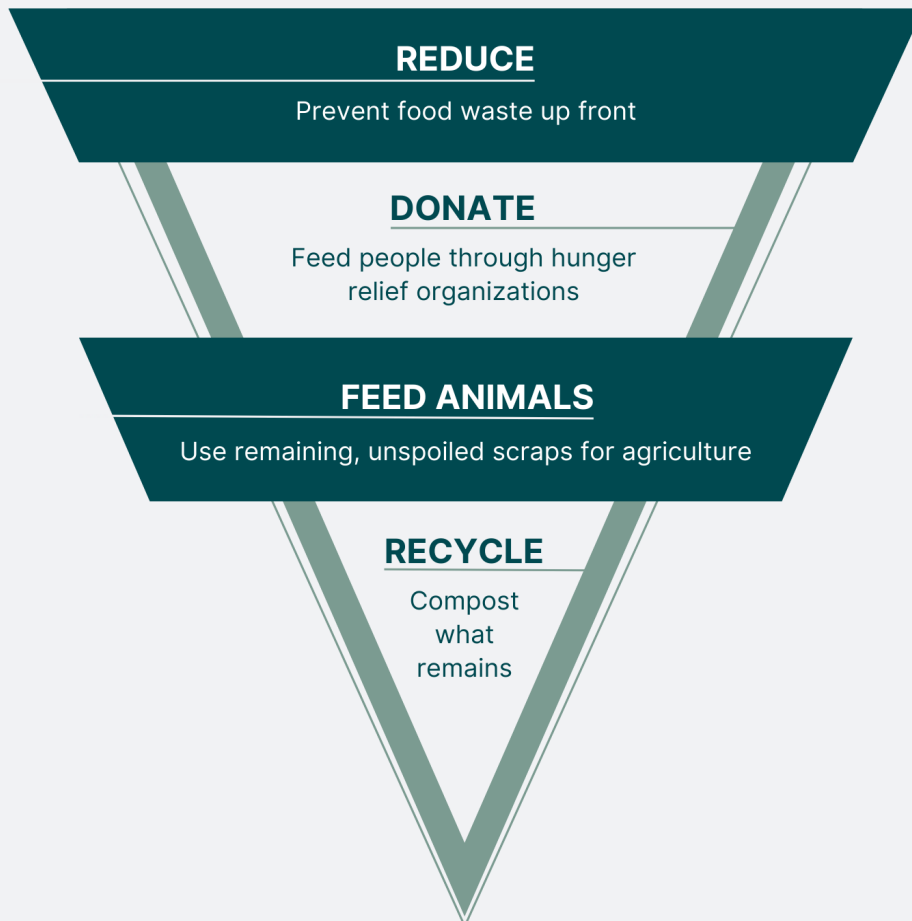


This 20% is further broken down into sub-specific industries including restaurants, grocery stores, hospitals, and others.

Data from [ReFed](#)

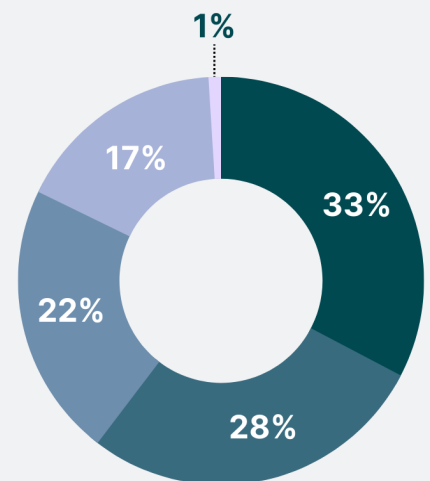
Empowering Better Management

The best laws don't just ban food from being thrown away. They also create a structure that shows businesses, institutions, and individuals how these materials should be managed.



Breakdown of Food Waste from Consumer Facing Businesses

- Full-Service Restaurants
- Retail (grocery stores)
- Other Food Service*
- Limited-Service Restaurants
- Other



*Other Food Service includes healthcare, assisted living, military, and more.

Data from [ReFed](#)

Current Landscape of Food Waste Prevention and Recycling Laws

Currently, eight states have enacted Food Waste Prevention and Recycling Laws.

STATE	YEAR POLICY WAS ENACTED	THRESHOLD
<u>California</u>	2014	Businesses that generate at least two cubic yards of organic waste per week.
<u>Connecticut</u>	2011	Businesses and institutions that (1) generate at least half a ton of food waste per week, and (2) are located within 20 miles of an organics recycling facility.
<u>Massachusetts</u>	2014	All businesses and institutions that generate at least half a ton of food waste per week.
<u>Maryland</u>	2021	Currently – Businesses and institutions that (1) generate at least two tons of food waste per week, and (2) are located within 30 miles of an organics recycling facility. Beginning Jan. 1, 2024 – Businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 30 miles of an organics recycling facility.
<u>New Jersey</u>	2020	All businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 25 miles of an organics recycling facility.
<u>New York</u>	2021	All businesses and institutions that (1) generate one ton of food waste per week, and (2) are located within 25 miles of an organics recycling facility.
<u>Rhode Island</u>	2014	All businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 15 miles of an organics recycling facility.
<u>Vermont</u>	2012	Any person that generates any amount of food waste. This includes individuals and households. This is not strictly enforced at the individual level.

Current Landscape of Food Waste Prevention and Recycling Laws

And, several high-profile cities across the country also passed similar laws at the local level.

CITY/TOWN	DATE ENACTED	SUMMARY
<u>Austin, Texas</u>	2017	All food permitted businesses are prohibited from sending organic waste – including food waste – to landfills or incinerators. Instead, they must either donate extra food to shelters, send food scraps to animal farms, or compost it.
<u>Boulder, Colorado</u>	2015	All individuals are required to separate and recycle household organic waste. All property owners and businesses are required to subscribe to appropriate organic waste collection services and provide proper containers to residents for disposing of compostable materials.
<u>New York City</u>	2023	New York City requires mandatory composting throughout the city. The residential mandate will roll out borough by borough starting with Brooklyn and Queens in Oct. 2023, followed by the Bronx and Staten Island in March 2024. Followed by Manhattan in Oct. 2024.
<u>Portland, Oregon</u>	2018	Currently – All businesses that generate at least half a ton of food waste per week. October 2023 – All businesses that generate at least a quarter ton of food waste per week. October 2024 – All businesses that generate at least an eighth of a ton of food waste per week.
<u>San Francisco, California</u>	2009	All individuals must separate food scraps from all other household waste and manage it through an organic recycling service.
<u>Seattle, Washington</u>	2015	Prohibits individuals and businesses from disposing of food waste. Instead, food should be donated or recycled.

Other State Policies

While Food Waste Prevention and Recycling Laws are by far the most prevalent kind of policy when it comes to reducing and addressing food waste, there are other, similar approaches.

For instance, in addition to its reduction and recycling law, [California](#) also requires all municipalities to provide organic waste collection services to all residents and businesses. This is part of California's commitment to diverting 75% of food waste generated in the state from disposal by 2025. California has also set the goal of capturing at least 20% of all excess edible food for hunger relief purposes.

Washington has taken a similar approach. In 2022, [Washington](#) passed a law requiring the state to reduce organic waste disposal by 75% by 2030. To accomplish this, beginning in 2024 businesses that generate at least

eight cubic yards of weekly organic waste will be required to have on-site management or collection services in place. The threshold drops each year until 2027 when local governments will also have to offer a collection service.

Food Waste Prevention and Recycling Laws Have Been Extremely Successful

Overall, these laws have succeeded at reducing food waste, alleviating hunger, and strengthening composting and aerobic digestion programs. The laws have helped keep a tremendous amount of food waste out of landfills. Additionally, they've spurred investment into organics recycling programs, increased the amount of food that is donated to hunger relief organizations, helped feed livestock, and provided a clean stream of compost that can be used to grow healthy plants and food.



Massachusetts Case Study

Between 2014 and 2022, Massachusetts lowered its threshold from applying to businesses and institutions that generated one ton of food waste per week to those that generate half-a-ton per week.

Massachusetts' program increased the annual food waste diversion tonnage from a baseline of 100,000 tons prior to implementation to [320,000 tons in 2020](#). At the same time, food rescue of fresh and perishable foods [grew by more than 50%](#). Meanwhile the number of businesses separating food scraps from disposal has increased from [1,350 in 2014 to 3,200 in 2020](#). This expansion has dramatically increased the state's capacity to manage food waste through recycling programs.

The program has also [boosted economic growth](#) by \$175 million and created over 900 jobs.



Vermont Case Study

Vermont is currently the only state in the country that has a Food Waste Prevention and Recycling Law that applies to everyone. Through a slow, steady, and consistent phase-in between 2012 and 2020, Vermont created the most successful program in the country. The results speak for themselves:

1. Hauling – In 2012, only 12 companies in Vermont offered residential food waste hauling services. In 2021, the number was [up to 45](#).
2. Food Donations – Between 2014 and 2017 (the first phases of implementation), [donations to the Vermont Foodbank nearly tripled](#). This growth continued during the later stages, with [donations doubling between 2017 and 2019](#).
3. Diversion – Reports show that, after the law was fully implemented, [71% of all food waste](#) generated in Vermont was being donated or recycled.

A Model Policy – Building on Success and Learning from Mistakes

Thoughtful, expansive, and phased-in Food Waste Prevention and Recycling Laws can help make food waste a thing of the past. Edible food will be kept where it should be – on tables. Inedible food will be [composted](#) to create healthy fertilizers that will store carbon and enrich and replenish our farmlands and soils. But, as with all laws, the details matter.

Don't Limit the Scope

Several of the existing Food Waste Prevention and Recycling laws only apply to very large generators of food waste. And some of the laws only require large generators to comply if they are located near a compost or anaerobic digestion facility. These limitations can mean that any initial [impact is followed by stagnation](#). The lack of a clear, predictable timeframe for if, and when, the law will be expanded to include more generators results in lack of certainty. This limits the likelihood that organic recyclers will invest money to expand their operations. We don't limit who has to recycle paper, glass, aluminum, and

plastics to large generators or those that live near recycling facilities. We shouldn't apply these limitations on organics recycling.

Add Protections to Avoid Contamination

Many existing laws don't have protections in place to make sure that the food waste that is composted will be free of contamination. But just like with "traditional" recycling, the earlier you separate out the targeted material from all other waste, the better the system functions. This is called source separation.

If not properly separated, inorganic material – mostly food packaging like containers, bags, produce stickers, and wraps – [can contaminate the resulting compost](#). This creates operational problems for organics [recycling facilities](#) who are stuck trying to remove all this contamination. To address this, the best Food Waste Prevention and Recycling Laws require all generators to separate food waste from all other forms of inorganic solid waste, including food packaging, at the point

A Model Policy – Building on Success and Learning from Mistakes

of generation. Additionally, these laws also have robust education components that focus on explaining what material is compostable, and what isn't.

Prohibiting Co-Digestion of Sewage Sludge with Food Scraps

Some states allow food waste to be mixed with other materials when composted or anaerobically digested. A common example is processing food waste with industrial sludge from wastewater treatment plants to create fertilizer.

Wastewater treatment plants are pollution sinks. These facilities treat industrial and household waste, stormwater, landfill leachate, and sewage. As a result, the sludge created from the treatment processes is full of an array of harmful toxic compounds. This includes [per-and-polyfluoroalkyl substances \(PFAS\)](#), a highly toxic class of chemicals that have serious environmental and public health

impacts. In many states, sewage sludge is processed to create fertilizer, which is then spread on farmlands. Some states even mix sludge with food waste to create compost. To protect the value of food waste and ensure that it is used to create a clean, healthy, and toxic-free fertilizer, Food Waste Prevention and Recycling laws should prohibit mixing food waste with [industrial and wastewater treatment plant sludge](#).

The Best of All Worlds

To help states implement the strongest and most effective policy possible, Just Zero has created a [Model Food Waste Prevention and Recycling Law](#) that can be introduced at the state or local level. We've studied existing policies to determine what is working and what is limiting the success of these laws to create a policy that will result in the strongest benefits for our environment and our communities.

Conclusion

To address food insecurity, improve soil quality, and fight climate change, we need to make food waste a thing of the past. Food is simply too valuable of a resource to waste away in a landfill or burn in an incinerator. Food Waste Prevention and Recycling Laws provide a comprehensive framework that will reduce food waste, alleviate hunger, and develop and expand food waste recycling programs and infrastructure.



Attachment B:
Just Zero – List of Food Waste Prevention and Recycling Laws
(January 2024)

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Maryland	2021	Businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 30 miles of an organics recycling facility.
New Jersey	2020	All businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 25 miles of an organics recycling facility.
New Hampshire	2023	Beginning Feb. 1, 2025, all businesses and institutions that (1) generate at least one ton of food waste per week, and (2) are located within 20 miles of an organics recycling facility.
New York	2021	All businesses and institutions that (1) generate one ton of food waste per week, and (2) are located within 25 miles of an organics recycling facility.
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