



MANDATORY REPORTING FOR LARGE FOOD WASTE GENERATORS

BACKGROUND MEMORANDUM

INTRODUCTION

The Model Ordinance on Mandatory Reporting for Large Food Waste Generators (Model) is a template ordinance that can be adapted and enacted by local municipalities to require reporting of food waste and surplus food generation from large food waste generators.¹ It was developed by NRDC (Natural Resources Defense Council) and the Environmental Law Institute (ELI) to provide a resource for local officials, municipal staff, and stakeholders who are interested in enacting policy changes that promote food waste reduction measures and facilitate the diversion of food waste from landfills and incinerators.² The Model is part of an ongoing effort to provide municipalities and advocates with tools to reduce the time and resources associated with taking food waste reduction actions.³

The measurement and reporting of food waste generation can yield important data to help cities track progress and focus their strategies on food waste reduction. Given this, many municipalities are adopting measurement and reporting requirements in connection with mandatory diversion policies. Even without a diversion mandate, however, a reporting requirement can encourage covered entities to reduce their food waste by increasing awareness of the problem and raising reputational and financial concerns, as discussed below.

HOW TO USE THE MODEL ORDINANCE

The Model can be enacted by municipalities to require large surplus food generators to report the amount of food waste and surplus food they generate.⁴ The “off-the-shelf” Model is intended to provide clean, streamlined language that can easily be adapted and enacted by municipalities. The footnoted version with commentaries provides additional background information, explains the benefits of key provisions and alternative approaches, and provides links to examples—all of which are intended to help guide stakeholders and policymakers in tailoring the ordinance to the circumstances of their municipality. The Model, in combination with this background memo, is intended to help mitigate the substantial transaction costs associated with researching, drafting, and enacting measures, which often prevent resource-strapped municipalities from taking much-needed steps to advance food waste reduction.

The Model is drafted in the form of an ordinance to be enacted by the legislative branch (e.g., city council) of a municipality (or other form of local government, such as a county). As a general rule, ordinances are the appropriate governance tool when an action is intended to affect the conduct of nongovernmental parties. Because the Model requires private, nongovernmental entities to report their food waste generation, it is framed as an ordinance (referred to as “by-laws” in some jurisdictions), rather than a mayoral executive order or legislative resolution, which are typically appropriate for actions that set policy for the administration of a municipality’s internal functions. Accordingly, in some jurisdictions, a mayor may be able to implement the components of the Model that apply only to municipal subunits.⁵

However, deciding the appropriate governance tool to employ will always require a case-by-case assessment. Municipalities vary widely with respect to form of government (e.g., mayor-council and council-manager) and scope of authority granted by their state. In most cases, a municipality’s law department will be able to determine whether the municipality has the power to adopt the Model by referring to the state constitution, state laws governing the municipal form of government, and municipal charter. Some jurisdictions have limited authority to adopt ordinances under state law, while others, mostly “home rule” jurisdictions, are more likely to have broad authority.⁶

OVERVIEW OF KEY PROVISIONS

Goals and Purposes. This section lays out the three main objectives of the Model: (1) providing data that can inform municipal ordinances or policies as well as waste management operations; (2) increasing awareness among businesses and the general public about the problem of food waste and food insecurity and the need for organics recycling; and (3) reducing landfill disposal and incineration of food waste as a result of raised awareness, reputational considerations, and other factors contributing to increased food waste prevention, surplus food rescue, and food scrap recycling.

Covered Entities. The Model applies to large food waste generators that meet a certain threshold of food waste generation (defined as all discarded food waste, regardless of its destination, including food scraps that are later recycled, landfilled, or incinerated). Specifically, the Model covers businesses, nonprofit organizations, municipal governmental subunits, and semiautonomous agencies that, on average, generate two tons per week or more of food waste. The threshold is intended to cover large food waste generators that are typically well equipped to measure food waste generation and donate surplus food, as compared to smaller entities and households.⁷

States and municipalities, however, vary with respect to the scope and type of entities covered by food waste diversion and reporting laws and ordinances. These laws and ordinances typically focus on diversion requirements but include a reporting or record-keeping component. Alternative approaches to determining covered entities include—

Generator type: Municipalities could opt to define covered entities by business type. See, for example, California, which splits commercial surplus food generators into tiers based largely on business type.⁸ Alternatively, some states have adopted categorical exclusions, such as New York, which does not cover hospitals and other entities.⁹ Finally, municipalities may want to encourage quasi-governmental entities that they do not fully control, such as public K–12 schools, to comply with the reporting requirements.

Generator size: Some municipalities (e.g., New York City) define a covered entity for purposes of diversion requirements by an establishment's square footage, as floor area can serve as a proxy measurement for waste generated.¹⁰

Generation threshold: Two tons per week (or 104 tons per year) is a commonly used threshold in state and municipal diversion requirements, including in Connecticut, Maryland, New York, and Rhode Island.¹¹ Municipalities may opt to set the threshold higher or lower than two tons per week or take a phased-in approach that lowers the qualifying threshold over time (see, for example, Vermont, New York City, and Austin).¹² Furthermore, because haulers charge for waste by volume, municipalities might choose to require measurements expressed by volume (i.e., cubic yards) rather than pounds or tonnage (see California).¹³

Materials covered: The Model focuses only on food waste, but municipalities also could opt to cover additional types of organics, including yard waste.

Reporting Requirements. The Model's reporting requirements are designed to produce valuable food waste-related data while accounting for the potential compliance burden on covered entities and the implementation responsibilities placed on municipal entities. The Model requires that covered entities annually report to the municipality the amount of food waste generated during the prior year, expressed in weight (pounds or tons), as well as any uncertainties in their measurement and any difficulties in complying with the requirements. Additionally, a covered entity must include in its annual report the types and amounts of surplus food donated, as well as the amount of food scraps recycled, the destination of the recycled scraps, and any challenges to recycling that the entity overcame and/or continues to experience.¹⁴

Methods for Quantifying Food Waste Generation and Surplus Food Donation. The Model is intended to provide flexibility to covered entities in selecting quantification methods. The methods outlined in the model, including both direct measurement and approximation, are drawn primarily from the Food Loss & Waste Protocol's Food Loss and Waste Accounting and Reporting Standard, which outlines additional methods that are not included in the Model due to the expertise necessary to use them, as well as concerns about reliability, quality, and completeness of data.¹⁵

Business Education and Compliance Assistance. Education and outreach are key to the success of a reporting mandate and realizing its ultimate goals. Accordingly, the Model requires municipalities to appropriately translate all materials in communities with a substantial number of business owners who speak non-English languages.¹⁶ The Model also outlines the municipality's obligation to provide support prior to the effective date—thereby helping covered entities to prepare to meet requirements—and to continue providing support after enactment.

BACKGROUND ON FOOD WASTE AND BENEFITS OF LARGE FOOD WASTE GENERATOR REPORTING

Before requiring reporting on the amount of food waste and surplus food generated, it is helpful to understand the scope of the issue and where and how it makes sense to measure generation. ReFED estimates that, at the national level, 80.6 million tons of surplus food (which ReFED defines as all food that is unsold/uneaten, including food no longer suitable for consumption as well as inedible parts) were generated across all sectors in the United States in 2019, the vast majority of which ended up as food waste (defined as food that is disposed in landfills or incinerators, down the drain, or left to rot).¹⁷ Breaking this down by sector, ReFED data show that the residential sector generates 30 million tons of surplus food and farms generate 16.7 million tons of surplus produce. However, given the high number of individual units included in the residential category, it can be challenging to report generation from that sector. And as the Model is intended to provide actionable information at the municipal level, it does not include farms, which typically manage waste outside the municipal system. While the food-service, manufacturing, and retail sectors each individually generate less surplus food than the residential and farming sectors, together those three sectors, which are the types of entities covered by the Model, are responsible for 33.8 million tons of surplus food.

In its 2021 report *Feeding a City: Food Waste and Food Need Across America*, NRDC estimated wasted food generation data by sector at the municipal level in several cities and explained the importance of doing so. “The first step in reducing municipal food waste is data gathering: understanding the amounts and sources of wasted food at the local level, as well as the amounts and sources of surplus food that potentially could be rescued instead of wasted.” According to NRDC, “this information can then be used to determine the most promising city strategies for reducing food waste and to set a benchmark for assessing progress.”¹⁸

In this report, NRDC confirmed the sector-specific food waste and surplus food generation patterns previously observed in its tri-city studies.¹⁹ On average, the residential sector is estimated to generate the largest proportion of municipal food waste (roughly over a third), and restaurants typically come in second (roughly over a quarter) and constitute the largest commercial-sector generators. NRDC research also indicates that when a city hosts food manufacturing and processing businesses, that sector can be a leading generator of wasted food. The three smallest sectors tend to be K–12 schools, correctional facilities, and health care facilities. Note that the sectors estimated as generating the largest amounts of food waste—households and restaurants—are made of many small units, which can complicate food waste reduction efforts targeted to individual units. These sectors also do not represent the greatest opportunities for food rescue, which usually exist in retail (grocery) and to some extent in manufacturing and other food service.²⁰

Because measurement of food waste yields data that can help cities understand their baseline food waste generation and track progress, many municipalities are adopting measurement and reporting requirements in connection with diversion mandates. Even without a diversion requirement, however, studies indicate that simply measuring food waste can motivate behavior change, due to increased awareness as well as reputational and financial concerns. The adage “what gets measured gets managed” is supported by studies showing that measuring food waste motivates reductions in household waste—even without waste reduction interventions—by providing a reminder of the need for reduction measures and activating “loss aversion” behavior. It is likely that this would apply on a corporate level, as other forms of environmental measurement—such as carbon labeling and toxic chemical emissions reporting—have shown potential to shift corporate behavior even when consumer effects are modest, due in part to fears of reputational loss and potential penalties for polluting.²¹

In practice, examples abound of businesses reducing their food waste and attendant costs through use of technologies and services that measure and track food waste.²² Companies that track their food waste manage what they measure through a variety of means, such as purchasing less food and increasing revenue from new products that repurpose surplus food previously wasted. For example, an Environmental Protection Agency 2021 National Food Recovery Challenge awardee, Sodexo at Good Samaritan Medical Center, reduced its food waste by 25 percent, or 6,290 pounds, the year it started using Leanpath food-tracking technology.²³

Beyond the inherent benefits outlined above, measurement and reporting can help build support for and ease the burden of implementing further measures, such as food waste diversion requirements. Once generators start measuring their food waste, repurposing or diverting that food may be a logical next step, not only because measurement increases awareness that diversion is important but also because when generators separate food from other solid waste in order to measure it, they are taking the first step to prevent or divert that waste. Of course, other factors may influence the diversion actions resulting from measurement, such as the cost (particularly in areas where tipping fees to recycle organics are much higher than landfill tipping fees).

OVERVIEW OF CURRENT STATE AND MUNICIPAL DIVERSION AND REPORTING REQUIREMENTS

ELI's research did not identify any stand-alone state laws or municipal ordinances like this Model that require measuring and reporting on food waste. Given that there are tens of thousands of local governments across the United States, ELI's research does not purport to be exhaustive.²⁴ Well over a dozen states and municipalities, however, have enacted laws and ordinances aimed at diverting food waste and other organic materials from landfills—many of which include a reporting component, although this is typically assigned to entities other than generators (such as waste haulers and processors).²⁵ These organics diversion laws and ordinances often are enacted in conjunction with broader waste reduction and climate mitigation goals and seek, among other objectives, to increase landfills' useful life and foster economic development.²⁶

Existing diversion ordinances and laws take a variety of forms and approaches with respect to key elements such as the entities covered, implementation measures, and timelines.²⁷ The laws and ordinances also vary considerably as to whether they require measuring and reporting of food waste in connection with the diversion requirements. In some cases, reporting is not required but instead record keeping and access to the records is mandated.

Only a few laws and ordinances impose measurement and reporting obligations on food waste generators. California law SB 1383 requires certain food businesses to donate edible food to recovery organizations and maintain records including, but not limited to, the quantity of food donated in pounds per month.²⁸ The law also requires certain businesses that self-haul their organic waste, subject to limited exceptions, to maintain documentation received from the entities that receive their organic materials, including the amount in cubic yards or tons.²⁹

Similarly, starting in 2023, New York State law requires designated food scrap generators to file an annual report that includes a summary of the amount of edible food donated and food scraps recycled.³⁰ In addition, New Jersey and Maryland have recently enacted organics diversion laws and are in the process of developing regulations that are likely to address food waste measurement and reporting.³¹

Several municipalities impose reporting requirements on food waste generators, although these requirements typically involve reporting surplus food donation and/or food scrap recycling but not disposal, and they often do not require separation of food from other organic waste. New York City's rules require covered establishments that choose to recycle their organic waste on-site to, "to the extent practicable, weigh and measure by volume the amount of organic waste" recycled in such a manner. The rules also require that records are maintained for three years and must be submitted upon request within five business days.³²

The City of Austin's Universal Recycling Ordinance requires responsible parties, including certain food-permitted and other commercial businesses, to complete an annual recycling plan that includes licensed haulers' invoices or contract receipts noting the size and number of outdoor landfill and recycling dumpsters and the frequency of pickup.³³

Numerous states and municipalities impose measurement and reporting or record-keeping requirements on waste haulers, transfer stations, and processors rather than generators. For example, California regulations issued pursuant to SB 1383 impose a range of obligations on haulers to determine by sampling the percentage of organic waste (divided into subcategories, such as food) sent to landfills quarterly. Transfer and processing facilities and operations, as well as composting and in-vessel digestion facilities and operations, are also subject to a variety of record-keeping and reporting requirements, such as submitting annual reports on tons collected by material type.³⁴

Vermont's regulations require food residual drop-off facilities to report on the amount of food residuals accepted and anaerobic digester facilities to report on the amounts and types of incoming feedstocks and the annual tonnage of solid waste by type. Compost facilities are required to maintain records for five years that include the weekly amounts and types of incoming compost feedstock.³⁵ Similarly, Washington State law requires compost facilities, anaerobic digesters, and other facilities that recover food for beneficial uses to report on annual tons and types of waste.³⁶

Some municipalities, including San Francisco, require refuse collectors to submit annual reports that include tons collected by material type.³⁷ Honolulu requires bioconversion facilities to report on the amount of food waste, per unit of weight or volume, recycled during the previous quarter.³⁸

EQUITABLE IMPLEMENTATION

During the research process for the Model, many interviewees stated that they are still considering and developing best practices to promote equitable implementation of food waste reporting and diversion measures. The interviews helped ELI identify four important equity practices:

Appropriately translating educational materials into multiple languages: Translation is a necessary part of inclusive and effective outreach and should be done in a way that is appropriate to the material and the intended audience.³⁹

Providing technical assistance: Assistance should include information, tools, and other resources to help covered entities understand and comply with requirements. Special effort should be taken to ensure that minority-owned businesses receive adequate technical assistance to comply with new requirements.

Offering hardship waivers: Waiving requirements for covered entities that are experiencing undue hardship can help avoid imposing a disproportionate burden on struggling businesses. Waivers should be granted in a way that contributes to structural equity rather than perpetuating disproportionate burdens.⁴⁰

Equitably enforcing requirements: Requirements should be equitably enforced across all covered entities, with careful attention not to disproportionately fine businesses in low-income neighborhoods and neighborhoods of color.

METHODOLOGY

ELI's methodology for developing the Model included the following steps.

Statutory and literature review: ELI reviewed relevant state laws and municipal ordinances as well as implementing rules and policies—including those addressing organic/food waste bans and diversion requirements—to glean best practices and language that could analogously or directly apply to a stand-alone reporting requirement. ELI's review does not purport to be exhaustive, particularly in light of the rapid uptake of organic waste bans around the country. Nevertheless, the laws and ordinances used to inform the Model come from a diverse array of jurisdictions, ranging broadly in size, geographic location, and political climate.

Qualitative interviews: ELI conducted interviews with implementing authorities from several states and municipalities that have robust food waste diversion laws, some of which incorporate reporting requirements, including California; Massachusetts; New Jersey; New York; Austin, Texas; and New York City. These staff-level interviews provided general background information on the development of reporting requirements; yielded insights into efficient and effective implementation approaches, including stakeholder engagement; and helped assess the relative merits of existing reporting policies and protocols. In each interview, ELI explored the equity implications of reporting requirements and of diversion measures more broadly.

Best practices identification: Based on its review of existing laws and ordinances, literature review, and interviews, ELI identified, in consultation with NRDC, the best practices that would inform the Model's language. The best practices reflect the importance of balancing the need for robust data with factors such as burdensomeness on covered entities and administrative burden on municipalities. As noted, however, the annotated version of the Model provides alternative approaches to key provisions that may better suit a given municipality while maintaining the integrity of the ordinance.

Model language and commentaries: ELI drafted the model language and accompanying commentaries based on its research and identification of best practices, as well as a review of statutory language from analogous state laws and ordinances.

Expert review: After ELI drafted the model language and commentaries, it sought review and comments from several experts in organic waste diversion and municipal government operations. In some cases, changes were made to reflect this expert input.

Endnotes

- 1 Darby Hoover and Linda Breggin, “Model Ordinance on Mandatory Reporting for Large Food Waste Generators, With Commentaries,” July 2022, <https://www.nrdc.org/sites/default/files/model-ordinance-mandatory-reporting-large-food-waste-generators-commentary.pdf>; Darby Hoover and Linda Breggin, “Model Ordinance on Mandatory Reporting for Large Food Waste Generators,” July 2022, <https://www.nrdc.org/sites/default/files/model-ordinance-mandatory-reporting-large-food-waste-generators.pdf>.
- 2 NRDC, “Food Waste,” accessed February 25, 2022, <https://www.nrdc.org/food-waste>. ELI Food Waste Initiative, “Food Waste: Prevention, Recovery, and Recycling,” Environmental Law Institute, accessed February 25, 2022, <https://www.eli.org/food-waste-initiative/food-waste-prevention-recovery-and-recycling>.
- 3 See, e.g., Darby Hoover and Linda Breggin, “Model Compost Procurement Policy with Commentaries,” NRDC and Environmental Law Institute, July 2021, <https://www.nrdc.org/sites/default/files/model-compost-procurement-policy-with-commentaries.pdf>; Linda Breggin, Akielly Hu, and Sam Koenig, *A Toolkit for Incorporating Food Waste in Municipal Climate Action Plans*, Environmental Law Institute, July 2021, <https://www.eli.org/research-report/toolkit-incorporating-food-waste-municipal-climate-action-plans>.
- 4 The Model refers to “municipalities” throughout, which are typically defined to include cities and towns. However, the Model can be used by other types of local governments as well, such as counties.
- 5 For an overview of municipal governance tools, see Osborne M. Reynolds, *Local Government Law*, 5th ed. (St. Paul, MN: West Publishing, 2019), 53; David J. McCarthy Jr. and Laurie Reynolds, *Local Government Law in a Nutshell*, 5th ed. (St. Paul, MN: West Publishing, 2003), 142.
- 6 Reynolds, *Local Government Law*, 53.
- 7 Some states and municipalities, such as Vermont, cover households and all sizes and types of institutions. Vt. Acts & Resolves No. 148 (2012); Department of Environmental Conservation, “Vermont’s Universal Recycling Law,” Vermont Official State Website, accessed May 27, 2022, <https://dec.vermont.gov/waste-management/solid/universal-recycling>.
- 8 CalRecycle, *Guidance for Jurisdictions: How to Identify SB 1383 Commercial Edible Food Generators*, May 2021, <https://www2.calrecycle.ca.gov/Docs/Web/118917>.
- 9 Food Donation and Food Scraps Recycling, N.Y. Laws Ch. 43-B Env’t Conserv., Article 27 (2021).
- 10 New York City Department of Sanitation, “Commercial Organics Requirements,” City of New York, accessed May 27, 2022, <https://www1.nyc.gov/assets/dsny/site/services/food-scraps-and-yard-waste-page/commercial-requirements>.
- 11 Recycling of Source-Separated Organic Materials, Conn. General Statutes Ch. 446d, § 22a-226e; Organics Recycling and Waste Diversion - Food Residuals, Md. Laws H.B. 264, Ch. 439 (2021); Food Donation and Food Scraps Recycling, N.Y. Laws Ch. 43-B Env’t Conserv., Article 27 (2021); Food Waste Ban, R.I. Gen. Laws § 23-18.9-17 (2021).
- 12 Vermont Agency of Natural Resources, “Universal Recycling Law Timeline,” July 2019, https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/Universal-Recycling/Timeline-factsheet_CURRENT.pdf; New York City Department of Sanitation, “Commercial Organics Requirements”; Universal Recycling, Austin, Tex., Mun. Code, Ch. 15-6, Article 5 (2022).
- 13 Short-lived Climate Pollutants (SLCP): Organic Waste Reductions, Cal. Code Regs. tit. 14 (2020).
- 14 Food donation provides social benefits by addressing food insecurity, environmental benefits by reducing landfill methane emissions and conserving resources, and economic benefits through enhanced tax deductions for donated food and reputational advantages.
- 15 Craig Hanson et al., *Food Loss and Waste Accounting and Reporting Standard*, Food Loss and Waste Protocol, 2016, https://flwprotocol.org/wp-content/uploads/2017/05/FLW_Standard_final_2016.pdf.
- 16 The following resources can inform the development of education and assistance programs: ReFED, “Resources & Guides,” accessed May 27, 2022, <https://refed.org/food-waste/resources-and-guides>; U.S. Environmental Protection Agency, “Tools for Preventing and Diverting Wasted Food,” accessed May 27, 2022, <https://www.epa.gov/sustainable-management-food/tools-preventing-and-diverting-wasted-food>; NRDC, “Food Waste”; Communities Creating Healthy Environments, *Language Justice Toolkit*, accessed May 27, 2022, https://nesfp.org/sites/default/files/resources/language_justice_toolkit.pdf; U.S. Department of Health and Human Services, “Understanding and Using the ‘Toolkit Guidelines for Culturally Appropriate Translation,’” in *Toolkit for Making Written Material Clear and Effective*, section 5, part II, September 2010, <https://www.cms.gov/Outreach-and-Education/Outreach/WrittenMaterialsToolkit/Downloads/ToolkitPartII.pdf>; Urban Green Lab, “Nashville Food Waste Initiative,” accessed May 27, 2022, <https://urbangreenlab.org/nashville-food-waste-initiative>; Matching Excess and Needs for Stability Database, “MEANS Database,” accessed May 27, 2022, <https://meansdatabase.org>; Feeding America, “Take Action,” accessed May 27, 2022, <https://www.feedingamerica.org/take-action>; Food Recovery Network, “Our Story” accessed May 27, 2022, <https://www.foodrecoverynetwork.org/what-we-do>.
- 17 ReFED, “Insights Engine: Food Waste Monitor,” accessed March 9, 2022, https://insights-engine.refed.org/food-waste-monitor?break_by=sector&indicator=tonsurplus&view=detail&year=2019; ReFED, “The Challenge,” accessed May 25, 2022, <https://refed.org/food-waste/the-challenge/>. In the EPA’s *Wasted Food Report* (based on 2018 data), the industrial, residential, commercial, and institutional sectors together generated 103 million tons of wasted food. The industrial sector generated 39.8 million tons of wasted food, the residential sector generated 25 million tons, food retail/wholesale (grocery stores, supercenters, and wholesale) generated 12.7 million tons, hospitality (restaurants/food services, hotels, and sports venues) generated 18.3 million tons, and the institutional sector (office buildings, K-12 schools, etc.) generated 7.2 million tons. Office of Resource Conservation and Recovery, *2018 Wasted Food Report*, U.S. Environmental Protection Agency, November 2020, https://www.epa.gov/sites/default/files/2020-11/documents/2018_wasted_food_report-11-9-20_final_.pdf.
- 18 Andrea M. S. Collins, *Feeding a City: Food Waste and Food Need Across America*, NRDC, October 2021, 4, <https://www.nrdc.org/sites/default/files/feeding-city-food-waste-food-need-report.pdf>.
- 19 Darby Hoover and Laura Moreno, *Estimating Quantities and Types of Food Waste at the City Level*, NRDC, October 2017, <https://www.nrdc.org/sites/default/files/food-waste-city-level-report.pdf>; JoAnne Berkenkamp and Caleb Phillips, *Modeling the Potential to Increase Food Rescue: Denver, New York City and Nashville*, NRDC, October 2017, <https://www.nrdc.org/sites/default/files/modeling-potential-increase-food-rescue-report.pdf>.
- 20 Collins, *Feeding a City*.
- 21 For an overview of the studies supporting these findings, see Margaret Badding and Linda Breggin, “Social Science Literature Review on Value of Measuring and Reporting Food Waste,” Environmental Law Institute, May 2022, <https://www.eli.org/food-waste-initiative/publications>.
- 22 See, e.g., Sam Smith, “How Swedish Hospital Cut Its Food Waste by 53 Percent,” Leanpath, May 29, 2020, <https://blog.leanpath.com/how-swedish-cut-food-waste-by-53-percent/>; Wave of Change, “Leveraging AI to Tackle Food Waste with Winnow,” accessed June 2, 2022, <https://waveofchange.com/leveraging-ai-with-winnow-to-tackle-food-waste/>.
- 23 U.S. Environmental Protection Agency, “About the 2021 Food Recovery Challenge National Award Winners,” accessed June 2, 2022, <https://www.epa.gov/sustainable-management-food/about-2021-food-recovery-challenge-national-award-winners#176>.
- 24 The most recent data from the U.S. Census Bureau (2012) counted 35,879 general purpose local governments, which includes 19,519 municipal governments, 16,360 town and township governments, and 3,031 county governments. National League of Cities, “Cities 101 — Number of Local Governments,” accessed March 10, 2022, <https://www.nlc.org/resource/cities-101-number-of-local-governments>.

- 25 State laws and regulations include but are not limited to:
- California*: S.B. 1383, Stat. 2016, Ch. 395, (Cal. 2016); A.B. 1826 (Cal. 2013-2014).
 - Connecticut*: Department of Energy and Environmental Protection, “Commercial Organics Recycling Law,” State of Connecticut, accessed May 27, 2022, <https://portal.ct.gov/DEEP/Waste-Management-and-Disposal/Organics-Recycling/Commercial-Organics-Recycling-Law#How>; Conn. Gen. Stat. § 22a-226e (2020).
 - Maryland*: 2021 Md. Laws H.B. 264, Ch. 439.
 - Massachusetts*: 310 MASS. CODE REGS. 19.
 - New Jersey*: N. J. P.L. 2020, ch. 24.
 - New York*: Department of Environmental Conservation, “Food Donation and Food Scraps Recycling Law,” New York State, accessed February 25, 2022, <https://www.dec.ny.gov/chemical/114499.html>; Department of Environmental Conservation, “Adopted Part 350, Food Donation and Food Scraps Recycling,” New York State, accessed February 25, 2022, <https://www.dec.ny.gov/regulations/123537.html>.
 - Oregon*: Or. Metro Code § 5.15.410-470.
 - Rhode Island*: 23 R.I. Gen. Laws Ann. § 23-18.9-17 (2014).
 - Vermont*: Vt. Acts & Resolves No. 148 (2012); Department of Environmental Conservation, “Vermont’s Universal Recycling Law.”
 - Washington*: Wash. Rev. Code § 70A.205.715 (2019).
- Local government ordinances and regulations include but are not limited to:
- Boulder, CO*: Boulder, Colo. Code Regs. §§ 6-3-13-6-3-18 (2022).
 - Hennepin County, MN*: Hennepin County, Minn., Ordinance 13, § IV (October 30, 1986).
 - New York City, NY*: New York City, N.Y., 2013/146 (2013); New York City Department of Sanitation “Notice of Adoption of Final Rules Governing Source Separation and Handling Requirements for Organic Waste Generated by Certain Commercial Establishments,” 2017, <https://dsny.cityofnewyork.us/wp-content/uploads/2017/12/DSNY-Notice-of-Adoption-Commercial-Organics-Rule.pdf>.
 - San Francisco, CA*: San Francisco, Cal., Env’t Code, Ch. 19 (2021).
 - Seattle, WA*: Seattle, Wash., Municipal Code §§ 21.36.082, 21.36.083 (2022).
 - Washington, DC*: D.C. Code § 23-211 (2020); D.C. Code § 8-1031.03a (2022).
- 26 Key California diversion measures are embedded in a state law targeting reductions in short-lived climate pollutants, including fugitive methane emissions from landfills: CAL. CODE REGS. tit. 14, §§ 17402-17414 (2020). New York City’s requirements are a “key component of the City’s goal of sending zero waste to landfills.” New York City Department of Sanitation, *Commercial Waste Zones: A Plan to Reform, Reroute, and Revitalize Private Carting in New York City*, 2018, 35, https://dsny.cityofnewyork.us/wp-content/uploads/2018/11/CWZ_Plan-1.pdf. Reducing the need for new landfills helps avoid negative environmental externalities, costs, and environmental justice concerns, as new landfills are disproportionately sited in low-income communities and communities of color. Austin requires that food-permitted businesses “provide their employees convenient access to diversion options that keep organic material out of the landfill.” Austin Resource Recovery, “Commercial Organics Diversion Requirements,” City of Austin, accessed February 25, 2022, <https://www.austintexas.gov/bizorganics>. The creation of new jobs in the organics-processing, food-recovery, and hauler sectors is one example of economic development resulting from diversion laws and ordinances. Emily Gaylord, “Food Waste Initiative Creates Jobs in MA,” *RecyclingWorks Massachusetts*, December 22, 2016, <https://recyclingworksma.com/food-waste-initiative-creates-jobs-ma>.
- 27 Linda Breggin, *State and Local Efforts to Divert Organic Waste Steadily Advance*, Environmental Forum, January–February 2022, 11, <https://www.eli.org/the-environmental-forum/state-and-local-efforts-divert-organic-waste-steadily-advance>.
- 28 CalRecycle, “Food Donors: Fight Hunger and Combat Climate Change,” accessed March 10, 2022, <https://www.calrecycle.ca.gov/organics/slep/foodrecovery/donors>.
- 29 CalRecycle, “SB 1383 Recordkeeping,” accessed March 10, 2022, <https://www.calrecycle.ca.gov/organics/slep/recordkeeping>.
- 30 2021 N.Y. Laws, Ch. 43-B Env’t Conserv. § 27-2203.
- 31 N. J. P.L. 2020, ch. 24 (law specifically references the need for implementing regulations that may address record-keeping and reporting requirements for large food waste generators and authorized food waste recycling facilities); Md. Laws H.B. 264, Ch. 439 (2021) (law requires establishment of guidelines to assist businesses with compliance, including guidelines for estimating the weight of the food residuals generated by a business).
- 32 New York City, N.Y., RULES OF THE CITY OF NEW YORK, tit. 16 § 1-11.
- 33 Austin, Tex., Mun. Code § 15-6-101 (2021); City of Austin, “Commercial Recycling Requirements,” accessed March 10, 2022, <https://www.austintexas.gov/urocommercial>; Austin Resource Recovery, “Commercial Organics Diversion Requirements,” City of Austin, accessed February 25, 2022, <https://www.austintexas.gov/bizorganics>.
- 34 CAL. CODE REGS. tit. 14, § 17867 (2022).
- 35 Vt. Solid Waste Management Rules § 6-1110, VT. DEP’T OF ENV’T CONSERV (2020).
- 36 Wash. Admin. Code § 173-350-210.
- 37 San Francisco, Cal., Env’t Code, Ch. 19 § 1906 (2021).
- 38 Honolulu, Haw., Rev. Ordinances of Honolulu Ch. 9 § 9-3.5.
- 39 Jordan Perry and Linda Breggin, *Research Brief Series: Overview of Multilingual Outreach, Translation, and Language Justice Resources*, Environmental Law Institute, May 2022, <https://www.eli.org/food-waste-initiative/publications>.
- 40 Environmental justice concerns are endemic to the problem of food waste and essential to consider in addressing it. Food waste prevention reduces greenhouse gas emissions, which contribute to climate change—the impacts of which are experienced widely and acutely by low-income communities and communities of color. U.S. Environmental Protection Agency, *Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts*, September 2021, https://www.epa.gov/system/files/documents/2021-09/climate-vulnerability_september-2021_508.pdf. In addition, food scrap recycling can reduce the use of landfills and incinerators, which are disproportionately sited in overburdened communities. Yerina Mugica and Terra Rose, *Tackling Food Waste in Cities: A Policy and Program Toolkit*, NRDC, February 2019, <https://www.nrdc.org/sites/default/files/food-waste-cities-policy-toolkit-report.pdf>. These environmental justice concerns and solutions should be considered and addressed in terms of the need for procedural equity (those most impacted are meaningfully engaged in decision-making), distributional equity (funding and resources are fairly and justly distributed), structural equity (governance structures that create and perpetuate inequities are reformed) and trans-generational equity (future generations are not unfairly burdened). Urban Sustainability Directors Network, “USDN Sustainability Innovation Report,” March 2015, https://www.usdn.org/uploads/cms/documents/USDN_Innovation_Report_Tools_Equity_Scan-3-2015.pdf.