

BEYOND THE LANDFILL

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A Food Waste Reduction Policy Toolkit for Local Governments



Author: The author of this toolkit is Shwetha Govindan of the Graham Sustainability Institute at the University of Michigan. She is a Master's Student at the University of Michigan's School of Environment & Sustainability (SEAS).

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About the Graham Sustainability Institute: The Graham Sustainability Institute at the University of Michigan, Ann Arbor mobilizes the expertise and passion of scholars, partners, and decision-makers to work together and bring world-class research to real-world sustainability challenges.



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Introduction

In 2022, Michigan's food industry generated a surplus of 2.8 million tons of food¹. Surplus food tons is defined as “all food that goes unsold or unused by a business or that goes uneaten at home – including food and inedible parts (e.g., peels, pits, bones) that are donated, fed to animals, repurposed to produce other products, composted, anaerobically digested, or wasted”². Most of this food waste ends up in landfills; is left to rot in farms or sent to incinerators.

Food waste presents a significant challenge on two fronts for sustainability efforts. First, when organic matter decomposes in landfills – environments typically lacking oxygen and light – it produces a large amount of methane, a greenhouse gas twenty-eight times more potent than carbon dioxide at trapping heat. This significantly accelerates climate change. Second, all the resources used to grow, transport, and package this wasted food are squandered. This includes vast quantities of freshwater, fertilizer, and land, all of which could be used more efficiently.

The staggering amount of food waste not only strains our natural resources but also directly impacts social welfare. According to a Feeding America study, 14.1 percent of Michigan's population experiences food insecurity. In Macomb County alone, this rate is estimated at 12.6 percent, with roughly 110,580 people facing food insecurity. This translates to an annual food budget shortfall of an estimated \$82,997,000. Furthermore, the study found that food insecurity disproportionately affects communities of color, with American Indian, Black, and Hispanic/Latino populations experiencing the highest rates³.

Food waste has garnered significant attention at both the state and federal levels in the United States. The USDA and EPA have partnered to establish a national goal of reducing food waste by 50 percent by 2030. In Michigan, this national focus is mirrored by the MI Healthy Climate Plan, which sets the same ambitious target for the state as part of the Michigan Wasted Food Reduction Goal. In 2023, The Department of Environment, Great Lakes, and Energy (EGLE) announced a \$100,000 grant that will bolster food waste reduction efforts⁴.

The state has partnered with organizations like Make Food Not Waste, Michigan Sustainable Business Forum and Center for EcoTechnology among others to work on different state and local initiatives to tackle food waste. Cities are taking action as well - Southfield is collaborating with Make Food Not Waste on a citywide program, while Wixom has implemented a food scrap recycling initiative with the Resource Recovery and Recycling Authority of Southwest Oakland County. These initiatives signal a growing focus on food waste and its environmental consequences at the county and local levels.

How to use this toolkit

This toolkit is designed to assist municipal government officials and city planners in addressing the critical issue of food waste. While numerous resources exist on food waste reduction, comprehensive guidance specifically tailored to local governments is often scattered. This toolkit aims to bridge this gap by offering a consolidated overview of effective strategies cities can implement to minimize food waste.

The **"Waste Hierarchy section"** outlines the optimal order for managing food waste, from prevention to disposal. By outlining the preferred order of waste management strategies—from prevention to disposal—this section provides essential context for the subsequent recommendations. This hierarchical approach helps prioritize actions that maximize resource conservation and minimize environmental impacts.

The **"Measuring Food Waste" section** guides cities in establishing a baseline for food waste generation. This section includes resources for data collection and analysis, such as sample surveys and industry accounting standards.

This toolkit presents policy recommendations organized into three primary categories: **prevention, recovery and rescue** and; **recycling**. This framework is largely informed by the influential ReFED Roadmap to reduce Food Waste report⁵, which provides a foundation for many of the proposed solutions. Each recommendation includes supporting information and references to relevant federal and state legislation.



Key Highlights

- This toolkit provides actionable steps based on extensive research and existing models.
- It is essential to recognize that implementation may vary depending on specific city conditions.
- The toolkit seeks to inform the development of tailored ordinances, mandates, and other policies.
- Broad stakeholder engagement is crucial for successful implementation of the recommendations.

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The role of local government

City administrations are at a unique position when it comes to food waste reduction because unlike federal or state bodies, they are often responsible for the direct regulation of waste management, zoning, land use, public health and food safety. This local control allows for targeted programs that address the specific needs and challenges of each community. For instance, cities can introduce mandatory composting programs to divert organic waste from landfills, or establish regulations for sustainable procurement practices.

Furthermore, city governments have the capacity to educate residents on proper waste disposal methods and promote sustainable consumption habits. The confluence of technological infrastructure, skilled workforce, and a concentrated population positions cities as catalysts for a circular food economy. City management plays a pivotal role in determining a city's carbon footprint. A significant portion of food system emissions—up to 80 percent—stem from the mismanagement of municipal solid waste, including food scraps and biosolids, within landfills⁶. Therefore, cities can leverage this opportunity to evaluate their waste management practices and develop strategic plans to reduce emissions.

As more cities veer towards climate action plans and establish sustainability goals; diverting food waste from landfills can play an important role in achieving those goals, bolster a city's reputation as an environmental leader and improve overall quality of life for residents.

Sterling Heights: A City in Transition

Historically an agricultural community, Sterling Heights transformed into a suburban hub with the rise of the automotive industry. Governed by a council-manager system, the city adopted a sustainability plan in 2008, aiming for progress in various environmental areas. Economic challenges hindered initial goals, but consistent sustainability efforts continued in the city. In 2021 a new sustainability plan was released which emphasized the city's significant contribution to landfill waste, highlighting the need for innovative solutions⁷. The Sustainability Commission's plan outlined strategies to reduce waste, increase recycling, and explore renewable energy options, emphasizing the importance of community engagement and education.

Sterling Heights faces a substantial waste management challenge, contributing 450,000 tons to landfills annually. The city's sustainability commission has identified food waste as a critical area for intervention. By implementing composting programs, improving recycling infrastructure, and exploring prevention strategies, Sterling Heights can significantly reduce its environmental impact and create a more sustainable future for its residents.

The waste hierarchy



The EPA's latest Wasted Food Scale⁸ serves as the gold standard for prioritizing food waste management strategies, guiding communities and businesses towards optimal and sustainable practices. **At the top tier, preventing food waste is emphasized**, followed by donating and upcycling food to maximize its value. Feeding food to animals, anaerobic digestion, composting, and land application are subsequent options, each with varying environmental impacts. The scale emphasizes that **sending food waste down the drain, to landfills, or for incineration should be avoided whenever possible**. By following this hierarchy, individuals and organizations can make informed decisions to reduce food waste and minimize its environmental footprint.

One of the key insights from this pathway, is that certain high-tech solutions such as anaerobic digestion may not help offset emissions compared to the resources and infrastructure it demands. In their report *From Field to Bin*, the EPA mentions that anaerobic digestion generates more energy per unit of food waste than other energy recovery methods, but it only recoups about 20 percent of the energy initially invested in food production⁹. Additionally, burning biogas releases pollutants similar to natural gas, making it a less desirable solution.

This toolkit employs the Wasted Food Scale as a framework for prioritizing policies and actions to maximize impact. While practical constraints of local governance might necessitate adjustments to this order, it is important to recognize that the recommendations progress from least to most resource-intensive strategies. This approach can enhance sustainability by optimizing funding and public engagement.

Measuring food waste at a municipal level

Quantifying food waste can be a daunting task at any level of government. Retailers and restaurants keep their food loss records internal and households do not necessarily share information on how many pounds of food waste they throw away. A lot of studies however, have sought to bridge this gap through extrapolated data. For example, the National Resources Defense Council (NRDC) conducted a study establishing baseline food waste estimates in Denver, Nashville, and New York City through surveys and bin digs¹⁰. In 2016, the city of Boulder, Colorado conducted a city-wide food waste audit and has since established a successful food rescue program¹¹. Given the unique characteristics of each city, comprehensive baseline data can provide valuable insights for municipal and national-level food waste management strategies. To establish a baseline, consider the following steps:

- **Establish a Framework for Food Waste Accounting:** The Food Loss and Waste Accounting and Reporting Standard (FLW) is a global accounting standard that offers a comprehensive framework for establishing baseline food waste measurements¹². This involves defining audit objectives, reviewing accounting guidelines, determining the data collection scope, and subsequently analyzing the gathered information. More information on the FLW standards can be found [here](#).
- **Develop Data Collection Tools:** After establishing a data collection timeline, cities must select appropriate methodologies. These might involve surveys, waste audits, food waste diaries, or self-reported assessments from businesses and residents. The NRDC has developed a [template](#) for surveys and other methods which can be tailored for the city's needs¹³.
- **Explore Collaborations & Analyze Data:** The city can partner with organizations like Make Food Not Waste to enhance data collection and analysis capabilities, leveraging their expertise and resources for more comprehensive and accurate results. Analysis will help pinpoint areas of food waste, types of food waste and provide insight on the best course of action.
- **Establish Metrics for Assessing Food Waste:** A baseline assessment is just the beginning. In order to assess progress in food waste reduction, it is advised to set up long term metrics for continuous assessment. The NRDC has developed a helpful [tool](#) for setting up metrics¹⁴. This step helps measure program effectiveness by quantifying food diverted, donated, or composted, and assessing the reach of outreach efforts like business audits and awareness campaigns.

Setting up a committee

To effectively address food waste, a comprehensive understanding of the issue is essential. This involves reviewing existing plans, policies, and community feedback to identify opportunities and challenges. By bringing together diverse stakeholders, including city officials, environmental experts, business representatives, and community members, the committee can:

- Create a roadmap for reducing food waste and a comprehensive strategy
- Allocate resources such as funding and staffing for the program
- Monitor progress
- Build community support
- Foster collaboration

Model Order

[Municipal Government] shall Create a central entity for coordinating municipal food waste efforts by hiring or designating a City Food Waste Reduction Coordinator (“Coordinator”) and/or convening a cross-agency working group (“Coordinating Body”).

While comprehensive measurement and baseline assessments are crucial for long-term food waste reduction strategies, **cities need not wait for perfect data to initiate programs.** A phased approach, starting with smaller-scale initiatives and gradual expansion can yield significant results. By concurrently building the foundation for robust data collection, cities can optimize their efforts over time. This strategic balance ensures continuous progress towards a more sustainable food system.

Setting Targets

Establishing a baseline for food waste is crucial but setting clear reduction targets is equally important. The U.S. Conference of Mayors has committed to halving food waste by 2030, providing a benchmark for cities like Sterling Heights. By publicly declaring a specific goal, the city can galvanize support and initiate targeted action.

- After establishing a broad food waste reduction goal, the **city should review past plans, initiatives, and community feedback.** The city can then gather input from various stakeholders including city officials, businesses, community leaders, local experts and civil society organizations. The following model order was developed by the NRDC to provide a template for the city administration.

Model Order

“The [Municipal Government] hereby adopts a goal of reducing food waste in [Municipality] by 50 percent by 2030, consistent with the federal goal set in 2015.”

- **Set specific goals** such as “**increase the number of food pantries by five**” or “**procure food waste management software for all municipal cafeterias**” OR “**procure food items with minimal packaging and waste**”. These can then develop into specific metrics and targets to include both quantitative and qualitative measures.
- **Tie the goals to determine specific actions** in the form of internal guidelines, policies, ordinances and public awareness programs. The EPA has developed a set of strategies and guidelines for local governments to initiate solid waste management programs and strategies such as **public recognition** and **sponsorship programs** for reducing food waste. One example of a county-wide initiative is the Washtenaw County Waste Knot Program¹⁶.

CASE STUDY: CITY OF BOULDER, CO

The City of Boulder has been a pioneer in waste reduction and recycling, conducting its first food waste audit. As early as 2001, voters approved a "Trash Tax" which provided crucial funding for innovative waste management programs and infrastructure. In partnership with Eco-Cycle, a leading non-profit, Boulder established ambitious zero waste goals and implemented comprehensive strategies to achieve them.

In 2016, the city teamed up with Boulder Food Rescue to conduct its first city-wide food waste audit. After compiling a comprehensive database of restaurants, grocery stores and other foodservice organizations; the research team performed a stratified random sampling under each category of business. Then, surveys were administered motivated by the goals of the audit: (1) basic company information (2) waste stream (3) compost collected (4) food reuse and donation and (5) process and protocol. Each survey was about 10 minutes long. Once the results had been collected and analyzed, they found out that businesses particularly restaurants, have significant opportunities to reduce waste. Only 57% of the surveyed restaurants used some kind of source reduction, and only half of them participated in composting (the infrastructure is robust). It was determined that education on food donation liability, source reduction techniques, and incentive structures was needed across management levels to improve waste management practices.

For more information on the City of Boulder’s Food Waste Audit. [Click Here](#).

Prevention

The most effective way to combat food waste is to prevent food from entering the waste stream in the first place. Source reduction involves decreasing the overall quantity of food waste generated and; minimizing the harmful substances used to produce, process and distribute food. While source reduction is less resource-intensive than other waste management methods, it often requires substantial investment in public education and long-term behavior change initiatives. However, some actions such as standardizing date labeling practices may be more tangible to implement.

Date Labeling

Date labeling contributes significantly to food waste by creating confusion among consumers. The variety of labels (best by, sell by, use by) and their unclear meanings often lead to premature disposal of perfectly edible food. This practice not only wastes food but also contributes to economic loss and environmental impact. It is estimated that the average American household discards \$275 to \$455 per year in food waste due to confusion over date labels¹⁷.

According to a report by the Harvard Food & Policy Clinic, the only product for which 'Use By' is legally regulated for safety, is infant formula. For any other foods, there is no legal definition and no differentiation between the terms 'sell by'; 'use by' or 'best by'¹⁸. Some foods simply have a date on them with no words or explanations on the implications of the same. Given the lack of a federal mandate on date labeling, states primarily regulate date labeling practices.

Michigan mandates date labeling on dairy, prepackaged perishables, and shellfish and Sale restrictions apply to prepackaged perishables and certain meat products after their designated dates¹⁹. While dairy products can be sold beyond the sell-by date with proper labeling, shellfish packages have specific date requirements based on size. Importantly, Michigan law does not prohibit food donation after expiration dates.

Recommendations:

- The Sustainability Committee must revisit any local/ municipal level policies on date-labeling and consider repealing or removing any ordinances that create further confusion or restrictions beyond the provisions of State law.
- The city should roll out a consumer awareness campaign on date labels. It should specify the types of date labels permitted (e.g., "best by," "use by") and outline clear definitions for each. Additionally, an ordinance could mandate educational signage in grocery stores to inform consumers about date labels.

Procurement

Cities can significantly reduce food waste by revamping their procurement policies. Prioritizing local and seasonal produce can decrease transportation emissions and support local farmers. Implementing purchasing guidelines that favor products with minimal and spoilage free packaging reduces waste at the source²⁰.

Additionally, cities can establish contracts with suppliers committed to reducing food waste in their operations. By incorporating food waste reduction goals into procurement contracts, cities can incentivize businesses to adopt sustainable practices. Furthermore, purchasing food items in appropriate quantities, considering consumption patterns, and implementing robust inventory management systems can help prevent surplus food from accumulating. Cities that have included sustainable procurement policies include the [City of Dallas](#)²¹ and; [Seattle](#)²².

Recommendations:

- The city should leverage existing procurement laws and policies to minimize food and packaging waste. It should Prioritize contractors and vendors with strong food waste reduction practices.
- Invest in food waste management software.
- Utilize and purchase food waste compost for land restoration projects and community gardens.
- Purchase food items with minimal packaging, opting for bulk or reusable containers and procure compostable or recyclable foodware when reusable options are unavailable.

Education & Technical Support

Cities can significantly impact food waste reduction by providing comprehensive education and support to businesses and residents. This includes developing educational materials and workshops on food waste prevention, proper food storage, and understanding date labels. Offering technical assistance like menu planning toolkits, inventory management system information, and discounted third-party applications can equip businesses with the tools to minimize waste. By partnering with organizations specializing in food waste reduction, cities can amplify their efforts and provide even more comprehensive support.

Target audiences for food waste education include city employees, businesses, and residents. City staff, such as facility managers and waste management workers, can benefit from targeted training. Businesses, particularly restaurants and grocery stores, are key to reducing commercial food waste. Residents, including those in single-family and multi-family dwellings, are essential in minimizing household food waste.

The city may incorporate food waste workshops into the training programs. These can be conducted in foodservice establishments on free and off season days.

Recommendations:

- Develop tailored educational materials for facility managers, food waste inspectors, and other city staff
- Provide specific guidance for restaurants, grocery stores, and cafeterias to reduce commercial food waste by developing and distributing toolkits for businesses, including menu planning and inventory management guidance
- Create educational resources on food waste prevention, proper storage, and date label understanding for residents.
- Explore partnerships with technology providers to offer discounted food waste management tools.

Food Waste Reporting

Reporting food waste can be key to help businesses and organizations prioritize prevention of food waste rather than waste management. By requiring businesses to track and report food waste, they are incentivized to identify areas of excess and loss. This data-driven approach allows businesses to make informed decisions about purchasing, inventory management, and food preparation, ultimately reducing waste. Public reporting of food waste can also create a sense of accountability among businesses. It encourages them to be more mindful of their waste generation and to implement strategies to reduce it.

By comparing food waste data across businesses, cities can identify best practices and encourage underperforming businesses to improve. While a waste reporting mandate may seem infeasible, it is something that the city can consider at a later stage.

Recommendations:

- The city should require businesses exceeding a certain size or in specific industries to report food waste quantities.
- Establish standardized reporting metrics and formats to ensure consistency in data. The frequency and format of reporting can then be determined for assessing progress.

Rescue & Recovery

Food rescue is fundamentally about repurposing surplus food. This involves recovering uneaten or unsold items from businesses and individuals and redirecting them to those in need. By salvaging food that would otherwise be wasted, food rescue organizations play a crucial role in extending the food supply chain and maximizing the value of agricultural resources. Another aspect of food rescue is the resale of surplus food at discounted prices by specialized solution providers. Rescue not only addresses food insecurity but also reduces the environmental impact associated with food production and disposal.

Donation

Food donation is a critical component of effective food waste recovery. By diverting surplus food from landfills to those in need, cities can significantly reduce waste and address food insecurity. To optimize food donation efforts, local governments should invest in infrastructure, provide technical support for matching food donors with recipients, and streamline regulations. Food donation can occur at every stage of the supply chain, from farms to consumers, making it a versatile strategy for maximizing food utilization. According to the EPA's Excess Food Opportunities Map²³, Sterling Heights was marked as having fewer donation receiving organizations compared to neighboring cities pointing to a gap in the donation infrastructure. The following are some recommendations to strengthen food donation in the city.

Recommendations:

- The city should educate business owners and residential households on donation liability laws. Information on federal laws for donation liability protection can be found as part of the [Bill Emerson Food Donation Act](#) and [State Law](#) on donation liability²⁴.
- Standardize donation regulations within the city for safe handling and donation of food. This can include clear language on eligibility criteria, transportation requirements and food safety standards. It could also include standardizing a permitting and licensing process for rescue organizations to comply with safety regulations.
- Establish or strengthen local food donation networks to connect food donors (grocery stores, restaurants, farms) with food recipients (food banks, shelters, community kitchens). The city can partner with platforms such as [FoodRecovery](#) which matches donors and receivers for free.
- Improve donation infrastructure by providing funding for the purchase of physical assets such as refrigerated vehicles for food recovery; improving cold storage infrastructure for storage of surplus food and; offer grants & technical assistance to recovery organizations

A city-wide mandate requiring businesses to donate surplus food holds promise as a solution to food waste. This approach is particularly effective for businesses generating significant amounts of excess food. However, careful consideration must be given to the capacity of local food banks and other recipient organizations before implementing such a policy. Additionally, the city must assess the availability of composting and organics recycling infrastructure to handle potential surpluses. Thorough capacity planning is essential to ensure efficient food donation and diversion

Value Added Processing

Value-added processing transforms excess food into new products, significantly reducing waste. By converting surplus produce into items like jams, sauces, or dried goods, food processors extend shelf life and create higher-value products. This approach not only prevents food from being discarded but also generates economic opportunities. Furthermore, value-added processing can help reduce food insecurity by providing nutritious and affordable options for consumers

Recommendations:

- Promote local food processors to collaborate with foodservice businesses and retailers to recover surplus food to create higher value products. The city can do this through establishing networks and providing technical support and conducting educational workshops.
- Establishing or collaborating with shared commercial kitchens may also lower barriers for food recovery organizations and small processors to create value added products out of surplus food. The city can sponsor food safety training and set in place process controls to ensure food safety.

Food Resale Solution Providers

Reducing food waste presents a compelling business case. As cities develop food waste diversion plans, policies should be designed to incentivize business participation and create a sustainable, cost-effective approach. According to a ReFED study, secondary resellers have a diversion potential of 167,000 tons and economic value of \$37 million (countrywide)²⁵.

Recommendations:

- Ease the barriers to entry for solution providers who work specifically to reduce food waste. This may be in the form of issuing business permits, licensing and tax discounts on solutions that recover surplus food.
- The city should prioritize secondary resellers that serve low-income residents and neighborhoods. These resellers should accept SNAP and EBT payments. The city can support these businesses by identifying potential loan and financing opportunities to help them expand their reach into underserved communities.

Recycling

While preventing and recovering food waste should be paramount, the unfortunate reality is that inedible scraps, spoiled, or rotten food will inevitably remain. Much of this organic material is currently landfilled, incurring substantial costs for municipalities and releasing harmful methane into the atmosphere. However, this waste presents a significant opportunity. Food scraps can be transformed into valuable resources through composting and anaerobic digestion. Composting enriches soil, while anaerobic digestion produces renewable energy, demonstrating the potential of food waste to contribute to a circular economy.

Sterling Heights stands to benefit greatly from food waste recycling due to recent advancements in organics recycling technology, which have improved efficiency and reduced contamination. According to the ReFED roadmap study, several key factors influence organics recycling rates. First, residents and businesses must be incentivized to separate food waste from other garbage through rewards or penalties. Second, waste haulers should find financial advantages in collecting food scraps and transporting them to recycling facilities. Lastly, robust recycling infrastructure, including accessible drop-off points and competitive tipping fees, is essential to encourage participation from waste haulers²⁶.

Centralized composting

Composting is a controlled aerobic decomposition process. Microorganisms break down organic matter in the presence of oxygen. Through metabolic processes, they convert complex organic compounds into simpler substances like carbon dioxide, water, and humus, a nutrient-rich soil-like material. Optimal conditions, including moisture, temperature, and aeration, are essential for microbial activity and efficient composting. The raw materials used for composting can be - feedstock; food scraps; wood chips; biosolids and sludge from wastewater.

Sterling Heights currently contracts with Priority Waste Services for its solid waste and recycling needs, which include curbside collection of landfill trash, recyclables, and yard waste. The city does not offer citywide composting or food scrap collection services. This presents a valuable opportunity to incorporate centralized composting into future waste management contracts.

Recommendations:

- The city should issue a call for proposals for local composting initiatives and facilities. Additionally, zoning approvals should be granted to waste management facilities interested in handling organic waste. To further facilitate food waste recycling, solid waste facility permits and source-separated organics recycling permits should be made available to businesses and organizations accepting food scraps.

- The city should seek out excess space in various facilities such as food manufacturing and processing facilities; to site organics recycling. This can help reduce the distance between 'generators' and 'recycling facilities' and bring down the costs. Even simple things like issuing zoning permits for community composting facilities in intersections with heavy foodservice operations may help facilitate better composting²⁷. Model zoning codes for composting have been put together by the [US Composting Council](#).
- A tiered permitting system based on facility size can streamline the approval process. Smaller-scale composting facilities and community composting initiatives within gardens could be exempt from permitting altogether. Additionally, a specific tonnage threshold for food scraps handled by small composting facilities without requiring a solid waste permit (similar to Iowa's two-ton exemption²⁸) should be considered.
- The city should partner with waste management providers to integrate food scrap collection into existing yard waste collection routes. By optimizing collection routes on a citywide scale, efficiency can be improved and costs reduced.
- Implementing a "pay-as-you-throw" system charges residents based on waste volume, encouraging reduction and diversion. Offering rebates for purchasing compost bins and composting services can incentivize participation. Providing free compost to residents who participate can create a tangible benefit and demonstrate the value of the program. By combining these strategies with clear communication and education, cities can foster a composting culture and reduce the amount of food waste sent to landfills.

Anaerobic digestion

Anaerobic digestion is a biological process where microorganisms break down organic matter, such as food scraps, sewage sludge, and agricultural waste, in the absence of oxygen. This process occurs within enclosed vessels called reactors. As organic matter is digested, microorganisms produce biogas, a mixture primarily of methane and carbon dioxide, along with a nutrient-rich residue known as digestate. Biogas can be harnessed as a renewable energy source, while digestate serves as a valuable fertilizer input. By transforming organic waste into usable products, anaerobic digestion offers a circular approach to managing food loss and waste.

The primary challenges associated with anaerobic digestion are the substantial upfront costs and infrastructure development required. Additional considerations include disposal fees, the market for biogas or derived energy, and the reluctance of waste generators to commit to long-term contracts.

Recommendations:

- The city should provide economic incentives to guarantee premium prices for biogas and tax incentives for AD installation and operation. There should also be funding for research, development, and demonstration projects. These are essential for ensuring the circularity of byproducts such as biogas and digestate.
- Establish quality controls and standardized guidelines for biogas. This should also extend to the safe and beneficial use of digestate in fertilizers.
- Identify suitable locations for AD facilities, considering factors such as proximity to waste sources and potential environmental impacts.
- Establish systems for monitoring the performance of AD facilities and evaluating the effectiveness of AD policies

Conclusion and Next Steps

Waste management is a cornerstone of city administration and an essential component of building a sustainable and resilient city. By adopting the approaches outlined in this toolkit, the city can significantly reduce its environmental impact, conserve resources, and enhance food security. The good news about food waste reduction is the plethora of resources available on the topic including case studies; food waste audits and other initiatives by municipalities, businesses and other organizations. Success in food waste reduction requires a collaborative effort

Unfortunately, challenges arise when food waste plans into implementation. One significant hurdle is overcoming all the financial barriers along the way. Businesses may face initial costs for implementing new technologies, infrastructure, or staff training. Changing consumer behavior is a complex endeavor. Educating the public about food waste, encouraging purchasing decisions that reduce waste, and promoting proper food storage can be time-consuming and require sustained efforts. Furthermore, coordinating efforts across different sectors, such as agriculture, retail, and food service can be challenging due to varying priorities and incentives. Another set of challenges lies in data collection and measurement. Accurately quantifying food waste is difficult, as it occurs at various stages of the supply chain.

To overcome these barriers, municipalities must act as the first frontier, and boldly invest in financial incentives like tax breaks and grants to encourage businesses to reduce food waste and where feasible, collaborate with the private sector to share the load and maximize impact. To effectively modify consumer behaviors, comprehensive public awareness campaigns should be launched to educate residents about the environmental and economic consequences of food waste. Strategic engagement with schools, community organizations, and local businesses can also amplify the impact.

Addressing data challenges necessitates a robust data infrastructure. Municipalities should invest in technology to accurately track food waste generation and diversion metrics. Standardized data protocols and metrics are essential for benchmarking and performance evaluation. Collaborations with academic institutions and industry stakeholders can foster the development of innovative data analytics capabilities. A fortified data foundation empowers municipalities to monitor progress, identify optimization opportunities, and measure program efficacy.

In conclusion, the time is ripe for Sterling Heights and the other communities to take their first steps towards tackling waste. A comprehensive approach that combines policy innovation, public engagement, and data-driven decision-making is essential to achieve lasting change. By taking decisive action, the city administration can become a leader in food waste reduction and inspire other communities to follow suit.

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Appendix A

Potential Grants for Food Loss & Waste Technical Assistance (As of July 2024)

Please click to access more information on funding sources.

- [Composting and Food Waste Reduction \(CFWR\) Pilot Project](#)
- [Composting & Food Waste Reduction Cooperative Agreements](#)

Description:

Composting and Food Waste Reduction (CFWR) cooperative agreements empower local governments to develop and implement innovative strategies for managing food waste. By supporting the creation of municipal compost plans and increasing compost accessibility for farmers, these agreements enhance soil health, reduce landfill waste, and foster sustainable waste management practices

Deadline: Sep 04, 2024 Applications must be received by 11:59 pm Eastern Time.

Award Ceiling: \$400,000

- [Agriculture and Food Research Initiative - Foundational and Applied Science Program](#)

Description:

The AFRI Foundational and Applied Science Program funds research and extension projects to advance agriculture. This program supports six key areas: plant health, animal health, food safety, bioenergy, agriculture systems, and rural economics. Proposals for research, extension, or combined projects are welcome. For specific details, please refer to the Foundational and Applied Science RFA.

Technical assistance webinars are now available for the FY 2024 funding opportunity. Register for these webinars to learn more about the grant process. Recordings and additional materials will be posted online after the events.

Deadline: Tuesday, December 31, 2024

Award Ceiling: \$15,000,000

- [Environmental and Climate Justice Community Change Grants Program](#)

Description:

The Environmental and Climate Justice Community Change Grant program (Community Change Grants), created by the Inflation Reduction Act, offers an unprecedented \$2 billion in grants under this Notice of Funding Opportunity (NOFO). The Community Change Grants will fund community-driven projects that address climate challenges and reduce pollution while strengthening communities through thoughtful implementation. This historic level of support will enable communities and their partners to overcome longstanding environmental challenges and implement meaningful solutions to meet community needs now and for generations to come. There will be two tracks of funding under this opportunity. Track I will fund approximately 150 large, transformational community-driven investment grants of \$10 million - \$20 million. Track II will fund approximately 20 meaningful engagement grants of \$1 million - \$3 million. Grants cannot exceed 3-years in duration. Please review the NOFO for further information about the exciting opportunities under the Community Change Grants program and details about the application process.

Deadline: Tuesday, November 21, 2024

Award Ceiling: \$20,000,000