A Blueprint to Zero Food Waste in Livonia

UNITED STATES CLIMATE ALLIANCE

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

MAKE FOOD NOT WASTE

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Executive Summary

There is a direct relationship between landfilled food and a hotter planet. Because we landfill more than two billion pounds of food every year in Michigan, we unnecessarily pump billions of pounds of methane into the atmosphere that in turn, traps heat and brings extreme weather, wildfires, and polluted air. Michigan has recently been ranked as the sixth state in the nation for the highest landfill methane emissions, much of which is preventable.[1]

Eliminating food waste is seen as "pulling the emergency brake" on climate change because it's something we can all do, relatively easily, inexpensively, and quickly. It also has a myriad of benefits, including financial savings for households and businesses, improved water and soil quality, and reduced demand for landfill space. It is for these reasons that Michigan, along with the U.S. government and the United Nations, have set a goal of cutting food waste in half by 2030. Make Food Not Waste (MFNW) believes that by eliminating food waste in the top fifteen most populated communities in Southeast Michigan (the cities of Ann Arbor, Dearborn, Detroit, Farmington Hills, Livonia, Rochester Hills, Southfield, Sterling Heights, Troy, Warren, and Westland and the Townships of Canton, Clinton, Macomb and Shelby),this goal could be achievable by 2030. It is a bold strategy that requires a combination of the right engagement, the right infrastructure and support, and the right opportunities. This Blueprint is one of six created for communities in Southeast Michigan that details what support and resources would be needed to completely eliminate food waste in a city. A regional plan focused on how these six communities can coordinate efforts and leverage resources amongst themselves to reach their individual food waste goals can be found on the Make Food Not Waste website.

The Natural Resources Defense Council estimates that approximately 41.5 million pounds of food are wasted in Livonia each year.[2] This plan accounts for every one of those tons, using the EPA's wasted food scale as a model for the strategies employed. Details on how to implement prevention, donation, rescue, and diversion strategies are provided for all sectors within the city, along with a detailed timeline, budget, and additional resources for implementation. The underlying foundation of the strategies is a communication and social campaign that works to shift the culture and pave the way for adoption of the behavior change strategies for each sector. The Blueprint provides strategies for the following sectors:

- Residences
- Food-Based Businesses
- Schools and Institutions
- Other Places (e.g., offices, parks, and places where food may be eaten)

20,730

TONS OF FOOD WASTE PER YEAR

(= 41.5M POUNDS)

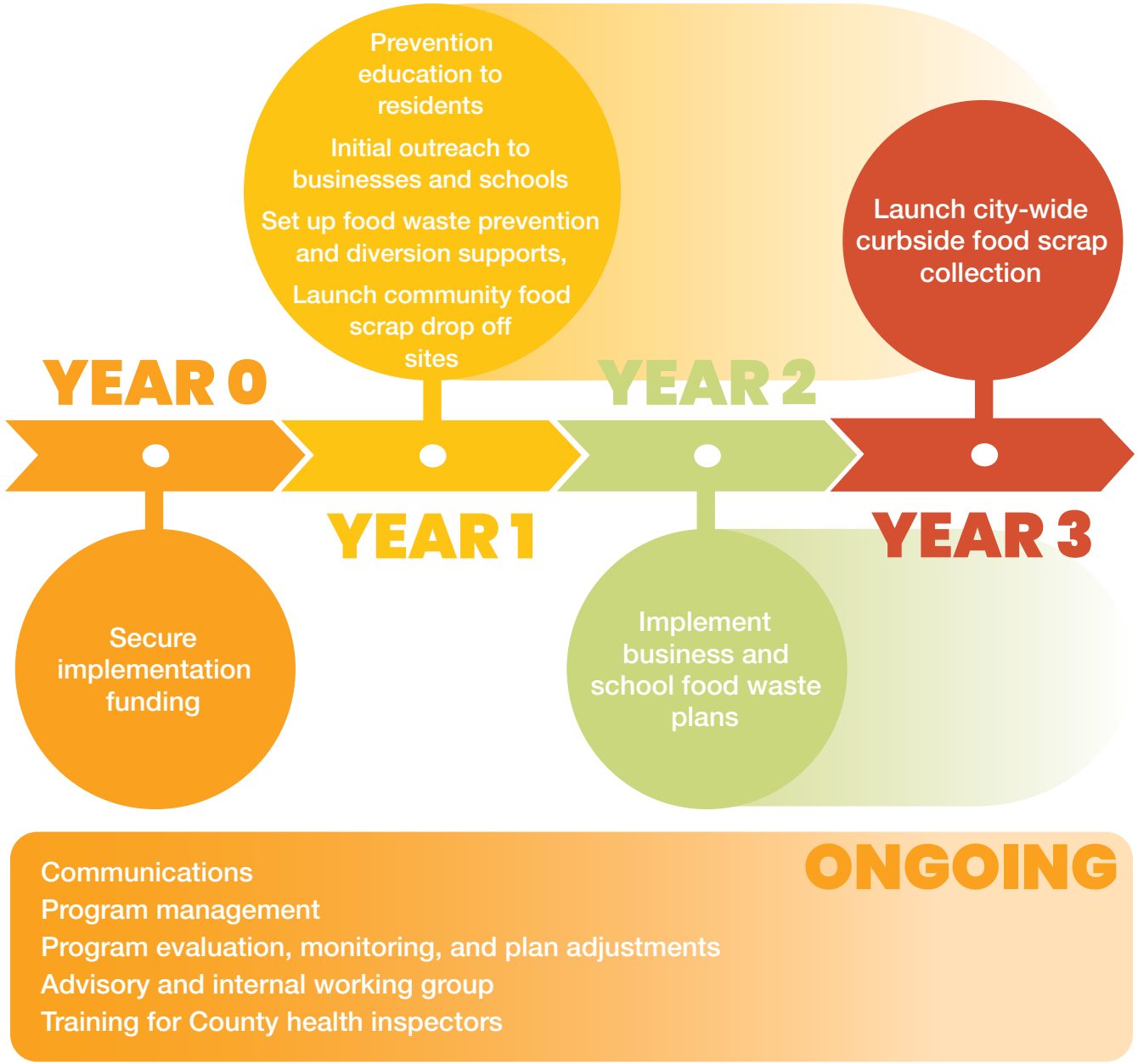
8%

OF GLOBAL GREENHOUSE GAS (GHG) EMISSIONS COME FROM FOOD WASTE

1 Blair, C. (2024, July 31). Michigan leads nation in toxic methane emissions from landfills. Detroit Metro Times.

2 Natural Resources Defense Council (NRDC). (2025). Wasted food and rescue potential calculator.

FIGURE 1. **Summary Implementation Timeline**



$6.7M
VALUE OF FOOD RESCUE

477,458
TREES REQUIRED TO OFFSET GHG ASSOCIATED WITH FOOD WASTE EACH YEAR

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FIGURE 2. Strategies for Levers of Behavior Change

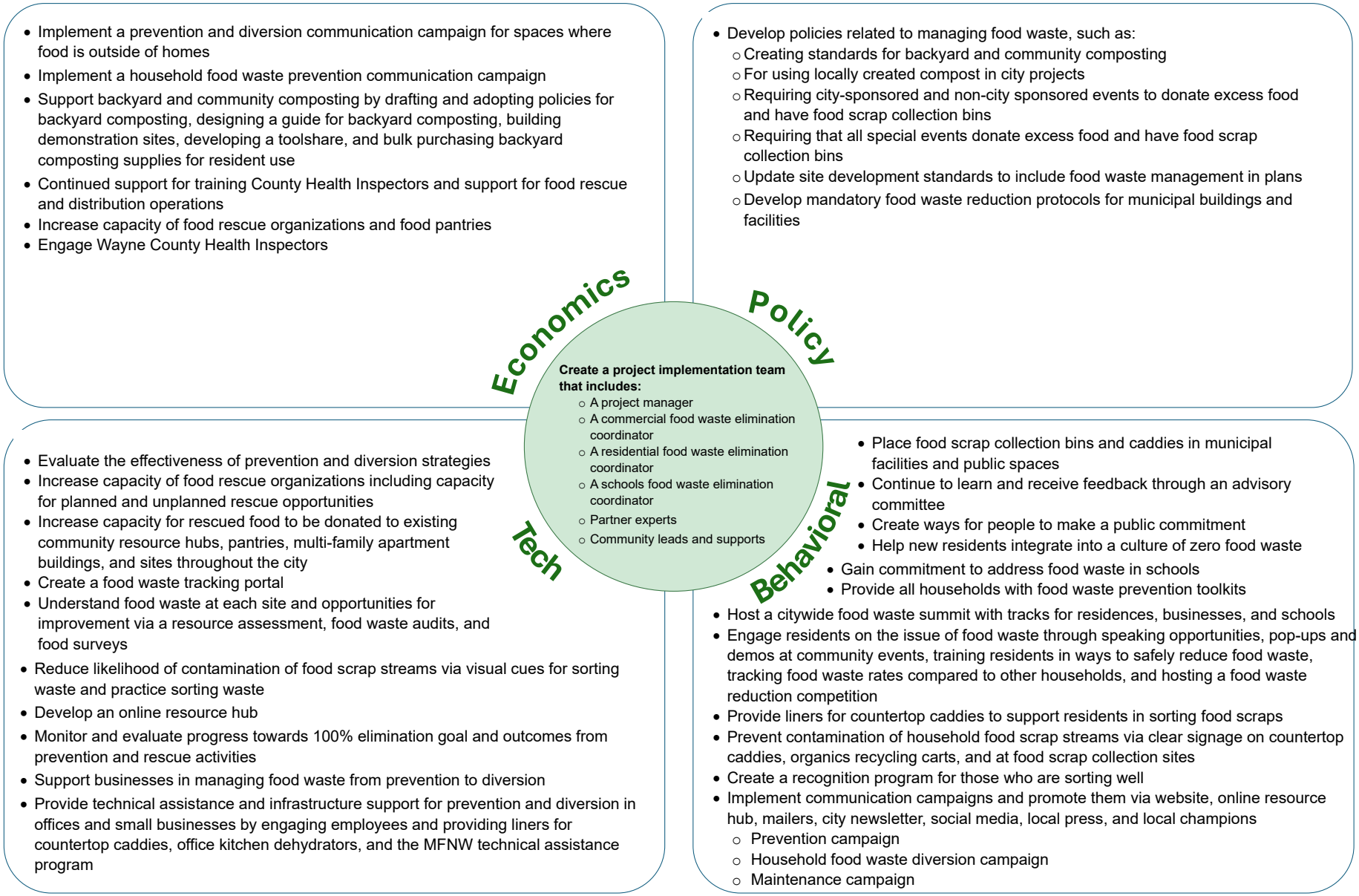


FIGURE 3. **Food Waste and Rescue Potential: Livonia**

FOOD WASTE & RESCUE POTENTIAL IN LIVONIA

By tackling food waste, cities can rein in climate emissions, reduce municipal waste costs, and help relieve community food insecurity.

As part of Make Food Not Waste's Every Bit Counts initiative, we have estimated a city-wide baseline level of food waste generation and assessed the potential for increased rescue of surplus food. This snapshot can help identify opportunities for policy, outreach, and interventions to achieve the City's goals.

FOOD WASTE IN LIVONIA

Though actual measurement of wasted food is optimal, waste audits can be costly, time-consuming, and sometimes impractical. The model for calculating these estimates using proxy metrics was identified from a range of national sources and NRDC's original research.

We estimate **20,730 tons of food waste** are generated in Livonia each year. The residential sector is the highest food waste producing sector generating **almost 9,000 tons of food waste** per year.

FOOD WASTE GENERATED PER SECTOR PER YEAR

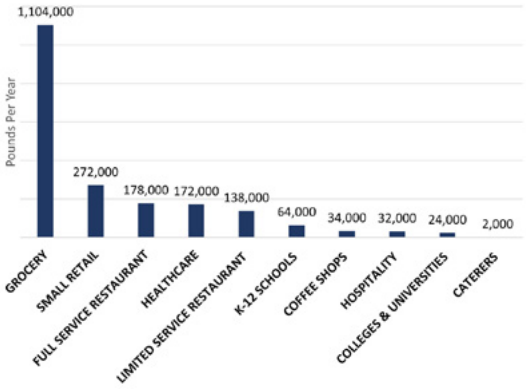
- 1% K-12 SCHOOLS
- 1% HOSPITALITY
- 1% EVENT & RECREATION FACILITIES
- 1% COLLEGES & UNIVERSITIES
- 4% HEALTHCARE
- 4% FOOD WHOLESALERS & DISTRIBUTORS
- 5% FOOD MANUFACTURING & PROCESSING
- 8% GROCERY & MARKETS
- 33% RESTAURANTS
- 42% RESIDENTIAL

FOOD RESCUE OPPORTUNITIES

Donation of surplus food serves an important role in meeting the immediate needs of those facing food insecurity. The ambitious scenario used realistic assumptions and existing donation patterns to estimate an ambitious but attainable expansion of food donation efforts.

While restaurants represent a larger portion of overall wasted food, much of that waste occurs after the food is served and is unsuitable for rescue.

MAXIMUM POTENTIAL SAVINGS SCENARIO



KEY FACTS

40% of all food in the U.S. is wasted

15% food insecurity in Wayne County

20K tons of food waste in Livonia

$6.7M value of food rescue potential in Livonia

8K tons of CO2 from food waste in Livonia

$1.6M social cost of CO2 emisisons in Livonia

8% of global greenhouse gas emissions come from food waste

NRDC

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This Blueprint suggests a three-year implementation timeline, starting no later than 2027 so that all components have been implemented by 2030 to meet the state's 50% diversion goal. Figure 1 provides a summary timeline of implementation tasks outlined in this plan.

Costs have been identified for full implementation of all strategies in each sector, to the extent possible and are broken down by strategy and year below. This plan estimates the total cost of implementation of the entire plan over the course of three years to be $4,455,346 with an additional $806,736 as an ongoing service fee for residential food waste hauling and other ongoing costs for the drop off sites, municipal buildings, and parks.

TABLE 1. One-Time Implementation Costs

	Year 1	Year 2	Year 3
Supporting Strategies	$691,722	$500,392	$488,191
Residences	$420,693	$57,963	$46,370
Food-based Businesses	$451,698	$544,813	$597,132
Schools and Institutions	$20,600	$164,900	$288,100
Other Places	$-	$182,722	$-
Total	**$1,584,713**	**$1,450,839**	**$1,419,793**
Total Cost Over 3 Years	**$4,455,346**		
Potential Additional Costs			
Residential carts (optional)**		$5,042,100	
**The entire cost for the carts is allocated in Year 2 at a cost of $52 per cart (including shipping and distribution). Priority Waste has offered an option to spread cart costs out at the rate of $2.50 per household per month for five years for a total cost of $150 per bin. The cost of the bins could be passed on to residents to avoid an additional expense to the city.			

TABLE 2. Ongoing Costs

	Year 1	Year 2	Year 3
Drop off hauling	$6,930	$32,220	$32,220
Drop off bin liners	$1,575	$7,350	$7,350
Residential curbside hauling ($24 per household per year)			$806,736
Municipal and park hauling		$114,345	$215,460
Municipal and park bin liners		$25,968	$49,350

4.7%

POPULATION IN POVERTY

5.7%

OF HOUSEHOLDS IN POVERTY

$2M

SOCIAL COST ASSOCIATED WITH LIVONIA'S FOOD WASTE

The changes outlined in this Blueprint have the potential to significantly and positively impact residents, the community, state, and world. Eliminating food waste in Livonia is estimated to reduce greenhouse gas emissions by 8,000 tons per year, equivalent to planting 477,458 trees. Further, the average 4-person household could save over $3,000 per year if all edible food is eaten and not discarded, indicating that the average Livonia household with 2.46 people could save almost $2,000 annually, far outweighing the cost of the hauling service. Businesses can save 3-5% on food costs — a significant amount in an industry with small margins. Implementation of this Blueprint, even in part, is likely to have immediate and impactful returns for residents and business owners.

The Blueprint is written with Make Food Not Waste as the primary audience as the expected implementor of the Blueprint, and can be adapted to other communities with a different lead. The City of Livonia staff, and other stakeholders are the secondary audience. The following table outlines next steps for key players to take to implement this Blueprint.

TABLE 3. Next Steps for Blueprint Implementation by Key Player

Player	Responsibility
Make Food Not Waste	• Lead implementation by collaborating with city leaders and staff, school administrators, and local service providers; • Apply for funds; • Support evaluation efforts as needed
City Council	• Support initiative in word and resource allocation, when possible
City Planning Department	• Support plan implementation; • Provide guidance on implementation of strategies; • Facilitate connections with other departments; • Create policies that support the goals of this plan
City Administration	• Negotiate contracts with citywide food scrap hauler; • Assist in identifying resources for implementation
Public Works Department	• Assist implementation of curbside food scrap pick up; • Maintain food scrap drop off sites
Economic Development and Chamber of Commerce	• Connect businesses with technical support and facilitate bulk purchasing of contracts for food scrap hauling
City Communications Department	• Promote the initiative and related resources, information, and events
Food Rescue Organizations	• Increase capacity to transport food from donation sites to distribution sites
Food Distribution Sites	• Increase capacity as needed to better meet client needs with surplus food available

The issue of food waste is a big one, but one that is solvable with relatively inexpensive interventions that are likely to provide financial, social, and environmental returns. This Blueprint is the first step in addressing food waste in Livonia and lays the groundwork for changes that will positively impact the city, region, state, and beyond.

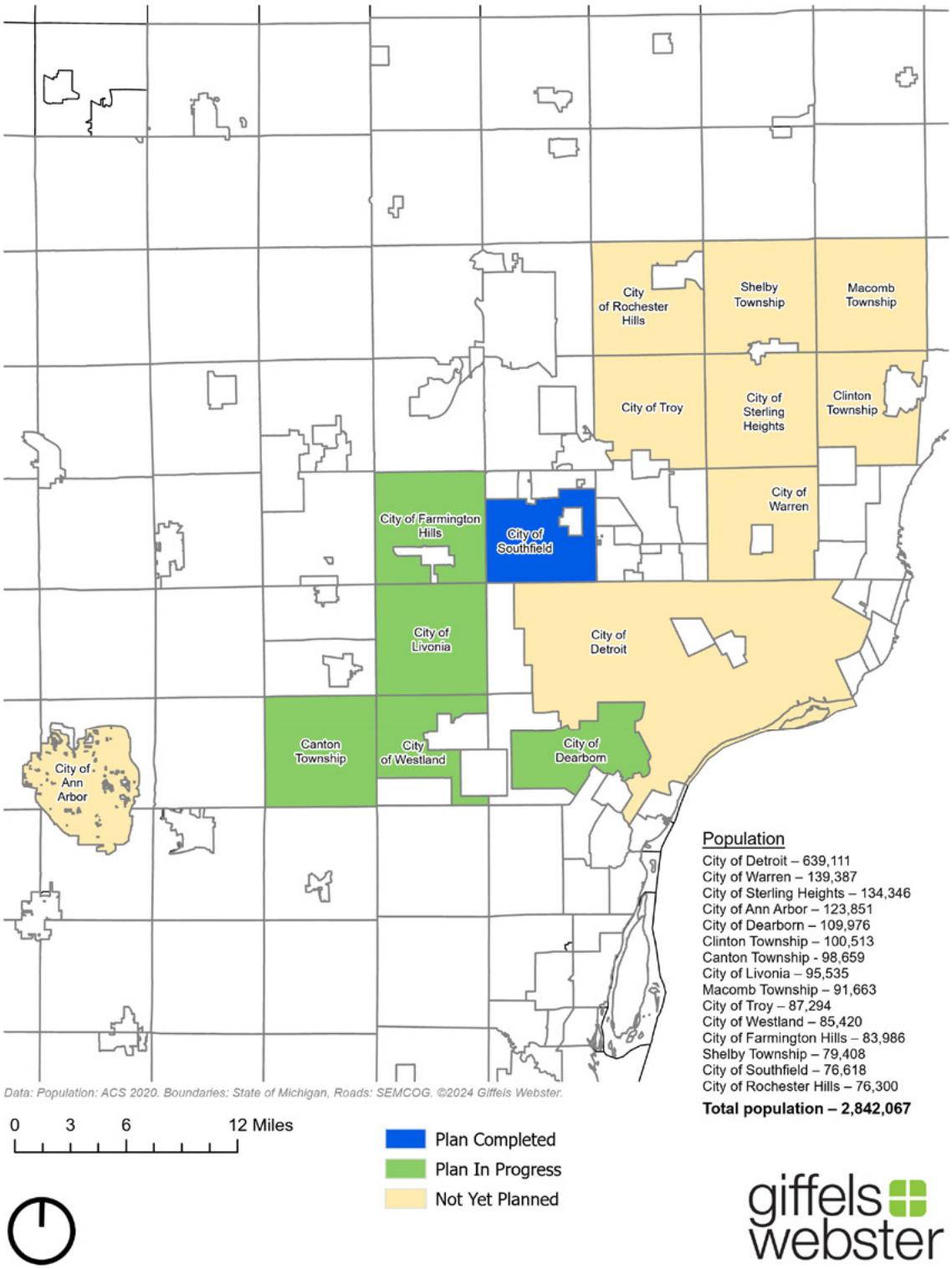
Introduction

This Blueprint, funded by the U.S. Climate Alliance, builds on a study conducted in Southfield, MI, which outlines how a city can eliminate food waste. It is one of fifteen Blueprints being developed for the most populated communities in Southeast Michigan (See Map 1 for all participating cities). Each provides a detailed, actionable, and turn-key set of strategies to support bold action toward meeting the MI Healthy Climate Plan's goal of reducing food waste by 50% by 2030.

Achieving this goal will require the complete elimination of food waste sent to landfills in these communities. Working toward zero food waste—rather than simply reducing it—offers a clear, concrete, and measurable target. Focusing efforts on the fifteen most populated cities also enables economies of scale in infrastructure and services, while driving a broader culture shift.

This Blueprint lays out the steps needed to create the conditions, build the infrastructure, and provide the support systems necessary to reach zero food waste across all food system sectors in Livonia. Additional information about this regional approach—and what's needed at the regional level versus the city level—can be found in the Regional Food Waste Elimination Blueprint.

MAP 1. Southeast Michigan Food Waste Elimination Project - Participating Cities



Why food waste?

According to Project Drawdown,[1] addressing food waste is the number one solution to reduce heat-trapping gases responsible for global warming. Food waste is food that is ultimately not consumed by humans and is discarded, including food that is safe to eat and food that is unsafe to eat or inedible. Not only can addressing food waste have a big impact on greenhouse gas emissions, but it is something that everyone can contribute to and benefit from. It has the potential to improve food security, saving each person $782 a year just by eating the food they already purchased and not throwing it in the trash. For a family of four, that's more than $3,000 in saviings each year. It can improve air and water quality, improve soil health, and build resilient communities. The benefits of reducing food waste are so significant that local and state governments, globally, have begun to implement strategies to address food waste.

11TH
MOST POPULOUS CITY IN THE STATE OF MICHIGAN

95,535
RESIDENTS
(125,723 DAYTIME POPULATION)

35.9
SQUARE MILES

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

1 https://drawdown.org/solutions/table-of-solutions

Community Profile: Livonia

Location

Livonia, an outer-ring suburb to the City of Detroit, is located in Wayne County in southeast Michigan. The city does not abut Detroit directly, but is only about 30 minutes from downtown Detroit.

Demographics

RACE

4.3%
BLACK

82.6%
WHITE
(13.1% OTHER)

EDUCATION (25+)

4.9%
WITHOUT H.S. DIPLOMA

95.1%
H.S. GRADUATE OR HIGHER

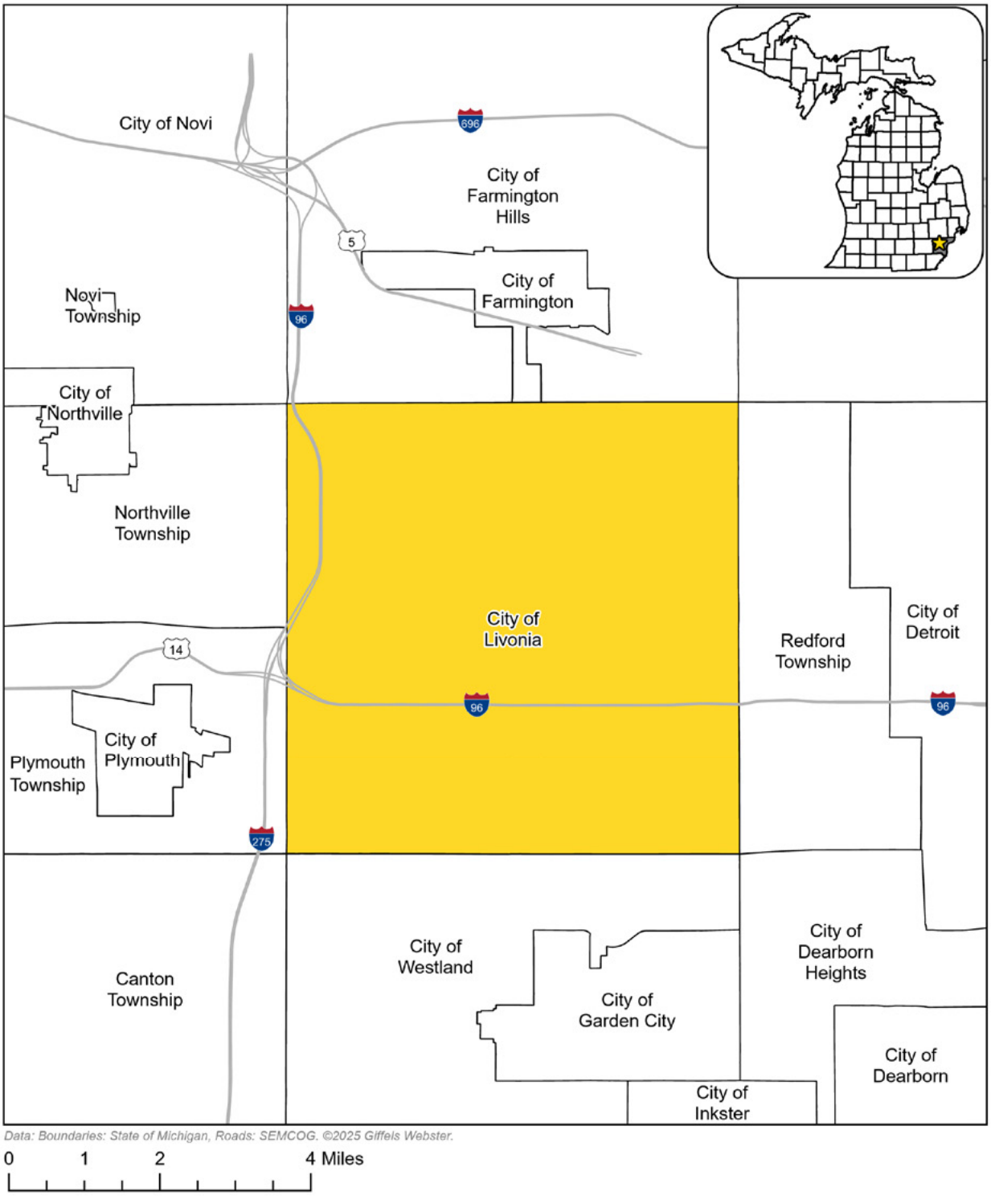
$96,317
MEDIAN HOUSEHOLD INCOME

4.7%
POPULATION IN POVERTY

5.7%
OF HOUSEHOLDS

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

MAP 2. Location: Livonia



Households

37,716
HOUSEHOLDS

2.46
AVERAGE HOUSEHOLD SIZE

37%
HOUSEHOLDS WITH SENIORS (65+)
(13,812)

14%
HOUSEHOLDS WITH SENIORS LIVING ALONE
(5,328)

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

Housing

38,976
HOUSING UNITS

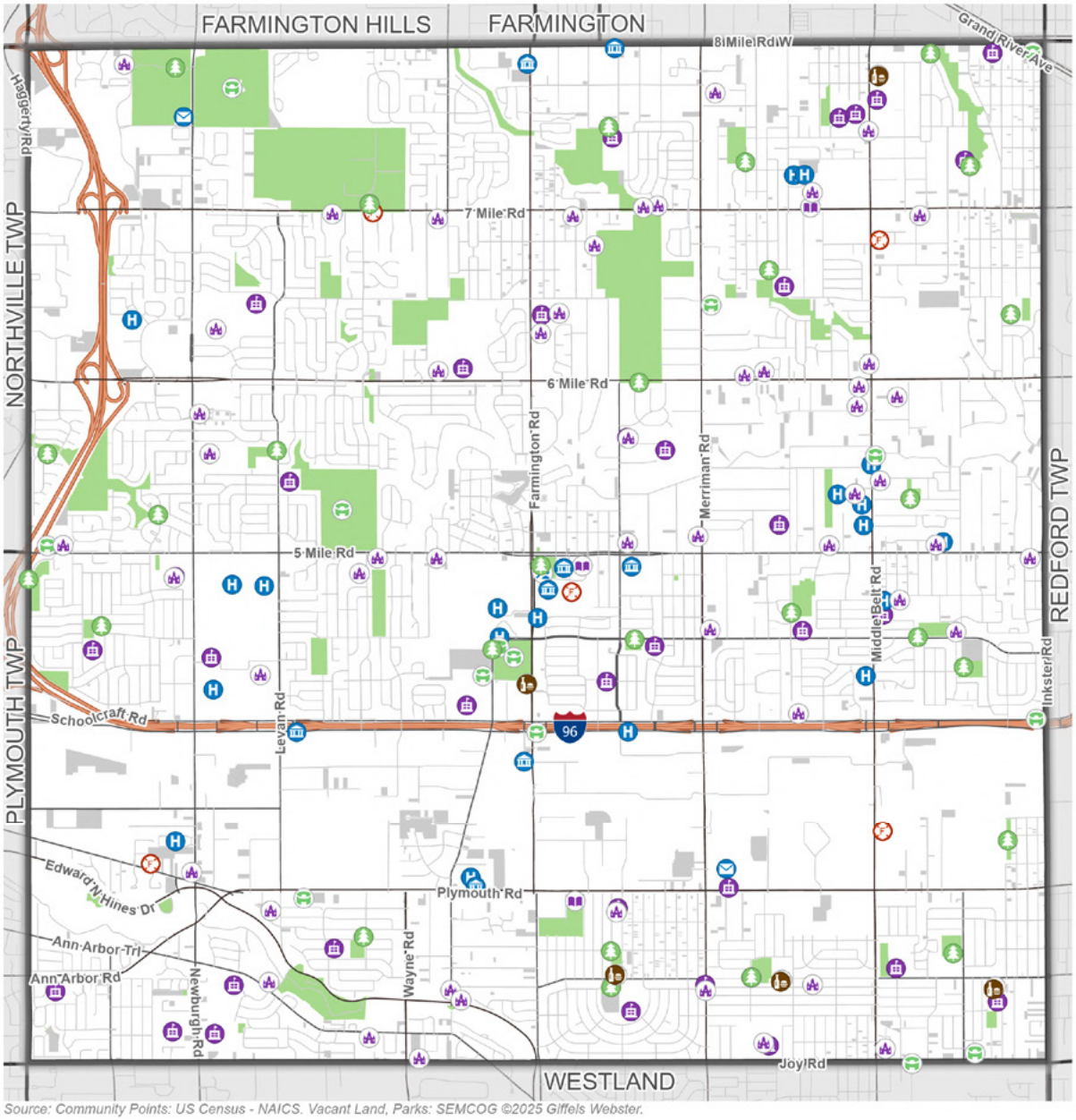
86.2%
SINGLE-FAMILY UNITS
(33,614)

13.5%
MULTI-FAMILY UNITS
(5,251)

0.3%
MOBILE HOMES OR OTHER
(111)

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

MAP 3. Community Facilities: Livonia



Community Facilities

Map 3 shows community buildings and facilities in Livonia. Some of these locations could be large food waste generators, such as hospitals, schools, and colleges.

Food Access Sites

Based on NAICS codes available through the U.S. Census Bureau there are over 419 food access points in the city, with most of them being restaurants. In addition, there are 20 full-service grocers in Livonia, and another 26 limited assortment grocery stores. As shown on Map 4, grocery stores, food pantries, and schools are generally distributed evenly throughout the city, with no major clustering. However, there is a notable cluster of three schools on the north side along Middlebelt Road, located next to a food pantry. This area could represent a strong opportunity zone. In contrast, the west side of the city has significantly fewer grocery stores and food pantries compared to the east side.

TABLE 1. **Food Access Points: Livonia**

Facility	Count
Banquet or Catering	11
Hotel	17
Restaurant	237
Full-service	87
Limited-service	126
Coffee shops	24
School or Place of Worship	43
Shared Kitchen	0
Limited Assortment Grocery (convenience/corner store)	26
Full Service Grocery	20
Pantry	4
Hospital Cafeteria	1
Senior Living	19
Sports Facility	0
Food distributors and wholesalers	11
Food manufacturers and processors	30
Total	**419**

Source: NAICS Codes, 2024

The United States Department of Agriculture (USDA) defines a food desert as a community or neighborhood with limited to no access to affordable and nutritious food.[1] More descriptively, an urban community residing more than one mile, or a rural community residing more than 10 miles, from a supermarket or large grocery store resides in a food desert.[2] Therefore, a major challenge that Livonia residents experience is limited access to affordable, nutrient-dense food.

1 U.S. Department of Agriculture Economic Research Service (ERS). (2012). ERS Report Summary - Characteristics and influential factors of food deserts. https://www.ers.usda.gov/webdocs/publications/45014/30939_err140_reportsummary.pdf?v=0

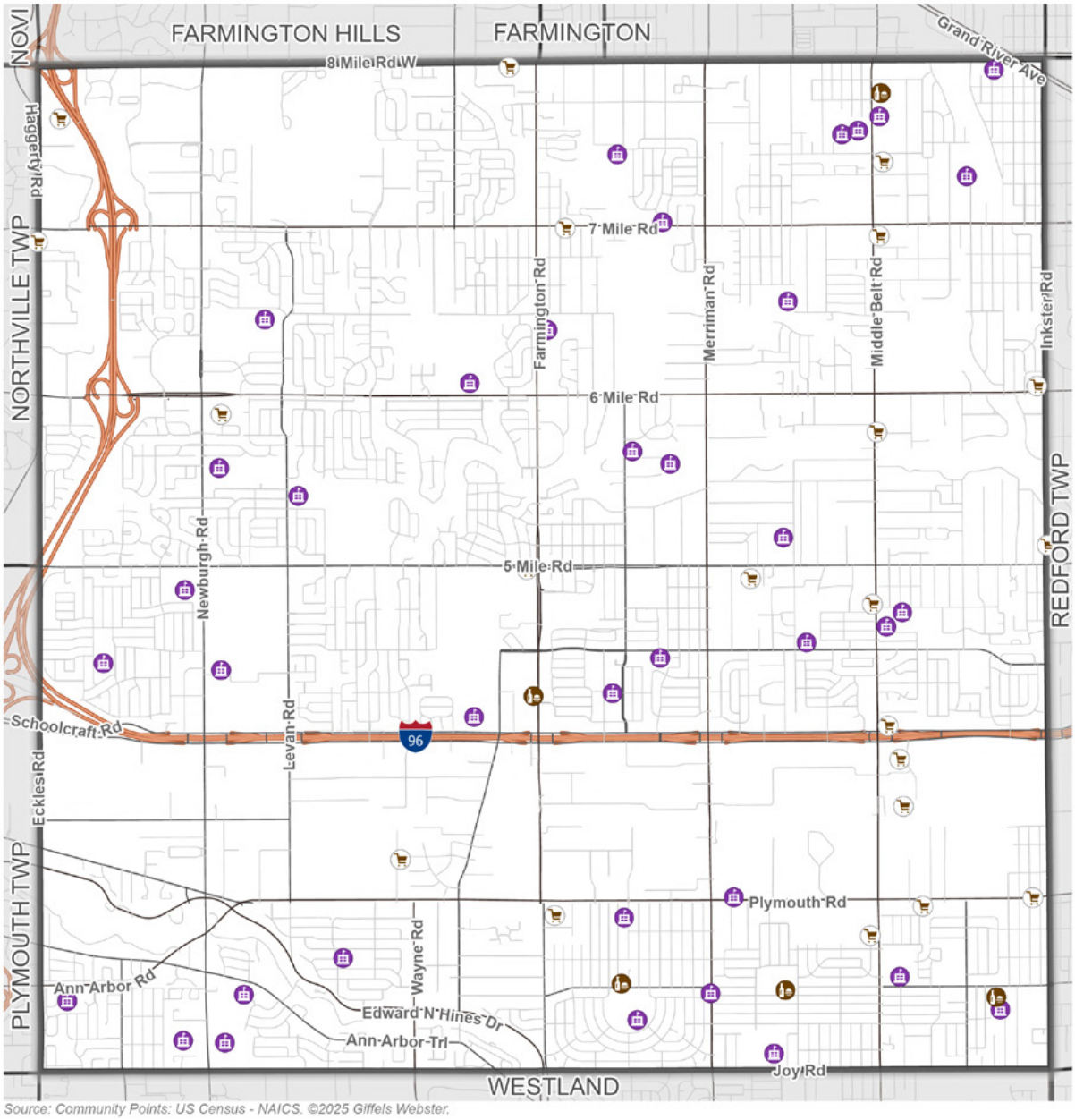
2 Congressional Research Service (2021). Defining low-income, low-access food areas (Food deserts). https://crsreports.congress.gov/product/pdf/IF/IF11841

Pantries

There are four identified food pantries and self-serve shelves located in Livonia. A list of the pantries and their contact information can be found in Appendix G. Make Food Not Waste visited Samaritas, a human services organization that goes beyond food distribution by connecting individuals and families with affordable housing, foster care, and other essential support services. The site, located in Westland, supports 31 food distribution locations, including one in Livonia. During the visit, it became clear that each site operates differently depending on its space, volunteer availability, and distribution model. Some use pre-boxed food, others have volunteers shop on behalf of clients using their lists, while some allow clients to shop for themselves.

While Samaritas has the capacity to accept more food donations, it's unclear whether all individual pantries can do the same. There is consistent demand for protein and fresh produce, especially frozen items like fish. Unusual canned vegetables, like mushrooms, tend to be unpopular. Pre-made meals are a high-interest item, providedthey are both high-quality and convenient. Currently, most of Samaritas' food is purchased through USDA/TEFAP programs, with some supplemental support from Gleaners and Forgotten Harvest. The needs of pantries is uncertain now given uncertainty with funding and food support coming from the federal level, although they are anticipating the need for food assistance to increase and the level of support to decrease. Right-sizing the amount and type of food will likely be an ongoing conversation, especially in the coming months as the effects of changes at the federal and state level start to be felt locally. The recommendation to use a "food sourcer" can assist in filling these gaps.

MAP 4. Food Access: Livonia



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FOOD ACCESS
LIVONIA

MAKE FOOD NOT WASTE

Schools

While Livonia residents attend a variety of schools both within the city and beyond, the city itself is home to 50 schools total. Table 2 below provides a summary of the types and levels of schools in Livonia and Map 4 shows their location within the city. The city has two institutions of higher education: Schoolcraft College and Madonna University.

TABLE 2. Number and Types of Schools: Livonia

Grades	Higher Education	Day Care	Independent Charter	Montessori	Private	Livonia Public Schools	Total
Day Care		5					**5**
K-5				2	8	16	**26**
K-8			2	1	1	1	**5**
6-8			1			4	**5**
9-12			1			6	**7**
Higher Ed	2						**2**
Total	**2**	**5**	**4**	**3**	**9**	**27**	**50**

A full list of schools and contact information is listed in the Appendix.

Food Waste in Livonia

According to NRDC's Food Waste and Rescue Potential Calculator, 20,730 tons of food waste are produced in the city each year. This food waste is estimated to generate 11,459 tons of CO2 emissions per year[1]. This would require planting over 477,000 trees every year to offset the greenhouse gases associated with sending food waste to the landfill[2]. The social cost of the greenhouse gases associated with food waste in Livonia is estimated to be almost $2 million. This is the additional economic costs ($190/ton of CO2) associated with the impact of additional greenhouse gas emissions and reflects costs associated with long-term effects on human health, agriculture, and the environment.

Further, edible food worth $6.7 million could be rescued and help support the 19.5% of Wayne County residents facing food insecurity[3]. In Livonia, at least 3,738,320 pounds of food waste was rescued in 2024 from food-based businesses. This was accomplished through Metro Food Rescue's and Forgotten Harvest's pickup efforts.

Relatedly, several of the nearby landfills are reaching their capacity. The 2024 Report of Solid Waste Landfilled in Michigan provided by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) estimates that the Arbor Hills Landfill and the Sauk Trail Hills Landfill only have 3 and 7 years of capacity left, respectively. These are the closest landfills to Livonia that accept municipal solid waste, and likely where most of their trash, including food waste, ends up. With food waste accounting for approximately one-quarter of all landfill waste[4], diverting food can extend the lifetimes of existing landfills and reduce the need to site new ones.

20,730
TONS OF FOOD WASTE PER YEAR
(= 30M POUNDS)

4.7%
POPULATION IN POVERTY

5.7%
OF HOUSEHOLDS

1 EPA's WARM Tool; based on US tons of food waste

2 48 pounds of greenhouse emission capture per 1 mature tree via The Value of Trees | Arbor Day Foundation.

3 MDHHS 2020. PCNA Overall Rank 1 - Wayne County Profile.

4 Based on the United States Environmental Protection Agency's 2025 report *Quantifying Methane Emissions from Landfilled Food Waste*

3.7M

LBS OF FOOD RESCUED FROM BUSINESSES IN 2024

(3,738,320)

$2M

SOCIAL COST ASSOCIATED WITH LIVONIA'S FOOD WASTE

8%

OF GLOBAL GREENHOUSE GAS (GHG) EMISSIONS COME FROM FOOD WASTE

477,458

TREES REQUIRED TO OFFSET GHG ASSOCIATED WITH FOOD WASTE EACH YEAR

$6.7M

VALUE OF FOOD RESCUE

FIGURE 1. **Food Waste and Rescue Potential: Livonia**

FOOD WASTE & RESCUE POTENTIAL IN LIVONIA

By tackling food waste, cities can rein in climate emissions, reduce municipal waste costs, and help relieve community food insecurity.

As part of Make Food Not Waste's Every Bit Counts initiative, we have estimated a city-wide baseline level of food waste generation and assessed the potential for increased rescue of surplus food. This snapshot can help identify opportunities for policy, outreach, and interventions to achieve the City's goals.

KEY FACTS

40% of all food in the U.S. is wasted

15% food insecurity in Wayne County

20K tons of food waste in Livonia

$6.7M value of food rescue potential in Livonia

8K tons of CO2 from food waste in Livonia

$1.6M social cost of CO2 emisisons in Livonia

8% of global greenhouse gas emissions come from food waste

FOOD WASTE IN LIVONIA

Though actual measurement of wasted food is optimal, waste audits can be costly, time-consuming, and sometimes impractical. The model for calculating these estimates using proxy metrics was identified from a range of national sources and NRDC's original research.

We estimate **20,730 tons of food waste** are generated in Livonia each year. The residential sector is the highest food waste producing sector generating **almost 9,000 tons of food waste** per year.

FOOD WASTE GENERATED PER SECTOR PER YEAR

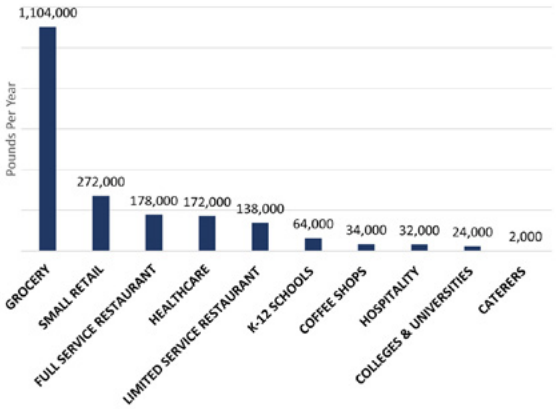
1% K-12 SCHOOLS
1% HOSPITALITY
1% EVENT & RECREATION FACILITIES
1% COLLEGES & UNIVERSITIES
4% HEALTHCARE
4% FOOD WHOLESALERS & DISTRIBUTORS
5% FOOD MANUFACTURING & PROCESSING
8% GROCERY & MARKETS
33% RESTAURANTS
42% RESIDENTIAL

FOOD RESCUE OPPORTUNITIES

Donation of surplus food serves an important role in meeting the immediate needs of those facing food insecurity. The ambitious scenario used realistic assumptions and existing donation patterns to estimate an ambitious but attainable expansion of food donation efforts.

While restaurants represent a larger portion of overall wasted food, much of that waste occurs after the food is served and is unsuitable for rescue.

MAXIMUM POTENTIAL SAVINGS SCENARIO



Eliminating Food Waste: Benefits for Livonia

By keeping food waste from being landfilled, the City of Livonia can expect the following direct benefits each year:

- For residents: $74.7 million in financial savings from prevention[1]
- For restaurants: $1.7 million in food costs savings[2]
- For the community: Over 1.6 million meals for residents facing food insecurity, valued at $6,699,760[3]
- For the planet: 11,459 tons of CO2-equivalent emissions prevented[4].

In addition to the direct benefits, Livonia can expect the following indirect benefits:

- Advancement of goals outlined in Livonia Vision 21, the document that guides future decision making in the city (see Table 3).
- Reduced need for new or expanded landfills
- Increased compost supply to meet demand for healthy soil and carbon sequestration
- Volunteer opportunities for residents to support education, outreach, and rescue efforts
- Improved air quality for communities residing near landfills
- Helping the State of Michigan accomplish the food waste reduction goals in the MI Healthy Climate Plan.

---

1 This is based on 109,976 residents and a savings of $782 per person per year according to ReFED.

2 This is based on a mid-sized restaurant's estimated yearly savings of $7,200 (expected that 4% of average yearly food cost can be prevented through interventions) across 237 restaurants.

3 Based on 2,018,000 pounds of food that can be donated and Feeding America's conversion rate of 1 lb of food being equal to 0.83 meals and the average meal costing $4.00 in Wayne County.

4 Based on the EPA's Carbon Calculator where all food waste is either prevented or diverted from landfill to composting.

Livonia Vision 21, the city's master plan and guiding document for future growth and development, includes several goals and objectives that can be supported through this food waste management plan. These goals and objectives are listed below:

TABLE 3. Master Plan Goals and Objectives

Sustainability and Resiliency	
Goal	**Objective**
Support land use planning efforts that encourage environmentally-friendly development. Facilitate efforts that promote air quality, greenhouse gas reduction, and energy and water conservation.	3.2 Conserve and restore open spaces, waterways, tree canopies, and other natural resources to increase resiliency, adaptability, and biological integrity.
	3.3 Commit to mitigating the City's climate impacts, including reducing energy, land, and water consumption and improving outdoor and indoor air quality.
	3.4 Think beyond first costs and consider long-term, cumulative impacts when making infrastructure and policy decisions.
Economic Development	
Retain and promote Livonia's diverse mix of commercial and industrial sues in defined locations throughout the City that provide desired employment, goods, and services for residents, visitors, and workers alike. Encourage economic development that responds to the changing economy while positioning the City to enhance its tax base and maintain a stable and diverse revenue source.	5.1 Assist the education and business communities in developing a competitive workforce to provide job skills demanded by the regional marketplace and employment opportunities for local graduates.
	5.2 Focus on retaining existing businesses and industry.
Infrastructure	
Invest in improving and maintaining City infrastructure to ensure that City services can be available for all current and future development. Implement innovative and effective strategies for maintenance and improvement of the stormwater, wastewater, solid waste, and recycling systems to ensure the health and safety of Livonia's residents.	7.1 Invest in and implement comprehensive and innovative urban water management, green infrastructure practices, and renewable energy systems.
Urban Design	
Achieve a positive and lasting community image by encouraging high quality and durable materials, energy efficient buildings, and current best practices for human scale and aesthetic character. Strive to incorporate design elements that contribute to a sense of place within the community.	8.3 Enhance landscaping and site design through redevelopment to enhance the sense of place along major strip corridors.

MENU
ROAST TURKEY
GLUTEN
VEG STEW - VEGAN
COCONUT MILK
VEGGIE RICE
VEGAN
FRUIT COBBLER
GLUTEN

The Blueprint

The Blueprint

Guiding Principles

This Blueprint takes a proven societal change approach and applies it in a novel way to food waste reduction in two ways.

First, it seeks to not only reduce food waste, but completely eliminate it from being sent to landfills. This approach establishes a very clear and concrete objective, requiring robust interventions that cannot be misinterpreted as reduction efforts being sufficient if food waste continues to be generated throughout the city. Second, it seeks to create a cultural and behavioral shift that makes wasting food abnormal and socially unacceptable. The strategies described in this plan support this culture shift and facilitate ways that people can engage with the initiative to reduce their own food waste for collective impact.

The following are the guiding principles for this Blueprint:

1. This Blueprint is based on the EPA's Wasted Food Scale, which highlights prevention, rescue, and composting as preferred solutions to food waste. It assumes that change requires multiple strategies and solutions, and consequently, collaboration between multiple stakeholders and partners. The strategies in this plan span the continuum of the Wasted Food Scale. Additional strategies that were considered but not included in the plan, as well as rationale for their exclusion can be found in Appendix F.
2. Further, this Blueprint is grounded in the Motivation-Ability-Opportunity framework. This approach emphasizes the combination of awareness campaigns, skill development, and infrastructure development and uses these as guides for the strategies to be implemented at the individual person level.
3. This Blueprint also uses the Behavioral Economics framework to consider familial, organizational, and city-level levers that can be used to influence behavior change related to food waste. These levers are economics, behavior, policy, and technology. The strategies used in this Blueprint are mapped by these levers in Figure 3
4. This Blueprint also leverages economies of scale at both the city and regional levels. City-wide food waste strategies, like curbside composting or drop off sites, are more effective than individual efforts alone. With support from the city and MFNW, shared resources and infrastructure can help more residents reduce and divert food waste. See the Regional Food Waste Elimination Blueprint for more details on the regional approach.
5. This Blueprint relies on past pilots, studies, and established best practices to determine the course of action that will lead to complete food waste reduction and diversion.
6. Finally, this Blueprint realistically estimates the total costs necessary to achieve the goal of zero food waste in Livonia.

FIGURE 2. **EPA's Wasted Food Scale**

Source: United States Environmental Projection Agency

FIGURE 3. Strategies by Lever of Behavior Change

Economics

- Implement a prevention and diversion communication campaign for spaces where food is outside of homes
- Implement a household food waste prevention communication campaign
- Support backyard and community composting by drafting and adopting policies for backyard composting, designing a guide for backyard composting, building demonstration sites, developing a toolshare, and bulk purchasing backyard composting supplies for resident use
- Continued support for training County Health Inspectors and support for food rescue and distribution operations
- Increase capacity of food rescue organizations and food pantries
- Engage Wayne County Health Inspectors

Policy

- Develop policies related to managing food waste, such as:
  - Creating standards for backyard and community composting
  - For using locally created compost in city projects
  - Requiring city-sponsored and non-city sponsored events to donate excess food and have food scrap collection bins
  - Requiring that all special events donate excess food and have food scrap collection bins
  - Update site development standards to include food waste management in plans
  - Develop mandatory food waste reduction protocols for municipal buildings and facilities

Create a project implementation team that includes:

- A project manager
- A commercial food waste elimination coordinator
- A residential food waste elimination coordinator
- A schools food waste elimination coordinator
- Partner experts
- Community leads and supports

Tech

- Evaluate the effectiveness of prevention and diversion strategies
- Increase capacity of food rescue organizations including capacity for planned and unplanned rescue opportunities
- Increase capacity for rescued food to be donated to existing community resource hubs, pantries, multi-family apartment buildings, and sites throughout the city
- Create a food waste tracking portal
- Understand food waste at each site and opportunities for improvement via a resource assessment, food waste audits, and food surveys
- Reduce likelihood of contamination of food scrap streams via visual cues for sorting waste and practice sorting waste
- Develop an online resource hub
- Monitor and evaluate progress towards 100% elimination goal and outcomes from prevention and rescue activities
- Support businesses in managing food waste from prevention to diversion
- Provide technical assistance and infrastructure support for prevention and diversion in offices and small businesses by engaging employees and providing liners for countertop caddies, office kitchen dehydrators, and the MFNW technical assistance program

Behavioral

- Place food scrap collection bins and caddies in municipal facilities and public spaces
- Continue to learn and receive feedback through an advisory committee
- Create ways for people to make a public commitment
- Help new residents integrate into a culture of zero food waste
- Gain commitment to address food waste in schools
- Provide all households with food waste prevention toolkits
- Host a citywide food waste summit with tracks for residences, businesses, and schools
- Engage residents on the issue of food waste through speaking opportunities, pop-ups and demos at community events, training residents in ways to safely reduce food waste, tracking food waste rates compared to other households, and hosting a food waste reduction competition
- Provide liners for countertop caddies to support residents in sorting food scraps
- Prevent contamination of household food scrap streams via clear signage on countertop caddies, organics recycling carts, and at food scrap collection sites
- Create a recognition program for those who are sorting well
- Implement communication campaigns and promote them via website, online resource hub, mailers, city newsletter, social media, local press, and local champions
  - Prevention campaign
  - Household food waste diversion campaign
  - Maintenance campaign

Integration of Learnings

It is expected that new information and insights will arise as these initial steps are completed and interwoven into the day-to-day life and happenings in Livonia. Recognizing these learnings, integrating them as appropriate and feasible, and recording them for consideration for other communities, will be an important component of this project. The plan will be posted on the city's food waste dashboard website along with a list of updates to the plan as new information is received. The original plan will still be available for download. The site will also have a platform for anyone to submit ideas to improve the plan and/or its implementation.

Expected Plan Impacts

It is important to understand how the impacts of the changes proposed in this plan can impact costs and greenhouse gas (GHG) reductions. The expected impacts found in this plan have been calculated using the most recent demographic values, estimates from research on state-based food waste costs and savings, and leaders in food security, among others. The impact values show the highest potential values, assuming full participation by all parties and that all food diverted to that stream can be used for the purpose being discussed.

Future Implications of This Project

This plan builds off the pilot Blueprint created for the City of Southfield and is part of a 15-community strategy to meet Michigan's food waste reduction goal. This plan and the others in its cohort have the potential for future applications and work both in terms of plan implementation and future studies and plans, including additional citywide plans and the state-required county Materials Management Plans. This plan will be used as a model to create similar food waste elimination plans for other communities in Michigan and possibly more broadly.

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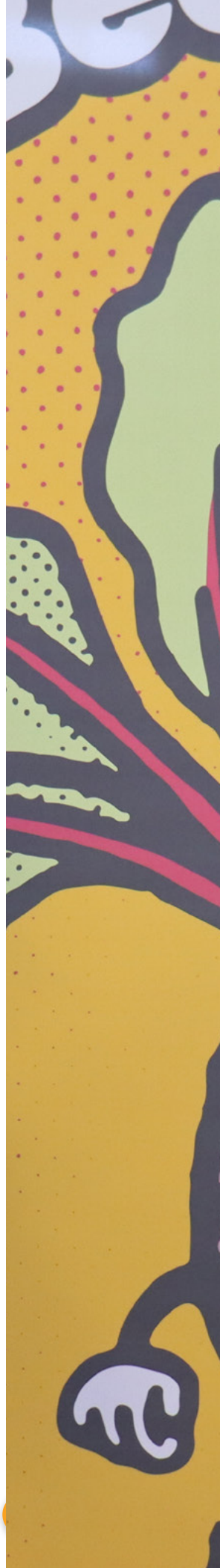


Supporting Strategies

To get to zero food waste in Livonia, support for no food waste needs to be everywhere in the city so that regardless of where you are, reducing food waste is easy, doable, and something everyone is expected to do. These supporting strategies are the foundation of the rest of the activities in this Blueprint and will show leadership by the city on this issue thereby facilitating buy-in and effectiveness of the other strategies presented.

An overarching communication strategy that can be tailored to the population and various sectors in Livonia, and throughout southeast Michigan, has been identified as key to creating a culture of zero food waste in the city. A one-stop resource hub for all things food waste-related will support this, reducing the burden on residents, business owners, and other stakeholders to find information and strategies. Adoption of policy at the city and advocacy at the state for food waste-related strategies is also needed. A community advisory committee and monitoring system will help the project team understand how interventions are being perceived by stakeholders in the community and make real-time adjustments accordingly. A plan to measure and evaluate progress towards goals is also discussed in this chapter as well as identification of staff to coordinate and manage all aspects of implementation. Finally, a risk management strategy provides a guide for how expected challenges will be addressed.

Supporting Strategies

01 Communication campaigns 47
02 Online resource hub 57
03 Food waste policy 58
04 Continuous feedback and learning 61
05 Monitoring and evaluation 62
06 Project implementation team 63
07 Risk management 64

An enthusiastic atendee ready to Beet Food Waste at the 2024 Community Feast

TABLE 4. **Timing of Activities: Supporting Strategies**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01 **Communication campaigns**												
01.A **Overall campaign: Creating a culture of zero food waste in Livonia**												
01.A.1 Promote the campaign website and online resource hub via mailers sent to residences and businesses												
Develop sub-page for Livonia												
Develop mailers (mail and online)												
Share mailers (via mail and online)												
01.A.2 Promote the campaign through the city magazine and newsletter												
Develop and share material												
01.A.3 Promote the campaign through the city's social media and podcast												
Develop and share material												
01.A.4 Promote the campaign through flyers and printed signs												
Develop and share material												
01.A.5 Promote the campaign through the press												
01.A.6 Promote local champions												
Identify local champions												
Train local champions												
01.A.7 Create ways for people to make a public commitment to address food waste												
Create yard signs, flags, and door signs												
Create online pledge												
Promote pledge												
Distribute signs and flags												
01.A.8 Host a citywide food waste summit												
Planning												
Promotion												
Event												

TABLE 4. **Timing of Activities: Supporting Strategies (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01.B Household prevention communication campaign												
01.B.1 Household prevention campaign												
Design materials (email, print, and social media)												
Test materials												
Mail materials												
Promote the campaign through the city newsletter												
Promote the campaign through social media												
Promote the campaign through flyers												
Promote the campaign through the press												
Coordinate with TGTG for targeted ads in Livonia												
Targeted ads in Livonia for TGTG												
Support the Buy Nothing Groups in creating guidelines for food sharing												
01.B.2 Grocery store signage												
Design materials												
Post materials												
01.C Household diversion communication campaign - drop off collection												
Promote the diversion campaign via mailers												
Design materials												
Mail materials												
Promote the campaign through the city newsletter												
Develop and share material												
Promote the campaign through social media												
Develop and share material												
Promote the campaign through the press												
01.D Household diversion communication campaign - curbside collection												
Promote curbside via mailers to single family residential												
Design materials												
Mail materials												
Refresh campaign materials of what can be composted												
Promote updated drop off and site locations to multiple family housing, HOAs, and houses that cannot accommodate a cart												

TABLE 4. **Timing of Activities: Supporting Strategies (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Design materials												
Mail materials												
Post materials at previous locations												
01.E **Prevention and diversion communication campaign for spaces where food is outside of homes**												
Promote the campaign via mailers												
Design materials												
Mail materials												
Promote the campaign via social media, city newsletter, and press												
01.F **Maintenance communication campaign**												
Ongoing communication to support a zero food waste culture												
Promote the campaign through the city newsletter												
Develop and share material												
Promote the campaign through social media												
Develop and share material												
Promote the campaign through flyers												
Develop and share material												
Promote the campaign through the press												
Provide ongoing education via presentations, webinars, demos, and workshops												
02 **Online resource hub**												
Develop hub												
Cross-share resources with county health department												
Maintain hub												
03 **Food waste policy**												
03.A **Draft and adopt language for policy on using locally created compost in city projects**												

TABLE 4. **Timing of Activities: Supporting Strategies (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
03.B Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served												
Test feasibility and receptiveness of policy												
Develop resources to encourage zero food waste practices												
Promote resources to encourage zero food waste practices												
Review successes and challenges associated with pilot												
03.C Require that all special events donate excess food and have food scrap collection bins if food is served												
Test feasibility and receptiveness of policy via a pilot												
Develop resources to encourage zero food waste practices												
Promote resources to encourage zero food waste practices												
Review successes and challenges associated with pilot												
03.D Update site development standards to include food waste management in plans												
03.E Develop mandatory food waste reduction protocols for municipal buildings and facilities												
04 **Continuous feedback and learning**												
04.A Resident advisory committee												
Develop application process												
Promote committee and share applications												
Select committee members												
Quarterly meetings												
04.B Internal working group												
04.C Integrate learnings												

TABLE 4. **Timing of Activities: Supporting Strategies (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
05 Monitoring and evaluation												
05.A Measuring the 100% elimination goal												
05.A.1 Conduct audits of trash receptacles												
Register sites for audits												
Conduct audits												
Report results												
05.A.2 Conduct a waste characterization study												
Identify a study provider												
Conduct study												
Review findings												
Make adjustments to plan and programs as needed												
05.A.3 Review hauler metrics												
Hauler report provided												
Make adjustments to plan and programs as needed												
05.B Measuring outcomes from prevention and rescue activities												
Identify evaluation team												
Evaluation												
Project reporting												
06 Project implementation team												
06.A City champion												
06.B External project partners												
Post job positions												
Interview and select candidates												
Onboarding												
Project management and implementation work												

An example poster for the initial communication campaign, “Dumb Problem. Easy Solution.”

The following strategies will set the stage and support the strategies used to address food waste by the various generators in the City:

01 Communication campaigns

This strategy includes a broad communications campaign focused on raising awareness and motivating action, followed by materials for various food waste prevention and diversion strategies across groupings of food waste generators: residents, food-based businesses, schools, offices, and public facilities and events.

01.A Overall campaign: Creating a culture of zero food waste in Livonia

Completely eliminating food waste in Livonia will require everyone, everywhere, all the time, to prevent food waste and divert it from landfills. An overarching communication campaign that raises awareness of the issue and motivates everyone to participate is needed. This campaign will set the stage for the initiative and will be seen throughout the city and southeast Michigan. The themes and style of the campaign will be used throughout southeast Michigan and be tailored to Livonia and the other fifteen communities focused on eliminating food waste. Campaign materials will be shared via the city's website, social media platforms, Connections magazine, Livonia Today, in the press, on the city's podcast, on signs in schools and retail stores, and through any other opportunities or platforms that are available. It will also be seen at events with neighborhood ambassadors and a citywide summit.

In order to develop a strong communications campaign for this project, the team reviewed other food waste reduction campaigns and interviewed campaign managers from other areas in the U.S. while completing the Blueprint for Southfield.

The name of the initiative is "Every Bit Counts." This title underscores that eliminating food waste requires everyone's participation as well as all of the solutions from prevention to organics recycling. Information about "Every Bit Counts" will live on the MFNW website and will include general information about the initiative and the need to prevent and divert food waste. A sub-page for Livonia-specific resources will be linked on the Every Bit Counts web page and will be accessible by visiting LivoniaCounts.org. As more communities are brought into Every Bit Counts, sub-pages will be added with the resources and information specific to their plans and work.

With this foundation in place, the initiative will have an outreach campaign that will change over time to keep the messaging consistent but fresh and aligned with the phase of implementation that the community is at. The initial campaign, created by Modish Creative Co. and designed to raise awareness of the issue, is titled "Dumb Problem. Easy Solution." The campaign rests on the following concepts:

- Food waste is considered by many to be the "world's dumbest environmental problem" because landfilled food waste causes significant harm while being relatively easy to avoid.
- People seek entertainment, often tuning out messages that feel moralizing, negative, or overly educational.

The "Dumb Problem. Easy Solution." campaign takes a humorous approach to draw people into the issue and encourage them to become involved. This campaign theme will be applied to all communication materials. Examples of the web page, signage, social media, and direct mail are included throughout this chapter of the Blueprint. Future campaigns within the Every Bit Counts initiative will focus on education around prevention and donation strategies, and later landfill diversion strategies.

An example brochure for the initial communication campaign, "Dumb Problem. Easy Solution."

01.A.1 Promote the campaign website and online resource hub via mailers sent to residences and businesses

Two mailers will be sent to all addresses in Livonia at the launch of implementation of this plan that will introduce the campaign, raise awareness about the issue of food waste, provide resources, and generally prime the community for the overall initiative. As described in Strategy 02 an online resource hub for one-stop-shopping of food waste information, resources, and support will be linked to the city's website and shared through social media. This resource hub will follow the look and feel of the rest of the campaign assets so it is obvious that this site supports the other outreach efforts in the community. Getting stakeholders familiar with the site will be important, as this will be the go-to place for information related to the entire initiative.

01.A.2 Promote the campaign through the city magazine and newsletter

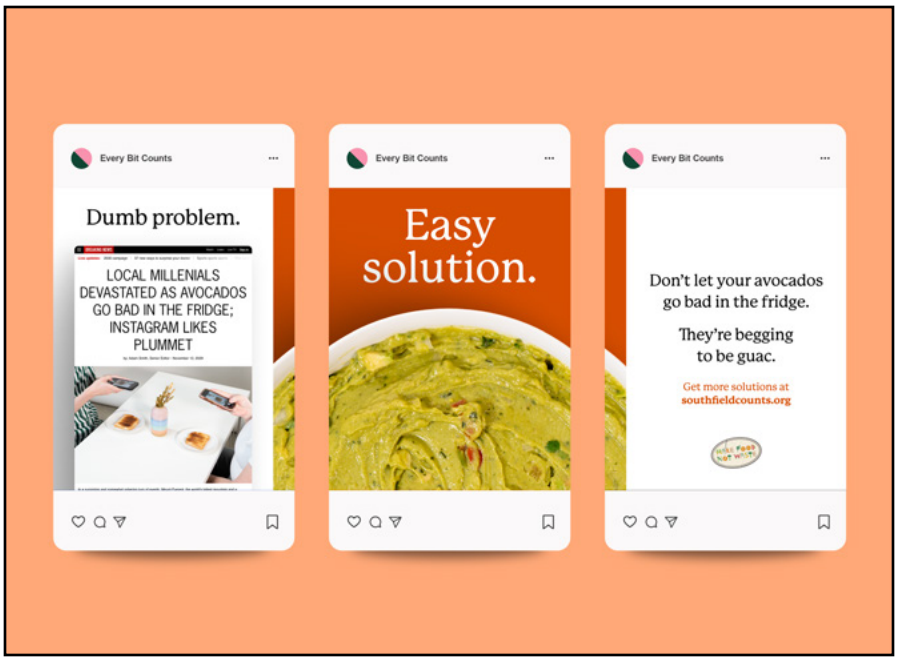
Information about the initiative, the city's progress towards its food waste elimination goals, links to resources, and endorsements from local leaders championing the project will be shared through the city's Connections magazine and Livonia Today.

An example mailer for the initial communication campaign, "Dumb Problem. Easy Solution."

01.A.3 Promote the campaign through the city's social media and podcast

Social media (Facebook, Instagram, TikTok, YouTube) and other social platforms such as NextDoor will be utilized to reach residents and other community members.

The city's podcast, "Livonia on Air" launched in the fall of 2024 and provides information about city services. Topics have included voting, new trash and recycling carts, a design contest for library cards, snow removal, and the annual Livonia Night of Lights event. Episodes range from twelve to twenty-five minutes and are hosted on the city's YouTube channel. This could be used as another means to reach people and a great way to demonstrate various food waste prevention and diversion strategies.



Left: Example social media posts for the initial communication campaign, "Dumb Problem. Easy Solution."

Below: Campaign materials on a mobile phone.

01.A.4 Promote the campaign through flyers and printed signs

To increase awareness and help ensure the campaign is everywhere in the city, flyers and printed signs will be made for public places, bulletin boards in businesses, events, places, and any other space where residents and visitors could be reminded of the campaign. These will be refreshed on a regular basis to keep viewers engaged with the initiative and provide timely resources, such as tips for proper storage and preservation techniques to increase the lifespan of produce in the late summer when there tends to be a lot of available produce.

01.A.5 Promote the campaign through the press

Opportunities to share information about the campaign through traditional press outlets will also be utilized. Press related to the launch of the initiative, community events that support reducing and eliminating food waste, and other opportunities to highlight this work will be sought and used. Opinion/Editorial articles may also be used to further initiative goals. While the city does not have a print newspaper of its own, The Livonia Observer, The Detroit News, and the Detroit Free Press all reach Livonia residents and can be utilized.

01.A.6 Promote local champions

Behavior change science tells us that humans are influenced by others, particularly those they see as leaders in the community. Further, we know that many local leaders are passionate about creating healthy neighborhoods and sustainability. We will supply interested political and religious leaders, school administrators, leaders of local groups and block clubs with ways they can engage their networks through events, demonstrations, presentations, and social media.

The city already has a very active sustainability group called the Greenleaf Commission that is made up of seven appointed members and supported by additional residents. Engaging them and building off their previous successes with materials, appliance, and clothing recycling projects as well as getting residents signed up for a private curbside composting program will help residents, elected officials, and staff learn about and act on the issue of food waste more readily, as information can be shared through this known and trusted group.

01.A.7 Create ways for people to make a public commitment to address food waste

In addition to being influenced by leaders, we are also influenced by our peers. Seeing others do something or hearing them commit to something often increases motivation to also act in a similar manner. Providing ways for people to make a public commitment to eliminating food waste can support a culture of not throwing food in the trash, as people will see that throwing food in the trash is not the norm here and that "everyone" is on board with food waste reduction strategies. Yard signs and flags are often used to show support for a cause, and can be employed in Livonia to show support for food waste elimination. Signs and flags that look and feel like the overarching communication campaign will be created for local champions to have in their yard, showing support for the initiative. Signs for apartment doors will also be created. Residents and business owners will be able to sign an online pledge indicating their commitment to eliminating food waste and will have the option of getting a yard or door sign if they would like. Residents who have already adopted food waste management practices, such as those who have food scraps picked up by Midtown Composting, may also be early adopters in showing their commitment to this larger initiative.

01.A.8 Host a citywide food waste summit

A half-day, free, celebratory summit will bring together food waste champions and those interested in addressing the problem of food waste, specific to Livonia. This summit is in addition to one proposed at the regional level that is described in the Regional Planning section. It will be an important event facilitating connections between people, sharing of resources, and increasing pride around Livonia's zero food waste plan. We currently foresee three focused tracks to reach audiences where they are and support them in their food waste elimination journey. The tracks and their content are outlined below.

Residential track

- Become an ambassador
- Take part in a crash course/demos in how to reduce food waste at home
- Learn how to backyard compost

Commercial track

- Understand tech solutions: Leanpath/Toast, Too Good To Go (See Strategy 03 in Food-Based Businesses for more information)
- Learn how to engage staff and customers
- Become familiar with donation liability and how to safely donate

School track

- Learn about low tech strategies for food waste elimination, such as share tables, changing the order of lunch, longer lunches, etc.
- Understand how to integrate food waste into the curriculum
- Begin collecting food scraps in cafeterias without the mess

01.B Household prevention communication campaign

It is estimated that of the 41.5 million pounds of food waste produced in Livonia each year, approximately 42% of that is generated in homes (17,610,000 pounds per year). Of those 17.6 million pounds, almost 70% (12,196,000 pounds) of it is edible. Prevention is the most important strategy of food waste reduction, as it uses the vast amount of various resources that went into making food - water, nutrients, energy, labor - as intended. It also has the potential to improve food security, reduce hunger, and increase disposable income of households. For these reasons, prevention is the most preferred option on the EPA's Wasted Food Scale (see Figure 2.)

Several food waste prevention strategies have been identified for Livonia. The strategies identified below that support households in preventing food waste follow the Motivation, Opportunity, Ability (MOA) framework, the Behavioral Economics framework, research on behavior change and food waste, case studies, and expert insights from partners including the EPA, NRDC, and MITRE. MFNW will apply for funding to implement these strategies related to preventing food waste in households as opportunities arise.

We know that messaging is most effective when it is tailored to its intended audience. Information that households need to prevent and divert food waste differs from what restaurants, grocery stores, schools, and other places need. Findings from focus groups held as part of the Southfield pilot study found that messaging to residents should be hopeful and take a humorous or playful approach, emphasize the need for collective effort and avoid messages centered around guilt or shame, and make getting to zero food waste sound easy. Messaging should include information about financial and environmental incentives to reduce food waste, information on cost and time savings from food waste reductions, emotional appeals, and efforts to counter beliefs around being a "good provider." The residential campaign should also include practical information on how to measure food waste and set goals and monitor household food waste reduction. These considerations and aspects have been integrated and considered during the development of the communication campaign for this initiative.

01.B.1 Household prevention campaign

Ongoing messaging is needed to maintain a heightened awareness of the issue of food waste and what each person can do to contribute to the solution, at least until new habits are formed. This set of messaging will focus on not just awareness raising, but begin to share ways to prevent food waste in households. Assets for this campaign will need to be developed and tested for outreach to residents. Once tested, these assets will reach residents via direct mail (two mailings), city social media and podcast, Connections magazine, community platforms, newsletters from the Chamber of Commerce, flyers posted throughout the city, traditional press, and ambassadors. The new assets will reflect the overarching campaign as outlined in

Promote Too Good to Go

Too Good To Go (TGTG) is an existing app that allows restaurants and retailers with surplus food to sell their food for 30% of the retail value. Buyers purchase the "bags" online and pick up the product on site during a time window set by the seller. The food is sold by value and is not specified as to what is in the bag.

Too Good To Go originated in Europe and is active in all major U.S. markets. The expansion team underwent a soft launch of the app in metro Detroit, including Ann Arbor, in Spring 2024 with a media launch in June 2024.

Promotion of TGTG will be done through social media and residential newsletters. The team will also work with the company to provide targeted ads in Livonia to reach people online and in print.

Strategy 01.A, which will still be in use even as this is rolled out. Topics covered in this outreach include:

- Instructions on how to store solid and liquid food to extend its life, including safe temperatures and effective storage solutions
- Information about Too Good To Go
- Refrigerator and freezer organization techniques
- Food safety and date labels
- Strategies for avoiding or managing bulk/discount purchases
- Guidance on meal planning and appropriate portion sizes
- Information on the safety and nutrition of imperfect foods
- Information about the Livonia North Buy Nothing and the Redford and South Livonia Buy Nothing groups
- Information on MITRE, a food waste tracking tool for households
- Prime residents for household food waste prevention toolkits that will soon be delivered. For more information about the toolkits, see Residences chapter on page 68

Support the Buy Nothing groups to facilitate more resident-to-resident food sharing

Buy Nothing is a free, existing group on Facebook that facilitates sharing, at no cost, among people in and near Livonia. There are two groups that cover the city, with one at the north end, and a second that covers the south end and Redford. Both groups appear to be very active. Buy Nothing Livonia North has 635 members, and as of the end of March had 183 posts over the last month. Buy Nothing Redford and South Livonia includes all of Livonia south of Five Mile Road as well as all of Redford. It has 770 members and collectively they made 1,307 posts during March 2025. While this group is not food specific, excess food that is safe to share can easily be shared. It's a simple process: those with extra food can post what they have, which becomes searchable. Anyone looking for food can search and arrange to pick up what has been posted.

Encouraging more people to join this community to share surplus food is one way to reduce food waste among households. Supporting the Buy Nothing groups to develop guidelines around food donations, such as requiring anything packaged to be unopened, and making food sharing a normal thing, will help newcomers to the group feel comfortable both taking and sharing food.

01.B.2 Grocery store signage

Consumer behavior change will require many reminders, and reminders particularly where food decisions are made. Overbuying contributes to food waste, as noted by Southfield and Dearborn residents who completed a resident survey about food waste. Among survey respondents, overbuying/having more food than was wanted was a reason cited as a cause of food waste in their household by 21% and 32% of respondents from Dearborn and Southfield, respectively. Part of the communication campaign assets include signage in places where people purchase food, such as grocery stores, retail stores that also sell food such as Target, and discount stores such as Dollar Tree and Family Dollar. The signs will remind people of the campaign and may provide a QR code that links to the resource hub for information on how to determine how much food to buy, how to store food properly, and other tips that would be relevant when grocery shopping. The implementation team will work with grocery stores to participate in this messaging, and signs will be refreshed and updated regularly to keep consumers engaged with the campaign and provide general and timely food waste reduction tips, such as information about seasonal produce.

01.C Household diversion communication campaign - drop off collection

Despite best efforts to prevent food waste and share excess food, inevitably there will still be some food that will not be eaten, in addition to the food that cannot be eaten due to safety concerns. We estimate that at least 5.4 million pounds[1] of food waste in Livonia will fall into this category each year, with much of it coming from households as that cannot be donated and opportunities for sharing are more limited. This must all be diverted from landfills.

A variety of methods centered around composting, aerobic digestion, and anaerobic digestion have been explored. At the core, almost all food scraps in Livonia (the only exception being the small amount diverted through backyard composting, which we estimate to be less than 1%) will have to be transported elsewhere for further processing. Fortunately, the site that currently takes yard waste is licensed to also take food scraps, and the two may be commingled in the future for pickup and transporting.

The city provides services such as recycling, yard waste, and trash pickup for single-family residences only. Multi-family residences are considered commercial uses and therefore not serviced by city contracts, requiring property owners to negotiate their own contracts for these services.

Additionally, other cities have found success in diverting food waste by creating food scrap drop off programs where residents and the city can test out food scrap collection, gauge interest and participation, and identify areas where more education is needed for proper sorting of materials. This is a relatively less resource intensive and costly way to provide composting services to residents, as curbside bins are not required for each residence and the pick up locations are centralized and limited in number. However, this method also requires more effort by participants, as they must take their food scraps somewhere for collection, and is therefore not considered a best practice in obtaining high participation rates.

Given the need for a service to be available for those in multi-family units and the costs and resources associated with implementing a curbside pick up program, we recommend two different phases for food waste diversion. The first is a drop off program for all residents where multiple sites are located throughout the city to aggregate household food scraps for hauling and processing. When a curbside pick up program is implemented for all single-family households (including any participating HOAs), on-site collection at multi-family units and HOAs not participating in the curbside program will be implemented. Any residence not served by one of these two methods will be able to continue with the drop off program. The details of these two methods are in the Residences chapter, but details about the communication campaign for the drop off program follow.

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1 Residents currently throw out a total of 8,805 tons of food waste annually. Of this, 6,098 tons are edible and can be prevented from needing diversion through various strategies. The remaining 2,707 tons (5,414,000 pounds) of inedible food must be diverted. We anticipate that those currently backyard composting will continue and others may also take up this practice, accounting for 1% of the food scraps to be diverted. This leaves approximately 5,359,860 pounds to divert annually.

The channels used for other outreach - mailers, social media, podcasts, the city newsletter and website, press, and community ambassadors - will be employed to share information about the food scrap drop off program being implemented throughout the city. Two mailed communications about this service will be sent to all single-family and multi-family residences before services begin. Additional communications will also be provided on other channels and will continue to be sent out frequently for the first few months of the composting program and then less frequently as the program becomes more established. The following topics will be covered in outreach to all residents:

- What items can be collected, including things previously put in the garbage disposal
- What items cannot be collected, including used cooking oil
- How to use your countertop caddy
- What liners to use and where to get them
- How to prepare your food scraps for drop off
- How to prevent contamination (removal of stickers, wrappers, etc.)
- How to avoid attracting pests
- Seasonal tips to avoid food scraps freezing in your bin
- How to register (if applicable; see Strategy 03.E in the chapter on Residences)
- Who to contact if there is an issue

01.D Household diversion communication campaign - curbside collection

As discussed in Strategy 01.C above, the best diversion practices are to have weekly curbside collection. This will begin when the city's contract is renegotiated with Priority Waste in 2029 to include this service. The communication campaign for curbside food scrap collection will be similar to the campaign for the drop off program, but will only go to single-family households. Two communications about this service will be sent to these households before services begin to assist with sharing information more specific to curbside pick up, such as how to prepare bins for the pickup and collection dates. Campaign assets from the drop off program related to what can and cannot be collected may be brought back or refreshed as well, depending on levels of participation in the drop off program, levels of contamination, and feedback from the advisory board about what will help make this a seamless transition and garner high participation rates.

Information about the new locations of on-site food scrap collection bins within multi-family housing complexes and HOAs will need to be shared. One mailing or flyer to each unit within the complex or neighborhood indicating the new, convenient location of the food scrap collection site will be used to share this information.

Ideally all multi-family residences and HOAs will either have curbside food scrap collection or will have a place to collect food scraps from its residents that is within the complex or neighborhood. If there are some multi-family complexes or HOAs that do not participate in either of the two food scrap collection strategies discussed previously, communication about which drop off sites, if any, will be remaining will need to be communicated. One mailing promoting the remaining sites will be sent to all relevant multi-family and HOA households before some of the sites are closed following the start of curbside pick up for single-family households. Signs providing information about the nearest continuing drop off location and the curbside program will be posted at each of the previous food scrap collection locations for at least a month before the site is closed, and remain up for a month after the site closes.

01.E Prevention and diversion communication campaign for spaces where food is outside of homes

As discussed further in the chapter on Residences, this Blueprint brings prevention and diversion campaigns to places outside of homes simultaneously with messaging for residences to increase efficiency and impact. Previous experience in food waste prevention efforts have shown that these strategies can result in a 4% decrease in food costs associated with wasted food, so we anticipate that the food that needs to be diverted will decrease to a similar degree. Additionally, much of the food at places outside of homes can be donated, reducing the pounds of food that must be diverted. With no prevention and rescue efforts, it is estimated that all sectors outside of homes would need to divert 23.9 million pounds of food. However, if prevention and rescue were implemented with fidelity, we expect this number to decrease to 21.8 million pounds. Mailers will be sent to all businesses, schools, institutions, offices, and other places that are not homes to share opportunities for technical assistance to prevent food waste and support implementation of food waste diversion strategies.

01.F Maintenance communication campaign

It is critical that the momentum and resulting culture shift from the communication campaign and other strategies are maintained to continue gaining benefits from the impacts of reduced greenhouse gas emissions, increased household disposable income, reduced food costs at food-related businesses, and the many secondary and tertiary benefits that come with eliminating food waste. Some of the communication topics shared earlier will need to be shared again to support new businesses and residents, or simply to support the zero food waste culture in the city.

The communication strategy outlined in this Blueprint sets the tone and expectation citywide that this is a place where food is not wasted, and that wasting food is seen as socially unacceptable. Continuing this messaging in bursts at key points in the year, such as at the holidays before Thanksgiving or in the summer when there is an abundance of fresh produce and it is tempting to overbuy, would help keep the issue of food waste and the city's commitment to eliminating it at the forefront, reinforce tips and tricks shared in earlier phases, and provide a point for those new to the city gain the information provided earlier in this initiative. Additionally, given the length of time to form new habits, change behavior, and implement city infrastructure and supports, the communication campaign will need to be refreshed throughout the initiative.

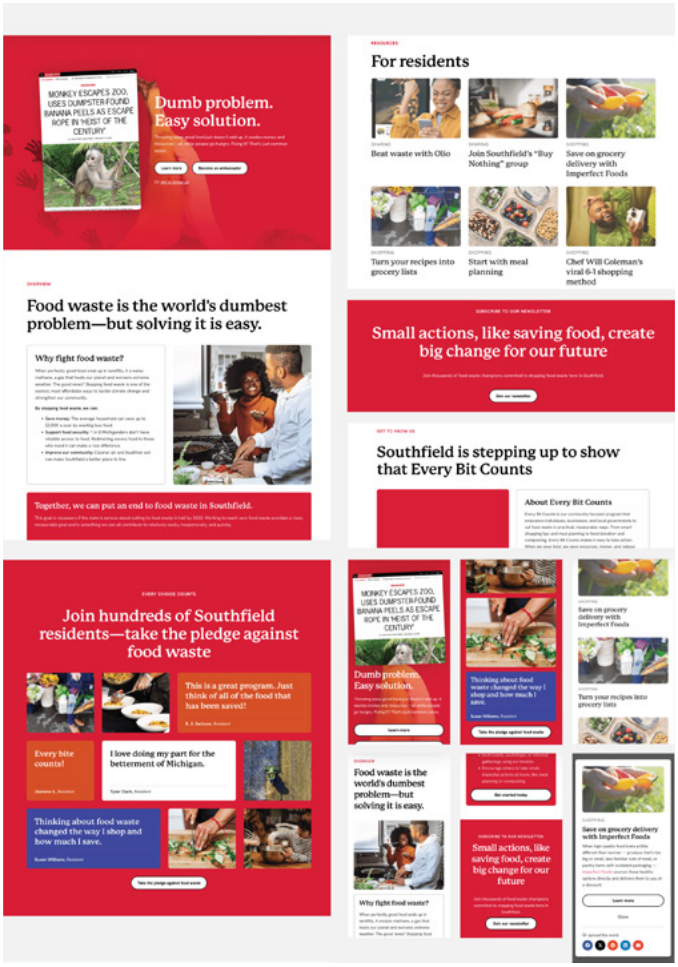
Additionally, ongoing education will be needed. Technologies and best practices change, residents and businesses change. The information that was provided earlier in the initiative may not have been applicable to someone at the time it was shared, but can be incorporated at a later point. Sharing new and old techniques, tips, tricks, and skills will all be done to maintain an awareness of the issue of food waste and what everyone can do about it.

Content provided by MFNW could be shared with the city for sharing to residents and businesses via mailers, social media, press, flyers, presentations, webinars, demonstrations, and hands on workshops, or another third party may arise between now and this phase to assist with ongoing communication about being a zero food waste city.

02 Online resource hub

There are many online resources already available to support food waste reduction strategies, including:

- Meal planning websites that can also convert recipes into shopping lists
- Recipe apps that provide ideas on how to use leftovers or odds and ends in the pantry
  - » Recipe finder on Save The Food Recipes - https://savethefood.com/recipes/
  - » Supercook
- Information on how to store and preserve food
  - » Guides explaining what date labels actually mean
- Liability information for donations
- Contact information for rescue and upcycling organizations
- Instructions on how to compost
- Information about local food scrap collection services
- Local Buy Nothing groups on Facebook
- Too Good To Go for discounted surplus food from restaurants
- Flashfood



The web page for MFNW provides many of these resources. However, many people may first look to the Wayne County Health, Human, and Veteran Services website for information and resources on food waste, food safety, and donations. Compiling these resources in one spot and cross referencing/linking them on the County Health Department website creates a one-stop shopping experience that is endorsed by the County and sourced from credible organizations for those looking for support in their food waste reduction journey.

This resource hub will have a domain-specific chat bot that allows users to quickly and easily find answers to questions related to reducing food waste, donation, and composting. It will be updated as new information and resources become available. It will also serve as a dashboard for tracking progress on food waste prevention and diversion in Livonia.

03 Food waste policy

There are several city policies that should be implemented or updated in Livonia that would better support the food waste elimination strategies proposed later in this plan. Implementing these sends the message that the city is taking the issue of food waste seriously and is being a leader in implementation efforts, helping to create a citywide culture of responsibility for food.

It is important for the city to lead the way in food waste prevention and diversion efforts to set the standard for the rest of the community. This will help to show that this is an issue that is being taken seriously, and that the solutions are feasible and worthwhile. This strategy is multi-pronged, and includes the following:

- Creating policies for using locally created compost in city projects
- Making policies requiring city-sponsored and non-city sponsored events to donate excess food and have food scrap collection bins
- Updating site development standards to include food waste management plans

Additionally, advocacy at the state level for policies such as requiring reporting for large food waste generators and banning food waste in landfills is important, as those policies would support local efforts, provide enforcement mechanisms, and likely significantly increase participation in the other strategies outlined in this Blueprint. These strategies are outside the scope of this Blueprint, but noted in the Regional Food Waste Elimination Blueprint.

03.A Draft and adopt language for policy on using locally created compost in city projects

Compost created through city food scrap collection initiatives has value to the city, as it can be used in landscaping and restoration projects to support the growth of vegetation, reduce stormwater runoff, and help mitigate the urban heat island effect, just to name a few benefits. In addition to landscaping, it can be used in the construction of municipal buildings, facilities, and roadways, maintenance of roadside buffers, and for habitat restoration or other conservation projects. Additionally, compost can be expensive. Given the amount of green space under the city's care, reducing compost costs by using locally created compost would support current efforts the city has for creating beautiful spaces while also increasing demand for the output of local food scrap processing within the city. The city should adopt a policy to first use locally-created compost before purchasing it from elsewhere. The city may also wish to consider quality standards for compost procurement when creating this policy. The amount source, amount, and location the locally procured compost was used should be shared on the Resource Hub. A model policy is included in Appendix D.

Rebate for food waste management at special events in Austin, TX

The City of Austin, TX provides up to a $750 rebate for events that want to go above and beyond the minimum waste management required by the city and provide other waste management services, such as composting. The event must meet several requirements, such as being held outdoors within the city, being open to the public, expecting more than 500 attendees, and being in compliance with their special event ordinance. The rebate can be used for composting services, compost equipment such as bins, bags, and signage, and a litter crew to help with proper sorting. More information about the rebate program can be found on the City's website.

03.B Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served

Livonia already benefits from the food rescue experience and support of one of the nation's largest food rescue organizations and from the dedicated support of other newer food rescue organizations. Additionally, many pantries in the area often do their own rescuing if they have a relationship with a donor and the means to transport the food. However, the potential for food rescue in Livonia is quite significant. Community events and programs sponsored by the city could be a place to recoup some of the food that is purchased and recirculate it in the community. This could include senior luncheons, parks and recreation events, the Livonia Spree, and annual events such as the new resident corn roast, Touch-a-Truck, and The BIG Picnic.

Event and program organizers should include food rescue and food scrap diversion in their waste management plan and event permitting requirements. This can be first implemented as a pilot to test for feasibility and community response before requiring it as part of the event permitting. During the pilot, event organizers will be encouraged to adopt zero food waste practices such as rescue and diversion and be supported by resources such as connections to local food rescue and diversion organizations, stipends to support costs, and training for event organizers. These resources will be promoted on the city's website and as information provided during event permitting. A similar program was implemented in Austin, TX, to encourage these practices for large events in the city - see the sidebar for more information. Local food rescue organizations such as Food Rescue US - Detroit, Forgotten Harvest, and Metro Food Rescue should be contacted ahead of the event to allow time to coordinate a sufficient number of volunteers to pick up surplus food and identify places for it to go. Food scrap collection bins should also be used at the event for food that cannot be rescued. Organizers should check with the hauler and compost facility to ensure compostable tableware is accepted. If so, use of such tableware is strongly recommended to make collection easier and reduce the likelihood of contamination.

Alternatively, having volunteers stand at bins to help event attendees properly sort waste would be an option if compostable materials are not available.

Livonia has been leading by example by taking the leftover husks, cobs, and corn from its annual new resident corn roast and sending it to a local farm to feed the animals. Feeding animals food planned for human consumption but no longer desirable or fit for us is one of the more preferred options on the EPA's Wasted Food Scale (see Figure 2), and is one of the last options for consumption before moving into options for recycling. While this is considered a relatively good use of food, the lack of farm sites in and near Livonia limits the amount that can be diverted in this way. However, this option should be explored for other events or individual sites, such as an office building, for example. This is a good way to repurpose surplus food, but we do not expect this to be how most of the food scraps in Livonia are diverted.

Zero Waste Events at the University of Michigan-Dearborn

The University of Michigan–Dearborn encourages and provides resources to all event planners organizing on-campus events to consider making the event zero waste. Interested organizers can have a consultation with Planet Blue Ambassador Program staff to encourage them to take steps to right-size their food order and eliminate landfill-bound single use items. The department also offers staff support at the first zero waste event that the organization hosts to help with waste sorting and ensure that things run smoothly. External partners hosting events on campus can also take advantage of these supports for a fee to cover staff time. The first zero waste event hosted by a partner outside of the community was held in 2025.

Example ordinance language for this strategy is found in Appendix D.

03.C Require that all special events donate excess food and have food scrap collection bins if food is served

The City of Livonia is home to special events put on throughout the year by organizations outside the city. These events, often held at the Livonia Elks Lodge and local hotels, draw people from not only the city, but throughout the region and state. This is a prime opportunity for Livonia to showcase how it is a food waste prevention leader.

Policies that require events that serve food to donate surplus food and collect the remaining for compost are needed to divert all food waste in the city. Creating a policy for events that are not city-sponsored can be included in the policy discussion above for city-sponsored events, or considered separately. Similar to what was noted above, this could initially be done as a pilot where event organizers are strongly encouraged to meet these standards and supported and incentivized for doing so. The city can support event planners in meeting this new requirement by providing information on best practices for food waste reduction, and possibly technical assistance, collection bins, or other support. The Rockefeller Foundation has a toolkit for food waste-free events that can be shared as a resource to event planners. The city may also wish to consider providing a rebate or other financial support to offset the costs associated with food scrap collection at events in the year prior to enacting this policy so event organizers have a year to test out the new services they will need and work them into their budgets.

Example ordinance language for this strategy is found in Appendix D.

03.D Update site development standards to include food waste management in plans

Most municipalities, including Livonia, require waste management plans and space on site for dumpsters when reviewing development plans for multi-family, commercial, and institutional sites. This requirement could be expanded to require plans and space for food scrap collection, which would advance the adoption of good food scrap management practices. Adding this requirement to site plan reviews would be a relatively minor update to the zoning ordinance that could have large scale impacts.

Example ordinance language for this strategy is found in Appendix D

03.E Develop mandatory food waste reduction protocols for municipal buildings and facilities

The city can lead by example by developing food waste reduction protocols for all of its buildings and facilities. Making this known publicly will show the community that the city is taking the issue seriously and is finding ways to reduce food waste in the physical spaces it convenes and works in. This could include a variety of the strategies discussed in this Blueprint, with those discussed in the Other Places chapter being most relevant. The implementation team can support the city in developing these protocols for each site and identifying a champion to help ensure smooth implementation of the relevant strategies and continued action on this issue.

04 Continuous feedback and learning

04.A Resident advisory committee

In developing this plan hosted a workshop and engaged in ongoing discussions with city staff, school administrators, and representatives from the Chamber of Commerce. The guidance provided by all of these stakeholders was helpful in informing what strategies to include in this plan and how to leverage the existing communication methods, events, and other initiatives to reach zero food waste in Livonia. Having a group that represents the community and can provide feedback as the plan is implemented, help troubleshoot issues that arise, and provide ideas as the plan is implemented would be helpful. An advisory committee composed of a government leader, city staff person, school board member, business owners, and residents will be created to serve this role. Requests for committee members will be made via the city newsletter and website, social media posts, outreach to specific groups such as the GreenLeaf Commission, and flyers at the library and city offices. Interested persons will be asked to complete a short survey. The advisory committee will meet quarterly to discuss the plan's implementation throughout the first two years. Advisors will get a $25 stipend for each meeting they attend.

04.B Internal working group

This Blueprint was created after gleaning the insights and experiences of city staff across multiple departments, as well as committee and resident input. In addition to the resident advisory group, it may be useful to have a working group of representatives from various city departments meet regularly to discuss and troubleshoot implementation efforts, and adjust the plan trajectory as needed. The city champion (see 06.A City champion) will determine if this group would be useful and which departments should be included at what times.

04.C Integrate learnings

It is expected that new information and insights will arise as these initial steps are completed and interwoven into the day-to-day life and happenings in Livonia. Recognizing these learnings, integrating them as appropriate and feasible, and recording them for consideration for other communities, will be an important component of this project.

05 Monitoring and evaluation

05.A Measuring the 100% elimination goal

The purpose of this plan is to identify the complete suite of methods that would be needed to eliminate food waste within the City of Livonia if everyone in the community participated fully, and determine the costs to implement and maintain those methods. To that end, the metric most important to measure is how much food is still going to the landfill. Findings of these measurement tools will guide any additional programming that is needed to improve food waste diversion rates or changes to the implementation plan.

05.A.1 Conduct audits of trash receptacles

To measure this, audits of trash receptacles will be conducted twice a year once food scrap collection is rolled out. All residents will be asked to sign up to be randomly selected for food waste audits to check how the city is doing in meeting this goal, as well as any business, office, institution, school or other location that has a food scrap collection service. Multiple sites for each sector (single-family, multi-family, commercial, schools, and institutions) will be selected for each audit group. Results from the audits will be aggregated and the pounds of food waste found across the sites will be reported for that sector. The results of these audits will be shared on the project website and announced in communications from the city, on social media, and other channels used throughout the project.

05.A.2 Conduct a waste characterization study

Every year, a waste characterization study of the municipal solid waste will be conducted to assess progress. While this is time and resource intensive, it provides the most detailed and accurate findings of how much food is being diverted, although it may not be able to pinpoint where food is still being sent to landfills from or where contamination in food scrap collection is occurring, so the audits of trash receptacles will be useful in gathering this information. The implementation team will identify and coordinate this study.

Hamilton County, Ohio Waste Characterization Study

Hamilton County, Ohio hired a third party, MSW Consultants, to conduct a waste characterization study of their residential waste in 2023. While the scope of this project included more than just food waste, organics were categorized into multiple groups, including groups for vegetative food waste and non-vegetative food waste. This study showed that the share of waste that is organics decreased almost 10% between 2018 and 2024. More information about the methods and findings can be found in the County's waste characterization report.

05.A.3 Review hauler metrics

Additionally, although it is not a direct indicator of the percentage of food waste not going to landfills or reductions from baseline, data on the volume picked up by the food scrap hauler when food scrap collection begins can also aid in measuring progress towards the 100% elimination goal. A report should be provided by the hauler twice a year regarding the volume diverted.

05.B Measuring outcomes from prevention and rescue activities

Beyond the main goal of eliminating food waste, further evaluation and measurement can be done on the impact of the various prevention and rescue strategies. It will be useful to measure the impact of prevention and rescue strategies to learn what strategies are most effective for future implementation of plans. This impact can be measured via pre/post-prevention campaign surveys of food waste actions adopted by Livonia residents and employees and related outcomes such as how much money a restaurant is saving in food costs by implementing food waste prevention techniques. We anticipate that funding sources for implementation will require robust evaluation of the program, and will adjust our monitoring and evaluation plan accordingly to fit the needs of the funder.

Key Performance Indicators (KPIs)

It is important to track how effective the interventions implemented are, and to what degree. Measuring indicators of how these strategies are changing behavior and culture on a regular basis can help identify areas that need additional support or a new strategy and help communities adjust their plans in the future to use the strategies that are most effective. The key performance indicator table in Appendix C lists each strategy and the performance indicators that will be used to measure and gauge its progress over time.

06 Project implementation team

06.A City champion

Having a champion, or at minimum a point person, to work with Make Food Not Waste and other partners on efforts to eliminate food waste in Livonia is imperative to the successful implementation of this plan. The champion should be a city staff member who can provide connections to various departments and city council, assist with overcoming roadblocks and challenges, and guide the work of the external project partners through city processes.

06.B External project partners

The successful implementation of this comprehensive initiative requires additional people-power and expertise. It is expected that management of the project and the partners that can support various strategies will be done by MFNW or another group, not the city. Additional information about the roles and responsibilities of the implementation team can be found in Appendix G.

07 Risk management

Given that this is a comprehensive plan with many different strategies that require buy-in and participation from a large number of people, it is likely that there will be challenges throughout the implementation process. We've identified some of the likely challenges below, and describe how these will be mitigated.

Lack of local and state regulations requiring food waste prevention and diversion

Currently, there is no requirement at the local or state level that requires food waste to be diverted from landfills. There is a state ban on yard waste going to landfills, and this regulation has been effective. Gaining full participation without a similar ban for food waste will be challenging at best and require heavy investments in emotional appeals, social pressure, and incentives. Regulations at the municipal or state level that require everyone to, at a minimum, divert food waste from the landfill are encouraged and will be advocated for when possible.

Insufficient stakeholder engagement

Full participation by all residents, business owners, city government officials, and all other stakeholders in the city is needed to achieve zero food waste in Livonia. This will be a significant challenge, and one that is not taken lightly. To address this issue, this plan includes strategies that help change the culture around food waste, making wasting food something that is not done in Livonia and something that is socially unpopular and unacceptable. Strategies such as the overarching communication campaign, providing ways to make public commitments against wasting food, and simply implementing prevention and diversion strategies citywide will make this ubiquitous. The support provided to each sector helps make the choice to prevent, donate or share, and divert food waste easy, possibly just as easy as throwing it away, and the benefits of reducing food waste at the personal, organizational, community, and global level will be clearly presented and shared as motivation to participate. Further, implementation of these strategies in the fifteen most populated communities in Southeast Michigan supports this culture change as nearby communities also work towards the same goal using the same methods, language, services, and infrastructure. More about this can be found in the Regional Plan.

Budget constraints

This plan was developed without budget constraints in mind as an exercise to understand what the full cost would be to fully implement strategies to achieve zero food waste in a city. However, the real world has financial constraints and overcoming those could also pose a significant challenge. Fortunately, the issue of food waste has been gaining attraction and attention as the top solution to mitigate global warming and subsequently, funding for food waste reduction and diversion efforts is being allocated at the federal, state, and local levels, as well as private philanthropy. Additionally, the state has identified addressing food waste as a key priority in its MI Healthy Climate Plan and the U.S. government has created a National Strategy for Food Loss and Waste. Further, the state has required that counties include food waste management in their updated Materials Management Plans (MMPs), and has allocated funding to both make the plans and implement them. It also has the potential to reduce the cost of waste management, as prevention efforts reduce the volume to be managed. As tipping fees and a landfill surcharge are being discussed at the state level, Make Food Not Waste and others are advocating that the additional funds be used to support food waste diversion work. Finally, food waste prevention and diversion has the potential to decrease food insecurity, freeing up funds used to address food insecurity for other uses. At the household scale, it is expected that each person can save several hundred dollars per year through practices that prevent food waste, which more than covers the cost of the diversion program. The budget provided for this plan found in Appendix B takes a holistic approach and works to identify how savings in one area, such as trash collection, could be used to fund other programs, such as prevention and food scrap collection.

Funding timing does not allow for implementation of all strategies at once

A key premise of this plan is that if food waste becomes a known issue in all facets of daily life and there are easy and common ways of handling food waste regardless of where one is, all food waste can be diverted from landfills. This plan was written with the intent that certain strategies would be deployed simultaneously to create a “no food waste” environment and culture change. The MFNW team is currently working to line up sources of funding to implement all aspects of the plan according to the timeline to facilitate synergies among the strategies. Grants, corporate sponsorships and donations, and traditional fundraising will all be used to fund the plan for implementation as intended. If there is funding for some strategies but not others, the strategies that are funded will be implemented according to the funding timeline and additional funds will continue to be sought through as many channels as possible to work to implement the remaining strategies as outlined in the plan. When possible, funded strategies will continue to be employed to allow for continuity of programming around food waste and overlap with other strategies as new funding is found for implementation.

Resistance to change

Behavior change is always a challenge. This plan asks all stakeholders in Livonia to change how they think about food and what they do with food that will not be eaten by them. Behavior change is easier when the changes to be made are expected and part of the social norms of those around you. This challenge of resistance will be mitigated in the ways described above regarding stakeholder engagement, specifically the use of an overarching communication campaign to motivate, educate, and inspire people to make these changes and the support provided to make the “right” choice the easy choice when it comes to food waste.

Implementation delays

Despite best laid plans, delays in implementing various components could arise for a variety of reasons. Delays can be prevented and mitigated by having realistic timeframes within the plan for developing materials and resources needed for each strategy, having sufficient staff time and resources to develop and implement the strategies, and open and ongoing communication among all parties involved in the implementation. This plan follows these best practices for preventing delays.

Economic downturns

Economic downturns could create challenges with funding sources for this work. This will be mitigated by seeking a variety of funding sources for initial implementation efforts, and having a sustainability plan for how those efforts will be continued if still needed, transitioned to something else if the need evolves, or discontinued if no longer needed at the start of the funding. Finding sustainable sources of funding for ongoing costs such as the food scrap collection service will be a priority. Training and other short-term or one-time costs could more reasonably be funded through a grant or funding streams that are also short-term or one-time.

Residences

At 42% of all food waste in the city, households are the largest generator of food waste in Livonia, an estimated 17.6 million pounds of food annually. Eating more of the food purchased could significantly impact all households, but particularly the 5.7% that are impoverished and likely more who are food insecure. It is estimated that Livonia residents could save $782 dollars per person or collectively $72.5 million each year just by not throwing their food away - a huge economic boost.

The food waste that is not prevented or shared with others must be diverted from a landfill, making food scrap collection for households an imperative strategy in reaching zero food waste. This chapter outlines prevention, sharing, and diversion strategies for single-family and multi-family houses.

Residences

01 Engaging residents on the issues of food waste 73
02 Household food waste prevention toolkits 76
03 Support the city in planning for and implementing a food scrap drop off program for all residents 77
04 Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences 81
05 Food scrap collection for residences not able to be served by city curbside services . 84
06 Prevent contamination of household food scrap streams 86
07 Support backyard and community composting 87
08 Evaluate effectiveness of prevention and diversion strategies 90
09 Keep up the momentum 90

Turkey and rice, a side dish at the 2024 Community Fest. The meal was prepared with food that otherwise would have gone to waste.

TABLE 5. **Timing of Activities: Residences**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01 **Engaging residents on the issues of food waste**												
01.A Speak to community groups on food waste reduction strategies												
01.B Train food waste ambassadors												
Print materials for recruitment												
Recruit ambassadors												
Ambassador training												
01.C Provide pop-ups/demos at community partners and city and community events												
01.D Train residents in ways to safely reduce food waste												
01.E Track food waste rates compared to other households												
01.F Introduce a household food waste comparison metric												
01.G Host a food waste reduction competition among households												
02 **Household food waste prevention toolkits**												
Buy supplies												
Create toolkits												
Mail toolkits to all residences												
Distribute toolkits to new residents												
03 **Support the city in planning for and implementing a food scrap drop off program for all residents**												
03.A Identify viable drop off sites												
03.B Develop and issue an RFP for food waste collection services for drop off sites												
03.C Review applications and select provider												
03.D Train staff as needed to monitor drop off sites												
03.E Set up and promote resident registration portal												
03.F Create informational signage for drop off sites												
03.G Implement drop off sites												

TABLE 5. **Timing of Activities: Residences (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
03.H Plan for surges in food scrap drop off												
03.I Ongoing monitoring and maintenance of drop off sites												
04 **Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences**												
04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services												
04.A.1 Adjust existing contract to prepare for curbside food scrap pick up												
05.A.1 Conduct audits of trash receptacles												
Assist in research on services, if needed												
Assist in research on carts, if needed												
Assist in research on liners, if needed												
04.B Provide carts (if applicable) and education to households												
04.C Launch weekly curbside food scrap collection												
04.D Phase out drop off sites												
04.E Ongoing monitoring												
05 **Food scrap collection for residences not able to be served by city curbside services**												
05.A On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart												
Explore options for food scrap collection service at multifamily sites and HOAs												
Plan for community food scrap collection sites												
Select hauling service for community food scrap drop off sites not included in the city's hauling contract												
Select bins for community food scrap drop off sites not included in the city's hauling contract												
Create signage												
Implement sites												
Educate residents												
Launch collection program												
Monitor and manage food scrap collection sites												

TABLE 5. **Timing of Activities: Residences (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
05.B **Community drop off sites for multi-family complexes, HOAs, and homes not able to accommodate a cart**												
Monitor and manage food scrap collection sites												
06 **Prevent contamination of household food scrap streams**												
06.A **Create clear signage on what can and cannot be composted**												
Create signage for countertop caddies												
Create signage for organics recycling carts												
Create signage for community food scrap collection sites												
06.B **Recognize those who are sorting food scraps well**												
Set up and promote audit program registration												
Promote audit program												
Conduct audits												
Recognize those who are sorting well												
07 **Support backyard and community composting**												
07.A **Draft and adopt policies for backyard composting**												
07.B **Design and share a backyard composting guide**												
Design guide												
Share guide												
07.C **Build demonstration sites**												
Gain permission to use site												
Purchase materials												
Install site												
Promote site												
Provide tours and demos												
07.D **Develop a toolshare**												
Explore options for sites												
Purchase materials												
Set up tool share												
Promote tool share												

TABLE 5. **Timing of Activities: Residences (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
07.E **Bulk purchase backyard composting supplies**												
Develop online form												
Promote bulk purchasing option												
Purchase supplies												
Distribute supplies												
07.F **Explore partnerships with local organizations to support composting practices**												
08 **Evaluate effectiveness of prevention and diversion strategies**												
Develop survey												
Distribute survey												
Analyze survey responses												
Conduct audits												
Analyze audit results												
Report results												
09 **Keep up the momentum**												
09.A **Continue food scrap collection services**												
Ensure this is a line item in the city's budget												
09.B **Help new residents integrate into a culture of zero food waste**												
Provide food waste prevention toollkits and information												

01 Engaging residents on the issues of food waste

The communication campaigns will provide a strong foundation to engage with residents on the issue of food waste. Individual or group conversations, experiences, and interactions can further understanding of the issue and enhance motivation to act to reduce food waste. Opportunities to reach residents in the following ways will be sought throughout the entire initiative and will build upon residents' understanding of and concern about food waste.

01.A Speak to community groups on food waste reduction strategies

Learning about a topic with others, particularly those who already have a shared interest in the issue, and committing to take action on it can be powerful in promoting behavior change. Community groups such as those at places of worship, schools, and leisure and volunteer groups will be contacted to learn more about food waste, how it connects to the things they are passionate about, and what they can do to prevent food waste. Sessions will be tailored to each group in terms of time and content. A list of community groups in Livonia is in Appendix G.

01.B Train food waste ambassadors

It is anticipated, based on previous experience, that as people learn about this initiative ambassadors are likely to emerge and show interest in supporting the work needed to become a zero food waste city. The Resident Coordinator will train those interested in helping reach other residents on best practices and tips to reduce food waste to share. The ambassadors will support the project implementation team with outreach, presence at events, and other opportunities to reach more residents.

01.C Provide pop-ups/demos at community partners and city and community events

Attending events that people are going to for other reasons and connecting with them is an effective strategy to reach people and raise their awareness of the issue and campaign. Many existing events have the potential for MFNW staff and/or local champions to have real time conversations with attendees, provide resources and information, and encourage attendees to take action on food waste. Additionally, providing an opportunity for attendees to make a public pledge to reduce food waste can reinforce a culture of not throwing food away and accelerate uptake of prevention and diversion habits.

The following events could potentially include a table or another platform to share information about the food waste elimination campaign:

- The BIG Picnic
- New resident corn roast
- Night of Lights
- City resource and job fairs
- Parks and recreation events

01.D Train residents in ways to safely reduce food waste

Providing demonstrations and hands-on training on ways to safely reduce food waste is needed to help residents feel confident and comfortable purchasing less food and eating more of it. Demos can be done at the community events and speaker events discussed previously. In addition, workshops that train residents in ways to reduce food waste will be conducted monthly and cover a variety of topics, including:

- Meal planning
- Preparing meals from scratch
- Repurposing leftovers and/or excess ingredients
- Food preparation and storage
- Using the five senses to decide whether food is still good
- Using foods that have over-ripened
- Eating all parts of the fruit/vegetable
- Preservation techniques (freezing, canning, pickling, fermenting)
- Time-saving tips and tools such as batch cooking

Local chefs may be brought in to assist with the workshops. Attendees will be asked to make a $5 donation to offset the cost of the workshop.

01.E Track food waste rates compared to other households

While it is helpful to know how your household's food waste is changing over time, it is often even more motivating to understand how your household is performing compared to other similar households. Quarterly surveys will be sent to a sample of residents asking them to document their food waste for one week and provide information about their householdcompositions, such as number of people and their ages. The information will be analyzed and a report will be provided in future communications. Households can use this information as a benchmark for how they are doing in terms of reducing food waste and to motivate them to find additional ways to reduce their food waste.

01.F Introduce a household food waste comparison metric

The information reported through the quarterly surveying mentioned above will be aggregated and these metrics posted online to show how much food waste a 1-, 2-, 3-, 4-, and 5+ person household creates each week. These values will be reported in Connections magazine, via social media, and through other channels.

01.G Host a food waste reduction competition among households

Competitions can be a great impetus for behavior change. Hosting an annual food waste reduction competition where households compete for the largest reductions in food waste, to have the least food waste, or to create the biggest cost savings can raise awareness of how much each household is throwing away. The competition format creates dedicated time to focus on ways to reduce what is being tossed. While competitive, creating a social media group for the challenge can build a community of support among those interested in reducing their food waste. The ripple effects of competitions can be impactful, as people see what food prevention methods are effective and possible for them by taking the challenge. If the reductions and savings are large enough, they are likely to share that information with others, motivating them to give some of the actions a try.

Voluntary competitions will be held annually to encourage households to find ways to reduce their food waste. Prizes that further support food waste reduction such as storage containers, cookbooks with tips for upcycling or preserving food, cooking classes and equipment, and several months of paid-for composting service will be available for participants to earn.

02 Household food waste prevention toolkits

The communication campaigns will give residents much of the information and educational resources they need to prevent food waste. Prevention will also rely on residents having the necessary tools to reinforce new skills. Providing those tools will support households in reducing the amount of food they throw away.

A toolkit containing proven "low tech" tools including reminder magnets/stickers, a refrigerator thermometer, grocery list pad, recipes, and "use up" tape will be mailed to all 37,716 households. These will be mailed to all residences with key tips and information related to the toolkit items.

An example household food waste prevention toolkit. Stickers (top) and tape (bottom left) can be used to help prioritize and remind people what food should be eaten soon. The grocery lists on the right are proven tools to prevent overbuying and impulse buying of food, which can reduce food waste and save households time and money

03 Support the city in planning for and implementing a food scrap drop off program for all residents

As discussed in Strategy 01 in the Residences chapter, this plan suggests two phases and types of diversion. The first is a food scrap drop off program open to all residents. The second is curbside food scrap pick up for single family residences only. The second phase is expected to begin when 2.5% of households (943 households) are participating in the drop-off program, indicating that acceptance of the practice has moved from just the "innovators" to the "early adopters" as defined by the diffusion of innovations theory. While some early adopters may participate in a food scrap drop off, they are more likely to be interested in the ease and convenience of a curbside program and will fully participate if a curbside program is available. Assuming that all other strategies that support food waste prevention and diversion are implemented, it is expected that this point will be reached early in the third year of implementation. This portion of the plan will discuss what is needed for the first type of diversion; the second type is discussed next in Strategy 04 below.

Criteria for selecting drop off sites included the following:

- Public spaces
- Safe
- Easy to monitor
- Places that people go to on a regular basis
- Easy access for both those dropping food scraps off and the trucks servicing the site
- Dispersed throughout the city
- Have room for collection receptacle

Based on that criteria, we have identified the following sites as possible drop off sites (see Map 3 for their location):

- DPW building
- Schools
- Parks
- Places of Worship
- Recreation centers
- Ice arenas
- Library
- City-owned parking lots
- Kroger
- Meijer
- Costco

03.A Identify viable drop off sites

Identifying places that are convenient and easily accessible for people to drop off their food scraps is critical to the success of such programs. Feedback from the GreenLeaf commission included having smaller and localized drop off sites. To this end, we have identified potential options for food scrap drop off sites that put sites within approximately one-half mile of all residents (see Map 4 for their location). Sites will be solidified during the RFP process (See Strategy 03.B below).

03.B Develop and issue an RFP for food waste collection services for drop off sites

While this plan proposes citywide food scrap collection be implemented in Year 2, we expect that the city's process to line up services will be just as long if not longer than the roll out of prevention strategies to residents. Therefore, it is important that these conversations begin early in the implementation so that the launch of food scrap collection services is well-timed with when residents and business owners are primed and prepared for that next step.

City administrators should follow their usual process for issuing RFPs. As this is a new initiative, flexibility in adjusting the contract should be included, particularly regarding the number and location of sites, the number of bins at each site, how often they are serviced, how the bins and area are cleaned and maintained, resident access to the bins via a personal code or other means, etc.

03.C Review applications and select provider

Following the RFP announcement and application deadline, the city should then review applications and select a provider and service using the city's usual protocol and process for creating new service contracts. While this will be primarily the task of administrators and City Council, Make Food Not Waste can provide support to answer questions about best practices and help ensure the services proposed will meet the needs of the community.

03.D Train staff as needed to monitor drop off sites

Depending on the contract, city staff may be tasked with monitoring the drop off sites and providing any necessary clean up. If this is the case, staff will need to be trained on when to visit the site, what to look for, how to remedy any issues, and when to call the service provider for support. Make Food Not Waste can support this training if needed.

03.E Set up and promote resident registration portal

Some communities, such as Ferndale, require residents to sign up for the drop off service and to obtain a personal login or other access code to the drop off site. This is done mainly for two purposes: the first is to track participation and usage, and the second is to prevent contamination by someone who is unfamiliar with composting from putting non-organic materials in the collection bin. In order to fully register, participants must take a brief training to learn what can and cannot be composted. Additionally, completing the registration requirement indicates that the person is somewhat invested in composting and doing it correctly. Finally, if contamination does occur, the monitors can see who accessed the site recently and send them educational material as a reminder of what can and cannot be composted. It is recommended that a log in or code be required for each participant in order to access the food scrap collection bins for these reasons. It will be necessary to set up the registration process, promote it, and provide information on how it is used. We recommend that the registration be done predominately online, with an option to register in person at the city offices.

03.F Create informational signage for drop off sites

Signage explaining the drop off site program, how to enter the site if a login is required, what can and cannot be composted, and who to contact if there is an issue at the site should be present at each drop off location. QR codes can be used to link to resources such as the registration portal, a dashboard showing how much food has been diverted, and the city's webpage explaining the food waste initiative. These signs should be designed and branded to match the communication campaign.

A community food scrap drop off site in Ferndale.

Source: City of Ferndale

03.G Implement drop off sites

Drop off sites should include the signage described in Strategy 03.F above, the collection bin, and a waste bin for anything that cannot be composted. These sites should be set up at least a week before the first scheduled collection date.

Local Food Scrap Drop off Program

Canton Township

Canton Township began a food scrap drop off program in 2023 to divert resident food waste from landfills. The program collected 166,674 and 180,931 pounds of food waste in 2023 and 2024, respectively, saving 87 tons of carbon dioxide equivalent (CO_2e). There are currently five sites throughout the township that collect food scraps, including a park, a school, a place of worship, a fire department, and a farmers market.

Participants (called "volunteers") are asked to sign up for the program. Registered volunteers are given a 2.5 gallon bucket with a lid, an informational sticker about what can and cannot be composted, and a welcome email with more information about the program. Participants are asked to fill out a short three-question survey each time they drop off scraps. The survey asks what site they went to, the cleanliness of the site, and how much food (multiple, full, or portions of buckets) was dropped off.

Ferndale

The City of Ferndale also has a food scrap drop off program similar to the one described above. Participants are also required to register with the city so that they can obtain an access code to enter the collection sites that have 64-gallon carts used to collect the food scraps. The city has five sites, all located in public parking lots throughout the community. They use the city's problem reporting system SeeClickFix to report any issues with the sites.

03.H Plan for surges in food scrap drop off

Communities with existing food scrap drop off programs have seen increases in volume during certain times of the year, specifically in the fall in the weeks following Halloween when people are getting rid of their pumpkins. To combat this, the City of Ferndale hosts a "Pumpkin Plop" event the week following Halloween. They provide larger bins (for example, a ten-yard open top bin at two locations in the city) for people to toss their pumpkins. However, pumpkins are dropped off for collection throughout the fall, sometimes resulting in bins filling quickly. The city should plan for how to handle surges in food scrap volume during the late fall and other times, including unplanned events such as prolonged power outages. Additionally, sites should be monitored more frequently during these high volume times, and additional signage added to help prevent contamination from the pumpkins or other items that are deposited from people who do not usually compost.

A community food scrap drop off site in Ferndale in the fall. Surges in volume due to pumpkins during this time of year can lead to messes at the drop off sites if pick ups do not happen more frequently than during the rest of the year.

Source: City of Ferndale

03.I Ongoing monitoring and maintenance of drop off sites

Initially these sites should be monitored daily. As the program continues and participants are more accurate properly sorting items and expected volumes are better known, monitoring can likely decrease. We anticipate that a staff member at each of the collection sites would be responsible for this monitoring. At parks, it may be DPW or Parks and Recreation staff who are already on the site who do the monitoring while at schools it could be a teacher champion or a local volunteer. Once sites are selected, Make Food Not Waste can assist in identifying and training people to assist with this monitoring.

Get a head start on food scrap pick up service

Midtown Composting, a Detroit-based company, currently includes the City of Livonia within its food scrap hauling service area. Residences can sign up for weekly porch or curb food scrap pick up for $30 a month plus a $5 sign up fee. Participants receive a 5-gallon bucket that is swapped for a clean one with each pick-up. Once a year, all participants receive 15 gallons of compost made from the food scraps collected, delivered right to their home. Midtown Composting also provides services for businesses. My Green Michigan and Recycling Unlimited also provide similar services for businesses in the area. Consider subscribing to their services for your home or business if you want to start diverting food scraps ahead of a city-wide program.

04 Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences

Other communities across the United States have found curbside food scrap pickup for single-family homes to be an effective strategy for diverting food scraps from the landfill. Similar to recycling, residents separate their food scraps out of their trash and place them in a separate paper bag or rolling cart, either with or without their yard waste. The cart is then picked up on a regular basis to avoid odors and attracting pests. While Livonia residents cannot currently include food scraps with their yard waste due to limits on the city's contract, the current processor of yard waste is capable of accepting both yard and food waste from Livonia in the future.

A study conducted by Resource Recycling Solutions (RRS) for the Southfield Blueprint modeled the costs and greenhouse gas (GHG) emission savings associated with composting. Curbside recycling with designated carts for pickup was determined to be likely to see the highest participation rate and would divert the most food from landfills, resulting in a higher estimate of annual CO2e savings compared to other food scrap collection methods.

Based on the findings from the analysis by RRS, best practices, case studies from throughout the country, findings of the survey conducted in Livonia, and preferences by Priority Waste for providing this service, this plan calls for year-round curbside food scrap pickup for single-family residences. While Priority Waste prefers to use carts for food scrap collection due to the ease of pick ups, reduced mess, decreased opportunities for employee injuries, and greater efficiency, the city could negotiate for pick up in paper bags to avoid conflicts with residents about receiving another curbside cart. Currently the City of Livonia has yard waste pickup on a weekly basis from mid-April through mid-December. This service would need to be extended to be year-round, as food scraps are created all year.

04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services

This plan times the implementation of curbside food scrap pick up with the start of a new waste management contract. The city's current waste contract ends in the fall of 2029 with the option for a three year extension. When the current contract was negotiated in 2024, food waste was discussed but was not able to be included due to logistical issues. Therefore, it can be expected that the process to line up services will be just as long if not longer than the roll out of prevention strategies to residents. Therefore, it is important that these conversations begin early in the implementation so that the launch of food scrap collection services is well-timed with when residents and business owners are primed and prepared for that next step. Additionally, changes to the existing contract prior to negotiations and/or RFP development could grease the wheels for beginning curbside food scrap pick up. This plan recommends that the city consider options for adjusting the contract early to bring curbside pick up to residents sooner and support the state's goal of reducing food waste by 50% by 2030. While this may not be feasible, if a window of opportunity arises, changes to include curbside pick up are strongly encouraged.

04.A.1 Adjust existing contract to prepare for curbside food scrap pick up

Several local communities, including Southfield, are working to update their existing trash hauling contract to prepare for future curbside pick up services. The two main changes that have been recommended are allowing the community to update the definition of yard waste to include food waste and allowing the community to dictate where the hauler takes the yard waste. The first would allow residents to co-mingle food scraps with organic yard waste and have that taken to a compost facility that is licensed to manage food scraps. The second would allow the community to tell the hauler that they have to go to a facility that manages not only yard waste, but also food waste. The changes with this second provision often include a clause that this can only be reasonably dictated, meaning that if there are increased tipping or mileage costs associated with hauling to the new site, the fee would be renegotiated to cover these additional costs. These changes could be made anytime so that if curbside composting is of interest to the community before the current contract is up, the groundwork has been laid to amend the services provided within the existing contract.

04.A.2 Develop and issue an RFP for curbside food waste collection services

City administrators should follow their usual process for issuing RFPs. Priority Waste, the city's current waste hauler, has indicated interest and capacity to provide this service in Livonia but would require weekly pick ups year-round. The city would need to include the use of paper bags instead of carts in the RFP if it was determined that carts are not desirable. Other considerations for the RFP and resulting contract gleaned from other communities who have curbside food scrap pick up are in the sidebar on the previous page.

Considerations for food scrap pick up service

Conversations with representatives from other communities that have implemented food scrap pickup to various degrees have all impressed the importance of the RFP for getting not only the basic service sought, but also creating a partnership that makes the initiative successful. In particular, the following considerations have been suggested:

- Whether or not the city wants a "turnkey" food scrap collection program that includes processing, or if it prefers to have a separate services for hauling and processing
- If the current provider can provide collection services as part of the current contract
- Require education for residents and businesses as part of the application
- Provision of monthly reports, including:
  - » Tonnage set out by route
  - » Volume collected by route
  - » Data on contamination frequency
  - » Photos of contamination and cart tags
- Identify the end use for the compost. Will some of it go to participants of the food scrap collection program? How much of it? At what price? Who is responsible for notifying those who are eligible for the compost product?
- For community drop off sites, identify what party is responsible for cleaning the cart and replacing liners
- Use a locked system with registrants receiving a QR code to unlock the bin at community dropoff sites

These considerations will need to be addressed in whatever negotiations occur for single-family curbside pickup and for the community food scrap collection sites.

04.B Provide carts (if applicable) and education to households

Once a provider is in place, all households will need to receive their curbside carts if they are being used and education about the new service. Provision of the carts could be included in the RFP and provided by the hauler. If carts will be used, 32-gallon carts are recommended to hold all food scraps and yard waste. Smaller carts specifically for food waste could also be used and the contents picked up at the same time as the yard waste regardless of whether or not the materials are co-mingled. Grant opportunities for infrastructure support such as curbside carts for organics do exist and are fairly common. If new carts are purchased, additional staff time from the clty may be required to distribute them, or a separate contract with an organization that could efficiently deliver the carts to every household. The budget currently shows the cost of $2.50 per household per month to be paid for five years to pay for Priority Waste's purchase and delivery of the carts.

Small curbside bins, such as the one above, may be a better option for some households as it takes less room to store.

Source: Make Food Not Waste

Education and promotion of the food scrap collection program will also be required to explain the new service, get buy-in from residents, answer common questions, and prevent contamination. Details of this education campaign are provided in the Supporting Strategies section, specifically 01.D Household diversion communication campaign - curbside collection.

04.C Launch weekly curbside food scrap collection

Once the contract begins, weekly curbside food scrap collection can begin. This will need to be monitored and evaluated in several ways. For example, bin audits such as those described in 06.B Recognize those who are sorting food scraps well can be helpful in identifying contamination issues while resident surveys and continued outreach can answer questions, understand challenges to participation, and address any issues that may arise. The advisory committee described in 04.A Resident advisory committee would be a good resource for this feedback.

Wixom Curbside Food Scrap Collection Program

In 2024, the City of Wixom worked with the Resource Recovery and Recycling Authority of Southwest Oakland County (RRRASOC) to implement a pilot curbside food scrap collection program. The pilot allowed all single family residences to include food scraps in their yard waste, which was then placed at the curb for weekly pick up. Carts were not required for this, and participants were instructed to put the food scraps in either a brown paper yard waste bag or yard waste bin. The program was successful in its first year, and 81% of residents who were surveyed rated the program as either a "4" or "5" out of 5 on a scale of 1 to 5.

04.D Phase out drop off sites

Soon after the curbside program is up and running, we anticipate that the convenience of being able to manage food scraps at home until they are picked up instead of driving to a collection site will reduce the need and participation at the drop off sites. Sites predominantly used by those in single-family households that now have curbside pick up will be phased out, further encouraging residents to switch to the curbside pick up service. Sites that are located near multi-family complexes and HOAs that will not have a site dedicated to collecting their residents' food scrap will remain in operation to provide access to this service.

04.E Ongoing monitoring

Ongoing monitoring of the curbside program to ensure the waste stream is not contaminated will be conducted by the hauler and compost facility. Any issues with contamination will be reported to the city, which may result in the need for additional education for residents or other measures. Open communication between the service provider and the city is needed to address issues early and quickly to ensure the program is successful.

05 Food scrap collection for residences not able to be served by city curbside services

Curbside food scrap collection may not be feasible in multiple scenarios.

According to research, collecting food scraps in multi-family housing is a challenge across the U.S. These homes tend to have limited space both inside and outside to collect and store food scraps. Further, property owners often are unwilling to provide food scrap collection service to the residents from both a cost and "hassle" perspective.

Homeowners associations often also have their own waste management contracts, as well as limitations on the number of bins that are permitted for each unit and where they can be placed. The most recent transition to trash and recycling carts was challenging throughout the city, but particularly for households that are part of an HOA due to these limitations.

Finally, there are many residences that cannot accommodate an additional food scrap collection bin due to site and space constraints, deed restrictions, bylaws, and/or covenants. Therefore, an option that is not curbside collection is needed for these sites. The most common practice is to offer drop off locations; however, participation rates vary significantly due to the requirement of driving or walking food scraps to a different location.

Food Scrap Collection at Multifamily Housing

After finding that there really was not a clear best practice for food scrap diversion from households in multi-family housing, Make Food Not Waste secured funding through a NextCycle grant to test the following scenarios in Southfield to learn what methods are most effective for this population. Make Food Not Waste will be conducting a pilot on the following scenarios:

- Providing households with information about community food scrap drop off locations
- Providing households with an in-home dehydrator and information about food scrap drop off locations
- Providing households with information about food scrap collection sites located near their apartment, likely on a sidewalk on city property
- Providing households with an in-home dehydrator and information about food scrap collection sites located near their apartment
- Setting up curbside pickup at apartment buildings, similar to trash pickup, and informing residents of this service and how to use it

As the results of this pilot become available, this plan may be updated to integrate those findings.

05.A On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart

Given the challenges associated with providing food scrap collection services at multi-family buildings, within HOAs, and in some neighborhoods, this plan recommends providing collection sites within each complex or neighborhood that provides a convenient place for residents to participate in food scrap diversion efforts. Common areas within neighborhoods may also be used for this purpose, and could be a drop off site or a demonstration site, turning the food scraps into compost there instead of having them hauled away. Property owners and managers of each multi-family site and HOA boards will be approached to discuss possible locations for a collection site, site requirements such as bin size, style, access options, and signage, and pick up schedule.

05.B Community drop off sites for multi-family complexes, HOAs, and homes not able to accommodate a cart

If a multi-family complex or neighborhood cannot accommodate a food scrap collection site in the area for its residents, the community drop off locations that are closest can remain in operation to provide a place to collect food scraps for hauling. These sites are shown on Map 4. The city may consider requiring a fee for use of these sites.

06 Prevent contamination of household food scrap streams

Contamination of food scrap waste streams is a big issue and can make the effort less effective, as loads that are heavily contaminated often get sent to the landfill instead of being diverted. While the hauler is responsible for tracking contamination, notifying residents whose food scraps are too contaminated for pick up, and notifying the city if the contamination levels exceeds what is permitted in the service agreement (one area hauler accepts up to 1.5% contamination by volume), support for proper sorting can be provided by the city. This Blueprint proposes education and signage, incentives, and recognition to decrease the rate of contamination in household food waste streams.

06.A Create clear signage on what can and cannot be composted

Signage for countertop compost caddies, the organics recycling cart for curbside pickup, and at community food scrap collection sites will remind residents what can and cannot be composted. A sticker will be used as the signage for the compost caddies and organics recycling cart. A larger permanent informational sign will be placed at each community drop off site explaining what can and cannot be composted and the process for dropping off scraps. A sticker wall where people can place their produce stickers before composting the organics at community drop off sites could be a fun way to get people to properly sort their waste. Signage will include graphics to support understanding.

06.B Recognize those who are sorting food scraps well

Public recognition for things that one is doing well can encourage continuation of that behavior and motivate others to strive for the same recognition. In Australia, a gold star was placed on the organics recycling carts of households that sorted food scraps without contamination as determined by random audits. This method will be employed here with gold stars or shout outs on social media or in Connections magazine to those found to be doing a good job. Sites will be randomly selected from a list of sites that granted permission for an audit of their compost and/or trash bin. Those who earned a gold star could be entered into a raffle to win a prize and be recognized on social media and other communication channels. Regular and randomized audits of food scrap containers can also be a way to check for proper sorting of food scraps.

07 Support backyard and community composting

Backyard and community composting are effective, safe, and efficient ways to manage food scraps when done properly. Its benefits are many: not only does it keep food out of the landfill, but reduces the emissions associated with hauling food scraps to a compost site beyond the household or neighborhood while still creating nutrient-rich compost that can be used to replenish soil on site or nearby. Many communities are concerned about the potential for nuisances associated with backyard and community composting. Livonia's zoning ordinance is currently silent on backyard and community composting, but its nuisance ordinance provides guidelines for enforcement about when activities, such as composting, may become a nuisance. This Blueprint recommends that the city provide direction to residents on where and how backyard composting can occur while also encouraging and promoting the curbside pick up program.

While this Blueprint does not expect backyard composting to divert much of the city's food waste, it is anticipated that additional residents will be interested in backyard composting, particularly as awareness about the issue of food waste increases throughout the community and before a city-wide food scrap collection program is available. This requires continued education and communication with residents to build confidence in their ability to sort food waste appropriately and possibly compost in their own backyards.

07.A Draft and adopt policies for backyard composting

Currently the city does not have any policies other than general nuisance policies that prohibit or encourage backyard composting by residents. Having such a policy in place would support residents in understanding acceptable backyard composting practices and set ups, guide enforcement, and overall reduce the risk of nuisances associated with backyard composting. Review and adoption of this language by City Council is needed.

Example ordinance language for this strategy is found in Appendix D.

07.B Design and share a backyard composting guide

Information about where backyard composting is permitted, required or suggested ways to prevent nuisances such as odor and pests, and best practices for composting can be collected and shared through city communication channels and other platforms to encourage composting. Contact information for local compost experts who are willing to answer questions and troubleshoot concerns will also be provided in the guide. The Suburban Rat Haters Guide to Composting, a Facebook group based in Southeast Michigan, provides information and how-to videos on a variety of ways to compost while minimizing potential nuisances to neighbors. This resource would complement the information provided to residents about the specific standards and considerations for composting in Livonia.

Composting Demonstration Site at the University of Michigan – Dearborn

The University of Michigan – Dearborn has received a grant from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for their organics infrastructure program to develop a working small-scale compost system. The facility will be located on the Dearborn campus, and will manage food scraps from their food services provider, Picasso Restaurant Group, specifically peels and trimmings, that are created when preparing meals for students, faculty, staff, and visitors . Through the Planet Blue Ambassador Program, the University's Facilities Operations Department is looking to have the system up and running by summer 2026.

The site will use an enclosed aerated static pile bin system, similar to the three bin systems that are often used by backyard composters. This system is scalable and will be able to be expanded to accept the volume of food scraps generated in other campus locations, like office kitchens and the food pantry. A commercial scale tumbler will also be located on site to pre-process materials before it goes into the bins. Students, specifically sustainability interns, will help run the composting site, bringing food from the cafeteria to the tumbler and then moving it to the bins. The grounds department will support the project by delivering campus wood chips and turning the pile monthly to help mix, aerate, and speed up the decomposition process.

A composting pilot is currently underway at the University to create a streamlined food waste collection process for Picasso and understand what volume of food will need to be managed. While the Picasso staff have not had any formal training, they accurately sort food scraps from items that cannot be composted. The Facilities Management Department has helped with this by providing laminated signs that are posted in the prep area about what can and cannot be composted. Student interns measure and track the food waste weekly before it is picked up by a local food waste hauler and composted offsite. A typical month of operations has resulted in 800 pounds of food being diverted from the landfill. Picasso's executive chef has found the project to be useful in evaluating the knife skills of his staff and ensuring the chefs were using as much of the product as they could, saving on costs and using food for its highest and intended purpose.

The compost site will not only reduce the environmental footprint of the dining services at the University but will also serve as a demonstration site for those interested in backyard or community composting. University of Michigan students will have opportunities to learn about composting at the site, and there will be opportunities for research. The University's Environmental Interpretive Center (EIC) regularly hosts class field trips for younger students and may integrate programming focused on food and food waste to their menu of programs offered once this system is in place. The finished compost will be used not only in campus landscaping, but also the Community Organic Garden at the EIC, helping create a closed-loop system and driving home the connection between growing food and food that is composted.

07.C Build demonstration sites

Creating places where those who are interested in managing their own food scraps on site can see a live pile, ask questions, and see firsthand various ways of composting can help residents feel comfortable trying new methods of composting to find one that works for them. These sites can also serve as field trip locations for students and increase knowledge of the importance of recycling food scraps. Community locations such as parks and schools could serve as compost training/demonstration sites to support these education efforts. The sites would be designed and equipped to offer training for both backyard and community-scale composting methods. Some possible sites for this in Livonia include Hayes Elementary and St. Michaels, as they have been identified as having already adopted other environmental activities. The sites would need to be managed and monitored by GreenLeaf or another organization outside of city staff. The series of handouts Oh Rats! How to Avoid Rodents at Community Composting Sites created by the Institute for Local Self-Reliance may be helpful in educating residents and preventing or alleviating concerns about rodents.

Wooden three-compartment composter (top) and a tumbler composter (above) at the Nature Center at Heritage Park in Farmington Hills. The comopsters are used by the Nature Center, preschool, summer camps, and field trips held on the site.

Source: Jacob Rushlow, City of Farmington Hills

07.D Develop a toolshare

Like most other things, composting can be as simple or complex as you want it to be. However, even the most basic of piles requires some tools from time to time to manage it appropriately. A toolshare for things like rakes, shovels, drills, and other tools for creating compost bins, and other infrequently needed tools could support the uptake of backyard composting. These materials and tools can encourage someone new to composting to try it and help those already doing it be more efficient and/or continue the practice. Just like the library lends out books, it or another group that has physical space to store such tools, could lend out the tools.

07.E Bulk purchase backyard composting supplies

Alternative to the toolshare described above, bulk purchasing of these materials and tools lower the individual costs, which can make backyard composting more available to residents when needed supplies are sold at cost. An online form will be promoted that shares the tools listed above, as well as pre-built tumblers, and their discounted price. Residents will order and prepay for their tools through the online form, and pick up their tools at a predetermined location in the city.

07.F Explore partnerships with local organizations to support composting practices

Local organizations and individuals already provide education on small-scale composting and could partner with groups in the city to train residents in how to effectively and safely backyard compost. The implementation team can work to co-host and/or promote these trainings to residents.

08 Evaluate effectiveness of prevention and diversion strategies

It is important to measure how effective the prevention and diversion strategies are to gauge progress towards the overall goal of food waste elimination, identify gaps and where additional outreach is needed or strategies should be adjusted, and understand what strategies are most effective for use in other communities. Community surveys of residents and businesses, as well as analysis of bin audits from those who gave permission for that will be conducted to gain this information. Surveys will need to be conducted before implementation to get a baseline understanding of the community with regards to food waste, and throughout and after implementation. Surveying before and after prevention toolkits are distributed is recommended. Key performance indicators for the various activities with each strategy are noted in Appendix C.

09 Keep up the momentum

Implementation of these strategies is not enough to reach zero food waste; awareness, training, and supports must be continued. The communication campaign will be continued, although at a slower cadence of messaging (see “Communication campaigns” on page 47). Maintaining diversion options and helping new residents participate are two ways to do this.

09.A Continue food scrap collection services

The food scrap collection services must be continued to achieve zero food waste. These services are necessary, as there will always be some food that cannot be eaten and must be composted. Just as other waste management services such as trash and recycling are considered necessities in the city’s budget, food scrap collection must also be seen this way and integrated into the annual budget as an expected service to be provided by the city.

09.B Help new residents integrate into a culture of zero food waste

Residents living in Livonia when the household food waste prevention toolkits were delivered will have received quite a few items to help them waste less food in their home. Residents who are new to the community after these toolkits are distributed will miss out on these helpful items. Extra toolkits will be created to be provided to new residents at the annual new resident Corn Roast and added to the new resident welcome package that the city provides. These new resident welcome packages will help make the new residents aware of the zero food waste culture and equip them with tools to integrate into the community.

Food-Based Businesses

Food-based businesses, such as restaurants and grocery stores, and places that serve food regularly like event venues and hotels have a large opportunity to prevent food waste and reduce their food costs. Unlike households, these spaces also have the opportunity to donate food, using food rescue organizations as the connector between them and distribution sites that can share the food with those who need it. Therefore, this chapter of the Blueprint also outlines what is needed for food rescue organizations to move the volume of food that is estimated to be rescuable (See the information learned about existing pantries in the city in Community Profile: Livonia). These sites will inevitably have some food waste that could not be prevented or donated, and will need a diversion strategy to manage it.

Unlike the strategies specific to residences, this chapter suggests bringing all of the strategies that may be useful to these sites to their attention all at the same time instead of rolling them out in phases. This will reduce the amount of time needed to arrange meetings and site visits with each site, and will make the biggest impact while being efficient.

Food-Based Businesses

01 Engage Wayne County health inspectors 95
02 Increase capacity of food rescue organizations and food pantries 96
03 Support businesses in managing food waste from prevention to diversion 100
04 Host a food waste challenge 107
05 Develop a Green Business Certification program 107
06 Showcase food waste reduction practices 108
07 Keep up the momentum 108

Warm prepared meals ready for distribution into the community.

Source: Make Food Not Waste

TABLE 6. Timing of Activities: Food-Based Businesses

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01 Engage Wayne County health inspectors												
Train health inspectors												
Create materials for inspectors to use												
02 Increase capacity of food rescue organizations and food pantries												
Capital investments												
02.A Increase capacity of food rescue services												
02.A.1 Increase capacity for planned rescues												
02.A.2 Increase capacity for unplanned rescues and surges												
02.B Create capacity for rescued food to be donated to existing community resource hubs												
02.C Share rescued food with existing community resource hubs												
02.D Explore opportunities for pantries and public fridges												
Develop relationship between site and food rescue organization												
Set up site with necessary shelves, refrigerators, etc.												
Publicize site on city food waste dashboard and outreach to residents												
02.E Share excess donated food at multi-family apartment buildings												
Develop relationship between site and food rescue organization												
Set up site with necessary shelves, refrigerators, etc.												
02.F Share excess donated food with sites outside of the city												
Develop relationship between site and food rescue organization												
Set up site with necessary shelves, refrigerators, etc.												
02.G Create a space to upcycle food rescued within the city												

TABLE 6. **Timing of Activities: Food-Based Businesses** (Continued)

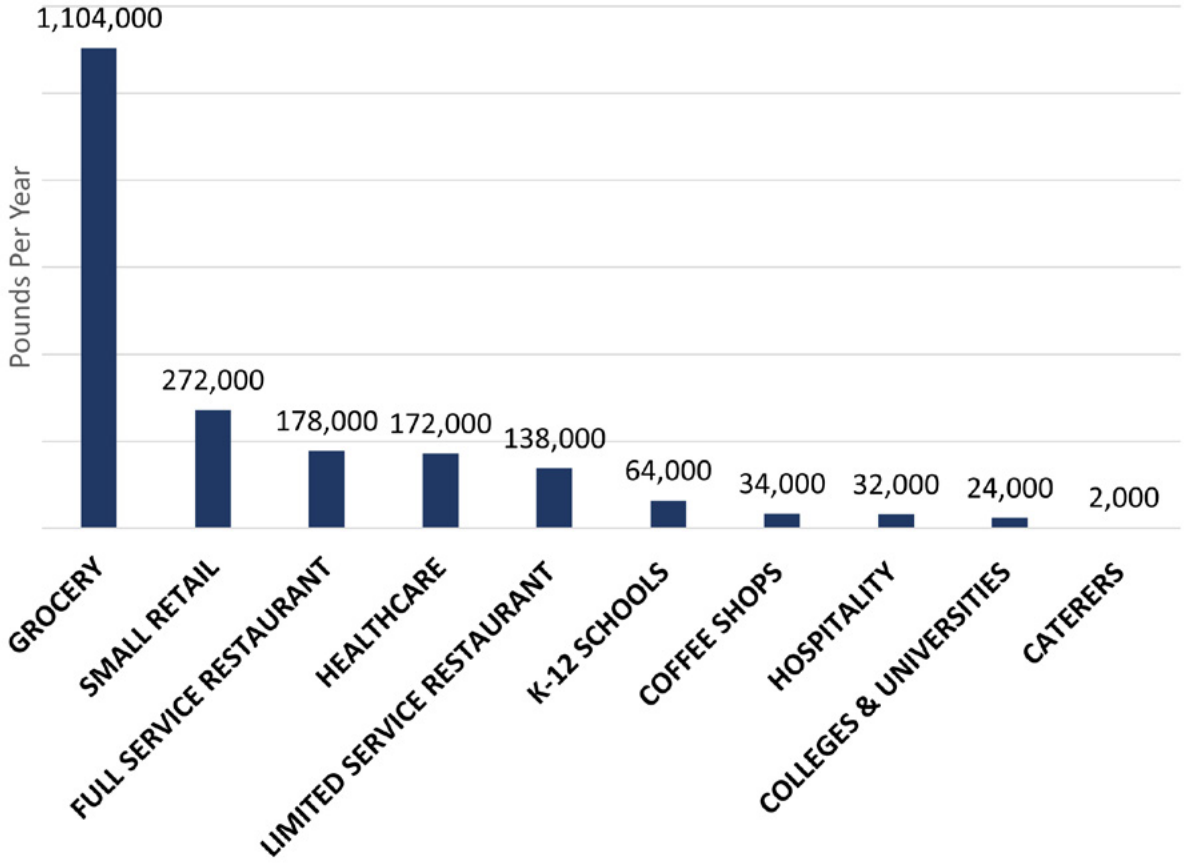
Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
03 **Support businesses in managing food waste from prevention to diversion**												
Leanpath												
Toast's food waste module												
Too Good To Go												
Flashfood												
Make Food Not Waste technical assistance program												
Make Food Not Waste technical assistance for caterers and food trucks												
Food rescue												
Oil recycling												
Aerobic digestion												
Food scrap collection service												
Property owner/manager buy-in for food scrap collection services												
Providing incentives for implementing food scrap collection												
Contamination prevention												
04 **Host a food waste challenge**												
Design the challenge												
Promote the challenge												
Host the challenge												
05 **Develop a Green Business Certification program**												
Develop certification program												
Promote and certify businesses												
Design and print window decals and certificates												
06 **Showcase food waste reduction practices**												
07 **Keep up the momentum**												
07.A **Support training of Wayne County health inspectors**												
07.B **Continue support of food rescue and distribution operations**												

01 Engage Wayne County health inspectors

Based on the estimates provided through the NRDC calculator, food waste from any commercial site (e.g. not a school, healthcare site, other institution, or household) can be donated, rescued, or upcycled, equaling approximately 1.76 million pounds per year. Some of that is already being diverted via donations. In 2024, Livonia businesses donated 3,738,320 pounds of food waste, sharing it with distribution sites partnered with Metro Food Rescue and Forgotten Harvest. Strategies to support this include food donation and liability education by Wayne County Health Department inspectors and connecting food donation sites to food rescuers and upcyclers.

All commercial kitchens in Livonia where food is prepared are inspected every six months by Wayne County health inspectors to confirm safe handling and storage. They have direct contact and conversations with those running kitchens, creating opportunities to share information about technical assistance programs to reduce food waste and ways to safely donate/sell discounted surplus food as well as answer questions about liability protections under the Bill Emerson Good Samaritan Food Donation Act While we recognize that kitchen managers would likely not be very receptive to information about food donation during the regular inspections due to the high stress of those events, it is a touch point that can be leveraged. To successfully execute this and equip health inspectors to answer questions related to food donation, additional training is needed. The MFNW team will work with the inspectors to draft language and create materials that can be shared online and in person with commercial kitchen owners.

FIGURE 4. **Maximum Food Rescue Potential: Livonia**
Source: Natural Resources Defense Council



02 Increase capacity of food rescue organizations and food pantries

While the overarching goal of eliminating food waste is not specific to feeding those who may be facing food insecurity, the potential to do so is significant. Almost 3.75 million pounds of food were rescued in 2024 by local food rescue agencies, surpassing the volume of food that the NRDC calculator estimated could be rescued annually (2 million pounds) of food can be rescued in Livonia annually. Although this exceeds the calculator's estimates, it is likely that there is still additional food that could be rescued throughout the city.

The Michigan Food Waste Roadmap: A Plan to Reduce Food Loss and Waste in Michigan by 50 Percent calls for doubling the state's capacity to receive and distribute surplus food in an efficient way. With 4.7% of Livonia's population considered impoverished and 19.5% of residents in Wayne County experiencing food insecurity and all this surplus food, identifying ways to rescue surplus food and redistribute it to those in need can not only help address the issue of food waste and its associated impacts, but also address food insecurity in the community. However, key to the success of achieving both food waste and food security goals is making sure the right type of food, in the right quantities is shared with places that have the capacity to store it and clients with a need and desire for that food, and that the food is given at a time that allows for it to be distributed before it is no longer edible. This is needed to ensure that pantries do not become dumping grounds for surplus food and that the food is ultimately eaten or properly diverted. Creating or increasing capacity for surplus food storage and access at pantries and in community resource hubs that serve the general population and/or lower income populations can encourage and destigmatize food sharing among all residents.

02.A Increase capacity of food rescue services

02.A.1 Increase capacity for planned rescues

There are currently three food rescue organizations that operate in Wayne County: Food Rescue US Detroit, Metro Food Rescue, and Forgotten Harvest. Currently, efforts from all the rescue organizations result in most of the large businesses being rescued from. There may be opportunity for more rescue from these locations either in terms of frequency and/or in prepared foods that often are not included in the big box and chain grocery rescue programs. There is also opportunity for food rescue at independent grocery stores, catering, smaller manufacturers and restaurants. Capital investments in things such as refrigerated vans/trucks, liftgates, and power jacks as well as more staff and volunteers are needed to handle this proposed increase in food donation above current operations. The existing food rescue organizations would be responsible for the capital improvements, hiring of additional staff, and other costs associated with this expected, ongoing increase in rescued food. The city could consider applying for or supporting grant applications that would increase the capacity of food rescue services for planned rescues.

Baltimore's food sourcer

Baltimore, Maryland's Office of Sustainability and the Maryland Food Bank partnered to hire a food sourcer to increase food rescue while reducing food waste. The food sourcer coordinates small to mid-scale food rescue in the city, connecting potential donors to nonprofit rescue organizations, all while balancing resources to ensure that supply, demand, and volunteer availability remain aligned. This idea is discussed further in the Regional Food Waste Elimination Blueprint.

02.A.2 Increase capacity for unplanned rescues and surges

Increases in extreme weather have been documented in the area, and climate scientists predict that severe weather will continue to increase, both in intensity and frequency. Despite electric utility companies' efforts to make a more resilient grid, it is likely that power outages will continue to occur. Many wholesalers, grocers, and restaurants, especially big-box and chain retailers, have strict policies about keeping food through power outages that often requires food to be thrown out even if it was maintained at a safe temperature. Therefore, power outages create a large and unexpected opportunity for food rescue that is in addition to the regular rescue volume, requiring additional staff time to quickly coordinate volunteers, identify sites to store or take the food, and move the food to new locations. Similarly, large events can cause surges in food rescue potential. While early planning is ideal, unforeseen circumstances such as low attendance can result in the need for additional food rescue and staff time to coordinate rescues on the spot. The city could consider applying for or supporting grant applications that would increase the capacity of food rescue services for unplanned rescues.

02.B Create capacity for rescued food to be donated to existing community resource hubs

As shown on Map 4, Livonia currently has four operating food pantries that were found via web searches and interviews with local pantries; there are likely more as sources indicated that many of the places of worship have pantries for their community. Their hours, pantry types (client choice vs. pre-selected boxes), clientele, and storage capacity varies. In general, pantries are seeking more fresh produce, meat, milk, and eggs, as they typically can easily source non-perishable items, breads, and sweets. They are also seeing an increase in need and a reduction in funding. While sourcing from surplus food would likely mean the food is free or very low cost, the requested items would require more cold storage, a cost they may not be able to cover. The city could consider applying for or supporting grant applications that would increase the capacity that resource hubs have to accept surplus food. Overall, diverting surplus food to pantries aligns with the Michigan Food Waste Roadmap, which seeks to double the amount of food rescued.

02.C Share rescued food with existing community resource hubs

Existing community hubs have been identified as places that may be interested in having surplus food donated to distribute to the community for free. A list of these sites, along with notes about what would be needed to create or increase this capacity and information about the residents they serve, is found in Appendix D.

02.D Explore opportunities for pantries and public fridges

Livonia's four operating pantries are clustered in the southeast portion of the city which could pose access challenges (See Map 4). Adding more opportunities for people to access surplus food closer to where they live can help address hunger while also reducing food waste. Similar to the "Little Free Libraries" that have become popular in recent years, pantries for shelf-stable goods could be added in communities to move surplus food. Fridges could be placed inside or outside of businesses that are willing to host surplus food donations. A map and list of these pantries and fridges and the hours they can be accessed will be placed on the Livonia food waste dashboard and shared with other community resource sites to share with residents.

02.E Share excess donated food at multi-family apartment buildings

Over one tenth of the housing units in Livonia are multi-family units. These sites, where a higher density of people are already going on a daily basis, could potentially be a place to share excess rescued food. Such buildings often have a lobby or communal space where a refrigerator or shelving may be able to be placed. Excess food could be dropped here for consumption by any of the residents. Buildings that tend to have lower-income residents would be prioritized for this option, but it could be implemented in any multi-family building if permitted by the owner and/or property manager. This option could help normalize food sharing, bring food to those who can use it, reduce barriers to food access such as transportation, and support a culture of zero food waste throughout the city.

02.F Share excess donated food with sites outside of the city

It is likely that not all of the 2 million pounds of food that are estimated to be rescuable in Livonia will be able to be accepted and distributed by pantries within the city. The surplus will need to be shared elsewhere in the city or in other nearby communities. Ideally the food would only be transported a short distance to pantries that are close to Livonia such as Ward Church in Northville, Redford Interfaith Relief, Christ Church of Redford, the Salvation Army in Dearborn Heights. A food sourcer who could coordinate the surplus food to identify suitable distribution sites could be shared among several communities, including Livonia. More about this role is discussed in the Regional Food Waste Elimination Blueprint.

The costs to food rescue organizations associated with moving this additional food is included in all years of the budget for this plan, as the rescue agencies may need that time to increase their operating funds to the level needed to cover these costs. Additional staffing and capital costs related to this increase are discussed in Strategy 02.A above.

Just like the pantries in Livonia, the receiving sites would likely need upgrades to their storage options such as more shelving and refrigeration space. These one time improvements would allow for them to safely receive the surplus food from Livonia. These costs are not included in the plan.

02.G Create a space to upcycle food rescued within the city

Much surplus food has a limited shelf life, and either needs to be eaten very soon or processed into something else to extend its life until someone can eat it. Having a space within the city that can take in surplus food, turn it into meals, freeze or preserve it in some way, and send it back out for consumption is needed. Partnering with places, such as faith-based organizations, that have an existing kitchen that is underutilized and available has worked well for MFNW's two Upcycling Kitchens in Detroit, and could be replicated in Livonia. In this model, MFNW partners with the site to use the space at low or no cost, and funds the operations to create the meals, relying heavily on volunteers from the community to assist in making them. A Livonia kitchen would be highly visible and a place for residents to learn about food waste, what is being saved in their community, and skills related to food preparation and preservation. The kitchen would be a visible example to support the behavior change sought with this initiative.

Top: Volunteers prepare meals from food that otherwise would have gone to waste at Make Food Not Waste's Upcycling Kitchen in Detroit.

Bottom: Meals made from surplus food area distributed to community members.

Source: Make Food Not Waste

03 Support businesses in managing food waste from prevention to diversion

Most of the workers in Livonia are not residents of the city. With just under 1 in 10 of those with employment in the city also being residents, businesses may face additional challenges in obtaining buy-in from employees who are unfamiliar with the city's food waste initiative. Fortunately, many of the workers in the city come from area communities that are also working to address food waste, such as Detroit (8% of Livonia's workers), Westland (5.1%), Farmington Hills (2.7%), Novi (2.4%), Dearborn (2%), and Southfield (1.3%). This puts approximately one-third of Livonia's workforce in a position where both the location where they live and work are working to address food waste, helping to reinforce good food management practices in both places.

As noted in the Residences Chapter, all other spaces in the community that are not single-family residences are responsible for finding their own waste management services and negotiating contracts. This means that they will also need to set up their own food scrap collection service. These sites have been divided into the following groups:

- Places where food is served
  - » Large - Hotels, event centers, banquet halls, and large sit down restaurants
  - » Medium - Smaller sit down restaurants and restaurants where patrons bus their own table
  - » Small - Restaurants with primarily take out, minimal seating, and/or minimal food waste (bakeries, coffee shops)
- Grocery stores and retailers selling food
- Caterers

There is quite a bit of overlap in the strategies to be used by the various groups.

Table 7 outlines which strategies should be considered for each group. The strategies are then described below. Further information about current food waste knowledge, attitudes, and practices among food service businesses in Livonia can be found in Appendix E.

TABLE 7. **Site Types or Strategies for Managing Food Waste**

Site Type/ Strategy	Places where Food is Served			Grocery Stores and Retailers Selling Food	Caterers
	Large	Medium	Small		
Leanpath	X				
Toast's food waste module		X			
MFNW technical assistance program		X	X		X
Promo toolkit	X	X	X	X	X
TGTG	X	X	X	X	
Flashfood				X	
Food rescue	X	X	X	X	X
Oil recycling	X	X	X		X
Aerobic digestion	X			X	
Food scrap collection service	X	X	X	X	X
Property owner/ manager buy-in	X	X	X	X	
Provide incentives for food scrap collection	X	X	X	X	
Contamination prevention	X	X	X	X	

Leanpath

Leanpath is a proven program to address food waste by tracking food waste to understand what is being wasted and why, discovering opportunities to prevent that waste in the future, and driving lasting results through science-based behavioral change techniques. This method has proven to help businesses cut food purchases up to 6% through waste reduction, save the average kitchen one month of labor costs per year in food prep, and provide up to a seven-times return on investment.[1] Large food service establishments, hotels, event venues, banquet halls, schools, and hospitals will be encouraged to use this program to reduce their food waste.

Toast's food waste module

Toast offers a range of apps and other resources for restaurants to reduce food waste that is linked to their point of sale systems for employees to log throughout the day – and at no extra cost if the business is already using Toast. Any instances of food waste can be logged, such as food that was dropped, expired, or burned. These tools are most appropriate for gathering information and tracking food waste at smaller sit down restaurants and restaurants where patrons bus their own tables. Users have seen up to a 10% increase in profit margins.[2] This resource will be shared with businesses likely to benefit from it in Livonia.

1 Leanpath, 2025

2 Toast, 2025

Too Good To Go

Too Good To Go (TGTG) is an existing app that allows restaurants and retailers with surplus food to sell their food for 30% of the retail value. Buyers purchase the "bags" online and pick up the product on site during a time window set by the seller. The food is sold by value and is not specified as to what is in the bag.

Too Good To Go originated in Europe and is active in all major U.S. markets. The expansion team underwent a soft launch of the app in metro Detroit, including Ann Arbor, in Spring 2024 with a media launch in June 2024. As of May 2025 two Livonia businesses utilizing the platform were Auntie Anne's and SHO Cafe. Restaurants can now sign up to participate on the platform. There is no fee until items are sold, at which point the business is charged an annual fee and a small commission on each surprise bag that is sold. This opportunity was shared with restaurants by the Westland-Livonia Chamber of Commerce.

Promotion of TGTG to residents will be done through Connections magazine, and other city outreach opportunities. It will also be included in the outreach and welcome information to new residents. The implementation team will also work with the company to provide targeted ads in Livonia to reach people online and in print. Supporting businesses in signing up and using the app will provide an opportunity for them to save on food costs and possibly gain new customers, and for Livonians and other residents nearby to save on food costs and support businesses they may not otherwise.

Flashfood

Flashfood is an existing app that allows grocery stores to alert customers about discounts up to 50% off on fresh produce, meat, and other grocery items. This provides an opportunity for grocery stores to move inventory and get something for it, while also helping households meet their food needs despite increasing food costs. The Meijer in Livonia currently uses this platform as well as those in Westland, Detroit, Northville, Canton, Southfield, Belleville, Taylor, and others. Similar to Too Good To Go, promotion of Flashfood to residents will be done through the new resident outreach materials, Connections magazine, and other city outreach opportunities.

MFNW technical assistance program

With experience training food service operations, MFNW will offer hands on technical assistance as follows:

- Customer engagement toolkit that can be used to promote food waste practices on social media and in house
- Support adoption of Leanpath, Toast, or other technology as appropriate
- Support registering with Too Good To Go to sell surplus food at a reduced price
- Support connections to food rescue organizations (where appropriate)
- If applicable, support sharing resources and information with the building owner/manager to encourage providing food scrap collection service, and provide training and informational materials to tenants when implemented
- Staff training on the issue of food waste and how to properly sort materials for diversion from landfill via lunch and learns, demos or other formats
- Janitorial staff training on food waste management

- Support setting up food scrap sorting process in back of house, including providing 5-gallon buckets for food scrap collection and example signage
- Support setting up food scrap sorting process in front of house (where applicable). See Strategy 04 in Schools and Institutions for wayfinding designed for institutions and schools that could also be adapted to these sites
- Customer engagement toolkit that can be used to promote food waste practices on social media and in house

MFNW technical assistance for caterers and food trucks

Catered food has unique challenges when it comes to reducing food waste, so the strategies described for brick and mortar restaurants need to be tailored and additional strategies used to eliminate food waste from catering. In addition to the training listed above, additional recommendations are needed for caterers. These include:

- Tips for working with event sites to set up food rescue and compost
- Implement systems to receive feedback from customers about what was and was not eaten to adjust offerings accordingly
- Encourage including to-go containers for excess food to send home with attendees

Food rescue

NRDC's food waste calculator estimates that there is approximately 1.9 million pounds of food that is rescuable from grocery stores, restaurants, coffee shops, and hospital sites in Livonia each year. This presents a great opportunity to support the 4.7% of Livonia residents that are impoverished , and the 19.5% of those in the county facing food insecurity . Lack of knowledge and understanding about the liability associated with donating food and lack of resources to transport food to a donation site are the barriers often cited to donating food. MFNW, with support from the Wayne County Health Division, will provide information to food-based businesses, institutions, and other sites where food donations may be an option about the Bill Emerson Good Samaritan Food Donation Act that protects food donors acting in good faith. MFNW will also address the second barrier by connecting restaurants with food rescue organizations and supporting them in training staff to prepare food for pickup by rescue organizations. Large food waste generators will be expected to have a memorandum of understanding with a local food rescue partner for regular pick up and surge protocols. Information about what food rescue organizations need to be able to transport the additional food that is expected is discussed in Strategy 02 above.

Oil recycling

Used cooking oil is typically considered waste among restaurants and food producers as it cannot be composted, even at commercial facilities. However, there are services that can take used food-grade oils such as bacon grease, fish oil, and coconut oil and recycle it. Connecting restaurants that use a lot of oil to these services if they do not already have a service in place can reduce the oil that is going to landfills and, importantly, help ensure it is also not going down the drain into the sewer system.

Promote aerobic digestion

Aerobic digesters are useful in reducing food waste produced at a site into a lighter, sterile soil amendment that can then be distributed on the grounds, mixed with soil and used in pots, stored, and/or hauled away to a compost site for incorporation into compost and final maturation. If the amendment is not used on site, aerobic digesters can reduce food scrap hauling costs (and associated emissions), as the amendment can be picked up less frequently than food scraps due to the reduced volume and lack of odor. Due to the quick processing of the food scraps, it also reduces the potential to attract pests and the need for additional bins and space to hold large volumes of food waste. The machines can process all food scraps, including meat, bones, and dairy products.

Aerobic digesters come in a variety of sizes and with varying costs. Their ideal location is one that produces at least 220 pounds of food scraps per day and has a place onsite or nearby that can use the amendment that is produced. Table 8 shows the various sizes and specifications of the machines, as well as estimated costs.

It is likely that there are several sites in Livonia that produce enough food waste to meet this minimum threshold that would be good candidates for an aerobic digester. The following places would be good options for a digester:

- Trinity Health Livonia
- Madonna University
- Schoolcraft College
- Restaurants at 5 Mile and Farmington (shared digester)
- Meijer
- Costco

Make Food Not Waste can support these institutions and businesses in connecting with local aerobic digestion experts to provide the technical assistance and support needed to confirm if this is a viable option and what would be needed for implementation

TABLE 8. **Aerobic digester specifications and estimated costs**

Machine Size (lbs per day)	Meals per Day (0.6 per meal)	Run Cycle	Footprint (ft)	Power	Venting	Labor (hours per day)	Capital Investment	Cost to Operate per Year
220	367	Batch	4.5 x 3.5	240V 3 phase	Yes	1	$30,000	$994.32
440	733	Batch	6 x 4	240V 3 phase	Yes	2	$50,000	$1,358.84
1,200	2,000	Continuous	12 x 5.5	240V 3 phase	Yes	2	$80,000	$3,804.00

Top left: Soil amendment created from digester.

Top right: Signage at digester.

Bottom: Aerobic digester.

Source: Finite Phoenix

Food scrap collection service

Despite the prevention and rescue efforts described previously, there will be food scraps that need to be diverted from landfills. While some businesses in Livonia may be diverting their food scraps from landfills, many are not. These remaining food scraps should be collected and transported for processing into compost. Knowing that business owners are busy and have limited bandwidth to take on new responsibilities such as adding a contract for food scrap collection, training employees in food scrap sorting and contamination prevention, and finding a place for a new cart, MFNW staff will do some of this legwork and support their diversion efforts in the following ways:

Property owner/manager buy-in for food scrap collection services

Many businesses in Livonia are tenants in strip malls and use the waste management services provided by their property owner or manager that is included in their rent. To best address issues related to space for a food scrap cart and economies of scale, it makes sense for the entire strip to be served under one food scrap collection contract. MFNW will support businesses by communicating with property owners and managers about setting up this service, providing easy to understand information about local haulers and tailored information about what would be possible on their site given the needs of their tenants and site constraints. When possible, further economies of scale will be sought by encouraging property owners of buildings that are geographically close together to seek a common contract for better pricing. MFNW can help facilitate those conversations and bring interested parties together.

Providing incentives for implementing food scrap collection

While a reduction in landfill fees may eventually result from diverting food from the trash, businesses may need incentives early on to start a new practice and cover or subsidize the cost of a new service. In addition to the technical assistance and resources described above, other incentives could include promotion of the business or a few free months of food scrap collection service.

Contamination prevention

It is necessary to prevent contamination of food scrap streams in order to make a food scrap program successful. Contamination of food waste streams is a major issue to consider and address everywhere in the city. In addition to the education, training, and ongoing monitoring and feedback about the waste collected provided by most food scrap haulers MFNW will also support proper sorting of food scraps through a variety of strategies, including:

- Training employees and custodial staff on proper sorting via lunch and learns, workshops, demos and other means tailored to the site
- Providing signage to assist employees and patrons in proper sorting
- Recommending wayfinding, zoning, and color-coded bins for waste disposal areas that is consistent with other sites in the city (see further details of this strategy in the Schools and Institutions chapter)
- Encouraging food scrap haulers to monitor bins on a regular basis and notify management if the stream is contaminated

Project REDUCE in Phoenix, AZ

Project REDUCE (Restaurants Eliminating and Diverting Uneaten food through Composting and Education) is a microgrant program that supports restaurants in piloting food waste prevention solutions. The program focuses on restaurants in the city's Downtown Core. Funds can be used for things such as self-serve stations to reduce single-use packets, implementing waste tracking processes, purchasing software to better manage inventory and production, and purchase of food preservation tools. The first phase of the pilot worked with nine restaurants to completely eliminate food waste, saving 31,000 pounds of food. More information about this program can be found on the City of Phoenix's website.

04 Host a food waste challenge

Similar to the food waste challenge discussed for residents (Strategy 01.G), a food waste reduction challenge could also be conducted among businesses. A competition would raise awareness of the issue and the business, boost staff attention to the issue, reinforce previous training, and be a fun way to increase participation in food waste reduction practices among businesses. The competition could be held annually, possibly during National Food Waste Awareness Week in April, and could have multiple classes of businesses as the competition grows. Audits and tracking would be used to identify a winner - possibly a "biggest loser," the business with the smallest volume of food waste compared to purchasing, or some other metric. The implementation team could host the event as a way to promote the businesses involved.

05 Develop a Green Business Certification program

There are many certifications businesses can get to help promote their business and help patrons identify where the business' values and operations meet. These certifications can be done locally, and often are. The implementation team, the city, or another entity could create a Green Business Certification program for Livonia businesses. For food-based businesses, incorporating food waste management practices into the scoring is imperative. Businesses could apply for the certification, providing the documentation to show that they meet the standards required for certification. All businesses with the certification could receive a window decal, promotion on the Chamber of Commerce's website or other publications, and other incentives. The certification could also be multi-level to encourage businesses to start the journey towards zero food waste and be recognized for their progress towards that goal.

06 Showcase food waste reduction practices

Events that showcase the talent of local chefs while they are also reducing food waste can increase both business and resident awareness of the issue of food waste and ways to use more of the food they buy. These events could be hosted by an individual business or multiple businesses, possibly as part of National Food Waste Awareness Week or tied into other city events.

07 Keep up the momentum

07.A Support training of Wayne County health inspectors

Training for Wayne County health inspectors will need to continue as new health inspectors start work for the county and others need a refresher. It is anticipated that this will be done in-house, but could also be done through partnerships with MFNW and/or food rescue organizations.

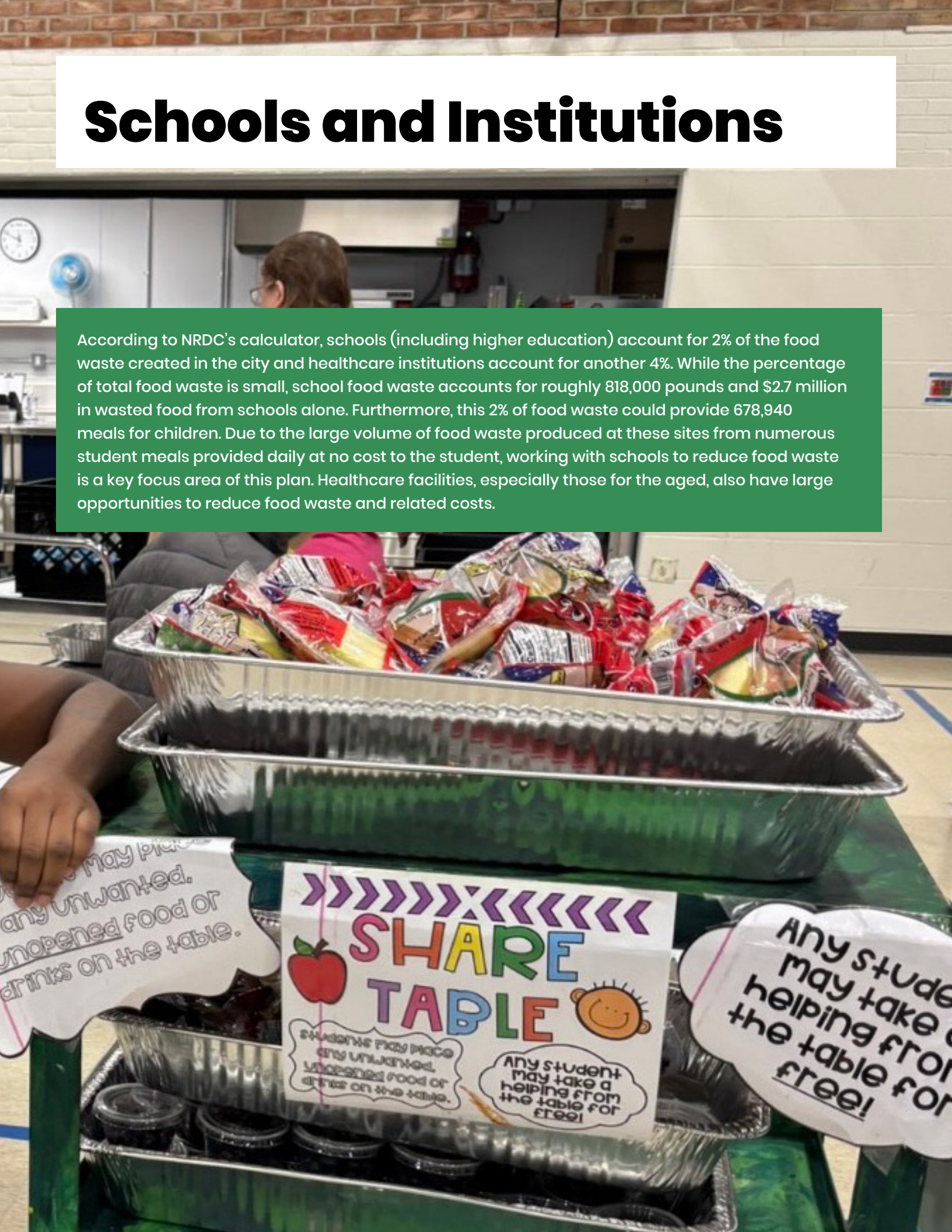
07.B Continue support of food rescue and distribution operations

Food rescue operations will likely see an increase in food donations with this initiative, and that elevated number of trips and services may stretch these organizations. Finding ways to increase funding to support these important operations is needed, both in terms of food waste prevention and helping to address food insecurity in the community. While these organizations are responsible for their own funding sources, frequently noting the important piece that food rescue plays in keeping food in the community for consumption and out of landfills can help these organizations find the funding they need for their work that supports the overall goal of zero food waste in Livonia.

Similar to food rescue operations, food distribution operations are often nonprofits with limited budgets and revenue streams. These organizations serve important functions in the community, providing food to those who need it the most. In terms of this plan, they are also important in ensuring food is used for its highest purpose - for consumption by people. These operations may need varied types of support to help them continue their work to serve the community - possibly financial, but also volunteer help, promotion of their service, or new refrigerators, coolers or shelving. Identifying ways to partner with these organizations to support the work they are already doing and help ensure it continues to meet the needs of the community is needed.

Schools and Institutions

According to NRDC's calculator, schools (including higher education) account for 2% of the food waste created in the city and healthcare institutions account for another 4%. While the percentage of total food waste is small, school food waste accounts for roughly 818,000 pounds and $2.7 million in wasted food from schools alone. Furthermore, this 2% of food waste could provide 678,940 meals for children. Due to the large volume of food waste produced at these sites from numerous student meals provided daily at no cost to the student, working with schools to reduce food waste is a key focus area of this plan. Healthcare facilities, especially those for the aged, also have large opportunities to reduce food waste and related costs.



Schools and Institutions

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Student posing with a share table, ensuring no unwanted food at school goes to waste

Source: Christine Lakatos

TABLE 9. Timing of Activities: Schools and Institutions

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01 Get commitment from the district and schools												
02 Food waste tracking												
Develop portal												
Train staff and administrators												
Track food waste												
Review food waste trends and progress towards elimination												
Adjust school food waste plan as needed												
03 Understand food waste at each site												
03.A Perform resource assessments												
03.B Conduct food waste audits												
03.C Conduct a food survey												
04 Develop individualized school plans												
Write plan												
Provide plan to school board												
05 Implement waste elimination plans												
05.A Implement waste elimination plans												
Implement plans per the timeline												
Monitor progress												
Report progress												
Adjust implementation plan as needed												
05.B Reduce likelihood of contamination of food scrap streams												
05.B.1 Visual cues for sorting waste												
Implement color coding												
Implement logos and labels												
Implement zoning and wayfinding												
Implement educational recycle wall												
05.B.2 Practice sorting waste												
05.B.3 Identify and train peer leaders to support proper waste sorting												
Identify leaders												
Train leaders												
Maintain program												
05.C Engage staff												

TABLE 9. **Timing of Activities: Schools and Institutions (Continued)**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
06 **Keep up the momentum**												
Identify champions among staff, administrators, and food service providers												
Identify champions among students												
Tie food waste initiative into the curriculum												

Schools are important places to focus food waste education, prevention, and diversion efforts. The schools in Livonia interact with many residents, both students and parents. Students who learn about the issue of food waste and experience the ease of preventing and managing it become better stewards of resources and ambassadors to their family members who will also be learning about food waste and adopting new habits for prevention and diversion. This chapter of the plan details how to engage schools to eliminate their own food waste and bring those practices into homes. Many of these strategies can be easily adapted for other large institutions such as healthcare facilities; notes about how to adapt the strategies are included.

01 Get commitment from the district and schools

Ensuring commitment from the school districts is needed to allow, and possibly require, food waste elimination education, programming, and initiatives in each school. This will involve reaching out to the district (Livonia Public Schools; see Map 3), meeting with district and food service provider a well as school leadership to explain the project's objectives, establishing a relationship with school representatives, and explaining how these goals can be met within the school meal requirements set by the Michigan Department of Education (MDE) and United States Department of Agriculture (USDA). With this commitment, the schools coordinator will develop an individualized food waste elimination plan for the schools and work with the schools to implement the strategies in their respective plan. A full list of schools and contact information has been compiled by the team and can be found in Appendix G.

In healthcare facilities and other institutions, commitment to reducing food waste is also important. Some of these facilities are part of a larger system and will require approval from managers outside of the site, or have policies that limit what can and cannot be done at the site or how things can be done. Building a relationship early on with local managers and those higher up, as needed, is necessary both for the initial approval and to support implementation. Having a point person at each site to champion the cause and help navigate the planning and implementation process is crucial.

Michigan Green Schools Program and Hayes Elementary

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) hosts the Michigan Green Schools Program to assist all Michigan PreK-12 schools in achieving environmental goals that protect our natural resources. Michigan Green Schools encourages ecological initiatives and teaching of environmental stewardship. Several schools in Livonia, including the American Montesorri Academy, Botsford Elementary, Branch Line School, and Buchanan Elementary have all earned this designation[1]. Hayes Elementary School has already earned Evergreen status, the highest level of recognition through this program, and was designated a Green School by the United States Department of Education in 2024 for their sustainability initiatives, including composting their lunch trays. Food waste prevention and diversion efforts are also supported and promoted by this program as ways to protect air land, air, water, and other resources.

Hayes Elementary

Hayes Elementary School, located in Westland and a part of the Livonia Public School district, has already earned Evergreen status, the highest level of recognition through this program, and was awarded the 2024 U.S. Department of Education Green Ribbon School Award for their sustainability initiatives. They have distinguished themselves as a leader in sustainability and are a great example and inspiration for other schools.

Sustainability efforts at Hayes began in 2016 with the formation of a Green Club, which has since grown into an adult-led Green Team and a student-driven Green Ambassador program. Over the years, the school has aunched and participated in a variety of eco-friendly initiatives, including a Lights Out Day for World Energy Day, the creation of a pollinator garden, and the ongoing construction of an outdoor classroom.

Composting and Prevention

In January 2025, the school launched a composting program. To introduce the concept of food composting, students first learned how to compost using play food in art class. As of May 2025, 2nd through 4th graders actively compost during lunch, supported by a Share Cart system designed to minimize food waste. The composting program is largely student-led, with two students managing the compost cart during each lunch period under the guidance of Ms. Lakatos, the lead of the program. The school just sold its first pallet of compost and is able to redistribute the money back into the program!

The Share Cart, created in response to a waste audit, allows students to place unopened lunch items for others to take, reducing the school's largest source of food waste. If there are any leftovers after lunch, the items are first offered to the office to keep on hand for hungry students, and then to their Young 5 classroom. The rest is kept in the art room for students who forget their afternoon snack. If there is any food left, it gets dropped off at a local food pantry.

1 https://greenschools-michigan.hub.arcgis.com/

Hayes also promotes Waste-Free Wednesdays, where students are encouraged to bring lunches with reusable or compostable materials. Those who participate earn raffle tickets for Green Team prizes awarded each Friday morning. Currently, the adult Green Team consists of nine members, while about 30 students serve as Green Ambassadors. These students lead key efforts, including managing the compost and Share Carts, giving morning announcements, distributing raffle tickets, and fostering a culture of environmental responsibility school-wide.

Takeaways

While Hayes Elementary has made significant strides in sustainability, the journey has not been without its challenges. The school still generates a considerable amount of waste, and logistical issues like managing liquids such as milk or expanding composting infrastructure remain ongoing concerns. Importantly, the success of the program currently relies heavily on the leadership of Ms. Lakatos, prompting efforts to build a more sustainable model through distributed leadership. Initiatives like appointing a third-grade "Compost Manager" and Share Cart leaders help prepare younger students to carry the program forward. Staff engagement has also proven essential; building strong relationships with teachers and staff ensures smoother implementation and long-term commitment. One key lesson from Hayes is the importance of working with what already exists, leveraging current clubs or school structures can provide a strong foundation for launching or expanding green initiatives. Above all, Hayes has shown that creating a culture of sustainability is not about achieving perfection, but about consistent engagement, shared responsibility, and empowering students and staff alike to lead by example.

Students at Hayes Elementary compost their uneaten lunch items with the help of staff.

Source: Christine Lakatos, Hayes Elementary

02 Food waste tracking

The State of Michigan currently requires all schools to have a healthy schools plan. This plan is created and managed through an online portal that also serves as a hub for ideas and resources for meeting the state's requirements. A similar portal will be used to help schools create and implement plans to manage their food waste. Make Food Not Waste is working on developing the portal, which will be piloted in Southfield. The platform can be shared with schools in Livonia to assess their food waste, identify ways to reduce it, and track progress towards goals. The Schools Coordinator will help develop this portal and later train staff and administrators on how to use it.

Depending on the size and food services provided at each site, healthcare facilities could use programs such as LeanPath, Toast, or Make Food Not Waste's technical assistance. These are described in Strategy 03 of the Food-Based Businesses chapter.

03 Understand food waste at each site

Collecting data from each site (school, campus building, individual healthcare facility, etc.) to establish a baseline is needed to develop plans for how each site can eliminate food waste. Information collected through the following methods should improve understanding of:

- Existing contract for meal service, if applicable
- Existing protocols for meal service
- Resource availability in each cafeteria/dining area and kitchen
- What types of food are wasted
- How much of each type of food is wasted
- Food preferences

The data collected can be used to estimate cost savings, identify areas of opportunity to improve food quality and kitchen and school operations, increase consumption, and decrease waste. This information gathering can also help identify what resources will be needed to eliminate food waste from each site's dining area and kitchen. All information should be entered into the food waste tracking portal or program, which can then be used to make recommendations on strategies to implement to reduce food waste.

Potential Partnerships for Food Waste Audits in Schools

Michigan State University Extension (MSUE) has expressed interest in supporting schools to conduct food waste audits as part of their ongoing Policy, Systems, and Environmental Change (PSE) work to improve community health and well-being by improving access and practicality of making healthy choices. Therefore, it is recommended that the Schools Coordinator work with MSUE to schedule and plan food waste audits at each school.

03.A Perform resource assessments

Conducting a food service resource assessment will:

- Provide a comprehensive understanding of each site's existing resources—from appliances and equipment to utensils and consumables—which is instrumental for identifying areas of inefficiency and potential improvement in their existing waste reduction efforts,
- Enable each site to optimize their food waste reduction strategies to work effectively within their kitchen and dining areas' existing capabilities while providing sites with future investment opportunities to further support their food waste elimination efforts,
- Identify opportunities to implement food waste prevention and diversion strategies within their existing systems.

This assessment is necessary to ensure that any proposed food waste reduction strategies are feasible and aligned with each site's existing operational capacity. See Appendix D for a food service resource checklist.

03.B Conduct food waste audits

Conducting a food waste audit at each site allows a baseline for the volume and nature of wasted food to be established. This is a critical step in being able to effectively measure the success of each food waste reduction initiative over time and help sites determine which food scrap management method will be most applicable to accommodate their volume of food waste. The audit also provides students, residents, patrons, staff, and other stakeholders with a hands-on and visual understanding of how their daily food consumption and disposal habits impact their environment.

Although collecting data from each school is ideal to establish accurate baselines, auditing a sample of schools with the same food service provider would likely be sufficient to understand what universal opportunities exist for reducing food waste in all schools within the district. However, audits should occur at schools of varying grade levels to ensure a clear understanding of how food consumption and disposal habits differ between elementary, middle, and high schools.

See Appendix D for existing food waste audit resources and guides.

03.C Conduct a food survey

A food survey is essential for gathering critical data regarding the types, quantities, and reasons for food waste at each site. This survey will also allow eaters to provide feedback regarding their food preferences, consumption habits, and perceptions of food quality. It will also identify what culturally appropriate foods should be offered and pinpoint the key drivers of food waste. The survey results will help each site identify effective food waste reduction strategies and enable them to make more sustainable, eater-centered decisions to improve meal satisfaction.

See Appendix D for resources to conduct school food surveys.

04 Develop individualized school plans

For schools, the Schools Coordinator will create a school food waste elimination plan within the food waste tracking portal using the audit and food survey as the baseline benchmark for the strategies included. Possible plan strategies include the following ideas. More detail about each can be found in Appendix D:

- Revise food waste contract to include food scrap prevention, tracking, reporting, and diversion, including donation
- Adopt offer vs. serve for breakfast and lunch in all schools
- Tasting events for new items before adding them to the menu
- More scratch cooking where possible
- Remove trays
- Implement share tables in lunchrooms
- Flipped lunches (recess before lunch)
- Extend mealtimes to a 25-minute minimum seating time
- Implement bulk milk dispensers
- Procure child-safe fruit slicers
- Establish a flavor station in school lunchrooms
- Serve recovered food during the next day's meals
- Use Leanpath or another method to track and reduce food waste

Choosing a Food Service Provider

When choosing a food service provider, it is important to consider their role in reducing food waste. First and foremost is the provision of meals that are healthy and that students want to eat, and there are various ways to improve what gets eaten. Secondly, they can play a role in diverting food from landfills, particularly if waste management in the cafeteria is part of their contract. The following are some things to consider including in an RFP for future food service providers:

- How meal planning is done, specifically if student feedback is considered and how the feedback is collected
- Providing condiments
- Responsibility for having a share table
- Ability to use a milk dispenser instead of cartons
- Responsibility for collecting food scraps for composting
- Reporting on amount of food wasted, types, and diversion efforts

- Donate excess food (See Guide on Food Donations for Businesses, Schools, and Institutions and the Bill Emerson Good Samaritan Food Donation Act)
- Establishing a food scrap collection program (either from a hauler or onsite)
  - » Remove trash cans or create intentional bottlenecks to prevent food items being thrown in the trash
  - » Add surfaces at waste separation stations to set trays and support proper sorting of items
  - » Provide signage and wayfinding; color coding bins for consistency is ideal
- Host a food waste reduction competition
- Educate food service providers and administrators on meal program requirements
- Integrate food and climate education into the K-12 curriculum
- Introduce vermiculture kits in elementary school classrooms
- Field trips to demonstration composting sites, landfills, digesters

The plans will also include a timeline for implementation of each strategy, resources needed, including funding, food waste reduction goals, and plans for monitoring progress. These plans will serve as the Blueprint for reaching zero food waste in each school in the city. Plans should be provided to the school board for their records.

For colleges, healthcare facilities and other institutions, individualized plans will also be needed. These may include strategies similar to those listed above for schools, as well as additional strategies outlined in the Leanpath, Toast, or other food waste reduction programs discussed in Strategy 03 of Food-Based Businesses.

Funding food scrap collection programs

Food scrap collection programs can seem like an unnecessary expense in budgets that are already stretched thin. However, there are ways to sustainably fund the program besides grants and donations. One way to do this is to sell the compost created through the program back to parents and other stakeholders. Many food scrap haulers will include compost provision as part of their contract offerings. Making sure this is included in contract negotiations is key. Another option is to develop a CSA (Community Supported Agriculture)-type program for the compost that will be created. Parents, staff, and other stakeholders can sign up for a share of compost that will be created through the program. Just like other CSA programs, stakeholders would pay upfront for their share of the compost. These funds would be used to cover the hauling fees, and when compost is available at the end of the year, members would get their share of the compost.

Cafeteria food waste audit at Bentley Elementary.

Source: Zachary Michels

05 Implement waste elimination plans

05.A Implement waste elimination plans

The Schools Coordinator, with support from nutrition staff, administration, and student leaders, will work to implement the strategies outlined in the school's food waste elimination plan. Several strategies are low or no cost and likely can be done immediately such as share tables, donating excess food, hosting a food waste competition between grades or lunch periods, and educating food service providers on meal program requirements and students on the issue of food waste. Other strategies typically have windows of time when they can be implemented, including extending mealtimes to 25 minutes, having flipped lunches, and participating in offer vs. serve. These strategies will need to be planned for to ensure those windows of opportunity are not missed. Some of the strategies will require significant changes to operations and potentially costs, and will require diligence and persistence in planning the steps to implementation. Costs for food scrap collection at schools located within Livonia can be found in Appendix E.

For sites that are not K-12 schools, MFNW will coordinate with the site champion to engage the appropriate staff, clients, and other resources at each stage of implementation to help ensure that the plan is implemented with fidelity.

All institutions should monitor progress towards their plans, whether that be through the tracking portal, regular food waste audits, hauling information, or a combination of these metrics. The plan should include a schedule for monitoring progress, and reports should be provided to the school board or administrative body of the institution at least every year. Adjustments to the plan may be needed based on the results of the monitoring.

05.B Reduce likelihood of contamination of food scrap streams

In places where lots of people are responsible for sorting their waste, and sometimes with great variation in the types of things to be sorted, many supports are needed to help them get items in the right bin. This Blueprint suggests multiple ways to support accurate sorting of items.

05.B.1 Visual cues for sorting waste

The College for Creative Studies (CCS) explored best practices for preventing contamination in places such as cafeterias or restaurants where individuals are responsible for clearing their table and disposing of waste. Their solution focuses on multiple visual cues including color coding, logos and labels, zoning and wayfinding, and an educational recycle wall located near the collection bins. While the focus of this was for settings like cafeterias, it could also be employed in restaurants where eaters bus their own tables and adapted for other settings, such as the office or even home. More information about these strategies and the recommendations from CCS can be found in Appendix D.

05.B.2 Practice sorting waste

Giving students the opportunity to practice sorting common food items before they are actually trying to sort items and get back to class on time can help make the transition to composting easier and less stressful for everyone. At Hayes Elementary, students practiced identifying what foods to put in which bin during their art class before the program began in the cafeteria using play food. This allowed students and staff to feel more confident that food would be sorted properly in the cafeteria and helped reassure administrators that the program could be successful, even with younger students. This could also be incorporated into a quick one-day science lesson or simply part of the beginning of the year orientation and review of rules and procedures.

05.B.3 Identify and train peer leaders to support proper waste sorting

Peers can be very influential and helpful in ensuring materials are properly sorted. Students with an interest in composting, environmental issues, leadership, or other related topics may help others identify what goes where at the end of the meal. These students can be given special badges, aprons, or other items to designate their role. They can be responsible for standing near the sorting bins at the end of the lunch period and helping direct where things should go and redirect when items end up in the wrong bin. This is used at Hayes Elementary and has been key in reducing the need for staff involvement while also giving students desirable leadership opportunities.

05.C Engage staff

Most, if not all, of the food scrap collection programs that have been implemented in schools focus on how to teach students how to reduce food waste and properly sort and divert food scraps and do not address how to engage the staff to do the same. Staff will also need to be instructed in how to manage their food waste on site. Systems similar to what is used in office buildings as described in the Other Places section of this plan may be considered, however, it seems mostly likely that having food scrap caddies in the teachers lounge and/or office would be helpful. These caddies would need to be emptied on a regular basis into the bin that also contains the students' food scraps, either by janitorial staff or another staff champion. Planning for how staff will be instructed and support a zero-food waste school should be included in the school waste management planning effort.

Student Food Pantries

Recognizing the growing rate of food insecurity among college students, Henry Ford College, Schoolcraft College, and the University of Michigan – Dearborn all have food pantries that are open to their students. According to a report released by the U.S. Government Accountability Office in 2024, almost one-quarter (3.8 million) undergraduate students were food insecure in 2020. These pantries are working to help address this issue on their campuses. See below for more details.

The Hawks Nest at Henry Ford Community College

The Hawks Nest , the student food pantry at Henry Ford Community College, typically shares between 1,600 and 2,000 pounds of food with approximately 65 students each semester but has lately seen an increase in need. They provide non-expired non-perishable food including bread, as well as produce, that they receive via donations and purchase using donations made to the school's Foundation office. The ability to offer perishable items is limited by staff availability and the extra staff time that is needed to manage these items. They are interested in receiving surplus food from food rescue organizations and may be able to help distribute excess food to their students.

Schoolcraft College

Schoolcraft College has a similar number of students visiting their pantry as Henry Ford College, averaging 30 each month. In the past five years, an average of 52 students signed up to use the pantry, but in the 2024/2025 academic year, the number of students using the pantry jumped to 103. While the site does not currently have a refrigerator and cannot accept perishable items, there are plans to add this capacity in the future. The pantry is currently stocked through donations and purchases made at local stores, but there is interest in supplementing donations and purchases with rescued and surplus food. The college spends several thousand dollars a year to stock the pantry, with the costs almost doubling to $9,500 in the last school year to meet students' needs.

University of Michigan-Dearborn

The University of Michigan-Dearborn food pantry began as a partial launch in fall 2012 before fully opening in 2013. Since then, it has grown from a simple resource for a few grocery items that was intended to fill gaps and tie students over for just a few days into a dependable food source that many students now rely on for their monthly groceries as needs have increased. Students can visit the pantry up to twice a month or more if needed. While there are limits on individual items, there are no restrictions on the total weight of food they can take.

During the 2023-2024 school year, the pantry served an average of 500 students each month and distributed approximately 46,000 pounds of food. It is managed by Dearborn Support, which also connects students to additional support services.

All University of Michigan campuses provide nonperishable food items such as canned and dried goods. The Dearborn campus goes further, receiving fresh produce from Gleaners Community Food Bank and from its own student-run community garden, a collaboration between Dearborn Support and the Sustainability Department. With four freezers and five refrigerators, the pantry maintains a large inventory of perishable items that are heavily used by students.

Inclusivity is a key priority. The pantry offers halal, vegan, and vegetarian options, and it prioritizes foods that are simple to prepare, like microwaveable meals that only require water. This helps accommodate students who may not have full kitchen access at home.

The pantry is sustained by student volunteers as well as funding from alumni and grants. For the 2024-2025 academic year, it received a Barrier Relief Grant from the State of Michigan, dedicating approximately $75,000 to pantry operations. About a quarter of that funding went to support student employment. As of summer 2025, the pantry employs two student workers and one full-time staff member, with plans to hire two additional students. Looking ahead, the pantry is exploring ways to expand its offerings, particularly by introducing prepared meals to supplement the raw ingredients it currently provides.

Pictures from the University of Michigan-Dearborn, Dearborn Support student food pantry

Source: Ryan Neloms, University of Michigan-Dearborn

06 Keep up the momentum

As in the other sectors, the new habits and processes implemented in schools, healthcare facilities, and other institutions will need to be maintained. The Schools Food Waste Elimination Coordinator will work to identify food waste champions among staff and administrators to support food waste prevention and diversion activities. In particular, food service providers will be engaged and supported to reduce their food waste (and costs!). The Schools Food Waste Elimination Coordinator will also engage students in the classroom, connecting through their experiences in the cafeteria to curriculum goals, and will identify students to become ambassadors to educate their peers on this issue and work on additional implementation strategies that are part of their school's food waste elimination plan. Anchoring this initiative in various stakeholder groups at school will help keep the practices going, even when the Coordinator is not at the school.

Healthcare facilities and other institutions will rely on the staff who agree to champion the project and their supporters to maintain these new practices. Implementing policies that support these initiatives where possible could be an effective way to ensure food waste is prevented and not sent to landfills, regardless of the champion.

Other Places

Other Places

01 Technical assistance and infrastructure support for prevention and diversion in offices and small businesses 128
02 Place food scrap collection bins in municipal facilities and public spaces 129

Rice and vegetables served at the 2024 Community Fest. This dish was made from food that otherwise would have gone to waste.

TABLE 10. **Timing of Activities: Other Places**

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
01 Technical assistance and infrastructure support for prevention and diversion in offices and small businesses												
01.A MFNW technical assistance program												
01.B Engage employees												
01.C Office kitchen dehydrators												
02 Place food scrap collection bins in municipal facilities and public spaces												
02.A Municipal facilities												
Purchase bins												
Train staff												
Install bins and signage												
Collection program												
02.B City parks												
Purchase bins												
Install bins and signage												
Collection program												

This chapter serves as a catch-all to include any other places in the city where people may consume food, like offices and parks. Since this plan is to prevent or divert 100% of the food waste in the city from landfills, we must also plan for how to support food waste prevention and diversion in these spaces.

01 Technical assistance and infrastructure support for prevention and diversion in offices and small businesses

Many of the strategies outlined for food-based businesses may also be useful in preventing and diverting food waste in an office or public setting with some minor adjustments and likely scaled down due to a smaller volume of food waste at these sites. Specifically, technical assistance, a promotional toolkit, a food scrap collection service (leveraging owner/manager relationships), providing incentives for food scrap collection and kitchen caddies, and working to prevent contamination are all needed for these sites. The strategies that require more adjustments are described below with those adjustments. Sites may choose some or all of these strategies.

01.A MFNW technical assistance program

See the Other Places Chapter for more detail on the technical assistance program provided to food-based businesses.

01.B Engage employees

Widespread education about the importance of addressing food waste, the role everyone can play in preventing and diverting it, and how to do those things is crucial in the success of this plan. Businesses can support this effort by equipping employees with the knowledge and confidence needed to prevent food waste and properly sort and divert it through lunch and learns, internal employee communications, and partnering with the Livonia Public Library to host information events. These short, informal sessions hosted by MFNW will share information about how to eliminate food waste in the workplace. Simple things such as how to manage a shared refrigerator, how to order an appropriate amount of food when calling in catering for company events, having reusable containers to take leftover food home in, and guidelines for donating excess catered food could all be covered. Resources to support these habits in the workplace will be provided. Workplaces could also host additional lunch and learns and/or other educational sessions on how employees can get the most of their paycheck when it comes to food, covering tips for household food waste prevention. In larger office buildings, competitions between floors, departments, or other groupings and other incentives may increase buy-in and support the adoption of proper sorting of food scraps. The city can lead the way in these education and engagement efforts so city staff is knowledgeable and can answer questions from the public about the initiative as needed.

01.C Office kitchen dehydrators

Kitchen food waste recyclers or dehydrators, such as those made for use in residential homes or scaled up for kitchens serving more people, can also be used in office kitchen and dining spaces to manage food scraps from employee meals and snacks. They come in a variety of sizes and can generally process meat, dairy, small bones, and produce scraps on a daily basis. Use of these machines shrinks the volume of wasted food and reduces the need for daily janitorial services related to waste collection from kitchens. Many of the bins sense how much has been added and can be programmed to run on a schedule that works with employee and custodial hours. The resulting material is “food grounds” which can be added to a traditional food scrap collection process for full maturation before being used as compost.

02 Place food scrap collection bins in municipal facilities and public spaces

Many of Livonia's city services are clustered at the corner of Five Mile Road and Farmington Road, where the police, city offices, and library are located. There are other city-owned buildings, such as the Jack E. Kirksey Recreation Center, Senior Wellness Center, Department of Public Works building, as well as the city's 60 parks. Many of these sites currently have waste receptacles somewhere on the grounds. Areas where food is expected to be eaten on a regular basis should also have receptacles for food scraps to pair with traditional waste receptacles. These may be smaller bins that are then aggregated elsewhere more frequently, in the same way that trash is currently collected from these sites. Food scrap receptacles should be just as convenient, if not more so, than general trash receptacles. Custodial and operations staff will need to monitor these bins and empty them frequently to prevent odors and other nuisances. Traditional waste receptacles may be removed over time as fewer are needed due to greater prevention and diversion rates.

02.A Municipal facilities

Some of the municipal facilities above operate mostly as office buildings; these can use the same strategies described above for offices. It will be particularly important that facilities, spaces, and events that are community-facing model responsible food management practices and that employees are informed about these practices to be able to answer questions from the public. Events at these sites, regardless of size and whether they are internal or external, should use and demonstrate best practices in food management, including ordering the right amount of food for the number of attendees, having to-go boxes for leftovers, donating food or sharing it with other departments, and having food scrap collection bins available. Additional training and signage may be needed for staff to be confident in responding to resident inquiries and participating in food scrap diversion early. Signage and other supports, such as volunteers to help watch bins, could be helpful at larger events that include the public, especially before the food scrap diversion programs are rolled out for residents.

02.B City parks

The city's 60 parks are well-used and loved by residents and visitors, especially during the warmer months. Bins for trash and food waste should be co-located throughout parks. Each waste site will require signage about what can be put in each bin. The food scraps can be collected separately from the trash receptacles and aggregated for hauling to a compost facility, or picked up directly at the site if negotiated for in the contract. Parks with several waste receptacle locations may find they need fewer ones over time as prevention and diversion rates increase and less is thrown away.

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APPENDIX A:
Timeline

Appendix A: Timeline

Timeline

TABLE 11. Regional Plan Timeline

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SUPPORTING STRATEGIES												
01 **Communication campaigns**												
01.A Overall campaign: Creating a culture of zero food waste in Livonia												
01.B Household prevention communication campaign												
01.C Household diversion communication campaign - drop off collection												
01.D Household diversion communication campaign - curbside collection												
01.E Prevention and diversion communication campaign for spaces where food is outside of homes												
01.F Maintenance communication campaign												
02 **Online resource hub**												
03 **Food waste policy**												
03.A Draft and adopt language for policy on using locally created compost in city projects												
03.B Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served												
03.C Require that all special events donate excess food and have food scrap collection bins if food is served												
03.D Update site development standards to include food waste management in plans												
03.E Develop mandatory food waste reduction protocols for municipal buildings and facilities												
04 **Continuous feedback and learning**												
04.A Resident advisory committee												
04.B Internal working group												
04.C Integrate learnings												

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
05 Monitoring and evaluation												
05.A Measuring the 100% elimination goal												
05.B Measuring outcomes from prevention and rescue activities												
06 Project implementation team												
06.A City champion												
06.B External project partners												
RESIDENCES												
01 Engaging residents on the issues of food waste												
01.A Speak to community groups on food waste reduction strategies												
01.B Train food waste ambassadors												
01.C Provide pop-ups/demos at community partners and city and community events												
01.D Train residents in ways to safely reduce food waste												
01.E Track food waste rates compared to other households												
01.F Introduce a household food waste comparison metric												
01.G Host a food waste reduction competition among households												
02 Household food waste prevention toolkits												
03 Support the city in planning for and implementing a food scrap drop off program for all residents												
03.A Identify viable drop off sites												
03.B Develop and issue an RFP for food waste collection services for drop off sites												
03.C Review applications and select provider												
03.D Train staff as needed to monitor drop off sites												
03.E Set up and promote resident registration portal												
03.F Create informational signage for drop off sites												
03.G Implement drop off sites												
03.H Plan for surges in food scrap drop off												
03.I Ongoing monitoring and maintenance of drop off sites												

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
04 Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences												
04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services												
04.B Provide carts (if applicable) and education to households												
04.C Launch weekly curbside food scrap collection												
04.D Phase out drop off sites												
04.E Ongoing monitoring												
05 Food scrap collection for residences not able to be served by city curbside services												
05.A On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart												
05.B Community drop off sites for multi-family complexes, HOAs, and homes not able to accommodate a cart												
06 Prevent contamination of household food scrap streams												
06.A Create clear signage on what can and cannot be composted												
06.B Recognize those who are sorting food scraps well												
07 Support backyard and community composting												
07.A Draft and adopt policies for backyard composting												
07.B Design and share a backyard composting guide												
07.C Build demonstration sites												
07.D Develop a toolshare												
07.E Bulk purchase backyard composting supplies												
07.F Explore partnerships with local organizations to support composting practices												
08 Evaluate effectiveness of prevention and diversion strategies												

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
09 Keep up the momentum												
09.A Continue food scrap collection services												
09.B Help new residents integrate into a culture of zero food waste												
FOOD-BASED BUSINESSES												
01 Engage Wayne County health inspectors												
02 Increase capacity of food rescue organizations and food pantries												
02.A Increase capacity of food rescue services												
02.B Create capacity for rescued food to be donated to existing community resource hubs												
02.C Share rescued food with existing community resource hubs												
02.D Explore opportunities for pantries and public fridges												
02.E Share excess donated food at multi-family apartment buildings												
02.F Share excess donated food with sites outside of the city												
02.G Create a space to upcycle food rescued within the city												
03 Support businesses in managing food waste from prevention to diversion												
04 Host a food waste challenge												
05 Develop a Green Business Certification program												
06 Showcase food waste reduction practices												
07 Keep up the momentum												
07.A Support training of Wayne County health inspectors												
07.B Continue support of food rescue and distribution operations												

Strategy	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
SCHOOLS AND INSTITUTIONS												
01 Get commitment from the district and schools												
02 Food waste tracking												
03 Understand food waste at each site												
03.A Perform resource assessments												
03.B Conduct food waste audits												
03.C Conduct a food survey												
04 Develop individualized school plans												
05 Implement waste elimination plans												
05.A Implement waste elimination plans												
05.B Reduce likelihood of contamination of food scrap streams												
05.C Engage staff												
06 Keep up the momentum												
OTHER PLACES												
01 Technical assistance and infrastructure support for prevention and diversion in offices and small businesses												
01.A MFNW technical assistance program												
01.B Engage employees												
01.C Office kitchen dehydrators												
02 Place food scrap collection bins in municipal facilities and public spaces												

APPENDIX B:

Budgets

Appendix B: Budgets

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Summary Budget

	Year 1	Year 2	Year 3
One time costs			
	Year 1	Year 2	Year 3
Supporting Strategies	$691,722	$500,392	$488,191
Residences (excluding carts and hauling)	$412,188	$18,393	$6,800
Food-based businesses	$451,698	$544,813	$597,132
Schools and Institutions	$20,600	$164,900	$288,100
Other Places	$-	$182,772	$-
Total	**$1,576,208**	**$1,411,269**	**$1,380,223**
Total cost over 3 years	**$4,367,701**		
Ongoing costs			
Drop off hauling and liners	$8,505	$39,750	$39,750
Residential curbside hauling			$806,736
Municipal and park hauling and liners		$140,333	$264,810
Potential additional costs			
Residential carts		$5,042,100	

Funding Sources

The plan outlined above will need to be funded in a variety of ways. Make Food Not Waste is committed to looking for grants and other funding to cover the expenses related to the one-time costs for implementation. This plan recommends that the cost for the carts be passed to residents if grant funding is not available for this use. There is currently a lot of state, federal, and private funding opportunities for projects that address food waste. Make Food Not Waste has already applied and been granted funds to pilot the study to determine best practices for multi-family residences and will continue to apply to various funding sources as they become available. Due to the ongoing nature of the waste hauling service that is needed, the city would be the best partner to fund this. The estimate received from Priority Waste in Fall 2024 for hauling was $2 per month per household. This is much lower than the market rate for private service, which is $30 per household per month. This cost could also be passed along to residents, as other prevention measures described in the plan are expected to save them much more than the annual cost of hauling services (cost of hauling services is $24 per year; expected cost savings per household is up to $2,500).

Year 1

TABLE 12. **Budgets: Supporting Strategies, Year 1**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01 **Communication campaigns**		
01.A Overall campaign: Creating a culture of zero food waste in Livonia		
Design fee for all year 1 materials	$25,000	Design Firm
01.A.1 Promote the campaign website and online resource hub via mailers sent to residences and businesses		
Labor - Design sub-page for Livonia	Included	MFNW/Project Manager
Labor - Design, print, label, and mail materials	$60,346	Mailing House
01.A.2 Promote the campaign through the city magazine and newsletter		
Labor - Develop material	Included	Design Firm, Project Manager
Labor - Share material	Included	Project Manager, City staff
01.A.3 Promote the campaign through the city's social media and podcast		
Labor - Develop material for social media	Included	Design Firm, Project Manager
Labor - Share material	Included	Project Manager, City Staff
Labor - Develop and share material for podcast	Included	Project Manager, City Staff
01.A.4 Promote the campaign through flyers and printed signs		
Labor - Design materials	Included	Design Firm, Project Manager
Labor - Post materials	Included	Project Manager
01.A.5 Promote the campaign through the press		
Labor	Included	City Communications, Project Manager
Livonia Observer 1 (one) 1/4 page newspaper ads	$1,500	City Communications, Project Manager

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.A.6 Promote local champions		
Labor - Identify local champions	Included	Residential Coordinator
Labor - Train local champions (pre-created social media toolkits, resources)	Included	Residential Coordinator
01.A.7 Create ways for people to make a public commitment to address food waste		
Labor - Design yard and door signs, flags	Included	Design Firm
Print yard signs	$34,000	Residential Coordinator
Print signs for apartment doors	$1,530	Residential Coordinator
Labor - Create flags	Included	Design Firm
Labor - Create online pledge	Included	Residential Coordinator
Labor - Promote pledge	Included	Residential Coordinator
Labor - Distribute signs	Included	Residential Coordinator
01.A.8 Host a citywide food waste summit		
Space rental at city site	$-	Project Manager
Labor - Promotional material and registration	$750	Event Coordinator
Labor - Event organization	$4,500	Event Coordinator
01.B Household prevention communication campaign		
01.B.1 Household prevention campaign		
Labor - Design mailers, social media posts, ads, flyers	Included	Design Firm, Residential Coordinator
Materials for focus group to test materials (space, stipends, refreshments)	$500	
Print, label, and mail materials	$60,346	Residential Coordinator, Mailing House
Labor - Promote the campaign through the city newsletter	Included	City Staff, Residential Coordinator
Labor - Promote the campaign through social media and podcast	Included	City Staff, Residential Coordinator
Labor - Promote the campaign through the press	Included	Project Manager, City Staff

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
Labor - Coordinate with TGTG for targeted ads in Livonia		TGTG
Labor - Support the Buy Nothing groups in creating guidelines for food sharing	Included	Residential Coordinator
Labor - Coordinate with TGTG for targeted ads in Livonia	Included	Commercial Coordinator
Labor - Support the Buy Nothing Group in creating guideliens for food sharing	Included	Residential Coordinator
01.B.2 Grocery store signage		
Labor - Design materials	Included	Design Firm, Food-Based Business Coordinator
Print signs for grocery stores	$8,000	Commercial Coordinator
Labor - Post materials	Included	Commercial Coordinator
01.C **Household diversion communication campaign - drop off collection**		
Labor - Design social media and city newsletter materials	Included	Design Firm, Residential Coordinator
Labor - Promote the drop off collection campaign via the city newsletter	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via the city social media	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via the press	Included	Residential Coordinator, CIty staff
Print, label, and mail materials	$60,346	Residential Coordinator
01.E **Prevention and diversion communication campaign for spaces where food is outside of homes**		
Labor - Design materials	Included	Design Firm
Print and mail materials	$670	Commercial Coordinator, Mailing House
Labor - Promote the campaign through the city newsletter	Included	Commercial Coordinator, City Staff
Labor - Promote the campaign through social media and podcast	Included	Commercial Coordinator, City Staff
Labor - Promote the campaign through flyers	Included	Commercial Coordinator, City Staff
Labor - Promote the campaign through the press	Included	Commercial Coordinator, City Staff

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
02 **Online resource hub**		
Labor - Develop the online resource hub	$5,000	Design Firm
Labor - Create content for the online resource hub	Included	Project team
Labor - Cross-share resources with county health department	Included	Prioject team
Labor - Promote the online resource hub	Included	Project team, City Communications
Labor - Promote the online resource hub through the city newsletter	Included	Project team, City Communications
Labor - Promote the online resource hub through social media and podcast	Included	Project team, City Communications
Labor - Promote the online resource hub through flyers	Included	Project team, City Communications
Labor - Promote the online resource hub through the press	Included	Project team, City Communications
03 **Food waste policy**		
03.A **Draft and adopt language for policy on using locally created compost in city projects**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
03.B **Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
Labor - Develop resources to support zero food waste practices	Included	City staff, Project Manager
Labor - Promote resources to encourage zero food waste practices via updates to the website and flyers for event permit seekers	Included	City staff, Project Manager
Labor - Test feasibilty and receptiveness of policy	Included	City staff, Project Manager
Resources to encourage zero food waste practices	$5,000	City staff, Project Manager

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
03.C **Require that all special events donate excess food and have food scrap collection bins if food is served**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
Labor - Develop resources to support zero food waste practices	Included	City staff, Project Manager
Labor - Promote resources to encourage zero food waste practices via updates to the website and flyers for event permit seekers	Included	City staff, Project Manager
03.D **Update site development standards to include food waste management in plans**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
03.E **Develop mandatory food waste reduction protocols for municipal buildings and facilities**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
04 **Continuous feedback and learning**		
04.A **Resident advisory committee**		
Labor - Develop application process	Included	Project Manager
Labor - Promote advisory committee and share applications	Included	Project Manager, City Communications
Labor - Select committee members	Included	Project Manager
Labor - Host quarterly meetings	Included	Project Manager
04.B **Internal working group**		
Labor - Identify members	Included	City Champion
Labor - Host regular meetings	Included	City Champion
04.C **Integrate learnings**	Included	MFNW

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
05 **Monitoring and evaluation**		
05.A **Measuring the 100% elimination goal**		
05.A.1 Conduct audits of trash receptacles		
Labor - Register sites for audits	Included	Residential Coordinator
Labor - Conduct audits	Included	Residential Coordinator
Labor - Report results	Included	Residential Coordinator
05.A.2 Conduct a waste characterization study		
Labor - Identify a study provider	Included	Implementation team
Labor - Conduct study (residential)	$30,000	Consultant
Labor - Conduct study (commercial)	$50,000	Consultant
05.B **Measuring outcomes from prevention and rescue activities**		
Labor - Identify evaluation team	Included	Implementation team
Labor - Evaluation	Included	Consultant/Partner, Implementation team
Labor - Project reporting	Included	Consultant/Partner, Implementation team

TABLE 12. **Budgets: Supporting Strategies, Year 1 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
06 **Project implementation team**		
06.A **City champion**		
Labor - Identify champions	Included	City staff
06.B **External project partners**		
Labor - Post job positions	Included	MFNW Executive Director
Labor - Interview and select candidates	Included	MFNW Executive Director
Labor - Onboarding	Included	MFNW Executive Director
Project management and implementation work		
Project Manager	$84,000	MFNW Executive Director
Commercial Coordinator	$72,000	MFNW Executive Director
Residential Coordinator	$72,000	MFNW Executive Director
Schools Coordinator	$72,000	MFNW Executive Director
Evaluation Team	$30,000	University Partner

TABLE 13. **Budgets: Residences, Year 1**

Strategy	Cost	Responsible Party
RESIDENCES		
01 **Engaging residents on the issues of food waste**		
01.A **Speak to community groups on food waste reduction strategies**		
Labor - Speaking engagements	Included	Project Manager, Residential Coordinator
01.B **Train food waste ambassadors**		
Print materials for recruitment (flyers)	$100	Residential Coordinator, Project Manager
Labor - Recruit ambassadors	Included	Residential Coordinator
Labor - Host ambassador training	Included	Residential Coordinator, Project Manager
01.C **Provide pop-ups/demos at community partners and city and community events**		
Labor - Attend events	Included	Project Manager, Residential Coordinator, Commercial Coordinator
Print materials for events	$500	Project Manager
01.D **Train residents in ways to safely reduce food waste**		
Labor - Promotion of monthly workshops	Included	Residential Coordinator
Labor - Organization and communication of workshops	Included	Residential Coordinator, Project Manager
Speaker fees (chefs, health department)	$1,500	Residential Coordinator, Project Manager
Labor - Host monthly workshops	Included	Residential Coordinator, Project Manager
Materials for workshops	$1,200	Residential Coordinator, Project Manager
01.E **Track food waste rates compared to other households**		
Labor - Develop quarterly survey	Included	Evaluator, Residential Coordinator
Labor - Distribute quarterly survey	Included	Residential Coordinator
Labor - Analyze results of quarterly survey	Included	Evaluator
01.F **Introduce a household food waste comparison metric**		
Labor - Report findings of quarterly survey via social media and city newsletter	Included	Residential Coordinator, City Communications

TABLE 13. **Budgets: Residences, Year 1 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
01.G **Host a food waste reduction competition among households**		
Labor - Promote competition	Included	Residential Coordinator
Labor - Facilitate competition	Included	Residential Coordinator
Labor - Report results of compettition	Included	Residential Coordinator
Incentives/prizes	$500	Residential Coordinator
02 **Household food waste prevention toolkits**		
Labor - Design informational material for toolkits	Included	Design Firm
Labor - Coordinating creation of toolkits	Included	Residential Coordinator
Labor - Creating toolkits, labeling, packaging	$80,000	Mailing house
Materials and labeling/mailing materials to all 37,720 households, including reminder magnets, refrigerator thermometer, grocery list pad, recipes, and "use up" tape	$120,000	Residential Coordinator
03 **Support the city in planning for and implementing a food scrap drop off program for all residents**		
03.A **Identify viable drop off sites**	Included	Residential Coordinator, City staff
03.B **Develop and issue an RFP for food waste collection services for drop off sites**	Included	City staff, Residential Coordinator
03.C **Review applications and select provider**	Included	City staff, Residential Coordinator
03.D **Train staff as needed to monitor drop off sites**		
Labor - training	Included	Residential Coordinator, City staff
03.E **Set up and promote resident registration portal**		
Labor - set up registration portal	Included	City staff
Labor - promote resident registration portal via electronic communication channels	Included	City staff, Residential Coordinator
Print flyers and signs	$500	Residential Coordinator

TABLE 13. **Budgets: Residences, Year 1 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
03.F Create informational signage for drop off sites		Residential Coordinator
Create informational signage	Included	Design Firm
Print signage	$3,300	Residential Coordinator
03.G Implement drop off sites		
Labor - set up site with bins, signage	Included	Residential Coordinator, City staff
Cost of bins (30 BigBelly bins, $63,296 for 10 bins)	$189,888	City staff, Residential Coordinator
Hauling (once weekly, 10 sites, 3 months)	$6,930	City staff, Residential Coordinator
Liners	$1,575	City staff, Residential Coordinator
Trash bin for each site	$500	Residential Coordinator
04 **Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences**		
04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services	Included	City staff, Residential Coordinator
04.A.1 Adjust existing contract to prepare for curbside food scrap pick up		
Labor - Review and negotioate new contract	Included	City staff, Residential Coordinator
04.A.2 Develop and issue an RFP for curbside food waste collection services		
Labor - research on services and bins, if needed	Included	City staff, Residential Coordinator

TABLE 13. **Budgets: Residences, Year 1 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
05 **Food scrap collection for residences not able to be served by city curbside services**		
05.A **On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart**		
Labor - Explore options for food scrap collection service at multifamily sites and HOAs	Included	Residential Coordinator
Labor - Identify community food scrap collection sites	Included	Residential Coordinator, City staff
Labor - Select hauling service for community food scrap drop off sites for sites not included in city's hauling contract	Included	Residential Coordinator
05.B **Community drop off sites for multi-family complexes, HOAs, and homes not able to accommodate a cart**		
Labor- Explore options for food scrap collection service at multifamily sites	Included	Residential Coordinator
Labor - Plan for community food scrap collection sites	Included	Residential Coordinator
Labor - Select bins and hauling service for community food scrap drop off sites	Included	Residential Coordinator
Labor - Create signage	Included	Residential Coordinator
Labor - Educate residents	Included	Residential Coordinator
06 **Prevent contamination of household food scrap streams**		
06.A **Create clear signage on what can and cannot be composted**	Included	Residential Coordinator
Labor - Design sticker for compost caddies	included	Design Firm
Labor - Create signage for community food scrap collection sites	included	Design Firm
06.B **Recognize those who are sorting food scraps well**		Residential Coordinator
Labor - Set up audit program registration	Included	Residential Coordinator
Labor - Promote audit program	Included	Residential Coordinator, City staff

TABLE 13. **Budgets: Residences, Year 1 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
07 **Support backyard and community composting**		
07.A **Draft and adopt policies for backyard composting**	Included	Residential Coordinator, City staff
07.B **Design and share a backyard composting guide**		
Labor - Design guide	Included	Residential Coordinator, City staff
Labor - Share guide via social media, city newsletter, and online resource hub	Included	Residential Coordinator, City staff
07.C **Build demonstration sites**		
Labor - Identify sites and gain permission for use	Included	Residential Coordinator
Purchase tumbler for 3 sites	$500	Residential Coordinator
Purchase tools	$200	Residential Coordinator
07.D **Develop a toolshare**		
Labor - Explore and solidify options for sites	Included	Residential Coordinator
Purchase materials	$300	Residential Coordinator
07.E **Bulk purchase backyard composting supplies**		
Labor - Develop online form	Included	Residential Coordinator
Labor - Promote bulk purchasing option	Included	Residential Coordinator, City staff
Purchase supplies	-	Residential Coordinator
Labor - Distribute supplies	Included	Residential Coordinator
07.F **Explore partnerships with local organizations to support composting practices**		
Labor - Explore partnerships	Included	Residential Coordinator

TABLE 13. **Budgets: Residences, Year 1 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
08 **Evaluate effectiveness of prevention and diversion strategies**		
Labor - Develop survey	Included	Evaluation Team, Residential Coordinator
Labor - Distribute survey	Included	Residential Coordinator, City staff
Labor - Analyze survey responses	Included	Evaluation Team
Labor - Conduct audits	Included	Residential Coordinator
Labor Analyze audit results	Included	Residential Coordinator
Report results	Included	Evaluation Team, Residential Coordinator
09 **Keep up the momentum**		
09.A **Continue food scrap collection services**		
Labor - Add this as a line item in the city's budget	Included	City staff

TABLE 14. **Budgets: Food-Based Businesses, Year 1**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
01 **Engage Wayne County health inspectors**		
Labor - Train health inspectors	Included	Commercial Coordinator
Labor - Create materials for inspectors to use	Included	Commercial Coordinator
02 **Increase capacity of food rescue organizations and food pantries**		
02.A **Increase capacity of food rescue services**		
Refrigerated van	$97,338	Food Rescue Organization
Additional staff		Food Rescue Organization
Drivers	$38,986	Food Rescue Organization
Volunteer Coordinator	$80,196	Food Rescue Organization
Project Manager/Logistics Coordinator - Part Time	$40,098	Food Rescue Organization
Gas for additional trips	$7,280	Food Rescue Organization
02.A.1 Increase capacity for planned rescues		
Costs distributed over planned rescues above	Included	Food Rescue Organization
02.A.2 Increase capacity for unplanned rescues and surges		
Labor - Assess sites, procure additional storage equipment	Included	Commercial Coordinator
Upgrades at existing pantries (shelving, refrigerators, freezers)	$60,000	Food Rescue Organization
Shipping container fridges for larger pantries (2 at $40,000 each)	$80,000	Food Rescue Organization
02.B **Create capacity for rescued food to be donated to existing community resource hubs**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
02.C **Share rescued food with existing community resource hubs**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization

TABLE 14. **Budgets: Food-Based Businesses, Year 1**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
02.D **Explore opportunities for pantries and public fridges**		
Labor - Develop relationship with food rescue organization and the site	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	Included	Host site
Publicize site on city food waste dashboard and outreach to residents	Included	City Staff, Local social services
02.E **Share excess donated food at multi-family apartment buildings**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	Included	Host site
02.F **Share excess donated food with sites outside of the city**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
03 **Support businesses in managing food waste from prevention to diversion**		
Labor - Education and training on Leanpath	Included	Commercial Coordinator
Labor - Education and training on Toast's food waste module	Included	Commercial Coordinator
Labor - Education on and training MFNW technical assistance program	Included	Commercial Coordinator
Labor - Education and training on Too Good To Go	Included	Commercial Coordinator
Labor - Education and training on Flashfood	Included	Commercial Coordinator
Labor - Education and training on food rescue	Included	Commercial Coordinator
Labor - Edudcation on oil recycling	Included	Commercial Coordinator
Labor - Promote aerobic digestion	Included	Commercial Coordinator
Labor - Education and training on food scrap collection program	Included	Commercial Coordinator
Labor - Education and training on contamination prevention	Included	Commercial Coordinator

TABLE 14. **Budgets: Food-Based Businesses, Year 1**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
05 **Develop a Green Business Certification program**		
Labor - Develop certification program	Included	Commercial Coordinator, City staff
Labor - Promote program	Included	Commercial Coordinator, City staff
Print flyers for program	$100	Commercial Coordinator
Design window decals and certificates	Included	Commercial Coordinator
06 **Showcase food waste reduction practices**		
Labor - Identify those to highlight	Included	Commercial Coordinator
Labor - Publicity material	Included	Commercial Coordinator
07 **Keep up the momentum**		
07.A **Support training of Wayne County health inspectors**		
Labor - Support and assistance for Oakland County Health Division, as needed	Included	Commercial Coordinator
07.B **Continue support of food rescue and distribution operations**		
Labor - Support food rescue and distribution organizations	Included	Commercial Coordinator

TABLE 15. **Budgets: Schools and Institutions, Year 1**

Strategy	Cost	Responsible Party
SCHOOLS AND INSTITUTIONS		
01 **Get commitment from the district and schools**		
Labor - Secure commitments	Included	Schools Coordinator
02 **Food waste tracking**		
Labor - Develop portal	$20,000	
Labor - Train staff and administrators in how to use the tracking portal for schools	Included	
Labor - Track food waste	Included	
03 **Understand food waste at each site**		
03.A **Perform resource assessments**		
Labor - Conduct assessment	Included	Schools Coordinator
03.B **Conduct food waste audits**		
Labor - Conduct audit	Included	Schools Coordinator
Supplies for audit at all 48 daycare and K-12 schools (5 gal buckets for sorting, gloves, tarp, cleaning supplies, scales)	$600	Schools Coordinator
03.C **Conduct a food survey**		
Labor - Conduct survey	Included	Schools Coordinator
Labor - Analyze results	Included	Schools Coordinator
05 **Implement waste elimination plans**		
03.C **Conduct a food survey**		
Labor - Engage with staff	Included	Schools Coordinator
06 **Keep up the momentum**		
Identify champions among staff, administrators, and food service providers	Included	Schools Coordinator
Identify champions among students	Included	Schools Coordinator
Tie food waste initiative into the curriculum	Included	Schools Coordinator

TABLE 16. **Budgets: Other Places, Year 1**

Strategy	Cost	Responsible Party
OTHER PLACES		
01 **Technical assistance and infrastructure support for prevention and diversion in offices and small businesses**		
01.A MFNW technical assistance program	Included	Commercial Coordinator
01.B Engage employees	Included	Commercial Coordinator
01.C Office kitchen dehydrators	-	Commercial Coordinator

Year 2

TABLE 17. **Budgets: Supporting Strategies, Year 2**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01 **Communication campaigns**		
01.A **Overall campaign: Creating a culture of zero food waste in Livonia**		
Design fee for all materials needed in year 2	$25,000	Design Firm
01.A.2 **Promote the campaign through the city magazine and newsletter**		
Labor - Share material	Included	Project Manager, CIty staff
01.A.3 **Promote the campaign through the city's social media and podcast**		
Labor - Develop material	Included	Design Firm, Project Manager
Labor - Develop podcast	Included	City staff
Labor - Share social media posts and podcast	Included	Project Manager, City staff
01.A.4 **Promote the campaign through flyers and printed signs**		
Labor - Develop material	Included	Design Firm, Project Manager
Labor - Post materials	Included	Project Manager
Print flyers and signs	$1,000	Project Manager
01.A.5 **Promote the campaign through the press**		
Labor		Included
Livonia Observer 1 (one) 1/4 page newspaper ads	$1,500	City Communications, Project Manager
01.A.6 **Promote local champions**		
Labor - Identify local champions	Included	Residential Coordinator
Labor - Train local champions (pre-created social media toolkits, resources)	Included	Residential Coordinator

TABLE 17. **Budgets: Supporting Strategies, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.A.7 Create ways for people to make a public commitment to address food waste		
Labor - Promote pledge	Included	Residential Coordinator
Labor - Distribute signs and flags	Included	Residential Coordinator
01.A.8 Host a citywide food waste summit	Included	Residential Coordinator
Space rental at city site	$-	Project Manager
Labor - Promotional material and registration	Included - Year 1	Event Coordinator
Labor - Event organization	Included - Year 1	Event Coordinator
Labor - Event communication	Included - Year 1	Event Coordinator
Labor - Volunteer coordinator	Included - Year 1	Event Coordinator
Labor - Logistics/chef coordinator	Included - Year 1	Event Coordinator
Printed promotional materials	$750	Event Coordinator
Sound system	$3,000	Event Coordinator
01.B Household prevention communication campaign		
Labor - Develop materials for prevention campaign	Included	Design Firm, Project Manager
Labor - Promote the campaign through the city newsletter	Included	City staff, Project Manager
Labor - Promote the campaign through social media	Included	City staff, Project Manager
Labor - Promote the campaign through flyers	Included	Project Manager
Labor - Promote the campaign through the press	Included	Project Manager, City staff
Print materials for flyers	$1,000	Project Manager
Amplify targeted ads in Livonia for TGTG	Included	Residential Coordinator, Commercial Coordinator

TABLE 17. **Budgets: Supporting Strategies, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.B.2 Grocery store signage		
Labor - Design materials	Included	Design Firm, Food-Based Business Coordinator
Print signs for grocery stores	$8,000	Commercial Coordinator
Labor - Post materials	Included	Commercial Coordinator
01.C **Household diversion communication campaign - drop off collection**		
Labor - Develop materials for food scrap collection campaign	Included in Year 1	Design Firm, Residential Coordinator
Labor - Promote the drop off collection campaign via the city newsletter	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via the city social media	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via the press	Included	Residential Coordinator, CIty staff
01.D **Household diversion communication campaign - curbside collection**		
Labor - Design mailers for single family homes to promote curbside collection	Included	Design Firm, Residential Coordinator
Mail information about curbside	$26,891.20	Mailing house
Labor - Design materials to promote updated drop off site locations to multiple family housing, HOAs and houses that cannot accommodate a cart	Included	Design Firm, Residential Coordinator
Mail information about drop off locations to multifamily sites, HOAs	$4,200.80	Mailing house
Labor - Design signage for drop off sites that are phased out	Included	Design Firm
Print signs for drop off sites that are being phased out	$300	Residential Coordinator

TABLE 17. **Budgets: Supporting Strategies, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.E **Prevention and diversion communication campaign for spaces where food is outside of homes**		
Labor - Develop material	Included	Design Firm, Commercial Coordinator
Labor - Promote the campaign through the city newsletter	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the city social media	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the press	Included	City Staff, Commercial Coordinator
01.F **Maintenance communication campaign**		
Labor - Develop material	Included	Design Firm, Commercial Coordinator
Labor - Promote the campaign through the city newsletter	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the city social media	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through flyers		
Labor - Promote the campaign through the press	Included	City Staff, Commercial Coordinator
Labor - Provide ongoing education via presentations, webinars, demos, and workshops		
02 **Online resource hub**		
Labor - Create content for the online resource hub	Included	Project Manager
Labor - Promote the online resource hub	Included	Project Manager, City staff

TABLE 17. **Budgets: Supporting Strategies, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
03 **Food waste policy**		
03.A **Draft and adopt language for policy on using locally created compost in city projects**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
03.B **Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
Labor - Test feasibilty and receptiveness of policy	Included	City staff, Project Manager
Labor - Develop resources to support zero food waste practices	Included	City staff, Project Manager
Labor - Promote resources to encourage zero food waste practices via updates to the website and flyers for event permit seekers	Included	City staff, Project Manager
Resources to encourage zero food waste practices	$5,000	City staff, Project Manager
03.C **Require that all special events donate excess food and have food scrap collection bins if food is served**		
Labor - Draft language and move through usual city policy making process	Included	City Planning staff, Project Manager
04 **Continuous feedback and learning**		
04.A **Resident advisory committee**		
Labor - Quarterly meetings	Included	Project Manager
04.B **Internal working group**		
Labor - Identify members	Included	City staff, Project Manager
Labor - Host regular meetings	Included	City Champion
04.C **Integrate learnings**	Included	MFNW

TABLE 17. **Budgets: Supporting Strategies, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
05 **Monitoring and evaluation**		
05.A **Measuring the 100% elimination goal**		
05.A.1 **Conduct audits of trash receptacles**		
Labor - Register sites for audits	Included	Residential Coordinator
Labor - Conduct audits	Included	Residential Coordinator
Labor - Report results	Included	Residential Coordinator
05.A.2 **Conduct a waste characterization study**		
Labor - Conduct study (residential)	$30,000	Consultant
Labor - Conduct study (commercial)	$50,000	Consultant
Labor - Review findings	Included	Consultant
Labor - Integrate findings and adjust plan and program as needed	Included	Project Manager
05.B **Measuring outcomes from prevention and rescue activities**		
Labor - Evaluation	Included	University Partner
Labor - Project reporting	Included	University Partner
06 **Project implementation team**		
06.A **City champion**		
Labor - Identify champions	Included	City staff, Residential Coordinator, Commercial Coordinator
06.B **External project partners**		
Project Manager	$87,500	MFNW Executive Director
Commercial Coordinator	$75,000	MFNW Executive Director
Residential Coordinator	$75,000	MFNW Executive Director
Schools Coordinator	$75,000	MFNW Executive Director
Evaluation Team	$31,250	University Partner

TABLE 18. **Budgets: Residences, Year 2**

Strategy	Cost	Responsible Party
RESIDENCES		
01 **Engaging residents on the issues of food waste**		
01.A **Speak to community groups on food waste reduction strategies**		
Labor - Attend speaking engagements	Included	Project Manager, Residential Coordinator
01.B **Train food waste ambassadors**		
Print materials for recruitment (flyers)	$100	Residential Coordinator, Project Manager
Labor - Recruit ambassadors	Included	Residential Coordinator
Labor - Host ambassador training	Included	Residential Coordinator, Project Manager
01.C **Provide pop-ups/demos at community partners and city and community events**		
Labor - Attend events	Included	Project Manager
Print materials for events	$500	Project Manager
01.D **Train residents in ways to safely reduce food waste**		
Labor - Promotion of monthly workshops	Included	Residential Coordinator
Labor - Organization and communication of workshops	Included	Residential Coordinator, Project Manager
Speaker fees (chefs, health department)	$1,500	Residential Coordinator, Project Manager
Labor - Host monthly workshops	Included	Residential Coordinator, Project Manager
Materials for workshops	$1,200	Residential Coordinator, Project Manager
01.E **Track food waste rates compared to other households**		
Labor - Distribute quarterly survey	Included	Residential Coordinator
Labor - Analyze results of quarterly survey	Included	Evaluator
01.F **Introduce a household food waste comparison metric**		
Labor - Report findings of quarterly survey via social media and city newsletter	Included	Residential Coordinator, City Communications

TABLE 18. **Budgets: Residences, Year 2 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
01.G **Host a food waste reduction competition among households**		
Labor - Promote competition	Included	Residential Coordinator
Labor - Facilitate competition	Included	Residential Coordinator
Labor - Report results of compettition	Included	Residential Coordinator
Incentives/prizes	$500	Residential Coordinator
02 **Household food waste prevention toolkits**		
Labor - Distribute toolkits to new residents	Included	City staff
Materials for toolkits	Included - Year 1	Residential Coordinator
03 **Support the city in planning for and implementing a food scrap drop off program for all residents**		
03.E **Set up and promote resident registration portal**		
Labor - Promote resident registration portal via electronic communication channels	Included	City staff, Residential Coordinator
Print flyers and signs	$500	Residential Coordinator
03.G **Implement drop off sites**		City staff, Residential Coordinator
Hauling, weekly, January - September and December	$23,100	City staff, Residential Coordinator
Liners, weekly	$5,250	City staff, Residential Coordinator
03.H **Plan for surges in food scrap drop off**		
Labor - Set up increased hauling frequency, if needed	Included	City staff
Labor - Increase site monitoring	Included	City staff, Residential Coordinator
Hauling twice weekly in October and November	$9,120	City staff, Residential Coordinator
Liners, twice weekly in October and November	$2,100	City staff, Residential Coordinator
03.I **Ongoing monitoring and maintenance of drop off sites**		
Labor - Site monitoring	Included	Residential Coordinator, City staff
Materials for incidentals	$500	City staff

TABLE 18. **Budgets: Residences, Year 2 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
04 Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences		
04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services	Included	City staff, Project Manager, Residential Coordinator
Labor - research on services and bins, if needed	Included	City staff, Residential Coordinator
04.A.1 Adjust existing contract to prepare for curbside food scrap pick up	Included	City staff, Project Manager, Residential Coordinator
04.B Provide carts (if applicable) and education to households		
Food scrap carts*	$5,042,100	City staff, Project Manager, Residential Coordinator
Labor - Delivery of carts	Included in cart cost	Contractor
04.E Ongoing monitoring		
Labor - Site monitoring	Included	City staff, Residential Coordinator
05 Food scrap collection for residences not able to be served by city curbside services		
05.A On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart		
Labor - Select hauling service for on-site food scrap collection drop off sites not included in the city's contract	Included	Residential Coordinator, Landlord/Management, HOA Board
Labor - Select bins/carts for on-site food scrap collection drop off sites not included in the city's contract	Included	Residential Coordinator, Landlord/Management, HOA Board
Labor - Create signage for on-site food scrap collection drop off sites	Included	Design Firm, Residential Coordinator
Labor - Implement sites (set up bins, trash, signage)	Included	Residential Coordinator, Landlord/Management, HOA Board
Food scrap bins	TBD	Residential Coordinator, Landlord/Management, HOA Board
Trash bin	TBD	Residential Coordinator, Landlord/Management, HOA Board
Labor - Educate residents	Included	Residential Coordinator
Educational materials (flyers, handouts)	$1,000	Residential Coordinator

TABLE 18. **Budgets: Residences, Year 2 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
06 Prevent contamination of household food scrap streams		
06.A Create clear signage on what can and cannot be composted		
Labor - Create stickers for organics recycling carts	Included	Design Firm
Stickers for carts	$11,092.62	Residential Manager
Labor - Add stickers to carts	Included in cart cost	Contractor
06.B Recognize those who are sorting food scraps well		
Labor - Promote and recruit for audit program	Included	Residential Coordinator, City staff
Promotional materials	$500	Design Firm, Residential Coordinator
Labor - Conduct audits	Included	Residential Coordinator
Materials for audits (gloves, tarps, bags, scale)	$100	
Labor - Recognize those who are sorting well	Included	Residential Coordinator
Materials for audits (gloves, tarps, bags, scale)	$100	
Prizes/awards/certificates	$500	Residential Coordinator
07 Support backyard and community composting		
07.B Design and share a backyard composting guide		
Labor - Share guide via social media, city newsletter, and online resource hub	Included	Residential Coordinator, City Communications
07.C Build demonstration sites		
Labor - Identify sites and gain permission for use	Included	Residential Coordinator
Labor - Install site	Included	Residential Coordinator
Labor - Promote site	Included	City staff, Residential Coordinator, Host site
Labor - Provide tours and demo	Included	Residential Coordinator
Labor - Ongoing maintenance of site	Included	Host site

TABLE 18. **Budgets: Residences, Year 2 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
07.D **Develop a toolshare**		
Labor - Explore and solidify options for sites	Included	Residential Coordinator
Purchase materials	$300	Residential Coordinator
Labor - Set up toolshare	Included	Residential Coordinator, Host site
Labor - Promote toolshare	Included	Residential Coordinator, Host site, City staff
07.E **Bulk purchase backyard composting supplies**		
Labor - Promote bulk purchasing option	Included	Residential Coordinator
Labor - Purchase supplies	Included	Residential Coordinator
Supplies	-	Pass through to participants
Labor - Distribute supplies	Included	Residential Coordinator
07.F **Explore partnerships with local organizations to support composting practices**		
Labor - Explore partnerships	Included	Residential Coordinator
08 **Evaluate effectiveness of prevention and diversion strategies**		
Labor - Distribute survey	Included	City staff, Residential Coordinator
Labor - Analyze survey results	Included	Evaluation team
Labor - Conduct audits	Included	Residential Coordinator
Labor - Analyze audit results	Included	Residential Coordinator
Labor - Report results	Included	Evaluation team, Residential Coordinator, City staff
09 **Keep up the momentum**		
09.A **Continue food scrap collection services**		
Labor - Ensure this as a line item in the city's budget	Included	City staff
09.B **Help new residents integrate into a culture of zero food waste**		
Labor - Distribute food waste prevention toolkits and information	Included	City staff

TABLE 19. **Budgets: Food-Based Businesses, Year 2**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
02 **Increase capacity of food rescue organizations and food pantries**		
02.A **Increase capacity of food rescue services**		
Refrigerated van	$101,394	Food Rescue Organization
Additional staff		
Drivers	$81,220	Food Rescue Organization
Volunteer Coordinator	$83,538	Food Rescue Organization
Project Manager/Logistics Coordinator - Part Time	$41,769	Food Rescue Organization
Gas for additional trips	$15,168	Food Rescue Organization
Maintenance	$12,500	Food Rescue Organization
Amortization (8 year life on van and truck)	$37,500	Food Rescue Organization
Administrative costs/Tracking/Accounting	$12,500	Food Rescue Organization
Insurance - workers compensation and vehicle insurance	$11,875	Food Rescue Organization
Software license for volunteer platform	$6,250	Food Rescue Organization
02.A.1 Increase capacity for planned rescues		
Costs distributed over planned rescues above	Included	Food Rescue Organization
02.A.2 Increase capacity for unplanned rescues and surges		
Labor - Assess sites, procure additional storage equipment	Included	Food Rescue Organization
Upgrades at existing pantries (shelving, refrigerators, freezers)	$60,000	Food Rescue Organization
Shipping container fridges for larger pantries (2 at $40,000 each)	$80,000	Food Rescue Organization
02.B **Create capacity for rescued food to be donated to existing community resource hubs**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
02.C **Share rescued food with existing community resource hubs**	Included	Food Rescue Organization

TABLE 19. **Budgets: Food-Based Businesses, Year 2 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
02.D **Explore opportunities for pantries and public fridges**		
Labor - Develop relationship with food rescue organization and the site	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	TBD	Host site
Publicize site on city food waste dashboard and outreach to residents	Included	City Staff, Local social services
02.E **Share excess donated food at multi-family apartment buildings**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	TBD	Host site
02.F **Share excess donated food with sites outside of the city**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
02.G **Create a space to upcycle food rescued within the city**		
Labor - Identify possible spaces	Included	MFNW Executive Director, Program Manager
Labor - Create use agreement for space/contract	Included	MFNW Executive Director, Program Manager
Labor - Install any needed equipment, cold storage	Included	MFNW Executive Director, Program Manager
Labor - Hire staff	TBD	MFNW Executive Director, Program Manager
Needed equipment	TBD	MFNW Executive Director, Program Manager

TABLE 19. **Budgets: Food-Based Businesses, Year 2 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
03 **Support businesses in managing food waste from prevention to diversion**		
Labor - Education and training on Leanpath	Included	Commercial Coordinator
Labor - Education and training on Toast's food waste module	Included	Commercial Coordinator
Labor - Education on and training MFNW technical assistance program	Included	Commercial Coordinator
Labor - Education and training on Too Good To Go	Included	Commercial Coordinator
Labor - Education and training on Flashfood	Included	Commercial Coordinator
Labor - Education and training on food rescue	Included	Commercial Coordinator
Labor - Edudcation on oil recycling	Included	Commercial Coordinator
Labor - Promote aerobic digestion	Included	Commercial Coordinator
Labor - Education and training on food scrap collection program	Included	Commercial Coordinator
Labor - Education and training on contamination prevention	Included	Commercial Coordinator
04 **Host a food waste challenge**		
Labor - Design the challenge	Included	Commercial Coordinator, City staff
Labor - Promote the challenge	Included	Commercial Coordinator, City staff, Chamber of Commerce
Labor - Host the challenge	Included	Commercial Coordinator, City staff, Chamber of Commerce
Materials and prizes	$1,000	Commercial Coordinator
05 **Develop a Green Business Certification program**		
Labor - Promote program	Included	Commercial Coordinator, City staff
Print flyers for program	$100	Commercial Coordinator
Labor - Certify businesses	Included	Commercial Coordinator
06 **Showcase food waste reduction practices**		
Labor - Identify those to highlight	Included	Commercial Coordinator
Labor - Publicity material	Included	Commercial Coordinator

TABLE 19. **Budgets: Food-Based Businesses, Year 2 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
07 **Keep up the momentum**		
07.A **Support training of Wayne County health inspectors**		
Labor - Support and assistance for Oakland County Health Division, as needed	Included	Commercial Coordinator
07.B **Continue support of food rescue and distribution operations**		
Labor - Support food rescue and distribution organizations	Included	Commercial Coordinator

TABLE 20. **Budgets: Schools and Institutions, Year 2**

Strategy	Cost	Responsible Party
SCHOOLS AND INSTITUTIONS		
02 **Food waste tracking**		
Labor - Track food waste	Included	Schools Coordinator
Labor - Review food waste trends and progress towards elimination	Included	Schools Coordinator
Labor - Adjust food waste plan as needed	Included	Schools Coordinator
03 **Understand food waste at each site**		
03.A **Perform resource assessments**		
Labor - Conduct assessment	Included	Schools Coordinator
03.B **Conduct food waste audits**		
Labor - Conduct audit	Included	Schools Coordinator
Supplies for audit at all 50 schools (5 gal buckets for sorting, gloves, tarp, cleaning supplies, scales)	$600	Schools Coordinator
03.C **Conduct a food survey**		
Labor - Conduct survey	Included	Schools Coordinator
Labor - Analyze results	Included	Schools Coordinator
04 **Develop individualized school plans**		
Labor - Draft plan	Included	Schools Coordinator
Labor - Provide plan to school board	Included	Schools Coordinator
05 **Implement waste elimination plans**		
Supplies for implementation at all 27 public schools	$13,500	Schools Coordinator
Food scrap collection service at all 27 public schools (Aug - Dec)	$64,800	Food Scrap Hauler
Supplies for implementation at the 21 day cares, independent charters, montessori, and private schools	$10,500	Schools Coordinator
Food scrap collection service at all 21 non-public school sites (Aug - Dec)	$50,400	
Labor - Implementation	Included	Schools Coordinator, School Champions
Labor - Monitor progress	Included	Schools Coordinator, School Champions
Labor - Report progress	Included	Schools Coordinator, School Champions

TABLE 20. **Budgets: Schools and Institutions, Year 2 (Continued)**

Strategy	Cost	Responsible Party
SCHOOLS AND INSTITUTIONS		
05.B Reduce likelihood of contamination of food scrap streams		
05.B.1 Visual cues for sorting waste	$25,000	Schools Coordinator
05.B.2 Practice sorting waste		
Play/Model food	$100	Schools Coordinator
Labor - Instruct/support students in practicing sorting food	Included	Schools Coordinator
05.B.3 Identify and train peer leaders to support proper waste sorting		
Labor - Identify staff and student leaders	Included	Schools Coordinator
Labor - Train staff and student leaders	Included	Schools Coordinator
Labor - Maintain program	Included	School staff, Schools Coordinator
05.C Engage staff		
Labor - Engage with staff	Included	Schools Coordinator
06 **Keep up the momentum**		
Identify champions among staff, adminsitrators, and food service providers	Included	Schools Coordinator
Identify champions among students	Included	Schools Coordinator
Tie food waste initiative into the curriculum	Included	Schools Coordinator

TABLE 21. **Budgets: Other Places, Year 2**

Strategy	Cost	Responsible Party
OTHER PLACES		
01 **Technical assistance and infrastructure support for prevention and diversion in offices and small businesses**		
01.A **MFNW technical assistance program**	Included	Commercial Coordinator
01.B **Engage employees**	Included	Commercial Coordinator
01.D **Train residents in ways to safely reduce food waste**	-	Commercial Coordinator
02 **Place food scrap collection bins in municipal facilities and public spaces**		
02.A **Municipal facilities**		
Bins (15 sites, 3 per site, 10 Bigbelly 50-gal bins for $63,296)	$284,832	City staff
Liners for bins	$31,185	City staff
Hauling (weekly)	$7,087.50	City staff
Labor - Place bins	Included	City staff
Labor - Monitoring and maintenance of bins	Included	City staff
02.B **City parks**		
Bins (60 sites, 2 per site, 10 Bigbelly 50-gal bins for $63,296)	$759,552	City staff
Liners for bins	$18,900	City staff
Signage	$4,800	City staff
Hauling (weekly)	$83,160	City staff
Labor - Place bins and signage	Included	City staff
Labor - Monitoring and maintenance of bins	Included	City staff

Year 3

TABLE 22. **Budgets: Supporting Strategies, Year 3**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01 **Communication campaigns**		
01.A **Overall campaign: Creating a culture of zero food waste in Livonia**		
Design fee for all materials in year 3	$25,000	Design Firm
01.A.2 **Promote the campaign through the city magazine and newsletter**		
Labor - Share material	Included	Project Manager, CIty staff
01.A.3 **Promote the campaign through the city's social media and podcast**		
Labor - Develop material	Included	Creative Design Firm, Project Manager
Labor - Develop podcast	Included	City staff
Labor - Share social media posts and podcast	Included	Project Manager, City staff
01.A.4 **Promote the campaign through flyers and printed signs**		
Labor - Develop material	Included	Creative Design Firm, Project Manager
Labor - Post materials	Included	Project Manager
Print flyers and signs	$1,000	Project Manager
01.A.5 **Promote the campaign through the press**		
Labor		Included
Livonia Observer 1 (one) 1/4 page newspaper ads	$1,500	City Communications, Project Manager
01.A.6 **Promote local champions**		
Labor - Identify local champions	Included	Residential Coordinator
Labor - Train local champions (pre-created social media toolkits, resources)	Included	Residential Coordinator

TABLE 22. **Budgets: Supporting Strategies, Year 3 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.A.7 Create ways for people to make a public commitment to address food waste		
Labor - Promote pledge	Included	Residential Coordinator
Labor - Distribute flags and signs	Included	Residential Coordinator
01.B **Household prevention communication campaign**		
Labor - Promote the campaign through the city newsletter	Included	City staff, Project Manager
Labor - Promote the campaign through social media	Included	City staff, Project Manager
Labor - Promote the campaign through flyers	Included	Project Manager
Labor - Promote the campaign through the press	Included	Project Manager, City staff
Print materials for flyers	$1,000	Project Manager
Amplify targeted ads in Livonia for TGTG	Included	Residential Coordinator, Commercial Coordinator
01.B.2 Grocery store signage		
Labor - Design materials	Included	Design Firm, Food-Based Business Coordinator
Print signs for grocery stores	$800	Commercial Coordinator
Labor - Post materials	Included	Commercial Coordinator
01.C **Household diversion communication campaign - drop off collection**		
Labor - Develop materials for food scrap collection campaign	Included in Year 1	Design Firm, Residential Coordinator
Labor - Promote the drop off collection campaign via the city newsletter	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via the city social media	Included	Residential Coordinator, CIty staff
Labor - Promote the drop off collection campaign via digital and print newspapers	Included	Residential Coordinator, CIty staff

TABLE 22. **Budgets: Supporting Strategies, Year 3 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
01.D **Household diversion communication campaign - curbside collection**	Included	City Communications, Project Manager
Labor - Design mailers for single family homes to promote curbside collection	Included in Year 2	Design Firm, Residential Coordinator
Mail information about curbside	$26,891.20	Mailing house
Labor - Refresh materials on what can be composted	Included	Design Firm
Promote updated drop off site locations to mulitple family housing and HOAs		
Labor - Post signage for drop off sites that are phased out	Included	Design Firm
01.E **Prevention and diversion communication campaign for spaces where food is outside of homes**		
Labor - Develop material	Included	Design Firm, Commercial Coordinator
Labor - Promote the campaign through the city newsletter	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the city social media	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the press	Included	City Staff, Commercial Coordinator
01.F **Maintenance communication campaign**		
Labor - Develop material	Included	Design Firm, Commercial Coordinator
Labor - Promote the campaign through the city newsletter	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through the city social media	Included	City Staff, Commercial Coordinator
Labor - Promote the campaign through flyers		
Labor - Promote the campaign through the press	Included	City Staff, Commercial Coordinator
Labor - Provide ongoing education via presentations, webinars, demos, and workshops	Included	Project Manager, City staff

TABLE 22. **Budgets: Supporting Strategies, Year 3 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
02 **Online resource hub**		
Labor - Create content for the online resource hub	Included	Project Manager
Labor - Promote the online resource hub	Included	Project Manager, City Communications
04 **Continuous feedback and learning**		
04.A **Resident advisory committee**		
Labor - Host quarterly meetings	Included	Project Manager
04.B **Internal working group**		
Labor - Host regular meetings	Included	City Champion
04.C **Integrate learnings**	Included	MFNW
05 **Monitoring and evaluation**		
05.A **Measuring the 100% elimination goal**		
05.A.1 Conduct audits of trash receptacles		
Labor - Register sites for audits	Included	Residential Coordinator
Labor - Conduct audits	Included	Residential Coordinator
Labor - Report results	Included	Residential Coordinator
05.A.2 Conduct a waste characterization study		
Labor - Conduct study (residential)	$30,000	Consultant
Labor - Conduct study (commercial)	$50,000	Consultant
Labor - Review findings	Included	Consultant
Labor - Integrate findings and adjust plan and program as needed	Included	Project Manager
05.A.3 Review hauler metrics		
Labor - Review hauler report	Included	Project Manager, Residential Coordinator
Labor - Make adjustments to plan and programs as needed	Included	Project Manager, Residential Coordinator

TABLE 22. **Budgets: Supporting Strategies, Year 3 (Continued)**

Strategy	Cost	Responsible Party
SUPPORTING STRATEGIES		
05.B **Measuring outcomes from prevention and rescue activities**		
Labor - Conduct study (residential)	Included	Evaluation Team
Labor - Project reporting	Included	Evaluation Team
06 **Project implementation team**		
06.A **City champion**		
Labor - Identify champions	Included	City staff, Residential Coordinator, Commercial Coordinator
06.B **External project partners**		
Project Manager	$89,600	MFNW Executive Director
Commercial Coordinator	$76,800	MFNW Executive Director
Residential Coordinator	$76,800	MFNW Executive Director
Schools Coordinator	$76,800	MFNW Executive Director
Evaluation Team	$32,000	University Partner

TABLE 23. **Budgets: Residences, Year 3**

Strategy	Cost	Responsible Party
RESIDENCES		
01 Engaging residents on the issues of food waste		
01.A Speak to community groups on food waste reduction strategies		
Labor - Attend speaking engagements	Included	Project Manager, Residential Coordinator
01.B Train food waste ambassadors		
Print materials for recruitment (flyers)	$100	Residential Coordinator, Project Manager
Labor - Recruit ambassadors	Included	Residential Coordinator
Labor - Host ambassador training	Included	Residential Coordinator, Project Manager
01.C Provide pop-ups/demos at community partners and city and community events		
Labor - Attend events	Included	Project Manager
Print materials for events	$500	Project Manager
01.D Train residents in ways to safely reduce food waste		
Labor - Promotion of monthly workshops	Included	Residential Coordinator
Labor - Organization and communication of workshops	Included	Residential Coordinator, Project Manager
Speaker fees (chefs, health department)	$1,500	Residential Coordinator, Project Manager
Labor - Host monthly workshops	Included	Residential Coordinator, Project Manager
Materials for workshops	$1,200	Residential Coordinator, Project Manager
01.E Track food waste rates compared to other households		
Labor - Distribute quarterly survey	Included	Residential Coordinator
Labor - Analyze results of quarterly survey	Included	Evaluator
01.F Introduce a household food waste comparison metric		
Labor - Report findings of quarterly survey via social media and city newsletter	Included	Residential Coordinator, City Communications

TABLE 23. **Budgets: Residences, Year 3 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
01.G **Host a food waste reduction competition among households**		
Labor - Promote competition	Included	Residential Coordinator
Labor - Facilitate competition	Included	Residential Coordinator
Labor - Report results of compettition	Included	Residential Coordinator
Incentives/prizes	$500	Residential Coordinator
02 **Household food waste prevention toolkits**		
Labor - Distribute toolkits to new residents	Included	City staff
Materials for toolkits	Included - Year 1	Residential Coordinator
03 **Support the city in planning for and implementing a food scrap drop off program for all residents**		
03.E **Set up and promote resident registration portal**		
Labor - Promote resident registration portal via electronic communication channels	Included	City staff, Residential Coordinator
Print flyers and signs	$500	Residential Coordinator
03.G **Implement drop off sites**		City staff, Residential Coordinator
Hauling, weekly, January - September and December	$23,100	City staff, Residential Coordinator
Liners, weekly	$5,250	City staff, Residential Coordinator
03.H **Plan for surges in food scrap drop off**		
Labor - Set up increased hauling frequency, if needed	Included	City staff
Labor - Increase site monitoring	Included	City staff, Residential Coordinator
Hauling twice weekly in October and November	$9,120	City staff, Residential Coordinator
Liners, twice weekly in October and November	$2,100	City staff, Residential Coordinator
03.I **Ongoing monitoring and maintenance of drop off sites**		
Labor - Site monitoring	Included	Residential Coordinator, City staff
Materials for incidentals	$500	City staff

TABLE 23. **Budgets: Residences, Year 3 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
04 **Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences**		
04.B **Provide carts (if applicable) and education to households**		
Labor - Provide education	Included	Residential Coordinator, City staff
04.C **Launch weekly curbside food scrap collection**		
Labor - Provide hauling services ($2/household/mo x 33,614 SF households)	$806,736	Hauling contract
Labor - Communicate new service via usual city communications channels	Included	City staff, Residential Coordinator
04.D **Phase out drop off sites**		
Labor - Remove carts, trash bins, and signage	Included	Residential Coordinator, City staff
Communicate change in drop off sites via mailers	Included in Supporting Strategy	Residential Coordinator, Project Manager, City staff
Communicate change in drop off sites via usual city communication channels	Included	City staff
04.E **Ongoing monitoring**		
Labor - Site monitoring	Included	City staff, Residential Coordinator

TABLE 23. **Budgets: Residences, Year 3 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
05 **Food scrap collection for residences not able to be served by city curbside services**		
05.A **On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart**		
Labor - Implement sites (set up bins, trash, signage)	Included	Residential Coordinator
Food scrap bins	TBD	Residential Coordinator, Property owner, HOA board
Trash bin	TBD	Residential Coordinator, Property owner, HOA board
Labor - Educate residents	Included	Residential Coordinator
Educational materials (flyers, handouts)	$1,000	Residential Coordinator
Labor - Launch collection program	Included	Residential Coordinator, Property owner, HOA board
Hauling service	TBD	Residential Coordinator, Property owner, HOA board
Labor - Monitor and manage collection sites	Included	Property owner, HOA board
06 **Prevent contamination of household food scrap streams**		
06.B **Recognize those who are sorting food scraps well**		
Labor - Promote and recruit for audit program	Included	Residential Coordinator, City staff
Promotional materials	$500	Design Firm, Residential Coordinator
Labor - Conduct audits	Included	Residential Coordinator
Labor - Recognize those who are sorting well	Included	Residential Coordinator
Prizes/awards/certificates	$500	Residential Coordinator
07 **Support backyard and community composting**		
07.B **Design and share a backyard composting guide**		
Labor - Share guide via social media, city newsletter, and online resource hub	Included	Residential Coordinator, City Communications
07.C **Build demonstration sites**		
Labor - Promote site	Included	City staff, Residential Coordinator, Host site
Labor - Provide tours and demo	Included	Residential Coordinator

TABLE 23. **Budgets: Residences, Year 3 (Continued)**

Strategy	Cost	Responsible Party
RESIDENCES		
07.D **Develop a toolshare**		
Labor - Promote toolshare	Included	Residential Coordinator, Host site, City staff
07.E **Bulk purchase backyard composting supplies**		
Labor - Promote bulk purchasing option	Included	Residential Coordinator
Labor - Purchase supplies	Included	Residential Coordinator
Supplies	-	Pass through to participants
Labor - Distribute supplies	Included	Residential Coordinator
07.F **Explore partnerships with local organizations to support composting practices**		
Labor - Explore partnerships	Included	Residential Coordinator
08 **Evaluate effectiveness of prevention and diversion strategies**		
Labor - Distribute survey	Included	Residential Coordinator
Labor - Analyze survey results	Included	Evaluation team
Labor - Conduct audits	Included	Residential Coordinator
Labor - Analyze audit results	Included	Residential Coordinator
Labor - Report results	Included	Evaluation team, Residential Coordinator, City staff
09 **Keep up the momentum**		
09.A **Continue food scrap collection services**		
Labor - Ensure this as a line item in the city's budget	Included	City staff
09.B **Help new residents integrate into a culture of zero food waste**		
Labor - Distribute food waste prevention toolkits and information	Included	City staff

TABLE 24. **Budgets: Food-Based Businesses, Year 3**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
02 **Increase capacity of food rescue organizations and food pantries**		
02.A **Increase capacity of food rescue services**		
Refrigerated van	$103,827	Food Rescue Organization
Additional staff		Food Rescue Organization
Drivers	$124,754	Food Rescue Organization
Volunteer Coordinator	$85,542	Food Rescue Organization
Project Manager/Logistics Coordinator - Part Time	$42,771	Food Rescue Organization
Gas for additional trips	$23,297	Food Rescue Organization
Maintenance	$19,200	Food Rescue Organization
Amortization (8 year life on van and truck)	$19,200	Food Rescue Organization
Administrative costs/Tracking/Accounting	$12,800	Food Rescue Organization
Insurance - workers compensation and vehicle insurance	$18,240	Food Rescue Organization
Software license for volunteer platform	$6,400	Food Rescue Organization
02.A.1 Increase capacity for planned rescues		
Costs distributed over planned rescues above	Included	Food Rescue Organization
02.A.2 Increase capacity for unplanned rescues and surges		
Labor - Assess sites, procure additional storage equipment	Included	Commercial Coordinator
Upgrades at existing pantries (shelving, refrigerators, freezers)	$60,000	Food Rescue Organization
Shipping container fridges for larger pantries (2 at $40,000 each)	$80,000	Food Rescue Organization
02.B **Create capacity for rescued food to be donated to existing community resource hubs**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization

TABLE 24. **Budgets: Food-Based Businesses, Year 3 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
02.C **Share rescued food with existing community resource hubs**	Included	Food Rescue Organization
02.D **Explore opportunities for pantries and public fridges**		
Labor - Develop relationship with food rescue organization and the site	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	Included	Host site
Publicize site on city food waste dashboard and outreach to residents	Included	City Staff, Local social services
02.E **Share excess donated food at multi-family apartment buildings**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
Labor - Set up site with necessary shelves, refrigerators, etc.	Included	Host site
Purchase needed supplies	Included	Host site
02.F **Share excess donated food with sites outside of the city**		
Labor - Develop relationships for food donation at these sites	Included	Food Rescue Organization
02.G **Create a space to upcycle food rescued within the city**		
Labor - Identify possible spaces	Included	MFNW Executive Director, Program Manager
Labor - Create use agreement for space/contract	Included	MFNW Executive Director, Program Manager
Labor - Install any needed equipment, cold storage	Included	MFNW Executive Director, Program Manager
Labor - Hire staff	TBD	MFNW Executive Director, Program Manager
Needed equipment	TBD	MFNW Executive Director, Program Manager

TABLE 24. **Budgets: Food-Based Businesses, Year 3 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
03 **Support businesses in managing food waste from prevention to diversion**		
Labor - Education and training on Leanpath	Included	Commercial Coordinator
Labor - Education and training on Toast's food waste module	Included	Commercial Coordinator
Labor - Education on and training MFNW technical assistance program	Included	Commercial Coordinator
Labor - Education and training on Too Good To Go	Included	Commercial Coordinator
Labor - Education and training on Flashfood	Included	Commercial Coordinator
Labor - Education and training on food rescue	Included	Commercial Coordinator
Labor - Edudcation on oil recycling	Included	Commercial Coordinator
Labor - Promote aerobic digestion	Included	Commercial Coordinator
Labor - Education and training on food scrap collection program	Included	Commercial Coordinator
Labor - Education and training on contamination prevention	Included	Commercial Coordinator
04 **Host a food waste challenge**		
Labor - Design the challenge	Included	Commercial Coordinator, City staff
Labor - Promote the challenge	Included	Commercial Coordinator, City staff, Chamber of Commerce
Materials and prizes	$1,000	Commercial Coordinator
05 **Develop a Green Business Certification program**		
Labor - Promote program	Included	Commercial Coordinator, City staff
Print flyers for program	$100	Commercial Coordinator
Labor - Certify businesses	Included	Commercial Coordinator
06 **Showcase food waste reduction practices**		
Labor - Identify those to highlight	Included	Commercial Coordinator
Labor - Publicity material	Included	Commercial Coordinator

TABLE 24. **Budgets: Food-Based Businesses, Year 3 (Continued)**

Strategy	Cost	Responsible Party
FOOD-BASED BUSINESSES		
07 **Keep up the momentum**		
07.A **Support training of Wayne County health inspectors**		
Labor - Support and assistance for Oakland County Health Division, as needed	Included	Commercial Coordinator
07.B **Continue support of food rescue and distribution operations**		
Labor - Support food rescue and distribution organizations	Included	Commercial Coordinator

TABLE 25. **Budgets: Schools and Institutions, Year 3**

Strategy	Cost	Responsible Party
SCHOOLS AND INSTITUTIONS		
02 **Food waste tracking**		
Labor - Track food waste	Included	Schools Coordinator
Labor - Review food waste trends and progress twoards elimination	Included	Schools Coordinator
Labor - Adjust food waste plan as needed	Included	Schools Coordinator
05 **Implement waste elimination plans**		
Food scrap collection service at all 27 public schools (Jan - June, Aug - Dec)	$162,000	Food Scrap Hauler
Food scrap collection service at all 21 non-public school sites (Jan - June, Aug - Dec)	$126,000	
Labor - Implementation	Included	Schools Coordinator, School Champions
Labor - Monitor progress	Included	Schools Coordinator, School Champions
Labor - Report progress	Included	Schools Coordinator, School Champions
05.B **Reduce likelihood of contamination of food scrap streams**		
05.B.2 Practice sorting waste		
Play/Model food	$100	Schools Coordinator
Labor - Instruct/support students in practicing sorting food	Included	Schools Coordinator
05.B.3 Identify and train peer leaders to support proper waste sorting		
Labor - Identify staff and student leaders	Included	Schools Coordinator
Labor - Train staff and student leaders	Included	Schools Coordinator
Labor - Maintain program	Included	School staff, Schools Coordinator
05.C Engage staff		
Labor - Engage with staff	Included	Schools Coordinator

TABLE 25. **Budgets: Schools and Institutions, Year 3 (Continued)**

Strategy	Cost	Responsible Party
06 **Keep up the momentum**		
Identify champions among staff, adminsitrators, and food service providers	Included	Schools Coordinator
Identify champions among students	Included	Schools Coordinator
Tie food waste initiative into the curriculum	Included	Schools Coordinator

TABLE 26. **Budgets: Other Places, Year 3**

Strategy	Cost	Responsible Party
OTHER PLACES		
01 **Technical assistance and infrastructure support for prevention and diversion in offices and small businesses**		
01.A MFNW technical assistance program	Included	Commercial Coordinator
01.B Engage employees	Included	Commercial Coordinator
01.C Office kitchen dehydrators	-	Commercial Coordinator
02 **Place food scrap collection bins in municipal facilities and public spaces**		
02.A Municipal facilities		
Liners for bins	$9,450	City staff
Hauling (weekly)	$41,580	City staff
Labor - Monitoring and maintenance of bins	Included	City staff
02.B City parks		
Liners for bins, weekly January - March and November - December	$10,500	City staff
Liners for bins, twice weekly April - October	$29,400	City staff
Hauling (weekly) January - March and November - December	$46,200	City staff
Hauling (twice weekly) April - October	$127,680	City staff
Labor - Monitoring and maintenance of bins	Included	City staff

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APPENDIX C:

Key Performance Indicators

Appendix C: Key Performance Indicators

Introduction

Key Performance Indicators (KPIs) are useful in tracking progress towards goals, particularly stretch or long-term goals. NRDC has developed a set of metrics that may also be used in addition or instead of those listed below that were developed specifically for implementation in Livonia. Those can be found at https://www.nrdc.org/sites/default/files/food-matters-metrics-assessing-food-waste-progress.pdf

Overall Project

TABLE 27. **Key Performance Indicators by Task: Overall Project**

Task	Key Performance Indicators (KPIs)
Overall Project: Zero Food Waste	Number of households and businesses reporting food waste prevented, Number of businesses reporting donations, Volume of food rescued by food rescue organizations, Volume of food received by food pantries and other community sites that was distributed, Number of trash bags households use, Change in the number of trash bags households have, Participation in food scrap diversion options, Cost

Supporting Strategies

TABLE 28. Key Performance Indicators by Task: Supporting Strategies

Task	Key Performance Indicators (KPIs)
01 **Communication campaigns**	
01.A **Overall campaign: Creating a culture of zero food waste in Livonia**	Development of communication plan and media campaign, Cost, Launch of communication campaign, Number of hits per week on the website and online resource hub, Number of people receiving the city newsletter, Number of social media posts, Number of press articles, Number of people liking and sharing the social media posts, Number of yard/door signs distributed, Number of local champions sharing materials, Number of people making a public commitment, Number of people attending the citywide summit, Evaluations from the summit and survey following the campaign launch showing an increase in awareness of food waste issues, willingness to act to address food waste, and sense of efficacy to act to address food waste
01.B **Household prevention communication campaign**	Development of household prevention communication plan and media campaign, Cost, Launch of prevention communication campaign, Number of hits per week on the website and online resource hub, Number of people receiving the city newsletter, Number of social media posts, Number of people liking and sharing the social media posts, Number of TGTG ads, Number of businesses participating in TGTG, Number of grocery and retail stores with the campaign signage, Number of grocery and retail stores with the campaign signage, Number of local champions sharing materials, Number of people attending the citywide summit, Number of people making a public commitment, Number of yard/door signs distributed, Evaluations from the summit and survey following the campaign launch showing an increase in awareness of ways to prevent food waste, willingness to act to address food waste, and sense of efficacy to act to address food waste, Self-reported food waste prevention
01.C **Household diversion communication campaign - drop off collection**	Development of household drop off collection diversion communication plan and media campaign, Cost, Launch of diversion communication campaign, Number of hits per week on the website and online resource hub, Number of people receiving the city newsletter, Number of social media posts, Number of people liking and sharing the social media posts, Number of local champions sharing materials, Number of people making a public commitment, Number of yard/door signs distributed, Survey following the campaign launch showing an increase in awareness of ways to divert food waste, willingness to act to address food waste, and sense of efficacy to act to address food waste, Participation rates in drop off food scrap collection, Volume of food scrap collection

TABLE 28. **Key Performance Indicators by Task: Supporting Strategies (Continued)**

Strategy	Key Performance Indicators (KPIs)
01.D Household diversion communication campaign - curbside collection	Development of household curbside food scrap collection diversion communication plan and media campaign, Cost, Launch of diversion communication campaign, Number of hits per week on the website and online resource hub, Number of people receiving the city newsletter, Number of social media posts, Number of people liking and sharing the social media posts, Number of local champions sharing materials, Number of people making a public commitment, Number of yard/door signs distributed, Survey following the campaign launch showing an increase in awareness of ways to divert food waste, willingness to act to address food waste, and sense of efficacy to act to address food waste, Participation rates in curbside food scrap collection, Volume of food scrap collection
01.E Prevention and diversion communication campaign for spaces where food is outside of homes	Development of prevention and diversion communication campaign, Cost, Launch of prevention and diversion communication campaign, Number of places hosting lunch and learns/workshops for employees, Number of lunch and learns/workshops hosted, Reported costs savings in food purchasing by food-based businesses, Reported pounds of food diverted from landfills via composting
01.F Maintenance communication campaign	Number of times the campaign is refreshed, Cost, Launch of refreshed campaigns, Number of people receiving the city newsletter, Number of social media posts, Number of people liking and sharing the social media posts, Number of local champions sharing materials, Number of people making a public commitment, Number of yard/door signs distributed, Participation rates in curbside food scrap collection, Self-reported food waste prevention
02 Online resource hub	
Development and use of online resource hub	Develpment of online resource hub, Cost, Development of content for the resource hub, Number of times the online resource hub is mentioned in outreach via mail, social media, flyers and events, Number of organizations citing the resource hub, Number of hits on the resource hub site
03 Food waste policy	
03.A Draft and adopt language for policy on using locally created compost in city projects	Adoption of city policies related to food waste, Volume of compost sourced locally vs. sourced elsewhere
03.B Draft and adopt language for policies requiring that all city-sponsored programs and events donate excess food and have food scrap collection bins if food is served	Adoption of city policies related to food waste, Volume of food rescued from events, Volume of food diverted from events
03.C Require that all special events donate excess food and have food scrap collection bins if food is served	Adoption of city policies related to food waste, Volume of food rescued from events, Volume of food diverted from events

TABLE 28. Key Performance Indicators by Task: Supporting Strategies (Continued)

Strategy	Key Performance Indicators (KPIs)
03.D Update site development standards to include food waste management in plans	Adoption of city policies related to food waste, Number of sites throughout the city with food waste mangement plans
03.E Develop mandatory food waste reduction protocols for municipal buildings and facilities	Adoption of city policies related to food waste
04 **Continuous feedback and learning**	
04.A Resident advisory committee	Creation of advisory committee, Cost, Number of advisors, Number of meetings, Suggested changes, Suggested changes that were implemented
04.B Internal working group	Creation of working group, Cost, Number of participants, Number of departments represented
04.C Integrate learnings	Number of surveys and trash audits, Number of reports on findings, Number of households participating in surveys and audits
05 **Monitoring and evaluation**	
05.A Measuring the 100% elimination goal	Measurement and audits aligned with evaluation plan, including bin audits and surveying to understand degree that food scraps are being diverted, Waste characterization study completed, Changes in diversion rates and volumes between years based on waste characterization study and hauler metrics,
05.B Measuring outcomes from prevention and rescue activities	Measurement and audits aligned with evaluation plan, including bin audits, surveying to understand adopted prevention methods, success of prevention methods, cost savings in food purchasing, volume of food scraps are being diverted
06 **Project implementation team**	
06.A City champion	Identification of city champions
06.B External project partners	Identification and collaboration with external partners

Residences

TABLE 29. Key Performance Indicators by Task: Residences

Task	Key Performance Indicators (KPIs)
01 Engaging residents on the issues of food waste	
01.A Speak to community groups on food waste reduction strategies	Number of community groups hosting talks on food waste reduction strategies; Number of attendees at each talk
01.B Train food waste ambassadors	Number of ambassadors
01.C Provide pop-ups/demos at community partners and city and community events	Number of pop-ups/demos hosted, Number of people engaged with the pop-up
01.D Train residents in ways to safely reduce food waste	Number of workshops held, Number of attendees at workshops, Percent of attendees indicating increased awareness of food waste issues, willingness to reduce their own food waste, and efficacy in reducing food waste, Cost
01.E Track food waste rates compared to other households	Development of quarterly survey, Number of survey respondents, Number of bags of trash produced each week at baseline, Number of bags of trash produced following interventions
01.F Introduce a household food waste comparison metric	Development of food waste comparison metric, Reporting of metric, Number of views of the metric
01.F Introduce a household food waste comparison metric	Number of competitions hosted, Number of households participating in the competition, Amount of food waste prevented on average per household, Amount of food waste diverted on average per household, Cost
02 Household food waste prevention toolkits	
Create and distribute toolkits	Number of toolkits created, Items in the toolkits, Cost, Number of toolklits distributed
03 Support the city in planning for and implementing a food scrap drop off program for all residents	
03.A Identify viable drop off sites	Identification of drop off sites; Number of new drop off sites; Percent of residents within 1 mile of a drop off site
03.B Develop and issue an RFP for food waste collection services for drop off sites	Food scrap collection service provided, Time to implement, Cost
03.C Review applications and select provider	RFP posted, Number of applicants, Selection of a provider
03.D Train staff as needed to monitor drop off sites	Number of staff members trained to monitor drop off sites
03.E Set up and promote resident registration portal	Number of new volunteers for the drop off program, Number of hits on the drop off program webpage, Number of times the drop of sites are mentioned in outreach via mail, social media, flyers and events

TABLE 29. Key Performance Indicators by Task: Residences (Continued)

Strategy	Key Performance Indicators (KPIs)
03.F Create informational signage for drop off sites	Creation of informational signage
03.G Implement drop off sites	Number of new drop off sites implemented, Percent of sites complete with organics bin, trash bin, and signage
03.H Plan for surges in food scrap drop off	Number of weeks of increased pick up frequency, Cost
03.I Ongoing monitoring and maintenance of drop off sites	Complaints about drop off site cleanliness, Employee hours spent monitoring and maintaining the site
04 **Support the city in planning for and implementing a curbside food scrap pick up program for all single-family residences**	
04.A Adjust existing contract or develop and issue an RFP for curbside food waste collection services	Food scrap collection service provided, Time to implement, Cost
04.B Provide carts (if applicable) and education to households	Number of carts distributed, Cost, Number of educational materials provided to households, Number of hits on the resource page
04.C Launch weekly curbside food scrap collection	Curbside food scrap collection service provided, Number of participants, Volume of waste divertFood scrap collection service provided, Time to implement, Cost
04.D Phase out drop off sites	Number of sites remaining, Number of sites removed, Number of volunteers participating in drop off program, Cost
04.E Ongoing monitoring	Complaints about drop off site cleanliness, Employee hours spent monitoring and maintaining the site
05 **Food scrap collection for residences not able to be served by city curbside services**	
05.A On-site food scrap collection at multi-family complexes, HOAs, and neighborhoods with homes not able to accommodate a cart	Food scrap collection service provided, Time to implement, Cost
05.B Community drop off sites for multi-family complexes, HOAs, and homes not able to accommodate a cart	Number of drop off sites remaining, Number of volunteers participating in drop off program, Cost
06 **Prevent contamination of household food scrap streams**	
06.A Create clear signage on what can and cannot be composted	Signs and labels for carts and countertop caddies created, Number of signs, Number of contamination issues
06.B Recognize those who are sorting food scraps well	Number of bin audits, Number/percent of households recognized for proper sorting of food scraps, Number of bins not collected due to contamination, Cost, Number of audits, Number of households sorting food scraps well with little or no contamination, Number of social media posts, articles, and other recognition options made

TABLE 29. Key Performance Indicators by Task: Residences (Continued)

Strategy	Key Performance Indicators (KPIs)
07 Support backyard and community composting	
07.A Draft and adopt policies for backyard composting	Policy adoption, Number of public comments in support/against proposed policy
07.B Design and share a backyard composting guide	Creation of a backyard composting guide, Number of times the backyard composting guide was shared on social media and via the city newsletter
07.C Build demonstration sites	Number of demonstration sites, Cost of demonstration sites
07.D Develop a toolshare	Number of sites, Number of participants, Number of times the toolshare is used annually, Staff time, Cost
07.E Bulk purchase backyard composting supplies	Number of people participating in bulk purchasing of composting tools and supplies, Staff time, Cost
07.F Explore partnerships with local organizations to support composting practices	Number of organizations partnered with, Number of events co-hosted, Number of attendees at events
08 Evaluate effectiveness of prevention and diversion strategies	
Evalue effectiveness of prevention and diversion strategies via a survey and cart audits	Number of households reporting use of each item in the toolkit, Number of households reporting food waste prevented, Number of trash bags households have, Change in the number of trash bags households have, Participation in food scrap diversion options, Food insecurity rate, Poverty rate, Number of audits conducted, Number of households with little/no contamination in food scraps, Amount of food waste diverted, Cost
09 Keep up the momentum	
09.A Continue food scrap collection services	Number of years food scrap collection occurs, Value of service to residents, Cost
09.B Help new residents integrate into a culture of zero food waste	Number of new residents that receive food waste prevention toolkits

Food-Based Businesses

TABLE 30. Key Performance Indicators by Task: Food-Based Businesses

Task	Key Performance Indicators (KPIs)
01 Engage Wayne County health inspectors	
Engage Wayne County health inspectors	Development of training materials for health inspectors on food donation liability, Number and percent of health inspectors trained
02 Increase capacity of food rescue organizations and food pantries	
02.A Increase capacity of food rescue services	Number of pounds of food being rescued, Change in number of pounds of food being rescued, Number of food rescue staff, Number of food rescue trucks
02.B Create capacity for rescued food to be donated to existing community resource hubs	Number of people served at food pantries receiving surplus food, Change in the number of people served at food pantries receiving food from Livonia, Number of places receiving food from Livonia, Food insecurity rate, Poverty rate, Number of places receiving food from Livonia, Cost
02.C Share rescued food with existing community resource hubs	Number of places receiving food from Livonia, Number of pounds distributed through these sites, Number of people served, Cost
02.D Explore opportunities for pantries and public fridges	Number of pantries accepting surplus food, Number of public fridges implemented, Volume of food provided to pantries, Volume of food provided to public fridges, Number of people accessing pantry, Number of people accessing public fridge
02.E Share excess donated food at multi-family apartment buildings	Number of apartment buildings receiving food from Livonia, Number of pounds distributed through these sites, Number of people served, Cost
02.F Share excess donated food with sites outside of the city	Number of sites receiving food from Livonia, Number of pounds distributed through these sites, Number of people served, Cost
02.G Create a space to upcycle food rescued within the city	Number of sites, Pounds of food received, Number of meals or other outputs made, Number of people/organizations served, Cost
03 Support businesses in managing food waste from prevention to diversion	
Support businesses in managing food waste	Number of businesses and employees that participate in food waste reduction technical assistance, Volume of food waste prevented, Change in food costs, Volume of food donated, Volume of food waste diverted, Number of times that bins are not picked up due to contamination, Cost of training
04 Host a food waste challenge	
Host a food waste challenge	Creation of a food waste challenge, Number of challenge participants, Average volume of food waste reduced, Volume of food waste diverted, Cost
05 Develop a Green Business Certification program	
Develop a Green Business Certification Program	Creation of a Green Business Certification Program, Number of businesses and employees that participate in certification, Time to complete certification, Cost
06 Showcase food waste reduction practices	

TABLE 30. **Key Performance Indicators by Task: Food-Based Businesses**

Strategy	Key Performance Indicators (KPIs)
Showcase food waste reduction practices	Number of businesses interested in showcasing practices, Number of attendees at showcase, Feedback from showcase attendees
07 **Keep up the momentum**	
07.A **Support training of Wayne County health inspectors**	Number of county health inspectors trained per year, Number of county health inspectors indicating they shared information about food waste prevention and diversion
07.B **Continue support of food rescue and distribution operations**	Partnerships with food rescue and distribution operations, Funds available to support these operations

Schools and Institutions

TABLE 31. Key Performance Indicators by Task: Schools and Institutions

Task	Key Performance Indicators (KPIs)
01 Get commitment from the district and schools	
Secure commitment from all institutions	Commitment from all schools and institutions to participate in food waste elimination
02 Food waste tracking	
Develop a way to track food waste in schools and begin tracking	Development of a food waste tracking portal, Number of schools testing the portal, Survey results indicating the value of the portal, Number of staff trained in using the portal, Number of schools using the portal, Number of schools testing the portal, Survey results indicating the value of the portal
Share food waste tracking tools with institutions	Number of institutions using a tool such as LeanPath or Toast to track food waste; Number of institutions who received information about food waste tracking tools
03 Understand food waste at each site	
03.A Perform resource assessments	Number of schools and institutions that complete a resource assessment
03.B Conduct food waste audits	Number of schools and institutions that complete a food waste audit, Pounds of food thrown away at baseline
03.C Conduct a food survey	Number of schools and institutions that complete a food survey
04 Develop individualized school plans	
Develop individualized plans	Number of schools and institutions with a food waste elimination plan
05 Implement waste elimination plans	
Implement individualized plans	Number of schools and institutions implementing their food waste elimination plan, Volume of food waste diverted, Cost to implement, Cost savings, Employee satisfaction
06 Keep up the momentum	
Keep up the momentum	Champions identified for each school and institution, Number of lessons taught that tie in the issue of food waste in each grade in schools

Other Places

TABLE 32. **Key Performance Indicators by Task: Other Places**

Task	Key Performance Indicators (KPIs)
01 **Technical assistance and infrastructure support for prevention and diversion in offices and small businesses**	
01.A **MFNW technical assistance program**	Number and percent of employees that attend food waste-related events and workshops, Number of businesses participating in MFNW technical assistance, Cost, Cost savings
01.B **Engage employees**	Number and percent of employees who are aware of food waste issues, Number of employees/departments competing in a food waste reduction competition, Cost
01.C **Office kitchen dehydrators**	Number of dehydrators purchased, Employee satisfaction, Cost
02 **Place food scrap collection bins in municipal facilities and public spaces**	
Place food scrap collection bins in municipal facilities and public spaces	Number of countertop caddies purchased, Number of organics recycling carts/bins added to municipal sites, Number of contamination issues, Cost

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APPENDIX D:

Supporting Documents

Appendix D: Supporting Documents

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Template Plans to Support County Materials Management Plans

Managing Food Waste - Materials Management Plans (MMPs)

The template that follows is intended to support cities, villages, and townships (CVTs) in developing a plan to manage food waste as part of the required materials management plans (MMPs) that all Michigan counties must create. Reaching the county's MMP goals will require CVTs to develop and implement food waste reduction strategies, therefore, this template supports implementation of the county's goals.

The template is intended to walk municipalities through the process of creating a food waste management plan. The first section, determining baseline waste and costs, is a critical focus area to complete so that tracking and measuring can be done. The strategies in the remaining focus areas can be picked and chosen from, however, it will likely be very difficult to reach the county's goal for food waste reduction if some sort of diversion program is not in place. CVTs should create their own food waste reduction plans based on the county's MMP and commit to specific actions that will support the county's goals. Which actions to take should be considered using the information in the first (description), second (cost), and last (resources) column as well as the resources available in the community and compatibility between the strategy and community character, values, and experience. Strategies highlighted in green are those that are easiest to implement while also being effective in reducing food waste.

Once strategies have been identified, more specific objectives (targets, goals) for the strategy and who's responsible for implementing the strategy and measuring/reporting on it should be noted in the middle columns.

The Data Tracker on page 233 provides an outline of how a more detailed action plan could be structured.

Food Waste Reduction Action Template: Municipalities

Strategies	Project Cost Range ($=low, $$=med, $$$=high)	To Be Completed by Municipality: Objectives	Timeline	Method of Measurement (See NRDC resource)	Responsibility	Notes	Helpful Resources	
Focus Area: Determine community's baseline of waste and costs								
Identify the baseline of overall food waste, amount of food waste per sector, and food rescue opportunities	$						NRDC Residential Food Waste Assessment - Survey, Kitchen Diary, and Bin Audits - see pages 139-169 for the survey and diary information and pages 4-6 for bin audit details	New York State Pollution Prevention Institute Food Waste Calculator
Identify large food waste generators-those generating more than 2T of food waste weekly	$						NRDC Toolkit for Tackling Food Waste in Cities - See Strategy 10, Findacomposter.com	
Calculate GHG reduction opportunities moving food waste from landfills (MTCO2e) to prevention or compost or anaerobic digestion	$						EPA WARM Model	
Calculate the social cost of carbon from food waste	$						Formula: MTCO2e from WARM model * $190 (Biden Administration Social Cost of Carbon)	
Calculate household spending on food that is uneaten	$						Formula: $759/resident/year	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Calculate amount of potential savings for restaurants	$						Formula: average annual savings potential per restaurant ($23,000) * # of restaurants	
Focus Area: Understand current food rescue landscape of food rescue organizations, food banks, food pantries, farms, and community gardens, and work to increase capacity among these outlets								
Compile list of local food system players	$						Contact your nearest Feeding America organization, EPA Excess Food Opportunities Map	
Assess ability to rescue and store more food, and demand to distribute/use more food, and what types (for example, a pantry may be able to take nonperishables that don't need to be refrigerated, but can't take anything that needs refrigeration unless they get additional cool storage space)	$						NRDC Toolkit for Tackling Food Waste in Cities - See Strategy 8	
Identify needs to be able to rescue and redistribute more food (staff, infrastructure, funding, demand)	$						NRDC Toolkit for Tackling Food Waste in Cities - See Strategy 8	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality					
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**
Facilitate connections between organizations and networks to address gaps and increase partnerships and collaboration	$						NRDC Toolkit for Tackling Food Waste in Cities - See Strategy 8
Help fund rescue-related infrastructure and needs via grants and other funding sources	$$						
Focus Area: List organics recycling resources							
Locate nearby yard waste collection sites that will accept food scraps and/or can be modified easily to accept food scraps	$						Map of Sites
If food scrap collection is happening (curbside and drop off) in the community, gather information about where it occurs, how it is run, participation levels, and its capacity	$						
Calculate number of compost sites needed	$						Formula: [(Number of pounds of residential food waste) (.5) + (Number of pounds of commercial food waste) (.25)]/4,400,000 (see county)

Food Waste Reduction Action Template: Municipalities (Continued)

Strategies	Project Cost Range ($=low, $$=med, $$$=high)	To Be Completed by Municipality					Helpful Resources	
		Objectives	Timeline	Method of Measurement (See NRDC resource)	Responsibility	Notes		
Focus Area: Support existing programming								
Understand community's waste management contract regarding food scrap collection opportunities, including contract dates, ability to change the contract, ability to negotiate for lowered rates if diversion occurs, etc.	$							
Identify culinary programs, economic development programs, DDAs and other business resources that exist to support organizations in training workers on food waste reduction practices, developing food diversion and rescue programs, etc.	$$							

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Focus Area: Outline trackable metrics								
Residential	$						Recommended: 10% reduction via prevention and a 50% participation in food scrap collection	
Commercial	$						Recommended: 10% reduction in prevention, a 15% reduction through donation, and a 25% participation in food scrap collection	
Community	$						Reduce overall food waste by 50% at City/Township properties through prevention, donation, and composting	
Waste Diversion Rate	$						Percentage of food waste diverted from landfills to recycling, composting, or anaerobic digestion with composting of the remaining digestate	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Tonnage of Food Waste Collected	$						Total amount (in tons) of food waste diverted from the waste stream over a specific time period	
Greenhouse Gas (GHG) Emissions Reductions: Amount of GHG emissions reduced by diverting food waste from landfill	$						(WARM)	
Cost Savings	$						Amount of money saved due to reduced landfill waste hauling fees	
Food Recovery Metrics	$						Amount of food rescued and redistributed to those in need (measured in pounds or meals)	
Composting Outputs	$						Volume of compost produced from diverted food waste	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality					
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**
Focus Area: Lead by example							
Ensure that existing information and direction is clearly available on Community website, and promote the website (i.e. composting guidelines, share tables, food donation guidelines and liability protection, any available financial programs, etc)	$						Liability protection State guidance on share tables
Require use of compost on Community properties for landscaping and with new government facility construction	$$						Compost Procurement Policy
Require Community-sponsored and hosted public events to be zero waste or adopt waste reduction strategies; include educational signage	$						Examples: Ferndale Special Events; Rockefeller Waste Free Events
Alter Community procurement policies to encourage or require vendor action on food waste, including preventive strategies and food donation	$$						
Communicate Community's food waste reduction efforts to the public via an online dashboard	$						

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Collect food scraps at Community-owned properties	$$$							
Facilitate best practice sharing within the region by attending a County-wide summit for municipalities and food waste management entities to gather and share information	$$							
Have the City Mayor or Township Supervisor make a public commitment	$						Guide to making a public commitment	
Update site development standards to include food waste management in plans	$							
Permit food upcycling facilities, including soup kitchens, in more areas throughout the city to process surplus food	$							
Advocate for adding capacity or retrofitting anaerobic digesters at wastewater treatment facilities to accept food waste, where applicable	$$$							

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Focus Area: Address food waste in residential settings								
Speak to community groups on food waste reduction strategies for households, including understanding date labels, properly storing food, preservation techniques, etc.	$							
Provide pop-ups/demos at community partners and community events on ways to reduce food waste at home	$-$$							
Train residents in ways to safely reduce food waste at home	$-$$						Composting Food Scraps in Your Community: A Social Marketing Toolkit | US EPA	
Introduce a food waste comparison metric for benchmarking households of various sizes	$							
Host a food waste reduction competition among households	$$							
Create household food waste prevention toolkits that include low tech tools to prevent food waste including reminder magnets/stickers, a refrigerator thermometer, grocery list pad, recipes, and “use up” tape	$$						Report on items for food waste reduction in households	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Provide countertop caddies with signage/educational materials and liners to all households	$$							
Implement a food scrap collection program	$$$							
Provide curbside food scrap pick up comingled with yard waste for single family residents	$$$						Composting Council's Curb to Compost Toolkit	
Provide curbside food scrap pick up with carts for all single family residences	$$$						Curbside pick up, particularly that with rolling carts, has been found to have the highest participation rates.	
Provide food scrap collection sites on city property for all residents to drop off food scraps.	$$						Food Waste Drop-Off Program Best Practices | BioCycle	
Create a recognition program for households who are properly sorting food scraps	$						Gold Star Program for Residences in Australia	Rewards programs for recycling

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Develop clear guidelines for backyard and community composting	$						Minnesota Composting Council and Association of Recycling Managers Model Composting Ordinance for backyard and small compost sites, NRDC and the Environmetnal Law Institute (ELI) Model Municipal Zoning Ordinance on Community Composting with Commentary	
Create a demonstration composting site to educate residents on how to compost	$$							
Create a program to bulk purchase home composting supplies	$							

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Consider moving to a Pay As You Throw (PAYT) model for trash collection fees to incentivize diversion	$						NRDC Model Ordinance Establishing a Pay-As-You-Throw Program for Residenetial Municipal Solid Waste,	Northeast Resource Recovery Association Pay As You Throw (PAYT) Toolkit
Unbundle waste collection service fees and reduce fees for those who compost	$							
Increase frequency of food scrap collection and decrease frequency of landfill collection	$							
Promote food scrap collection programs	$-$$						Best practices for drop off sites (BioCycle)	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality					
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**
Focus Area: Address food waste in commercial settings							
Partner with local businesses (e.g., restaurants, grocery stores) to adopt food waste reduction measures by offering technical assistance such as waste audits	$$-$$$						How to conduct a food waste audit
Recognize businesses who adopt food waste reduction practices; consider a competition	$						Guide to restaurant challenge
Promote and encourage the use of apps and technologies that connect surplus food to interested people	$						
Facilitate conversations among business owners in close proximity about shared food scrap collection services or aerobic digesters	$						
Adopt a community-wide color/ shape/signage scheme for all waste management	$$-$$$						

Food Waste Reduction Action Template: Municipalities (Continued)

Strategies	Project Cost Range ($=low, $$=med, $$$=high)	To Be Completed by Municipality: Objectives	Timeline	Method of Measurement (See NRDC resource)	Responsibility	Notes	Helpful Resources	
Create a voluntary or compulsory program for large food waste generators to track, report, and divert food scraps	$$-$$$						NRDC Model Ordinance on Mandatory Reporting for Large Food Waste Generators: With and Without Commentaries,	New York State Pollution Prevention Institute Food Waste Calculator
Promote food scrap collection programs	$						Best practices for drop off sites (BioCycle)	
Provide countertop caddies and liners	$$						City of Boston curbside collection program	
Focus Area: Increase capacity of food rescue organizations and food pantries								
Promote food rescue organizations	$						Forthcoming from Michigan Sustainable Business Forum	
Work with food rescue organizations and pantries to apply for funding for operations and capacity building	$$							
Support opportunities and spaces to upcycle food	$-$$$							

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Focus Area: Decrease food waste in schools								
Encourage schools to commit to reducing food waste	$							
Encourage schools to incorporate food waste reduction into curriculum	$						WWF: Offer-v-serve, Share tables, composting	
Encourage schools to offer food scrap collection	$						Model policies	
Encourage schools to implement share tables	$						Share Tables for Schools guidance from State of Michigan	
Encourage schools to participate in offer v. serve	$							
Encourage schools to perform a resource assessment of cooking equipment, kitchen space, staff skills, etc.	$						Food Service Resource Checklist	
Encourage schools to conduct a food waste audit	$						Guide to Conducting Food Waste Audits: A Resource for Schools, Food Waste Audit for Schools - Sustainable New Jersey	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Encourage schools to conduct food preference surveys	$							
Encourage schools to track food waste in their school wellness portal	$							
Encourage schools to donate leftover food	$							
Encourage schools to participate in 10 Cents a Meal	$						Teaching resources (WWF)	
Encourage schools to do as much scratch cooking as possible	$							
Encourage schools to adopt county color/shape/signage scheme for waste management	$							
Encourage schools to have student and/or teacher/parent champions (Green Team)	$							
Encourage schools to submit action items to Michigan Green Schools certification	$							
							Additional best practices (USDA)	

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality						
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**	
Focus Area: Increase food scrap processing								
Initiate the development of additional composting and A/D sites, if needed	$$$						EGLE; Model policies, NRDC Toolkit for Tackling Food Waste in Cities - See Strategy 10	
Create a workforce development program in circular waste management	$$$							
Focus Area: Engage the community								
Promote the food waste initiative through Community communications such as newsletters, social media, and the press	$							
Identify, train, and promote local champions	$							
Create advisory committees provide feedback on how food waste initiatives are going for businesses and residents	$							
Conduct a public education campaign related to prevention and composting	$$-$$$						(Link to MFNW forthcoming)	

Food Waste Reduction Action Template: Municipalities (Continued)

Strategies	Project Cost Range ($=low, $$=med, $$$=high)	To Be Completed by Municipality: Objectives	Timeline	Method of Measurement (See NRDC resource)	Responsibility	Notes	Helpful Resources	
Create ways for people to make a public commitment to address food waste such as yard signs, flags, and door signs, online pledges, etc.	$$							
Organize events, workshops, and social media outreach to encourage participation among households, businesses, schools, and community groups	$$							
Focus Area: Increase partnerships and regional collaboration								
Provide pass through funding to local businesses, nonprofits and community stakeholders to support efforts	$-$$						Federal Grants Database	
Explore joint compost facility infrastructure with neighboring communities to reduce costs	$							
Focus Area: Ensure food waste management services are available to all communities within the County								
Provide targeted outreach and financial assistance for residents and food pantries who may face barriers to participation	$-$$$							

Food Waste Reduction Action Template: Municipalities (Continued)

		To Be Completed by Municipality					
Strategies	**Project Cost Range ($=low, $$=med, $$$=high)**	**Objectives**	**Timeline**	**Method of Measurement (See NRDC resource)**	**Responsibility**	**Notes**	**Helpful Resources**
Focus Area: Provide for financial sustainability of food waste management							
Apply for State and federal grants open to government entities on behalf of groups based in the Community	$-$$$						
Focus Area: Support innovative technologies							
Consider the adoption of or pilots to test technological approaches including: apps and digital marketplaces, composting and aerobic digestion machines, upcycling into value-added food or non-food products, smart bins, and robotic food sorting/ transporting systems	$-$$$						Too Good To Go, Flashfood, HARP aerobic digestion, BigBelly compost bins, Home bins: Reencle, Mill, Orange Sparkle Ball, Michigan Materials Marketplace
Focus Area: Measure results							
Conduct a waste characterization study	$$						Guide to Methods (NRDC)

Data Tracker

Example					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
	Strategy - Residential Food Waste Management				
	Goal: 10% reduction via prevention and a 50% participation in food scrap collection				
Action Steps	Collect baseline data to understand existing prevention and diversion habits	Implement and promote food scrap collection program	Monitor/evaluate food scrap collection program success; measure participation rate and adjust promotional methods/training/location of bins/etc. to increase participation as need to reach goal	Monitor/evaluate food scrap collection program success; measure participation rate and adjust promotional methods/training/location of bins/etc. to increase participation as need to reach goal	Monitor/evaluate food scrap collection program success; measure participation rate and adjust promotional methods/training/location of bins/etc. to increase participation as need to reach goal
Measurement	Resident survey with questions about current practices for managing food waste	Implementation and promotion of food scrap collection program	Resident survey with questions about current practices for managing food waste	Resident survey with questions about current practices for managing food waste	Resident survey with questions about current practices for managing food waste
Tracking Data	Survey developed and launched; received 503 responses that indicate that....	Whether or not the food scrap collection was implemented, how many households it services, number of people participating, pounds of food scraps collected, etc.	Number of households served with food scrap collection program, number of people participating, pounds of food scraps collected, etc.	Number of households served with food scrap collection program, number of people participating, pounds of food scraps collected, etc.	Number of households served with food scrap collection program, number of people participating, pounds of food scraps collected, etc.
	Strategy -				
	Goal:				
Action Steps					
Measurement					
Tracking Data					

Data Tracker (Continued)

Example					
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
	Strategy -				
	Goal:				
Action Steps					
Measurement					
Tracking Data					
	Strategy -				
	Goal:				
Action Steps					
Measurement					
Tracking Data					
	Strategy -				
	Goal:				
Action Steps					
Measurement					
Tracking Data					

Bill Emerson Good Samaritan Food Donation Act

42 U.S.C.
United States Code, 2022 Edition

§ 1791 - Bill Emerson Good Samaritan Food Donation Act

(a) Short title

This section may be cited as the "Bill Emerson Good Samaritan Food Donation Act".

(b) Definitions

As used in this section:

(1) Apparently fit grocery product

The term "apparently fit grocery product" means a grocery product that meets all quality and labeling standards imposed by Federal, State, and local laws and regulations even though the product may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions.

(2) Apparently wholesome food

The term "apparently wholesome food" means food that meets all quality and labeling standards imposed by Federal, State, and local laws and regulations even though the food may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions.

(3) Donate

The term "donate" means to give without requiring anything of monetary value from the recipient, except that the term shall include giving by a nonprofit organization to another nonprofit organization, notwithstanding that the donor organization has charged a nominal fee to the donee organization, if the ultimate recipient or user is not required to give anything of monetary value or is charged a good Samaritan reduced price.

(4) Food

The term "food" means any raw, cooked, processed, or prepared edible substance, ice, beverage, or ingredient used or intended for use in whole or in part for human consumption.

(5) Gleaner

The term "gleaner" means a person who harvests for free distribution to the needy, or for donation to a nonprofit organization for ultimate distribution to the needy, an agricultural crop that has been donated by the owner.

(6) Good Samaritan reduced price

The term "good Samaritan reduced price" means, with respect to the price of an apparently wholesome food or apparently fit grocery product, a price that is an amount not greater than the cost of handling, administering, harvesting, processing, packaging, transporting, and distributing the apparently wholesome food or apparently fit grocery product.

(7) Grocery product

The term "grocery product" means a nonfood grocery product, including a disposable paper or plastic product, household cleaning product, laundry detergent, cleaning product, or miscellaneous household item.

(8) Gross negligence

The term "gross negligence" means voluntary and conscious conduct (including a failure to act) by a person who, at the time of the conduct, knew that the conduct was likely to be harmful to the health or well-being of another person.

(9) Intentional misconduct

The term "intentional misconduct" means conduct by a person with knowledge (at the time of the conduct) that the conduct is harmful to the health or well-being of another person.

(10) Nonprofit organization

The term "nonprofit organization" means an incorporated or unincorporated entity that—

(A) is operating for religious, charitable, or educational purposes; and

(B) does not provide net earnings to, or operate in any other manner that inures to the benefit of, any officer, employee, or shareholder of the entity.

(11) Person

The term "person" means an individual, corporation, partnership, organization, association, or governmental entity, including a retail grocer, wholesaler, hotel, motel, manufacturer, restaurant, caterer, farmer, and nonprofit food distributor or hospital. In the case of a corporation, partnership, organization, association, or governmental entity, the term includes an officer, director, partner, deacon, trustee, council member, or other elected or appointed individual responsible for the governance of the entity.

(12) Qualified direct donor

The term "qualified direct donor" means a retail grocer, wholesaler, agricultural producer, agricultural processor, agricultural distributor, restaurant, caterer, school food authority, or institution of higher education (as defined in section 1002 of title 20).

(c) Liability for damages from donated food and grocery products

(1) Liability of person or gleaner

A person or gleaner shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the person or gleaner donates in good faith to a nonprofit organization for ultimate distribution to needy individuals at zero cost or at a good Samaritan reduced price.

(2) Liability of nonprofit organization

A nonprofit organization shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the nonprofit organization received as a donation in good faith from a person or gleaner for ultimate distribution to needy individuals at zero cost or at a good Samaritan reduced price.

(3) Direct donations to needy individuals

A qualified direct donor shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the qualified direct donor donates in good faith to a needy individual at zero cost.

(4) Exception

Paragraphs (1), (2), and (3) shall not apply to an injury to or death of an ultimate user or recipient of the food or grocery product that results from an act or omission of the person, gleaner, or nonprofit organization, as applicable, constituting gross negligence or intentional misconduct.

(d) Collection or gleaning of donations

A person who allows the collection or gleaning of donations on property owned or occupied by the person by gleaners, or paid or unpaid representatives of a nonprofit organization, for ultimate distribution to needy individuals shall not be subject to civil or criminal liability that arises due to the injury or death of the gleaner or representative, except that this paragraph shall not apply to an injury or death that results from an act or omission of the person constituting gross negligence or intentional misconduct.

(e) Partial compliance

If some or all of the donated food and grocery products do not meet all quality and labeling standards imposed by Federal, State, and local laws and regulations, the person or gleaner who donates the food and grocery products shall not be subject to civil or criminal liability in accordance with this section if the nonprofit organization that receives the donated food or grocery products—

(1) is informed by the donor of the distressed or defective condition of the donated food or grocery products;

(2) agrees to recondition the donated food or grocery products to comply with all the quality and labeling standards prior to distribution; and

(3) is knowledgeable of the standards to properly recondition the donated food or grocery product.

(f) Construction

This section shall not be construed to create any liability. Nothing in this section shall be construed to supercede State or local health regulations.

(Pub. L. 89–642, §22, formerly Pub. L. 101–610, title IV, §402, Nov. 16, 1990, 104 Stat. 3183; renumbered §22 and amended Pub. L. 104–210, §1(a)(2), (b), Oct. 1, 1996, 110 Stat. 3011, 3012; Pub. L. 117–362, §1, Jan. 5, 2023, 136 Stat. 6295.)

Editorial Notes

Codification

Section was formerly classified to section 12672 of this title prior to renumbering by Pub. L. 104–210.

Amendments

2023—Subsec. (b)(3). Pub. L. 117–362, §1(1)(A), inserted "or is charged a good Samaritan reduced price" before period at end.

Subsec. (b)(6) to (11). Pub. L. 117–362, §1(1)(B), (C), added par. (6) and redesignated former pars. (6) to (10) as (7) to (11), respectively.

Subsec. (b)(12). Pub. L. 117–362, §1(1)(D), added par. (12).

Subsec. (c)(1), (2). Pub. L. 117–362, §1(2)(A), inserted "at zero cost or at a good Samaritan reduced price" after "needy individuals".

Subsec. (c)(3). Pub. L. 117–362, §1(2)(C), added par. (3). Former par. (3) redesignated (4).

Subsec. (c)(4). Pub. L. 117–362, §1(2)(B), (D), redesignated par. (3) as (4) and substituted ", (2), and (3)" for "and (2)".

1996—Pub. L. 104–210, §1(a)(2)(A), substituted "Bill Emerson" for "Model" in section catchline.

Subsec. (a). Pub. L. 104–210, §1(a)(2)(B), inserted "Bill Emerson" before "Good".

Subsec. (b)(7). Pub. L. 104–210, §1(a)(2)(C), reenacted heading without change and amended text generally. Prior to amendment, text read as follows: "The term 'gross negligence' means voluntary and conscious conduct by a person with knowledge (at the time of the conduct) that the conduct is likely to be harmful to the health or well-being of another person."

Subsec. (c). Pub. L. 104–210, §1(a)(2)(D), added subsec. (c) and struck out heading and text of former subsec. (c). Text read as follows: "A person or gleaner shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the person or gleaner donates in good faith to a nonprofit organization for ultimate distribution to needy individuals, except that this paragraph shall not apply to an injury to or death of an ultimate user or recipient of the food or grocery product that results from an act or omission of the donor constituting gross negligence or intentional misconduct."

Subsec. (f). Pub. L. 104–210, §1(a)(2)(E), inserted at end "Nothing in this section shall be construed to supercede State or local health regulations."

Food Donation Improvement Act

Public Law 117-362
117th Congress

An Act

To amend the Bill Emerson Good Samaritan Food Donation Act to improve the program, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. BILL EMERSON GOOD SAMARITAN FOOD DONATION ACT.

The Bill Emerson Good Samaritan Food Donation Act (42 U.S.C. 1791) is amended—

(1) in subsection (b)—

(A) in paragraph (3), by inserting "or is charged a good Samaritan reduced price" before the period at the end;

(B) by redesignating paragraphs (6) through (10) as paragraphs (7) through (11), respectively;

(C) by inserting after paragraph (5) the following:

"(6) GOOD SAMARITAN REDUCED PRICE.—The term 'good Samaritan reduced price' means, with respect to the price of an apparently wholesome food or apparently fit grocery product, a price that is an amount not greater than the cost of handling, administering, harvesting, processing, packaging, transporting, and distributing the apparently wholesome food or apparently fit grocery product."; and

(D) by adding at the end the following:

"(12) QUALIFIED DIRECT DONOR.—The term 'qualified direct donor' means a retail grocer, wholesaler, agricultural producer, agricultural processor, agricultural distributor, restaurant, caterer, school food authority, or institution of higher education (as defined in section 102 of the Higher Education Act of 1965 (20 U.S.C. 1002))."; and

(2) in subsection (c)—

(A) in paragraphs (1) and (2), by inserting "at zero cost or at a good Samaritan reduced price" after "needy individuals" each place it appears;

(B) by redesignating paragraph (3) as paragraph (4);

(C) by inserting after paragraph (2) the following:

"(3) DIRECT DONATIONS TO NEEDY INDIVIDUALS.—A qualified direct donor shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the qualified direct donor donates in good faith to a needy individual at zero cost."; and

(D) in paragraph (4) (as so redesignated), by striking "and (2)" and inserting ", (2), and (3)".

Approved January 5, 2023.

Guide on Food Donations for Individuals

Why Donate?

Donating food is a safe and legal way to protect our resources, prevent harmful greenhouse gas emissions, and provide support to people who are in need in the local community.

What Can You Donate?

All food donations must be handled and stored properly to maintain safety and quality. Donated foods should be in its original packing or properly sealed containers to ensure it remains safe and uncontaminated. Food past its labeled dates are safe to donate as long as the food has been inspected for spoilage. Donors should follow food safety guidelines to ensure food remains safe for consumption. Types of food you can donate include:

- Canned goods, boxed meals, and dry foods
- Bottled drinks such as water, juice, and milk
- Fruit and vegetables

Leftover food from meals or parties are not able to be donated.

How to Donate?

Contact your local food bank or food pantry to either coordinate a time to bring your donation.

Guide on Food Donations for Businesses, Schools, and Institutions

Why Donate?

Donating food is a safe and legally protected way to support your community and reduce food waste. Donating food can:

- Strengthen community ties and enhance your business's reputation while providing people in need with food
- Benefit your business by taking advantage of tax deductions from donating food from overproduction or unsold inventory. They can also save money on waste removal associated with throwing away surplus foods.
- Divert food from landfills, reducing methane emission and the overall impacts of food waste. Engaging in food donations showcases a commitment to reducing methane emissions.
- Build a positive culture of giving back and by boosting morale and the work environment. Employees are often proud to work for companies that give back to communities.

What Can You Donate?

All food donations must be handled and stored properly to maintain safety and quality. Donated foods should be in its original packing or properly sealed containers to ensure it remains safe and uncontaminated. Food past its labeled dates are safe to donate as long as the food has been inspected for spoilage. Donors should follow ServSafe food safety guidelines to ensure food remains safe for consumption. Types of food you can donate include:

- Perishable items including fresh fruits and vegetables, dairy products, meat, and baked goods.
- Prepared items such as surplus meals from events, catered functions or other food service.
- Canned goods, boxed meals, and dry foods
- Frozen food (without freezer burn)
- Bottled drinks such as water, juice, and milk

How to Donate?

Partner with local food banks and food rescue organizations that work with business and organizations to facilitate donations. Coordinate regular pickups to donate surplus food on a consistent basis. (Source: The Center for EcoTechnology)

Liability Protection:

You are protected when you donate food under the 1996 Bill Emerson Good Samaritan Food Donation Act and the 2023 Food Donation Improvement Act. Businesses and organizations that donate or distribute food or grocery products are protected from liability when donating food in good faith. Good faith is defined as donating food that has been treated the same as food served to guests. As long as you have followed the same food safety protocols, and believe the donated food to be safe for consumption, you will not be held

liable if the food later causes harm. Understanding these protections can give you peace of mind as you contribute to helping those in need.

Michigan law further strengthens these protections. Under the Michigan State Liability Protection Law, not only are food donors protected, but also those who harvest surplus crops for donation are also covered. This law extends liability protection to nonprofit organizations that distribute donated food, ensuring that those who contribute to fighting hunger are fully supported by the legal system. (Sources: Food Law and Policy Clinic - Emerson Act; Food Law and Policy Clinic - Michigan Law)

Federal Tax Incentive:

The federal government offers a tax deduction to businesses donating food in order to support businesses in diverting food to the community. See the following for detail on calculating your tax deduction, or consult an accounting professional: NRDC - Tax Deduction Food Donation; Food Law and Policy Clinic - Food Donation Tax Guide.

Model Policies

Model Ordinance on Backyard Composting

The following language is an example ordinance that could be added to Livonia's Code of Ordinances to promote backyard composting while protecting neighbors from nuisances. It should be reviewed by City Council and refined as needed.

Draft Language:

(1) Purpose. This ordinance is intended to:
- (a) Protect environmental and public health, safety, comfort, convenience, and the general welfare of citizens of {COMMUNITY NAME};
- (b) Establish powers, duties, rules, regulations, and standards for the location and operation of backyard and small compost sites in residential areas;
- (c) Promote a program of waste reduction through source separation of organic materials from mixed municipal solid waste;
- (d) Provide for the administration and enforcement of this ordinance.

(2) Definitions.
- (a) "Backyard compost site" means a site no greater than four cubic yards used to compost food scraps, garden wastes, weeds, lawn cuttings, leaves, and prunings from a single family or household
- (b) "Composting" means the controlled microbial degradation of source separated compostable material to yield a humus-like product or mulch to be used as a soil amendment
- (c) "Mixed municipal solid waste" means garbage, refuse, and other solid waste from residential, commercial and community activities that the generator of the waste aggregates for collection
- (d) "Food scraps" means organic material resulting from the handling, preparation, cooking, and consumption of food.
- (e) "Organic material" means yard waste, food scraps, and compostable material
- (f) "Yard waste" means garden wastes, leaves, lawn cuttings, non-regulated weeds, shrub and tree waste, prunings, and twigs

(3) Standards for compost piles in residential areas:
- (a) Backyard compost sites may accept a combination of yard waste and food scraps that are not meat or dairy.
  - (i) Specifically prohibited items: uncooked meat, fats, oils, grease, bones, whole eggs, milk or other liquid dairy product, human or pet wastes, hazardous waste, herbicides, noxious weeds, and any other mixed municipal solid waste that may cause a public health risk or create nuisance conditions.
- (b) Location:
  - (i) Compost piles shall not be located within any storm sewer, drainage easement, or water retention basin. Compost piles shall not be located in any front or side yard, or closer than ten (10) feet to any property line.
  - (ii) No compost site shall be located closer than twenty (20) feet to any residential dwelling, except the dwelling on the property on which the site is located.
  - (iii) No compost site may be placed within twenty (20) feet of any body of water or area designated as a 100-year floodplain or state protected wetland.

(c) Size: Compost piles shall not exceed four feet by eight feet (4'×8') or six (6) feet in diameter and shall not exceed four (4) feet in height. Double compost piles may be utilized, provided the total size does not exceed the above.

(d) Maintenance: Compost piles shall be maintained so that there are no readily apparent odors emanating onto adjacent property.

(4) Enforcement. In addition to any costs which may be assessed pursuant to subsection (3) below, any violation of this article shall subject the violator to a civil fine of not more than one hundred dollars ($100.00).

Other resources for ordinances for backyard and small scale composting:

Minnesota Composting Council and Association of Recycling Managers and the Association of Recycling Managers, Inc. (ARM), "Model Composting Ordinance for backyard and small compost sites," August 2018, https://www.mn-swaa.org/wp-content/uploads/2018/08/model_composting_ordinance.pdf.

Other resources for ordinances on community and larger scale composting sites:

NRDC and the Environmental Law Institute (ELI), "Model Municipal Zoning Ordinance on Community Composting," June 2024, https://www.nrdc.org/sites/default/files/2024-05/model-municipal-zoning-ordinance-community-composting.pdf.

NRDC and the Environmental Law Institute (ELI), "Model Municipal Zoning Ordinance on Community Composting, With Commentaries," June 2024, https://www.nrdc.org/sites/default/files/2024-05/model-municipal-zoning-ordinance-community-composting-commentaries.pdf.

NRDC and the Environmental Law Institute (ELI), "Model Municipal Zoning Ordinance on Community Composting: Background Memorandum," May 2024, https://www.nrdc.org/sites/default/files/2024-05/model-municipal-zoning-ordinance-community-composting-background.pdf.

US Composting Council, "Model Zoning Text Amendment for Composting Facilities," January 2022, https://cdn.ymaws.com/www.compostingcouncil.org/resource/resmgr/documents/USCC_Model_Compost_Zoning_Or.pdf.

Model Ordinance on Food at Events

The following language is an example ordinance that could be added to Livonia's codes to promote sorting and diversion of food waste during events held within the city. This language is based on language used in Ferndale, Michigan. It should be reviewed by City Council and refined as needed, with the parts that do not pertain to food waste either completed or removed.

Draft Language:

Chapter 31 - Special Events

(1) Purpose. This ordinance is intended to:
  (a) Ensure events held in the city are done so in a way that is safe and returns the space used to its previous state or better
  (b)

(2) Definitions
  (a) Class 1 Event: Events with a low hazard risk, including meetings, seminars, social gatherings, and auctions.
  (b) Class 2 Event: Events with a moderate hazard risk, including dances, flea markets, picnics, and parades without floats
  (c) Class 3 Event: Events with a high hazard risk, including parades with floats, marathons, circuses, and carnivals
  (d) Class 4 Event: Events with a severe hazard risk, including concerts and festivals and events with alcohol sales and fireworks

(3) Standards for waste management at events
  (a) Restrooms [to be drafted by city staff as deemed necessary]
  (b) Recycling, food, and waste management
    (i) Events classified as class 1 and 2 and serving food require organic diversion bins. If no food is served, this requirement is waived.
    (ii) Events classified as class 3 and 4 will require a waste management plan that includes details about access to trash, recycling and organic diversion in all event areas and surrounding areas within 300 ft. of the event from event set up until post event cleaning associated with the event is completed.
    (iii) The location of all waste containers and roll-off dumpsters must be identified on the event site plan and approved by the City Sustainability Planner.
    (iv) Event organizers must ensure that the following are met, unless managed by the city:
      1) All containers must be clearly labeled to indicate whether they are dedicated for landfill trash, recycling, or organics diversion;
      2) Landfill trash, recycling, and organics diversion containers should be grouped in common collection areas to ensure access for employees, vendors, volunteers, and attendees.
      3) No third-party service provider of waste removal and recycling shall be permissible without pre-approval by the Ferndale Sustainability Planner.
    (v) Container maintenance. Create common waste collection areas by grouping landfill trash, recycling, and organics diversion containers adjacent to one another. Use clear liners for recycling, black liners for landfill trash, and green liners for organics.

(vi) When appropriate, donation of leftover food is encouraged.

(c) Solid waste [to be drafted by city staff as deemed necessary]

(d) Recyclables [to be drafted by city staff as deemed necessary]

(4) Application process [to be drafted by city staff as deemed necessary]

(5) Application requirements [to be drafted by city staff as deemed necessary]

(a) Name, date, time and type of event

(b) Contact information

(c) Logistics (timeline for set up and breakdown)

(d) Special requests (use of city services, sidewalk and road closures, parking lot use and closure, etc.)

(e) Food related requirements (health and safety, temporary alcohol license, etc.)

(f) Public safety plan

(g) Restroom, waste, and recycling plan

(i) Restrooms [to be drafted by city staff as deemed necessary]

(ii) Food waste at events.

1) For events where food will be served, the following must be included in the application for the special event:

(iii) Solid waste [to be drafted by city staff as deemed necessary]

(iv) Recyclables [to be drafted by city staff as deemed necessary]

(h) Insurance

(i) An event site map and/or route and supporting documentation

(j) Application materials must be submitted at least XX days prior to the event.

(6) Enforcement. This special events policy will be enforced by the special event facilitator, Code Enforcement, and the Police Department. Special events found to be violating this code may be subject to penalties or fines of up to $XXX.

Resources

City of Ferndale, "Special Events Policy," https://drive.google.com/file/d/1B8O3MsWfVLJ1F-Q4RKcVmjxgQM2CLUJQ/view.

City of Detroit, Office of External Affairs, "Special Event Applicant Guide," https://detroitmi.gov/sites/detroitmi.localhost/files/2024-01/Special%20Events%20Applicant%20Guide%202024.pdf.

City of Detroit, "Event Recycling and Waste Reduction Guidebook," https://detroitmi.gov/sites/detroitmi.localhost/files/2022-03/City%20of%20Detroit%20Event%20Guidebook%20City%20Final%20Edit.pdf.

Model Compost Procurement Policy

Source: NRDC Model Compost Procurement Policy, 2021. https://www.nrdc.org/resources/model-compost-procurement-policy-and-without-commentaries

1. Purpose

a. [*insert name of municipal entity issuing policy*] requires the procurement of compost (finished compost products) by [insert names of municipal entities subject to policy (*e.g., "Smith City Departments"*)] and encourages the purchasing of compost by [*insert names of quasi-governmental and/or semiautonomous entities that the municipal entity issuing policy does not fully control, such as semiautonomous boards, commissions, and other authorities, or public-private partnerships such as convention centers*], as well as by private entities, for use in projects where compost is a suitable material. By increasing the use of compost, the implementation of this policy will provide the following numerous benefits.

i. *Economic benefits*

1. Requiring the purchasing of compost can increase demand for compost and increase business for local compost suppliers.
2. Diverting organic waste to be composted can reduce costs associated with landfill disposal.
3. Growing the compost market may result in the development of new compost processing facilities, which in turn may provide more jobs.
4. Applying compost increases soil-nutrient and water retention, which may reduce demand for irrigation and fertilizer, thereby reducing operational costs.

ii. *Environmental benefits*

1. Diverting organic waste from landfill disposal reduces greenhouse gas emissions by minimizing methane emissions from landfills and maximizing carbon storage from composting—and may ultimately mitigate the need for new landfill construction.
2. Cycling carbon and nutrients back into soil through compost application conserves resources and improves soil quality.
3. Composting helps prevent erosion and stabilize land.
4. Composting increases the ability of soil to retain water, thereby reducing stormwater runoff.
5. Reducing reliance on chemical fertilizers, which are often produced using fossil fuels, reduces water pollution that can result from fertilizer application and subsequent nutrient runoff.
6. Reducing reliance on irrigation conserves water resources.

b. The policy is not intended to supersede any existing federal, state, or local laws and regulations, including those that address materials procurement.

2. Municipal and state legal authority and policy support

a. **Municipal**: [*insert citations to relevant municipal policies, codes, and ordinances—such as waste management plans and procurement regulations—that offer support for issuance of a compost procurement policy*].

b. **State**: [*insert citations to relevant state laws and regulations—such as waste diversion and sustainable procurement goals—that offer support for issuance of a compost procurement policy*].

c. **U.S. Environmental Protection Agency (EPA)**: EPA's Comprehensive Procurement Guideline recommends that relevant procuring agencies—including local agencies that have spent $10,000 or more on compost in the current or previous year, all or a portion of which came from federal funding—purchase compost made of recovered organic materials. The guideline recommends that procuring agencies "purchase or use mature compost made from recovered organic materials in such applications as landscaping, seeding of grass or other plants on roadsides and embankments, as nutritious mulch under trees and shrubs, and in erosion control and soil reclamation."[1]

3. Definitions

a. **"Compost"** means solid waste that has undergone biological decomposition of organic matter, has been disinfected using composting or similar technologies, and has been stabilized to a degree that is potentially beneficial to plant growth and that is suitable for use as a soil amendment, artificial topsoil, or other similar applications.

b. **"Composting"** means biological decomposition of organic constituents under controlled conditions.

c. **"Contract"** means all types of [insert name of municipal entity issuing policy] agreements and contracts, regardless of what they may be called, for the procurement or disposal of supplies, services, or construction.

d. **"Contractor"** means any person having a contract with [insert name of municipal entity issuing policy].

e. **"Cost prohibitive"** means the product purchasing cost exceeds by more than 10 percent the cost of another product that would serve the same purpose.[2]

f. **"Erosion"** means the disintegration or wearing away of soil by the action of water.

g. **"Green infrastructure"** means an approach to wet-weather management that is cost-effective, sustainable, and environmentally friendly, and that incorporates management approaches and technologies that infiltrate, evapotranspire, capture, and reuse stormwater to maintain or restore natural hydrologies. Green infrastructure practices include, but are not limited to, open space, rain gardens, porous pavements, green roofs, infiltration planters, trees and tree boxes, swales, and curb extensions.

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1 U.S. Environmental Protection Agency, "Recovered Materials Advisory Notice V," September 2007, https://www.regulations.gov/document?D=EPA-HQRCRA-2003-0006-0005.

2 City of Sacramento, California, Sustainable Purchasing Policy, February 2010, https://www.cityofsacramento.org/-/media/Corporate/Files/Finance/Procurement/sustainability/Sustainable_Purchasing_Policy_SPP.pdf?la=en. ("If the life cycle cost of the environmentally preferable product does not exceed the cost of the alternative by more than 10%, and the product meets all necessary specifications, strong consideration should be given to purchase the environmentally preferable product.")

h. **"Impervious surface"** means any ground or structural surface that water cannot penetrate or through which water penetrates with great difficulty.

i. **"Landfill"** means a facility, other than a land application unit, where solid wastes are disposed of by burial in excavated pits or trenches or by placement on land and covering with soil or other approved material.

j. **"Locally produced compost"** means compost that is produced in the same region where it is being used.

k. **"May"** denotes the permissive.

l. **"Private entity"** means any person, business, or nonprofit that is not a government body or a contractor thereof.

m. **"Procurement"** means buying, purchasing, renting, leasing, or otherwise acquiring any supplies, services, or construction. It also includes all functions that pertain to the obtaining of any supply, service, or construction, including description of requirements, selection and solicitation of sources, preparation and award of contract, and all phases of contract administration.

n. **"Shall"** denotes the imperative.

o. **"Stormwater"** means runoff that is generated from rain and snowmelt events that flow over land or impervious surfaces—such as paved streets, parking lots, and building rooftops—and does not soak into the ground.

p. **"Top-dressing"** is a method of adding compost, mulch, loam, peat, or a combination of these things as improvements to the soil or for leveling existing lawns.

4. Procurement requirements

a. General policy

i. [*insert names of municipal entities subject to policy*], except if otherwise exempted, shall purchase compost for use in public projects in which compost is an appropriate material, provided it is not cost prohibitive to acquire.

ii. [*insert names of quasi-governmental and/or semiautonomous entities*], as well as private entities that are based or operate in [*insert name of area governed by municipal entity issuing policy*], are also encouraged to purchase compost, when possible, for use in their projects.

iii. In conjunction with the overarching compost procurement requirement, compost shall be used to amend soil in landscaping and construction projects, as well as to provide for erosion control and stormwater management in road and highway and green infrastructure projects, in accordance with the requirements outlined in subsections 4.b. through 4.e. Compost used in landscaping, construction, roads and highways, and green infrastructure will count toward satisfaction of the compost procurement goals of [*insert names of municipal entities subject to policy*].

b. Landscaping

i. Using compost in landscaping projects improves the quality of soil and reduces the need for fertilizers and irrigation.

ii. Soil amendment prior to new planting

1. Prior to the installation of new plants in landscaping projects, [*insert names of municipal entities subject to policy*] are required, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged, to amend existing soil with compost. This requirement does not apply if soil tests reveal that pre-amendment soil is composed of at least 6 percent organic material to a depth of 6 or more inches, or a condition exists that prevents the application of compost, such as oversaturation.

2. Soil shall be amended with compost at a rate of at least 4 cubic yards of compost per 1,000 square feet of soil. The compost shall be spread evenly across the project area, then incorporated into the soil to a depth of 6 inches. In areas where there are not 6 inches of soil in which to incorporate the compost, compost shall be incorporated at a rate of 25 percent compost to 75 percent soil to the existing soil depth.

3. Proof of satisfactory soil quality that did not require amending, the condition that prevented application of compost, or the completion of the required soil amendment with compost shall be documented by [*insert names of municipal entities subject to policy*] and made available for review by [*insert name of municipal office that oversees procurement or alternative entity*] upon request.

iii. **Ongoing maintenance**

1. [*insert names of municipal entities subject to policy*] shall, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, purchase and use compost, where feasible, in ongoing landscaping activities, such as for top-dressing.

c. **Construction**

i. In addition to providing benefits for post-construction landscaping, the use of compost to amend soil that is compacted or disturbed during construction projects increases on-site water retention, decreases erosion, and contributes to better stormwater management.

ii. ii. The following measures shall be implemented in construction projects undertaken by [*insert names of municipal entities subject to policy*]. It is encouraged, but not required, that the measures are adopted in the projects of [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities.

iii. Preserve existing soil

1. To the extent possible, [*insert names of municipal entities subject to policy*] shall keep original soil in place and avoid compacting it with construction equipment.

2. When existing soil must be moved during construction, [*insert names of municipal entities subject to policy*] shall keep it on-site for use once construction is completed.

iv. Post-construction soil standards and amendment

1. In areas where soil is left exposed after construction is completed (not impervious surfaces) and soil is being amended, [*insert names of municipal entities subject to policy*] shall, and

[*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, amend the soil to achieve the organic matter and pH standards in the following subsection (4.c.iv.2). The soil shall be amended using compost.

2. Soil shall be amended such that the top eight inches contain between 5 and 10 percent organic material and are restored to their original pH levels, or to pH levels between 6 and 8. Five percent is sufficient for turf, and 10 percent is sufficient for planting beds. The amount of compost that will need to be added to achieve these standards will vary depending on the initial quality of the soil. Custom amendment rates specific to the soil for a particular project may be calculated using an online calculator from King County, Washington: https:// kingcounty.gov/depts/dnrp/solid-waste/compost-calculator.aspx. Alternatively, the following preapproved amendment rates may be adopted:

    a. in turf areas, 1.75 inches of compost shall be incorporated into the top 8 inches of soil, which amounts to 5.4 cubic yards of compost per 1,000 square feet of soil; and

    b. in planting beds, 3 inches of compost shall be incorporated into the top 8 inches of soil, which amounts to 9.2 cubic yards of compost per 1,000 square feet of soil.

3. If soil is particularly compacted, the top 4 inches of the soil below the 8 inches of amended soil shall be scarified.

4. Compost shall only be incorporated into dry soil.

5. Proof of satisfactory soil quality that did not require amending, or of the completion of the required soil amendment with compost, shall be documented by [*insert names of municipal entities subject to policy*] and made available for review by [*insert name of municipal office that oversees procurement or alternative entity*] upon request.

d. **Roads and highways**

i. Compost is used in road and highway projects to prevent erosion, promote vegetation growth, and improve the stability and longevity of roads and highways.

ii. When undertaking erosion control measures in the context of road and highway construction and maintenance, [*insert names of municipal entities subject to policy*] shall use compost where possible, including when implementing best management practices that call for the use of organic material. Measures for which compost shall be used include, but are not limited to, the following:

    1. landscaping and planting;

    2. filter berms and socks; and

    3. compost blankets.

iii. Compost shall contain the required organic material content, pH, and particle size for the intended use.

    1. Landscaping and planting:

        a. moisture content—35 to 60 percent;

b. particle size—less than 0.5 inches;

c. soluble salts concentration—less than 4.0 mmhos/cm (ds/m);

d. stability—stable to very stable; and

e. pH—6.0 to 8.5.

2. Filter berms, filter socks, and compost blankets: Ensure that compost adheres to the specific standards contained in the 2003 American Association of State Highway and Transportation Officials' Provisional Standards Manual for filter berms (applies to filter socks as well) and compost blankets.

3. Satisfaction of the quality specifications for compost used in road and highway projects shall be documented by [*insert names of municipal entities subject to policy*] and made available for review by [*insert name of municipal office that oversees procurement or alternative entity*] upon request.

e. **Low-impact development and green infrastructure**

i. Incorporating compost into low-impact development and green infrastructure projects can help achieve stormwater management goals by filtering pollutants and keeping more water on-site.

ii. When constructing low-impact development and green infrastructure projects, [*insert names of municipal entities subject to policy*] shall, and [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to, use compost where possible, including when adopting best management practices that call for the use of organic material. Measures for which compost shall be used include, but are not limited to, the following:

1. green roofs;

2. downspout disconnections; and

3. bioretention projects/rain gardens.

iii. [*insert names of municipal entities subject to policy*] shall consult local policies and manuals, including [*insert names of relevant local policies and manuals*], for additional ways to incorporate compost into their projects.

iv. The use of compost in low-impact development and green infrastructure projects shall be documented by [*insert names of municipal entities subject to policy*] and made available for review by [*insert name of municipal office that oversees procurement or alternative entity*] upon request.

5. Compost sourcing and quality requirements

a. **Locally produced compost**

i. Compost purchased by [insert names of municipal entities subject to policy] for purposes of complying with this policy shall be locally sourced.

ii. If locally produced compost is not available, compost shall be sourced from outside the region, with preference given to products sourced as close as possible to [*insert applicable standard such as*

"Smith metropolitan statistical area"]. Proof that locally produced compost was not available at the time of purchase or was cost-prohibitive shall be documented—including, if appropriate, by written confirmation from local providers—and included in the annual reports of [*insert names of municipal entities subject to policy*].

iii. [*insert names of quasi-governmental and/or semiautonomous entities*] and private entities are encouraged to purchase locally produced compost or compost from outside the region when it is available and not cost prohibitive.

b. **U.S. Composting Council Seal of Testing Assurance (STA) Program certified compost**

i. [*insert names of municipal entities subject to policy*] shall, and [*insert names of quasi-governmental and/or semiautonomous authori*ities] and private entities are encouraged to, purchase compost from U.S. Composting Council STA Program–certified compost manufacturers.[3]

ii. Purchasers shall obtain technical data sheets from composting manufacturers detailing the test results for each compost shipment they receive. This information shall be kept on file and included in annual compost procurement reports.

6. Reporting

a. [*insert names of municipal entities subject to policy*] shall compile annual reports, to be submitted to [*insert name of municipal office that oversees procurement or alternative entity*] on or before March 1, and that contain the following information:

i. the name of the [insert names of municipal entities subject to policy];

ii. the volume of compost purchased throughout the year and total funds expended on compost;

iii. information about the source of the compost and proof of its STA certification;

iv. the end uses of the composted materials and proof of satisfaction of any quality specifications related to those uses;

v. the percentage of total materials purchased that consisted of composted materials; and

vi. recommendations for how to increase the percentage of purchasing composed of compost in the future.

b. [*insert name of municipal office that oversees procurement or alternative entity*] shall review annual reports submitted by [*insert names of municipal entities subject to policy*] and track progress related to compost procurement throughout [*insert name of area governed by municipal entity issuing policy*]. This information will be made available to the public through regular reports on compost procurement and the state of composting in [*insert name of area governed by municipal entity issuing policy*].

3 U.S. Composting Council, "Using STA Certified Compost," accessed May 18, 2021, https://www.compostingcouncil.org/page/CertifiedCompostSTA. Washington State Legislature, § 43.19A.120

Model Zoning Text Amendment for Composting Facilities

(First Edition, January 2022)

US COMPOSTING COUNCIL

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Preface

The attached Model Zoning Ordinance and Land Use Table has been designed by the US Composting Council* for use by municipalities and communities in the United States. Its intent is to provide baseline ordinance language collected from research into existing zoning ordinance text and land use classification tables across the U.S. as a "best practice" for zoning ordinances, to help municipalities which do not have ordinances in place to address applications for small-scale (a/k/a "community" or "decentralized" composting), large-scale(a/k/a "industrial" or "commercial") composting, and agricultural (a/k/a on-farm) composting facilities.

The assumption is that each community will apply its own geographic, cultural, political and environmental reality to the template and modify it as needed. To assist with this process, this document includes background discussion to assist with decisions in areas covered by the ordinance.

*This ordinance was written by the USCC Zoning Task Force and received stakeholder comment in two periods in fall 2020 and summer 2021.

SAMPLE RESOLUTION

[COUNCIL/SUPERVISORS OF

_____CITY/COUNTY,

STATE]

ORDINANCE NO:

AN ORDINANCE TO AMEND THE _____ ZONING ORDINANCE IN ORDER TO PROVIDE FOR APPROPRIATE LOCATIONS FOR SMALL, LARGE AND AGRICULTURAL COMPOSTING FACILITIES AND RELATED CONSOLIDATION USES; DEFINING CERTAIN TERMS IN CONNECTION WITH SUCH REGULATIONS; PROVIDING FOR THE SCOPE OF APPLICABILITY OF THE REGULATIONS; ESTABLISHING ZONES WHERE SUCH USES ARE PERMITTED; PROVIDING FOR RELATED REQUIREMENTS FOR SUCH FACILITIES.

UNDER AND BY VIRTUE OF THE AUTHORITY SET FORTH IN xxxx OF THE CODE OF REGULATIONS FOR xxxx, THE [COUNCIL/SUPERVISORS OF xxxxxx CITY/COUNTY] DOES HEREBY ENACT AND ORDAIN THE FOLLOWING AMENDMENTS TO THE ZONING ORDINANCE OF [CITY/COUNTY].

Section 1: Purpose and Intent.

The specific purposes and intent of this article are to:

A) Provide for composting as a land use as regulated by this Zoning Ordinance
B) To promote the benefits of compost, such as soil amendment, erosion control, drought protection, stormwater management, and carbon storage;
C) Establish composting as a land use distinct from solid waste land uses due to its unique operational characteristics;
D) Encourage diversion of community organic materials as resources that can be used rather than waste that requires disposal;
E) Outline and regulate best practices of compost operations to benefit the community with well-operated facilities.

Section 2: Definitions

Agricultural Composting Facility: A composting facility at which the feedstocks consist primarily of agricultural residual generated at the same site at which the composting occurs, or organic material generated off site that is necessary to facilitate the composting of the primary feedstocks. The resulting compost is used at the same agricultural site on which the composting occurs.

Agricultural residuals: Material of plant or animal origin that results from the production or processing of agricultural products, including but not limited to plant stalks, leaves, material pruned from orchards, vineyards and other agricultural plants, crop residues, manures, bedding material, poultry litter, and animal mortalities.

Agriculture: Use of land primarily for agricultural purposes, including farming, ranching, dairying, pasturage, agriculture, apiaries, horticulture, silviculture, floriculture, vermiculture, viticulture, and animal and poultry husbandry, and secondarily for any accessory uses for purposes of processing, treating, packing or storing the produce of such agricultural uses cultivation and tillage of soil, and composting; provided; however, that agriculture shall not include the commercial feeding of mixed municipal food residuals to swine or other animals. This term shall not include commercial and/or retail nurseries.

Agronomic rate: The rate at which the amount of nutrients in the compost applied to a particular area of land does not exceed the amount of nutrients needed for optimal growth of the vegetation growing on such land, including other sources of nutrients to such vegetation and without leading to or causing water quality impairment due to over-application.

Biosolids: Solids derived from primary, secondary or advanced treatment of sanitary wastewater that have been treated through one or more controlled processes that significantly reduce pathogens and reduce volatile solids or chemically stabilize solids to the extent that they do not attract vectors. (USCC)

Bulking agent: A carbon-based material that adds structure or bulk to a compost pile. Examples include wood chips, wood shavings, saw dust, dry leaves, shredded landscape material, shredded paper, shredded cardboard and animal bedding.

Compost: The product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. The product has undergone mesophilic and thermophilic temperatures, which significantly reduces the viability of pathogens and weed

seeds, and stabilizes the carbon such that it is beneficial to plant growth. Compost is typically used as a soil amendment, but may also contribute plant nutrients

Community garden: A private or public facility for cultivation of herbs, fruits, flowers, or vegetables, sometimes called an urban farm, including the cultivation and tillage of soil and the production, cultivation, growing, and harvesting of any agricultural, floricultural, or horticultural commodity, by several individuals or households.

Composting: The accelerated biological decomposition of organic matter under managed aerobic conditions resulting in compost.

Composting Facility: Structure(s) and/or premises designed, intended to be used, or used to conduct composting. Composting Facility includes Small Composting Facilities, Large Composting Facilities, Agricultural Composting Facilities, and Organics Consolidation Facilities or Operations. Composting facility does not include any structure or premises at which only residential composting is conducted or land upon which finished or matured compost is applied.

Composting Facility, Large: A composting facility that receives, stores, generates, and/or distributes more than 5,000 cubic yards of organics material at any one time.

Composting Facility, small: A composting facility that receives, stores, generates, and/or distributes no more than 500 cubic yards of organics material at any one time.

Consolidation Facility: Facility or operation that (1) receives organic material for the purpose of short-term storage prior to transfer directly from one container to another or from one vehicle to another for transport, and (2) does not conduct composting.

Feedstock: Organic material used in the production of compost.

Food Residuals: Pre- and post-consumer food discards from households and the commercial/institutional sector, including but not limited to vegetables, fruits, grains, dairy products, meats, and compostable foodservice ware/packaging and processing byproducts that may be commingled.

In-vessel composting: Process in which decomposing organic material is enclosed in a drum, silo, bin, tunnel, or other container for the purpose of producing compost, and in which temperature, contact water, moisture and air-borne emissions are controlled, vectors are excluded, and nuisance and odor generation minimized.

Landscaping residue: Yard and garden trimmings.

Mixed municipal solid waste: Garbage, refuse and other solid waste from residential, commercial and community activities that the generator of the waste aggregates for collection.

Organic material: Materials derived from living organisms, including vegetative food processing residue; food residuals; agricultural residuals; compostable products; non-recyclable compostable paper; clean wood; or landscaping residue. It does not include biosolids.

Residential Composting: Composting of food material and landscaping residue generated at a residential property where all compost produced is used on site.

Tipping area: An area or pad where the deliveries of organic material are dumped or "tipped" from trucks or other vehicles for loading, processing, sorting, or handling.

Urban Agriculture: Production (beyond that which is strictly for home consumption or educational purposes), distribution and marketing of food and other vegetative products within areas and communities not otherwise used for farming.

Section 3: All Composting Facilities

3.1 Prohibited Materials

3.1.1. Composting facilities may not accept hazardous waste, as defined in federal regulations at 40 CFR Part 261 and derivative state regulations. *[Refer to your state or local regulations applicable to composting operations for potential other restrictions on materials that may not be handled at a composting facility]*

3.2 Exemptions

3.2.1 Any composting facility that satisfies one or more of the following conditions is exempt from regulation under this section of the Zoning Ordinance:

3.3.1.1 Has less than 20 (twenty) cubic yards of material on site at any one time and is conducted as an accessory use;

3.3.1.2 Manages only organic material generated on-site and all the finished compost is used on the same site; or

3.3.1.3 Is entirely enclosed and operates with quantities between *[[suggested range to be defined by local jurisdiction]]*.

3.3 Guidelines

3.3.1. Operational Guidelines for all composting facilities can be found in the Zoning Template Guidelines. Compliance with these guidelines is required in addition to any zoning requirements enumerated herein.

Section 4: Small Composting Facilities

4.1 LOCATION

4.1.1. Small composting facilities may be located in a Residential, Industrial, Commercial or Agricultural zone *[insert equivalent local zone categories consistent with Table 2 below.]*

4.2 LOT AREA AND BULK REQUIREMENTS

4.2.1. See setback requirements in Table 1

4.2.2. Maximum composting facility use area: 1 acre

4.2.3. Walls, fencing, or buffers shall be provided in accordance with applicable state and local regulations and ordinances.

Section 5: Large Composting Facilities

5.1 LOCATION

5.1.1. Large Composting Facilities may be located in an Industrial, Commercial or Agricultural zones [*insert equivalent local zone categories consistent with Table 2 below.]*

5.2. LOT AREA & BULK REQUIREMENTS

5.2.1. See setback requirements in Table 1 on page

5.2.2. Minimum composting facility use area – greater than 1 acre

Section 6: Agricultural Composting Facilities

6.1. LOCATION

6.1.1. Agricultural Composting Facilities may be located in an Agricultural or Rural Residential zones *[insert equivalent local zone categories consistent with Table 1 below.]*

6.2. LOT AREA & BULK REQUIREMENTS

6.2.1 See setback requirements in Table 2

6.2.2 An Agricultural Composting Facility that operates with quantities between *[[suggested range 1,000 cubic yards-5,000 cubic yards, to be defined by local jurisdiction]]* on site at any one time, consistent with Table 1 below, and is conducted as an accessory agricultural activity, and/or (b) manages only organic material generated on-site to produce finished compost that is used on site, is allowed by right in Agricultural zones, and as an accessory use in Rural Residential zones. This exemption places no restrictions on the distribution or sale of compost.

6.2.3 Any Agricultural Composting Facility that operates with *[[suggested range 5,000 cubic yards-20,000 cubic yards, to be defined by local jurisdiction]]*, and processes less than twenty-five (25,000) cubic yards of organic material annually, requires a conditional use permit.

Section 7: Organics Consolidation Facilities or Operations

7.1 Location

7.1.1 Organics Consolidation Facilities or Operations may be established at publicly or privately owned parcels for the following purposes: public drop-off of compostable materials; exchanging of containers of compostable materials and empty containers; pre-processing of compostable materials; equipment storage; rinsing of containers; and other related activities.

7.1.2 For accessory uses: location may be an indoor or outdoor or temporary use accessory to uses such as parkland, farmers markets, parking areas, community gardens, recycling centers, transfer stations, and school and college campuses.

7.1.3. For principal uses: location may be located outdoors or inside a building.

7.2 Lot Area & Bulk Requirements

7.2.1 See setback requirements in Table 1 below

TABLE 1. SETBACKS

	Small Composting Facility	Large Composting Facility	Agricultural Composting Facility
Minimum Property Line or adjacent residential use	50 feet	250 feet	50 feet
Minimum setback from off-site residential use or zone	25 feet	250 feet	50 feet

TABLE 2. OF PERMITTED USES BY DISTRICT

P = Permitted Principal Use; C = Conditional use; A = Accessory Use; E = Exempt; X = Not permitted

	Rural residential district	**Suburban residential district**	**Urban residential district**	**Mixed-use district**	**Commercial district**	**Industrial district**	**Agricultural district**
Small composting facility 100-500 cubic yards	A	A	A	A	P	P	P
Small composting facility 50-100 cubic yards	P	P	P	P	P	P	P
Small composting facility less than 50 cubic yards	E	E	E	E	E	E	E
Large composting facility	X	X	X	X	C	P	C
Agricultural composting facility 5,000-25,000 cubic yards	C	X	X	X	X	X	P
Agricultural composting facility	P	X	X	X	X	X	P

up to 5,000 cubic yards								

Organics consolidation facility	P, A	P, A	P, A	P, A	P, A	P, A	P, A	

ADDENDUM:

As mentioned in the Preface, this Template has been written with the assumption that each community will apply its own geographic, cultural, political and environmental reality to the template and modify it as needed. To assist with this process, this document includes the background discussion below to assist with decisions in areas covered by the ordinance.

Background on compost sites (see *guidelines* for additional discussion)

Sites must be of adequate size to handle the projected volume of material to be composted. There are no standards in area requirements for composting, because with each set of technological and design options, there are varying area requirements. The main consideration is that an operation should not have an unmanageable volume of materials on site.

In general, the less intensively a compost pile is managed, the more space it will require because composting times are lengthened. If piles are turned frequently or if air is pumped into static piles via perforated pipes, composting times will then be reduced and a smaller area will be required for a given volume of material. Aside from the actual footprint of the compost piles or windrows, allowance must be made for the area required for dropoff and mixing of materials, equipment maneuvering, curing areas, storage of finished compost, and buffer areas between the compost site and sensitive land uses.

Facility Size: While zoning traditionally identifies land uses with a footprint measured by area, one concern that local officials may have is the *volume* of material on a site that meets legal square footage requirements. For that reason, this ordinance uses square footage as the primary tool for meeting zoning requirements; depending upon method and space allowed for tipping area, screening, finished product storage, drainage etc., the following volumes should be considered as upper limits for size on a best-practice compost site:

> **Small Composting Facility:** less than 500 cubic yards on site; a small exempt facility should have no more than 20 CY/acre on site at any one time
>
> **Agricultural Composting Facility**: Up to 5,000 cubic yards on site at any one time is exempt from local zoning; 5,000 to 25,000 cubic yards annually requires a conditional use permit
>
> **Large Facility:** greater than 5,000 cubic yards on site at any one time or as defined by local jurisdiction.

Operational Issues: State composting rules, usually found in the state's solid waste ordinance (see this link for more information on finding rules in your state) dictate design issues in detail. (see model rule template, USCC, section 7.)

Food Waste Recycling Proposal for Livonia Public Schools District

Overview

This proposal outlines a comprehensive food waste recycling program for the Livonia Public Schools District, aimed at promoting sustainability and environmental responsibility among students. With 26 schools in the district, this initiative will not only reduce the environmental impact of food waste but also serve as an educational tool for students, teaching them about the importance of recycling and sustainability.

Benefits of Recycling for School Children and Their Environment

1. Environmental Awareness: Introducing recycling programs in schools helps foster a culture of environmental consciousness among students. Children learn the importance of reducing waste, reusing resources, and recycling, which can lead to lifelong sustainable habits.
2. Reduction of Landfill Waste: By recycling food waste, the district can significantly reduce the amount of waste sent to landfills. This decrease in waste helps lower greenhouse gas emissions, particularly methane, which is a potent contributor to climate change.
3. Soil Enrichment: Recycled food waste can be converted into compost, which enriches the soil and reduces the need for chemical fertilizers. This not only benefits the local environment but can also be used in school gardens, providing a practical application for students.
4. Cost Savings: Over time, reducing the amount of waste sent to landfills can lead to lower waste disposal costs for the district. Additionally, the compost produced can reduce the need for purchasing commercial soil amendments.

Implementation Plan

- Initial Setup: CO Sustainability suggests starting with ten (10) 64-gallon bins at each of the 26 schools in the district. The number of bins can be adjusted to meet the specific needs of each school.
- Cost Breakdown:
  - The first bin at each school will cost $150.00.
  - Each additional 64-gallon bin will cost $50.00.
  - The total monthly cost per school for the bins is $600.00.
  - With 26 schools participating, the total estimated monthly cost for the district is approximately $15,600.
- Additional Services:
  - Bin Cleaning Service: CO Sustainability offers a monthly bin cleaning service at $10.00 per bin. If the district opts for this service, it will add an additional $2,600 per month to the total cost.
- Total Estimated Cost:
  - Without Bin Cleaning Service: $15,600 per month.
  - With Bin Cleaning Service: $18,200 per month.

Food Waste Recycling Proposal for Clarenceville School District

Overview

This proposal outlines a comprehensive food waste recycling program for the Clarenceville School District, aimed at promoting sustainability and environmental responsibility among students. With 4 schools in the district, this initiative will not only reduce the environmental impact of food waste but also serve as an educational tool for students, teaching them about the importance of recycling and sustainability.

Implementation Plan

- Initial Setup: CO Sustainability suggests starting with ten (10) 64-gallon bins at each of the 4 schools in the district. The number of bins can be adjusted to meet the specific needs of each school.
- Cost Breakdown:
  - The first bin at each school will cost $150.00.
  - Each additional 64-gallon bin will cost $50.00.
  - The total monthly cost per school for the bins is $600.00.
  - With 4 schools participating, the total estimated monthly cost for the district is approximately $2,400.
- Additional Services:
  - Bin Cleaning Service: CO Sustainability offers a monthly bin cleaning service at $10.00 per bin. If the district opts for this service, it will add an additional $400 per month to the total cost.
- Total Estimated Cost:
  - Without Bin Cleaning Service: $2,400 per month.
  - With Bin Cleaning Service: $2,800 per month.

Conclusion

This food waste recycling program offers Livonia Public Schools and Clarenceville School District an opportunity to lead by example in the community, demonstrating a commitment to environmental stewardship. By involving students in the process, the district can help cultivate a new generation of environmentally conscious individuals who understand the importance of sustainability. The investment in this program will not only benefit the environment but also provide long-term educational and financial advantages for the district.

Preventing Contamination in Food Waste Recycling

In places where lots of people are responsible for sorting their waste, and sometimes with great variation in the types of things to be sorted, many supports are needed to help them get items in the right bin. The College for Creative Studies explored best practices for preventing contamination in places such as cafeterias or restaurants where individuals are responsible for clearing their table and disposing of waste. Their solution focuses on multiple visual cues including color coding, logos and labels, zoning and wayfinding, and an educational recycle wall located near the collection bins. While the focus of this was for settings like cafeterias, it could also be employed in restaurants where eaters bus their own tables and adapted for other settings, such as the office or even home. Further details about these strategies are provdied below.

Color coding

Color coding can be useful in helping guests remember what goes in what bin. The bin and signage colors were picked for each material to be sorted based on how those colors are perceived to be connected with the materials they will be collecting. For example, food scraps is regenerative, so it's bin is green. Blue has traditionally been used to indicate plastic, metal and glass recycling, so that color was maintained for that use. Landfill is often associated with end of life for materials, hence the black bin.

Logos and labels

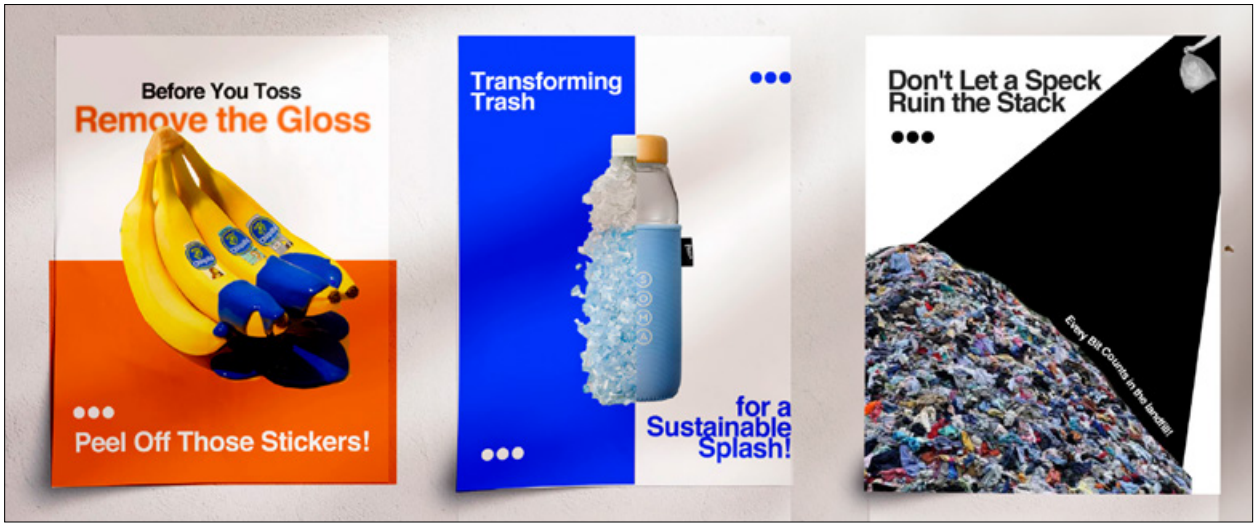
Easy to understand and read pictures and text work with the color coding of the bins to further identify and confirm what materials go in each.

Zoning and wayfinding

Colored pathways on the floor correspond to the color of the bins and the materials the bins can take will help guests get to the correct bin for each material that must be sorted. This can also help custodial staff remember which order the bins go in so guests that frequent a place can expect the bins to always be in the same order.

Educational recycle wall

The posters on this wall provide reminders about why sorting of materials is important and helpful tips to prevent contamination, such as removing the stickers from fruit before composting the peel.



Example posters for the educational recycle wall. Posters will be updated to match the campaign branding.

Identify champions to help sort waste

At schools, colleges, and universities where there are set times of year where there is an influx of new students, identifying champions to volunteer to support eaters in properly sorting waste in the cafeteria during the first week or two of school can go a long way in helping others learn how to properly sort their waste and set the expectation that food does not go to the landfill. Healthcare facilities where tables are bussed by the eaters will likely have to rely on the signage, wayfinding, and zoning, but could consider having a volunteer or employee present at peak meal times to assist with sorting.

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APPENDIX E:

Reports

Appendix E: Reports

List of Reports

The following reports were created by partners in the project to explore various sectors and strategies. Not all strategies and timelines suggested in these reports are in the Blueprint, but they served as the foundation for making the Blueprint specific to Livonia.

City of Southfield Food Waste Strategies and Evaluation 279
Development Plan to Eliminate Food Waste in Michigan Schools 301

RRS memo

TO: MAKE FOOD NOT WASTE
FROM: RRS
DATE: AUGUST 2024
RE: CITY OF SOUTHFIELD FOOD WASTE STRATEGIES AND EVALUATION

EXECUTIVE SUMMARY

Project Background: Michigan has set a state goal of halving food waste disposal by 2030. To support this objective, Make Food Not Waste ("MFNW") is leading a team to evaluate resources and pathways for eliminating food waste in the City of Southfield. The result of the project includes a detailed city-wide food waste reduction plan that can be implemented in Southfield. This plan can be referenced as a model and scaled to other Michigan cities to reduce food waste across Michigan municipalities. With the goal of implementing food waste reduction strategies in Southfield by end of 2024, MFNW has commissioned this study to obtain insights on existing food waste generation and evaluate cost and climate impact implications of various strategies proposed by stakeholders in the community.

Data Team Focus: Resource Recycling Systems ("RRS") has supported this project with unique expertise in food waste data analysis and model design. The RRS Project Team, as part of this effort, focused on evaluating the City's current food waste generation data across various sectors and providing quantitative insights on food waste reduction strategies proposed by relevant stakeholders. This evaluation considers both cost and climate impact perspectives to help prioritize feasible strategies for inclusion in the final plan.

Methodologies: The RRS Project Team first evaluated the City of Southfield's existing food waste generation through a multi-step process and verified generation data provided by the Natural Resources Defense Council ("NRDC") across residential, commercial, and institutional sectors. Based on the verified generation data, the Team then designed a quantitative model to evaluate strategies across various food waste reduction solutions including Prevention/Generation Education, Donate/Recover/Rescue, Local Recycling, and Centralized Composting, through outlining the associated cost and greenhouse gas emissions respectively to each strategy.[1] The model was designed with the overall assumptions that 75% of the total food waste generated would be diverted via Centralized Composting related strategies, while 25% would be reduced, recovered and locally recycled. The model assumed that all Commercial and Institutional entities will be provided curbside collection via subscription services.

For the Residential sector, it includes three collection scenarios:

- Scenario #1: 100% of single-family and multifamily households will participate in drop off composting.
- Scenario #2: 100% of single-family households will have curbside collection via carts, and 100% of multi-family households will participate in commercial curbside collection services.

[1] RRS: For the purposes of this assessment, Local Recycling is defined as processing food scraps within households, communities, or other solutions not related to centralized composting.

416 LONGSHORE DRIVE, ANN ARBOR, MI 48105 recycle.com

- Scenario #3: Same as Scenario 2, except that single-family households will not be provided with carts, but instead they will use self-provided bins or paper bags.

Key Findings: The findings of this research represent the best estimates and are intended to provide guidance to stakeholders on strategies that should be prioritized based on considerations across generation, cost, and climate impacts.

- Food Waste Generation: Approximately 13,780 tons of food waste are generated annually in the City of Southfield.
- Sector Contributions: The Residential (42.5%) and Food Service (41.5%) sectors are the predominant contributors, collectively accounting for 85% of the total food waste.
- Centralized Composting Scenarios: Among the three scenarios for Centralized Composting, Scenario #1 (100% residential participation in drop-off) would avoid the least amount of GHG emissions at around 14,699 tons per year, primarily due to the emissions generated from transportation.
- Scenarios #2 and #3 have the most substantial positive climate impact, each reducing CO2 emissions by 20,178 tons annually.
- Scenario #1 incurs the lowest annual cost among all scenarios, with more than 75% of savings[2] compared to the others and a total annual cost of $2.3 million.
- While both Scenarios #2 and #3 yield similar climate benefits, Scenario #2 is more convenient and practical because residents will be provided carts for curbside collection. This will increase participation rates due to the ease of collection and reduced barriers for transportation, making it simpler for residents to participate in the food waste collection program.

[2] Subject to be updated if contract cost from Priority Waste is provided.

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MODELING

Food Waste Diversion Potential by Strategy

The model assigned approximate ratios of waste diversion potential to each of the strategies based on various sources including ReFED Insight Engine and previous studies conducted by RRS for other cities and regions. Estimated waste diversion from each categorized strategy by RRS is included in tables below. 100% of participation rate is assumed across all strategies.[3]

Table 1. Overall Food Waste Generation by Sector Tons Per Year (TPY)

Overall Food Waste Generation by Sector (TPY)	
Single Family Residential	2,902
Multi-Family Residential	3,102
Commercial/Institutional	7,867
Total	**13,870**

Table 2. Food Waste Diversion Potential Through Prevention

Prevention			
	Consumer Education Campaigns	Waste Tracking & Analytics	Total
Diversion Potential (%)	8.2%	4.3%	12.5%
SF Residential FW (TPY)	238	125	363
MF Residential FW (TPY)	254	133	388
Commercial FW (TPY)	645	665[4]	1,310
Total (TPY)	**1,137**	**923**	**2,060**

Table 3. Food Waste Diversion Potential Through Donation/Recovery/Rescue

Donation/Recovery/Rescue					
	Standardized Donation Regulation	Donation Matching Software	Donation Transportation	Donation Storage & Handling	Total
Diversion Potential (%)	1.5%	1.1%	0.8%	0.8%	4.2%
SF Residential FW (TPY)	44	32	23	23	122
MF Residential FW (TPY)	47	34	25	25	130

[3] While a 100% participation rate is assumed in this model to create a blue-sky vision for ideal food waste management, it is recognized that achieving such a rate may not be realistic in practical scenarios. This assumption is intended to provide a comprehensive framework for understanding the potential impact and benefits of full participation.

[4] The model assumes that Commercial sector will not participate in local recycling activities such as Home Composting or Community composting. Instead, the 25% of the sector's food waste will be diverted from Prevention and Rescue/Recovery/Donation Strategies. The Diversion Potential (%) for the Commercial Sector can be different from other sectors.

Commercial FW (TPY)	118	413[5]	63	63	657
Total (TPY)	**208**	**479**	**111**	**111**	**909**

Table 4. Food Waste Diversion Potential Through Local Recycling

Local Recycling			
	Home Composting	Community Composting	Total
Diversion Potential (%)	6.5%	1.8%	8.3%
SF Residential FW (TPY)	189	52	241
MF Residential FW (TPY)	-	257[6]	257
Commercial FW (TPY)	-	-	-
Total (TPY)	**189**	**310**	**498**

Table 5. Food Waste Diversion Potential Through Centralized Composting

	Total Centralized Composting
Diversion Potential (%)	75%
SF Residential FW (TPY)	2,176
MF Residential FW (TPY)	2,326
Commercial FW (TPY)	5,900
Total (TPY)	**10,403**

Cost Considerations

Due to numerous pending considerations for the Prevention, Donation/Recovery/Rescue, and Local Recycling strategies, associated costs – such as staffing, educational materials, surveying, and equipment, cost savings from landfill avoidance, etc. – are currently excluded from the model. The cost calculation model primarily focuses on Centralized Composting, especially concerning various scenarios for residential collection.

The RRS Project Team, in collaboration with subgroup partners, has incorporated cost considerations below into the model:

- Hauling costs based on contract terms provided by service providers or the city (GFL, My Green Michigan, and CO Sustainability)
- Costs for new trucks needed and truck operation for service providers to transport the food waste.
- Composting tipping fee at composting facilities including Spurt Industries in Wixom, MI and Country Oaks in Burton, MI.
- Landfill tipping fee at Arbor Hills Landfill.

[5] The model assumes that Commercial sector will not participate in local recycling activities such as Home Composting or Community composting. Instead, the 25% of the sector's food waste will be diverted from Prevention and Rescue/Recovery/Donation Strategies. The Diversion Potential (%) for the Commercial Sector can be different from other sectors.
[6] The model assumes that for Local Recycling strategies, multi-family sector will participate in community composting and not home composting efforts.

Across scenarios, the model is not incorporating savings associated with reduced frequency of commercial trash service, or household savings associated with reduced landfill fees. Several other categories of costs were not incorporated due to complexity and uncertainty at the time this report was developed:

- Scenario #1: Does not include cost of city labor, staff, or tools. The cost of carts at drop-off sites is already incorporated into the service providers' contract and thus wouldn't be double counted in the model.
- Scenario #2: Does not include cost of city labor or staff. Initial cart investment for single-family residential curbside collection is included as a reference, as it may not be relevant if the cost of cart is included in collection provider's contract.
- Scenario #3: Does not include cost of city labor or staff. Carts are not needed for this scenario.

Climate Impact Considerations

The model primarily utilizes greenhouse gas emissions (CO_2e) as the main metric to reflect the environmental impact of each strategy, particularly focusing on the avoided emissions from diverting food waste from landfills. For Centralized Composting, the model also accounts for emissions generated by residents transporting food waste, and by service providers collecting food waste from curbside and drop-off sites, as well as emissions associated with transporting it to the centralized composting facility. These emissions are included and offset the avoided emissions from potential landfill diversion. The model employs the EPA WARM Model as the main source for calculating CO_2e for these strategies.

Key Model Insights

- Most Cost-Effective Scenario:
  - Scenario #1 incurs the lowest annual cost among all scenarios with a total annual cost of $2.3 million.
    - If the infrastructure investments, such as upfront cost for carts and trucks, and ongoing cost of maintenance and operation for trucks, are to be considered in the city's budget, then the Scenarios involving 100% curbside pick-up collection will incur a much higher annual cost than Scenario #1; annually around $9.8 million for Scenario #2, and $9.2 million for Scenario #3.
    - In comparison, Scenarios #2 and #3 will incur an annual cost of $6.5 million if the infrastructure costs are excluded.
    - It should be recognized that the hauling cost for single-family curbside collection is currently based on the previous GFL contract that City of Southfield signed and executed in 2024, which included solid waste, yard waste, and recycling collection. If a more updated cost for food waste collection is provided, the model can be adjusted to reflect a more accurate cost evaluation across these Scenarios.
- Significant Climate Impact:
  - Scenarios #2 and #3 drive the most substantial positive climate impact, each reducing CO_2 emissions by 20,178 tons annually, which is 37% more reduction than achieved in Scenario #1, where all residential households participate in drop-off collection.
- Overall Best Scenario:[7]
  - Scenario #2 is considered the best overall option considering climate impact and provided convenience to achieve the 100% participation rate.

[7] Subject to be updated once contract cost from Priority Waste is provided.

  - Compared to Scenario #3, Scenario #2 yields similar climate benefits and incurs the same amount of collection cost (without considerations for infrastructure). However, Scenario #2 is more convenient and practical due to the reason that carts will be provided to the residents for curbside collection, which provides a stronger incentive for residential participation in food waste collection. In contrast, Scenario #3 requires residents to supply their own paper bags or containers, which may become a hindrance for residents.
  - If cost of infrastructure such as carts and trucks are included as City's budget considerations, Scenario #2 will incur an additional $687,000 upfront cost for cart investment and $2.6 million ongoing cost for truck investment. However, it may still be worth the investment if the city aims to achieve 100% participation as the top priority.
- Strategy Implementation
  - Strategies should be implemented across the EPA Food Recovery Hierarchy with priorities of food waste prevention, donation/recovery/rescue, recycling, and composting. Consistent and routine actions should be designed and deployed to support these strategies, including:
    - Sending informative mailers to residents and businesses about the program detail and how they can participate.
    - Offering regular educational programs such as workshops and webinars to educate community members on program impact.
    - Leveraging media outlets and community events to raise awareness and encourage widespread participation.
    - Tracking participation rates through surveys and software solutions and providing feedback to participants to maintain engagement.
- Model Feasibility:
  - The RRS Project Team developed various scenarios in the model based on the overall assumption of 100% participation from the residential, commercial, and institutional sectors, as requested by the Make Food Not Waste project team. This visionary plan aims to provide guidance for the City of Southfield in understanding and evaluating pathways to eliminate food waste citywide. However, it is important for users of the model to recognize that the feasibility and practicality of some of the scenarios is not guaranteed in real life.

Below is a summary table for detailed cost and impact breakdown for centralized composting collection by scenario, demographic, and collection model.

RRS memo

Table 6: Detailed cost and impact breakdown for centralized composting.

Centralized Composting Collection			Curbside Collection					Drop Off Collection				Total Hauling Cost ($/Year)	Total Infrastructure Cost (Cart+Truck) ($/Year)	Total Collection Cost (Infrastructure + Hauling) ($/Year)	Total Annual CO2e (Ton/Year)
Scenario	Type	Collected By	Collection %	Collection Tons/Year	Hauling Cost $/Year	Total Collection Cost (Infrastructure + Hauling Costs)	Total CO2e from Curbside Collection (Ton/Year)	Collection %	Collection Tons/Year	Total Drop-off Hauling Cost $/Year	Annual CO2e from Drop-off Collection (Ton/Year)				
Scenario #1 100% SF+MF for Drop-Off 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 611,433	$ 1,622,866	732					$ 2,391,332	-	$ 2,391,332	6,774
		My Green Michigan	50%	2,950	$ 1,011,433										
		Total Commercial	100%	5,900	$ 1,622,866	$ 1,622,866	732								
	Single Family	My Green Michigan						100%	2,176	$ 371,420	3,938				
	Multifamily	My Green Michigan						100%	2,326	$ 397,046	2,105				
	Total (Curbside or Drop-off)		100%	5,900	$ 1,622,866	$ 1,622,866	732	100%	4,503	$ 768,466	6,043				
	Total Scenario 1 (Curbside AND Drop-off)		**100%**	**10,403**											
Scenario #2 100% SF Curbside by City Contracted Hauler, with Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 976,833	$ 1,988,266	732					$ 6,507,064	$ 3,340,800	$ 9,847,864	1,295
		My Green Michigan	50%	2,950	$ 1,011,433										
		Total Commercial	100%	5,900	$ 1,988,266										
	Single Family	Priority Waste	100%	2,176	$ 3,490,905	$ 6,831,705	407								
	Multifamily	CO Sustainability	50%	1,163	$ 629,075	$ 1,027,893	157								
		My Green Michigan	50%	1,163	$ 398,819										
		Total Multifamily	100%	2,326	$ 1,027,893										
	Total Scenario 2		**100%**	**10,403**	**$ 6,507,064**	**$ 9,847,864**	**1,295**								
Scenario #3 100% SF Curbside by City, no Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 976,833	$ 1,988,266	732					$ 6,507,064	$ 2,653,800	$ 9,160,864	1,295
		My Green Michigan	50%	2,950	$ 1,011,433										
		Total Commercial	100%	5,900	$ 1,988,266										
	Single Family	Priority Waste	100%	2,176	$ 3,490,905	$ 6,144,705	407								
	Multifamily	CO Sustainability	50%	1,163	$ 629,075	$ 1,027,893	157								
		My Green Michigan	50%	1,163	$ 398,819										
		Total Multifamily	100%	2,326	$ 1,027,893										
	Total Scenario 3		**100%**	**10,403**	**$ 6,507,064**	**$ 9,160,864**	**1,295**								

RRS memo

Scenario #1 Insights

- Assumptions: This scenario assumes 100% participation from single-family and multi-family households in drop-off composting at three (3) selected sites in Southfield. These sites will be managed and serviced by My Green Michigan. Additionally, it assumes 100% participation from the commercial and institutional sectors in curbside collection through CO Sustainability and My Green Michigan's subscription services, with a 50/50 split between the two service providers.
- Cost Impact: The total annual cost under this scenario is approximately $2.3 million.
    - This estimate includes composting tip fees, savings from landfill tip fees, and hauling cost by the service providers. It does not account for the costs of labor, staff, tools for the Prevention, Rescue/Recovery/Donation, or Local Recycling strategies, or cost of carts at drop-off sites. Among all scenarios, this one incurs the lowest cost.
    - Note that the Total Annual Cost for Prevention, Rescue/Recovery/Donation strategies are shown as negative in the table below, since the main cost modeled is cost savings from the avoided landfill tip fees.
- Climate Impact: This scenario results in an annual reduction of CO2 emissions by 14,699 tons. It has the least positive climate impact due to the significant carbon emissions generated by weekly trips of residential households to drop-off sites. However, potential efficiencies could be realized by integrating regular commuting or shopping trips, such as shopping for groceries, into trips to drop-off sites, to minimize redundant emissions.

Table 7 – Detailed modeled cost and impact for scenario #1: 100% of single family and multifamily households will participate in drop off composting; 100% of commercial and institutional entities have curbside pickup collection.

Diversion Strategy	Diversion Solutions	Total Tons Diverted	Total Annual Cost ($/year)	Total Annual Avoided CO2e (Ton/year)
Prevention	Consumer Education Campaigns	1,137	$(20,473)	(5,215)
	Waste Tracking & Analytics	923	$(16,612)	(4,234)
	Total Prevention	**2,060**	**$(37,085)**	**(9,449)**
Rescue/Recovery/ Donation (RRD)	Standardized Donation Regulation	208	$(3,745)	(954)
	Donation Matching Software	479	$(8,623)	(2,197)
	Donation Transportation	111	$(1,997)	(509)
	Donation Storage & Handling	111	$(1,997)	(509)
	Total RRD	**909**	**$(16,362)**	**(4,170)**
Local Recycling	Home Composting	189	$(3,395)	(136)
	Community Composting	310	$(5,574)	(223)
	Total Local Recycling	**498**	**$(8,969)**	**(360)**
Centralized Composting	100% SF +MF Drop-off & 100% Commercial Curbside	10,403	$2,400,571	(721)
	Total Centralized Composting	10,403	$2,400,571	(721)
Total		**13,870**	**$2,338,154**	**(14,699)**

Below is a more detailed cost and impact breakdown for the centralized composting collection by demographic and collection mode in Scenario #1. This cost does not include the cost savings from prevention and donation measures/strategies/etc. The total

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collection cost for centralized composting in Scenario #1 mainly includes hauling cost, which is about $2.4 million/year. However, this number is higher than the total annual cost of $2.3 million/year as indicated in Table 7, as that figure also accounts for cost savings from landfill tipping fees and incurred composting fees.

Table 8: Scenario #1 cost and impact breakdown for centralized composting.

Centralized Composting Collection			Curbside Collection					Drop Off Collection				Total Hauling Cost ($/Year)	Total Infrastructure Cost (Cart+Truck) ($/Year)	Total Collection Cost (Infrastructure + Hauling) ($/Year)	Total Annual CO2e (Ton/Year)
Scenario	Type	Collected By	Collection %	Collection Tons/Year	Hauling Cost $/Year	Total Collection Cost (Infrastructure + Hauling Costs)	Total CO2e from Curbside Collection (Ton/Year)	Collection %	Collection Tons/Year	Total Drop-off Hauling Cost $/Year	Annual CO2e from Drop-off Collection (Ton/Year)				
Scenario #1 100% SF+MF for Drop-Off 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 611,433	$ 1,622,866	732					$ 2,391,332	-	$2,391,332	6,774
		My Green Michigan	50%	2,950	$ 1,011,433										
		Total Commercial	100%	5,900	$ 1,622,866	$ 1,622,866	732								
	Single Family	My Green Michigan						100%	2,176	$ 371,420	3,938				
	Multifamily	My Green Michigan						100%	2,326	$ 397,046	2,105				
	Total (Curbside or Drop-off)		100%	5,900	$ 1,622,866	$ 1,622,866	732	100%	4,503	$ 768,466	6,043				
	Total Scenario 1 (Curbside AND Drop-off)		**100%**	**10,403**											

Scenario #2 Insights

- Assumptions: This scenario assumes 100% participation from single-family in curbside collection via a city's contracted service, where residents will comingle yard waste and food waste using 32-gallon bins provided by the city. It also assumes 100% participation from multi-family in curbside collection via subscription services by My Green Michigan or CO Sustainability. Additionally, it includes 100% participation from the commercial and institutional sectors in curbside collection through CO Sustainability and My Green Michigan's subscription services, with a 50/50 split between the two service providers.
- Cost Impact: The total annual cost with associated infrastructure cost (upfront cart investment, upfront truck investment, and annual truck maintenance and operation) under this scenario is approximately $9.8 million.[8] If infrastructure related costs are excluded from consideration, the total annual cost is about $6.5 million.
    - This estimate includes composting fees, savings from landfill tip fees, and hauling cost by the service providers. It does not account for the costs of labor, staff, tools for the Prevention, Rescue/Recovery/Donation, or Local Recycling strategies.
    - Compared to Scenario #1, the total annual cost (without infrastructure costs) is more than tripled due to the contract costs with multiple service providers.
    - Additionally, if the costs of carts and trucks for residential curbside collection are not included in the contract and will need to be covered by the City, it will become another impacting factor for the City's planning budget, as it will incur an additional $3.3 million for the infrastructure investment, with about $687,000 upfront cost for cart investment and $2.6 million ongoing cost for truck investment.
    - Note that the Total Annual Cost for Prevention, Rescue/Recovery/Donation strategies are shown as negative in the table, since the main cost modeled for those strategies is cost savings from the avoided landfill tip fees.

[8] Scenario #2 contract cost is currently a placeholder and will need to be adjusted once a service provider provides a proposal for collecting curbside food waste from single-family households in Southfield. The current cost incorporated the previous GFL contract for single-family recycling and trash services of $203/household/year (average of 8 years) in Southfield.

- Note that the City of Southfield was paying $3 million annually for recycling, yard waste, and solid waste collection from single-family households under the previous GFL contract.

- Climate Impact: This scenario results in an annual reduction of CO2 emissions by 20,178 tons annually, which is 37% more reduction than achieved in Scenario #1, where all residential households participate in drop-off collection.

Table 9 – Cost and climate impact for Scenario #2

Diversion Strategy	Diversion Solution	Total Tons Diverted	Total Annual Cost with Infrastructure ($/year)	Total Annual Cost Without Infrastructure ($/year)	Total Annual CO2e (Ton/year)
Prevention	Consumer Education Campaigns	1,137	$ (20,473)	$ (20,473)	(5,215)
	Waste Tracking & Analytics	923	$ (16,612)	$ (16,612)	(4,234)
	Total Prevention	**2,060**	**$ (37,085)**	**$ (37,085)**	**(9,449)**
Rescue/Recovery/ Donation (RRD)	Standardized Donation Regulation	208	$ (3,745)	$ (3,745)	(954)
	Donation Matching Software	479	$ (8,623)	$ (8,623)	(2,197)
	Donation Transportation	111	$ (1,997)	$ (1,997)	(509)
	Donation Storage & Handling	111	$ (1,997)	$ (1,997)	(509)
	Total RRD	**909**	**$ (16,362)**	**$ (16,362)**	**(4,170)**
Local Recycling	Home Composting	189	$ (3,395)	$ (3,395)	(136)
	Community Composting	310	$ (5,574)	$ (5,574)	(223)
	Total Local Recycling	**498**	**$ (8,969)**	**$ (8,969)**	**(360)**
Centralized Composting	100% SF Curbside via city w/ carts & 100% MF/Commercial Curbside via subscription	10,403	$9,902,248	$6,561,448	(6,200)
	Total Centralized Composting	**10,403**	**$9,902,248**	**$6,561,448**	**(6,200)**
Total		**13,870**	**$9,839,832[9]**	**$6,499,032**	**(20,178)**

Below is a more detailed cost and impact breakdown for the centralized composting collection by demographic and collection mode in Scenario #2. This cost does not include the cost savings from prevention and donation measures/strategies/etc. The total collection cost for centralized composting in Scenario #2 ($9,847,864/year) includes hauling cost ($6.5 million/year), upfront cost for cart investment ($687,000), and ongoing cost for truck ($2.6 million). However, this collection cost may be higher than the total annual cost of $9,839,832/year as indicated in Table 9, as that figure also accounts for cost savings from landfill tipping fees and incurred composting fees.

[9] The Total Annual Cost here is lower than the Total Collection Cost shown in table 10 because it also included the annual composting fee as well as the avoided landfill tip fee.

Table 10: Scenario #2 cost and impact breakdown for centralized composting.

Centralized Composting Collection			Curbside Collection					
			Collection	Collection	Infrastructure Cost	Hauling Cost	Total Collection Cost (Infrastructure + Hauling Costs)	Total CO2e from Curbside Collection (Ton/Year)
Scenario	Type	Collected By	%	Tons/Year	Total Infrastructure Cost	$/Year		
Scenario #2 100% SF Curbside by City Contracted Hauler, with Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950		$ 976,833		
		My Green Michigan	50%	2,950		$ 1,011,433	$ 1,988,266	732
		Total Commercial	100%	5,900		$ 1,988,266		
	Single Family	Priority Waste	100%	2,176	$ 3,340,800	$ 3,490,905	$ 6,831,705	407
	Multifamily	CO Sustainability	50%	1,163		$ 629,075		
		My Green Michigan	50%	1,163		$ 398,819	$ 1,027,893	157
		Total Multifamily	100%	2,326		$ 1,027,893		
	Total Scenario 2		**100%**	**10,403**	**$ 3,340,800**	**$ 6,507,064**	**$ 9,847,864**	**1,295**

Scenario #3 Insights

- Assumptions: This scenario assumes 100% participation from single-family in curbside collection via city's contracted service, where residents will comingle yard waste and food waste using self-provided paper bags or containers. It also assumes 100% participation from multi-family in curbside collection via subscription services by My Green Michigan or CO Sustainability. Additionally, it includes 100% participation from the commercial and institutional sectors in curbside collection through CO Sustainability and My Green Michigan's subscription services, with a 50/50 split between the two service providers.
- Cost Impact: The total annual cost with associated infrastructure cost (upfront truck investment, annual truck maintenance and operation) under this scenario is approximately $9.2 million.[10] If infrastructure related costs are excluded from consideration, the total annual cost is about $6.5 million.
    - This estimate includes composting tip fees, savings from landfill tip fees, and hauling cost by the service providers. It does not account for the costs of labor, staff, tools for the Prevention, Rescue/Recovery/Donation, or Local Recycling strategies, or cost of carts at drop-off sites. Compared to scenario #1, the total annual cost is more than doubled due to the contract costs with multiple service providers.
    - Note that the Total Annual Cost for Prevention, Rescue/Recovery/Donation strategies are shown as negative in the table, since the main cost modeled for those strategies is cost savings from the avoided landfill tip fees.
- Climate Impact: This scenario results in an annual reduction of CO2 emissions by 20,178 tons annually, which is 37% more reduction achieved than in Scenario #1, where all residential households participate in drop-off collection.

[10] Scenario #2 contract cost is currently a placeholder and will need to be adjusted once a contractor is able to provide a proposal for collecting curbside food waste from single-family households in Southfield. The cost incorporated the previous GFL contract for single-family recycling and trash services of $203/household/year (average of 8 years) in Southfield.

Table 11 – Cost and climate impact for scenario #3

Diversion Strategy	Diversion Solution	Total Tons Diverted	Total Annual Cost With Infrastructure ($/year)	Total Annual Cost Without Infrastructure ($/year)	Total Annual CO2e (Ton/year)
Prevention	Consumer Education Campaigns	1,137	$ (20,473)	$ (20,473)	(5,215)
	Waste Tracking & Analytics	923	$ (16,612)	$ (16,612)	(4,234)
	Total Prevention	**2,060**	**$ (37,085)**	**$ (37,085)**	**(9,449)**
Rescue/Recovery/Donation (RRD)	Standardized Donation Regulation	208	$ (3,745)	$ (3,745)	(954)
	Donation Matching Software	479	$ (8,623)	$ (8,623)	(2,197)
	Donation Transportation	111	$ (1,997)	$ (1,997)	(509)
	Donation Storage & Handling	111	$ (1,997)	$ (1,997)	(509)
	Total RRD	**909**	**$ (16,362)**	**$ (16,362)**	**(4,170)**
Local Recycling	Home Composting	189	$ (3,395)	$ (3,395)	(136)
	Community Composting	310	$ (5,574)	$ (5,574)	(223)
	Total Local Recycling	**498**	**$ (8,969)**	**$ (8,969)**	**(360)**
Centralized Composting	100% SF +MF Drop-off & 100% Commercial Curbside	10,403	$9,215,248	$6,561,448	(6,200)
	Total Centralized Composting	**10,403**	$9,215,248	$6,561,448	**(6,200)**
Total		**13,870**	**$9,152,832**	**$6,499,032**	**(20,178)**

Below is a more detailed cost and impact breakdown for the centralized composting collection by demographic and collection mode in Scenario #3. This table below does not include the cost savings from prevention and donation measures/strategies/etc. The total collection cost for centralized composting in Scenario #3 ($9,160,864/year) includes hauling cost and infrastructure costs (trucks), which are roughly $6.5 million/year and $2.6 million/year respectively. However, this collection cost may appear to be higher than the total annual cost of $9,152,832/year as indicated in Table 11, as that figure also accounts for cost savings from landfill tipping fees and incurred composting fees.

Table 12: Scenario #3 cost and impact breakdown for centralized composting.

Centralized Composting Collection			Curbside Collection					
			Collection	Collection	Infrastructure Cost	Hauling Cost	Total Collection Cost (Infrastructure + Hauling Costs)	Total CO2e from Curbside Collection (Ton/Year)
Scenario	Type	Collected By	%	Tons/Year	Total Infrastructure Cost	$/Year		
Scenario #3 100% SF Curbside by City, no Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950		$ 976,833		
		My Green Michigan	50%	2,950		$ 1,011,433	$ 1,988,266	732
		Total Commercial	100%	5,900		$ 1,988,266		
	Single Family	GFL/Priority Waste	100%	2,176	**$ 2,653,800**	$ 3,490,905	$ 6,144,705	407
	Multifamily	CO Sustainability	50%	1,163		$ 629,075		
		My Green Michigan	50%	1,163		$ 398,819	$ 1,027,893	157
		Total Multifamily	100%	2,326		$ 1,027,893		
	Total Scenario 3		**100%**	**10,403**	**$ 2,653,800**	**$ 6,507,064**	**$ 9,160,864**	**1,295**

Below are different presentations of the data to visualize cost and climate impacts among all three scenarios. These tables also includes landfill disposal tip fee savings, and the tip fees from compost sites.

Table 13. Comparison among all three scenarios on cost and impact, based on the previously executed GFL contract cost (which includes recycling, yard waste, and municipal solid waste).

		Total Annual Cost ($/year) With Infrastructure Cost			Total Annual Avoided CO2e (Ton/year)		
Diversion Strategy	Scenario / Tons	#1	#2	#3	#1	#2	#3
Prevention	2,060	$ (37,085)	$ (37,085)	$ (37,085)	(9,449)	(9,449)	(9,449)
Rescue/Recovery /Donation (RRD)	909	$ (16,362)	$ (16,362)	$ (16,362)	(4,170)	(4,170)	(4,170)
Local Recycling	498	$ (8,969)	$ (8,969)	$ (8,969)	(360)	(360)	(360)
Centralized Composting	10,403	$ 2,400,571	$9,902,248	$9,215,248	(721)	(6,200)	(6,200)
Total	13,870	$ 2,338,154	$9,839,832	$9,152,832	(14,699)	(20,178)	(20,178)

Table 14. Comparison among all three scenarios on cost and impact, excluding the previously executed GFL contract hauling cost (which includes recycling, yard waste, and municipal solid waste).

		Total Annual Cost ($/year) With Infrastructure Cost Excluding SF Residential Hauling Cost			Total Annual Avoided CO2e (Ton/year)		
Diversion Strategy	Scenario / Tons	#1	#2	#3	#1	#2	#3
Prevention	2,060	$ (37,085)	$ (37,085)	$ (37,085)	(9,449)	(9,449)	(9,449)
Rescue/Recovery /Donation (RRD)	909	$ (16,362)	$ (16,362)	$ (16,362)	(4,170)	(4,170)	(4,170)
Local Recycling	498	$ (8,969)	$ (8,969)	$ (8,969)	(360)	(360)	(360)
Centralized Composting	10,403	$ 2,400,571	$ 6,411,344	$ 5,724,344	(721)	(6,200)	(6,200)
Total	13,870	$ 2,338,154	$ 6,348,927	$ 5,661,927	(14,699)	(20,178)	(20,178)

Figure 1. Visual comparison among all three scenarios on cost and impact.

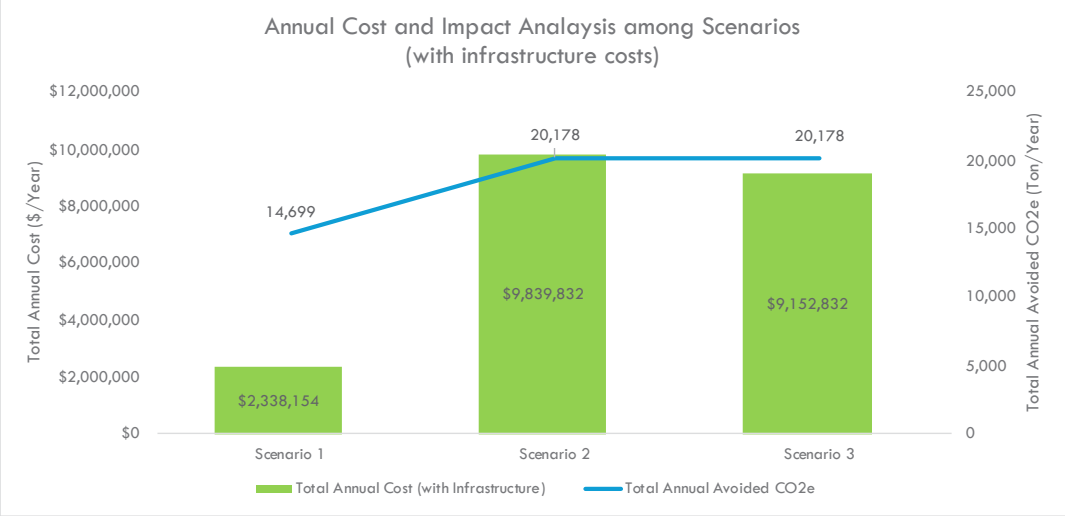
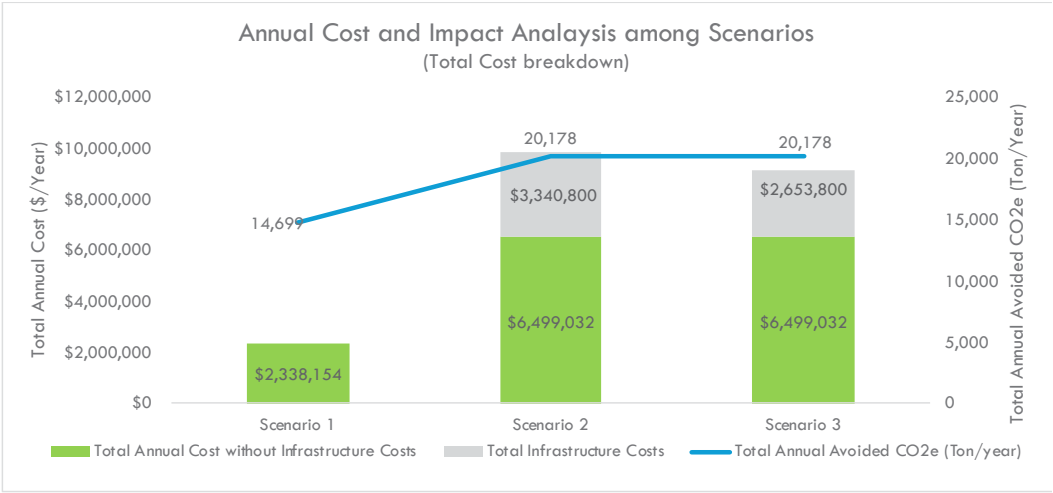


Figure 2. Visual comparison among all three scenarios on cost and impact, with total cost breakdown to show infrastructure cost.



APPROACH

Food Waste Reduction Strategy Categorization

Based on the strategies proposed by the Southfield Project Subgroups ranging from Governmental Actions, Food Rescue, and Organics Recycling and Composting, RRS Project Team organized them into four categories: Prevention, Donate/Recovery/Rescue, Local Recycling, and Centralized Composting.

It is assumed that of the total food waste diverted from the landfill for the City of Southfield, about 75% of the food waste will go to Centralized Composting strategies, and 25% will go to Prevention, Donate/Recovery/Rescue, and Local Recycling strategies.[11] Detailed strategy categorical breakdown and assumptions are listed below.

Strategies proposed by subgroups are color-coded by Governmental Actions, Food Rescue, and Organics Recycling and Composting. These proposed strategies fall under the larger 'buckets' defined by RRS and will be modeled. As such, RRS will not individually model the subgroup proposed strategies, but provide a model depicting the cost and environmental impact strategies across the buckets of prevention, donation, local recycling, and centralized composting.

RRS Proposed Strategies		Southfield Project Subgroups Proposed Strategies
Prevention	1. Consumer Education Campaigns 2. Waste Tracking & Analytics	County health inspectors share donation laws/protections during kitchen inspections
		Create city policy on food waste at events
		Require food waste reporting for major food sites
		Public outreach and education
		Food waste contamination reduction

RRS Proposed Strategies		Southfield Project Subgroups Proposed Strategies
Donate/Recovery/Rescue	1. Standardized Donation 2. Regulation 3. Donation Coordination & Matching (Software) 4. Donation Transportation 5. Donation Storage & Handling	Connect food rescue organizations and businesses via the DDA, Economic Development Department, Health Department, and Chamber of Commerce
		Person-to-person rescue/food sharing; Rescue of catered food
		Make B2B connections between businesses, haulers, composters, etc.
		Create a clearinghouse platform for small- and large-scale food donation
		Volunteer/small-scale pickups; Staff/large-scale pick ups
		Supporting pantries to handle an influx of donations

[11] Source: MFNW

RRS Proposed Strategies		Southfield Project Subgroups Proposed Strategies
Local Recycling	1. Home Composting 2. Community Composting 3. Animal Feed [Not modeled] 4. On-site Aerobic Digestion (with digestate going to farms or onsite landscapes – Pre-processing, not composted) [Not modeled]	Explore the possibility of community composting at locations such as schools and central facilities.
		Place compost bins in all city facilities and sites
		Create programming and partnerships to support composting at all scales, and identify potential funding mechanisms
		Use local compost for city projects

RRS Proposed Strategies		Southfield Project Subgroups Proposed Strategies
Centralized Composting	1. Centralized Composting (including drop off and curbside collection) 2. *Aerobic Digestion to Centralized Composting [Not modeled]*	Food waste pick-up with yard waste (curbside, 9 month/year)
		Year-round curbside food waste collection
		Create drop-off sites for food scraps
		Provide financial support for composting services and/or technical assistance to address food waste at large food generators

Model Assumptions

The model is designed with various assumptions to outline a hypothetical overview of the potential impact and cost implications associated with the proposed strategies. The assumption list below is meant to provide the modeling process with reasonable boundaries and curb excessive expectations from complex situations in real life.

Overall model assumptions include:

- The total number of residential households in Southfield is 35,535, with 17,175 single-family homes.[12]
- It is assumed that 25% of total food waste of the City of Southfield can be diverted from the Prevention, Donate/Recovery/Rescue, and Local Recycling strategies, and 75% from Centralized Composting strategies.
    - 100% commercial food waste will have curbside collection.
        - 50% of it would be collected by CO Sustainability and transported to Country Oaks and the other 50% would be collected by My Green Michigan and transported to Spurt.
        - It is assumed that My Green Michigan or CO Sustainability will service all residential drop-off collection points, and Priority Waste will service all single-family residential curbside collection services.[13]
    - 100% of residential food waste will be collected via curbside collection or drop off sites. See Scenarios described below.
- Equipment, staffing and printing costs for Prevention and Donation/Recovery/Rescue Strategies are not included. This applies to strategies such as health inspector outreach and educational campaigns.

[12] Number of households provided by RRRASOC and utilized for prior GFL contracted services.
[13] As of June 2024, Priority Waste was in the process of acquiring GFL's municipal accounts in the metro Detroit area, including Southfield. This model was based on assumptions of GFL's prior services and interest in collecting organics. Conversations with Priority Waste will need to be conducted to verify assumptions and confirm hauling costs, once able to do so. For the purposes of this model, GFL was incorporated as a potential residential food scraps collection service.

- Institutional sector is grouped with commercial in this model. However, it is recognized that Institutional entities may present distinct needs and challenges in real life scenarios. For example, schools and universities, government buildings, and hospitals and healthcare facilities have unique waste generation patterns and might need different collection and handling schedules and methods.
- As an assumption for the modeling process, 100% participation is assumed to handle and process 75% of the food waste generation (25% is diverted through prevention, donation, and local recycling) through Centralized Composting strategies. However, it is acknowledged that other factors, such as bin set out rate for the curbside collection and the actual frequency of dropping off food waste by residents, may impact the realistic capture rate of food waste.
- Residential Food Waste will have several scenarios.
    - Scenario 1: 100% of single-family and multifamily households will participate in drop off composting.
    - Scenario 2: 100% of single-family households will have curbside collection of comingled food waste and yard waste via carts, and 100% of multi-family households will participate in commercial curbside collection services. Collections will happen 52 weeks per year.
    - *Scenario 3 (Based on Wixom Pilot):* 100% of single-family households will have curbside collection of comingled food waste and yard waste without provided carts, and 100% of multi-family households will participate in commercial curbside collection services. Households will provide their own bins or utilize paper bags, while multi-family and commercial sites will have carts provided by curbside collection services. Collections will happen 52 weeks per year.
- Households
    - Modeling for residential food waste and collection/drop off services is assumed to include 100% of single-family and multi-family households. RRS acknowledges there might be exceptions. For instance, homeowners' associations often have waste contracted services that would be separate from the city-provided waste services.
- City-contracted hauling provider
    - It is assumed that Priority Waste will be able to service customers within GFL's previous routes and will be able to meet the demand for 100% participation by single-family residences.
    - Additional conversations with Priority Waste will be needed to identify the capacity/ability of collection services, and costs of operation.
    - The model temperately accounts for the hauling cost based on the previous GFL contract which was executed in early 2024 specific to trash, recycling, and yard waste collection. Updated hauling costs by Priority Waste can be updated in the model if provided later.
- Digestion
    - Commercial businesses or institutions may be able to utilize an on-site digester to reduce their food waste volume, leading to potentially reduced pickups or on-site composting. However, this scenario is not included in the model.
    - Capital and operating costs would need to be considered when implementing this strategy.

Assumptions for centralized composting include:

- Information from existing composting facilities (Spurt or Country Oaks) was utilized. The locations were provided by the Make Food Not Waste project team.
- The model will capture GHG impact generated from transportation from residents to drop-off stations as well as collection providers' transportation to centralized composting sites. GHG savings will also account for emissions reduction from composting.

Assumptions for curbside collection include:

- Both Residential and Commercial/Institutional sectors are assumed to participate in curbside collections.
- Curbside trucks will be used to collect and transport all food waste in carts. Modifications to trucks, such as cart tippers, will be led by the hauler and are not included in the model.

- Some commercial businesses may share trash and recycling collection containers; as such, it's recognized that these businesses may share food scrap collection containers onsite. However, this model assumes each entity will be provided with carts by the contracted service providers.
- For Scenario #2, households will need to be provided with carts for curbside collection.

- Commercial food scraps and residential compost will be collected weekly via carts.
- If a residential curbside scenario (#2 or #3) is selected, a curbside truck will be used to collect food waste along with yard waste.
- For Scenario #2, either the City or Priority Waste will provide the appropriate carts for collection. It is assumed food waste will be co-collected with yard waste in these carts.
- Priority Waste food waste collection cost is to be determined or provided by subgroup partners.
  - Scenario #2 and #3 contract costs included in this model will need to be adjusted once Priority Waste is able to provide a proposal for collecting curbside food waste from single-family households in Southfield. The current model incorporated the previous GFL contract for single-family recycling and trash services of $203/household/year (average of 8 years) in Southfield.

Figure 1 Tip Fee Costs

Site	Materials	Cost	Calculated Costs
Arbor Hill Landfill	Trash	$18/ton	
Spurt	Organics	$6.4/cubic yard	$12.80 per ton from drop-off $22.07 per ton from curbside collection
Country Oaks	Organics	$25/ton	

- For single-family curbside collection, upfront capital investment for the first year will be accounted for in certain scenarios of the model, including:
  - A total of 5 new trucks equipped with food waste collection/dumping tippers will be needed to collect and handle all the food waste generated by 100% of the single-family households in Southfield.
  - A total of 17,175 32-gallon food waste carts will be purchased by either the City of Southfield or the contracted service provider. The cost of a cart is currently assumed to be around $40.[14]

Assumptions for drop-off collection include:

- Commercial/Institutional entities will not self-transport food waste to compost sites and will be included in the curbside collection model.
- Numbers and locations of the current drop-off sites (within or near the city) are listed below and within 5 miles or 15 minutes' drive time for any resident.
  - Location 1 – RRRASOC Facility, 20000 W. Eight Mile Rd
  - Location 2 – DPW Yard, 25501 Clara Lane
  - Location 3 – Mary Thompson Farm, 25630 Evergreen Rd.
- 64-gallon carts will be used for food waste at the drop-off sites and emptied weekly by My Green Michigan or CO Sustainability and taken to the selected centralized compost site. Bin liners will be provided by service providers.
- The cost calculation for drop-off collection will be based upon the proposed contracts provided by My Green Michigan or CO Sustainability, which include the cost of carts, services, and liners.

[14] RRRASOC provided estimated number of single-family homes, also utilized in GFL contract.

BENCHMARKING SUCCESS

While setting an ambitious goal for 100% food waste elimination is commendable, it requires both aggressive short-term targets and strategic long-term visions to achieve optimal results. The strategies highlighted below can help ensure success:

- Catalog Food Waste Baseline Beyond Estimates: Design and conduct baseline surveys based on insights from the estimates provided by the RRS project team, to further understand a realistic level of total amount of food waste currently generated in the city. These surveys should be broken out by sectors, types of food wasted, portion of food waste as edible or inedible, end of life channels for these food wastes, and opportunities for prevention, rescuing/recovery/donation, recycling, and centralized composting.[15] RRS has provided a sample survey that can be adjusted, utilized, and reevaluated regularly to observe behavioral changes and track progress over time.
- Service Provider Data Collection: Engage in conversations and partnerships with haulers, composters, landfills, and food recovery organizations to develop plans for accessing food waste and diversion data on a regular basis, to help benchmark success against the 100% diversion goal. For example, food rescue organizations can provide total tons of food recovered and redistributed to feed hungry people and animals, haulers can provide numbers of participating customers and total tons of food waste collected, and composters can provide data on the tons of food waste processed and converted to compost annually.
- Ongoing Tracking and Measurement: Regularly monitor the progress towards the zero-food waste goal through full waste categorization studies, repeated every five years. This will help assess progress and identify areas for improvement.
- Engagement and Support to Businesses and Institutions: Provide ongoing technical assistance for commercial and institutional food waste generators to conduct food waste audits and monitor food waste reduction progress on an ongoing basis.

MODEL FEASIBILITY

The RRS Project Team developed various scenarios in the model based on the overall assumption of 100% participation from the residential, commercial, and institutional sectors, as requested by the Make Food Not Waste project team. This visionary plan aims to provide guidance for the City of Southfield in understanding and evaluating pathways to eliminate food waste citywide. However, it is important for users of the model to recognize that the feasibility and practicality of some of the scenarios is not guaranteed in real life.

[15] NRDC: Tackling Food Waste in Cities - A Policy and Program Toolkit https://www.nrdc.org/sites/default/files/food-waste-cities-policy-toolkit-report.pdf

APPENDIX

RRS recognizes there is limitation to the modeled cost in this report given uncertainty around single-family residential hauling services for organics. The model above was developed based on the prior contract with GFL for trash, recycling, and yard waste collection services. To provide a hypothetical preview of what organic waste collection cost may entail, RRS has included a cost breakdown for Southfield based on an existing community contract with Waste Management in Arlington County, VA (2023-2024), where organic waste and yard waste are both collected for single-family residents. This table below incorporated organic waste collection cost of $4.81 per household per month. Infrastructure, detailed below, includes annual upfront cost for trucks and ongoing maintenance, Scenario #2 and #3 differ in which carts may be provided or not.

Table A: Detailed cost and impact breakdown for centralized composting for Scenario #2 and #3 based on the organic waste collection cost from the Arlington County, VA contract (2023-2024)

Centralized Composting Collection			Curbside Collection				
			Collection	Collection	Hauling Cost (with sample organic collection)	Total Collection Cost (Infrastructure + Organic Hauling Costs Based on Arlington County, VA	Total CO2e from Curbside Collection (Ton/Year)
Scenario	Type	Collected By	%	Tons/Year	Based on Arlington County, VA Organic Collection contract		
Scenario #2 100% SF Curbside by City Contracted Hauler, with Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 976,833	$ 1,988,266	732
		My Green Michigan	50%	2,950	$ 1,011,433		
		Total Commercial	100%	5,900	$ 1,988,266		
	Single Family	Sample Model	100%	2,176	$ 991,341	$ 4,332,141	407
	Multifamily	CO Sustainability	50%	1,163	$ 629,075	$ 1,027,893	157
		My Green Michigan	50%	1,163	$ 398,819		
		Total Multifamily	100%	2,326	$ 1,027,893		
	Total Scenario 2		**100%**	**10,403**	**$ 4,007,500**	**$ 7,348,300**	**1,295**
Scenario #3 100% SF Curbside by City, no Carts 100% MF Curbside by Subscription 100% Commercial Curbside by Subscription	Commercial	CO Sustainability	50%	2,950	$ 976,833	$ 1,988,266	732
		My Green Michigan	50%	2,950	$ 1,011,433		
		Total Commercial	100%	5,900	$ 1,988,266		
	Single Family	Sample Model	100%	2,176	$ 991,341	$ 3,645,141	407
	Multifamily	CO Sustainability	50%	1,163	$ 629,075	$ 1,027,893	157
		My Green Michigan	50%	1,163	$ 398,819		
		Total Multifamily	100%	2,326	$ 1,027,893		
	Total Scenario 3		**100%**	**10,403**	**$ 4,007,500**	**$ 6,661,300**	**1,295**

Below is another presentation of the data to visualize cost and climate impacts among all three scenarios across all strategies with financial and environmental impacts of other diversion strategies (prevention, recovery, and local recycling) incorporated. This table also includes landfill disposal tip fee savings, and the tip fees from local compost sites.

Table B. Comparison among all three scenarios on cost and impact, based on the organic waste collection cost from Arlington County, VA contract (2023-2024).

		Total Annual Cost ($/year) With Infrastructure Cost			Total Annual Avoided CO2e (Ton/year)		
Diversion Strategy	Scenario / Tons	#1	#2	#3	#1	#2	#3
Prevention	2,060	$ (37,085)	$ (37,085)	$ (37,085)	(9,449)	(9,449)	(9,449)
Rescue/Recovery /Donation (RRD)	909	$ (16,362)	$ (16,362)	$ (16,362)	(4,170)	(4,170)	(4,170)
Local Recycling	498	$ (8,969)	$ (8,969)	$ (8,969)	(360)	(360)	(360)
Centralized Composting	10,403	$ 2,400,571	$ 7,402,685	$ 6,715,685	(721)	(6,200)	(6,200)
Total	13,870	$ 2,338,154	$ 7,340,268	$ 6,653,268	(14,699)	(20,178)	(20,178)

Development Plan to Eliminate Food Waste in Michigan Schools

While schools do not contribute the most food waste in Livonia, they have the potential to be great agents of change as they help form new habits and thinking in youth. Public schools provide breakfast and lunch to students everyday, presenting multiple opportunities to develop these new habits and ways of thinking about food. Lanie Belloli, a student at Harvard Extension School, created the following report that discusses the potential for addressing food waste in schools and resources to implement specific strategies.

HARVARD Extension School

DEVELOPMENT PLAN TO ELIMINATE FOOD WASTE IN MICHIGAN SCHOOLS

Prepared For: Make Food Not Waste

Prepared By: Lanie Belloli

Harvard University Extension School

DEVP E-599: Global Development Practice Capstone

Judith Irene Rodriguez MA (*Advisor*)

May 11, 2024

CONSULTANT BIOGRAPHY

Lanie Belloli is a Quality Complaints Specialist for a Boston-based Pharmaceutical and Biotechnology company and a graduate student at the Harvard University Extension School (HES), where she is currently completing the final semester of her Master of Liberal Arts in Global Development Practice.

Originally from Metro Detroit, Michigan, she proudly identifies as a Michigander, taking great pride in her Southeast Michigan roots. Her academic and professional experiences allowed her to embark on a transformative journey from engineering to sustainable development, focusing her research and advocacy efforts on improving the social determinants of health detrimentally impacting the cities of Detroit and Flint.

In 2015, at the height of the Flint Water Crisis, Lanie completed her undergraduate education at Kettering University with a Bachelor of Science in Mechanical Engineering, a Bioengineering specialty, and minors in Biology and Biochemistry.

After graduation, Lanie spent the next five years as a supplier quality engineer and vehicle product investigator at Fiat Chrysler Automobiles, where she developed expertise in Root Cause Analysis, Corrective and Preventive Actions (CAPA), and streamlining manufacturing processes. This experience reinforced the importance of getting to the root cause of a problem to develop robust solutions. However, it wasn't until after beginning her HES journey that she understood just how impactful living in Flint, a city so catastrophically impacted by the state's worst public health threat, would be on her life.

In 2020, Lanie began graduate school at the Harvard Extension School as a Biology major. However, during her second semester, she enrolled in a course called Social Medicine in the United States. The first class was dedicated to the Flint Water Crisis, sparking her passion for addressing social determinants of health to improve public health outcomes in urban communities. This course not only transformed her understanding of how vast the field of public health was but also why Lanie changed her major to Global Development Practice. She then spent the next four years channeling her passion for medicine and biology into researching social determinants of health and advocating for strategies to improve healthy food access, reduce food insecurity, and improve food equity and water justice, particularly for Detroit and Flint.

With over 13 years of experience in engineering quality, Lanie is a seasoned mid-level professional, bringing a unique blend of technical expertise and social consciousness to her work. Her keen eye for innovation and sustainable solutions brings a wealth of experience in leading investigations and Root Cause Analysis across diverse sectors, aligning her technical proficiency with a deep-seated commitment to community well-being. She has earned accolades for mentoring teams, delivering innovative solutions aligned with corporate objectives, and recognition for driving operational excellence.

Outside of her academic and professional pursuits, Lanie enjoys spending quality time with loved ones and her beloved 8-year-old labradoodle, Kona. She is a season ticket holder for Broadway in Detroit, loves attending concerts, enjoys exploring nature through hiking and traveling, and relishes every opportunity to enjoy good food and wine. During the summer months, Lanie prioritizes moments of relaxation along Michigan's freshwater beaches, particularly Lake St. Clair and Lake Michigan in Holland.

EXECUTIVE SUMMARY

Make Food Not Waste (MFNW), a Detroit, Michigan-based environmental nonprofit organization that aims to keep food out of landfills and slow climate change through education, food upcycling, and advocacy, has partnered with the City of Southfield on an ambitious endeavor named The 2030 Project. The 2030 Project was formed in response to the urgent need for a coordinated effort to meet Michigan's and global food waste reduction targets.[1] By concentrating on highly populated areas, the project seeks to maximize impact and efficiency in reducing Michigan food waste by one billion pounds annually.[1] With foundational support from the Michigan Department of Environment, Great Lakes, and Energy (EGLE), The 2030 Project is developing a tactical blueprint to divert 100% of food waste from landfills in Southfield, thereby creating a replicable model to reduce food waste in 14 additional Southeast Michigan cities over the next six years.[1,2] As part of The 2030 Project, this development plan details the comprehensive strategy for eliminating food waste in Michigan schools.

Michigan schools discard nearly 40 million pounds of food each year, which accounts for 4.5% of all food waste sent to Michigan landfills.[3,4] Yet, 1 in 8, or roughly 300,000, children do not know where their next meal will come from.[4–8] This negative relationship between the number of children experiencing food insecurity and the volume of food schools waste when they are intended to provide a healthy and safe learning environment for their students presents significant economic, environmental, and social implications on a child's academic performance and quality of life.

To eliminate school-created food waste and support Make Food Not Waste's vision of making Michigan a state whose residents value food and prevent it from ending in landfills, this development plan aims to address the following objectives:

1. Eliminate food waste in Michigan schools by prioritizing food waste prevention and diversion instead of disposal,
2. Integrate food and climate education into the Pre-K-12 curriculum, and
3. Reduce childhood food insecurity through school food recovery and redistribution.

To achieve these objectives successfully, this development plan provides seven initiatives to help schools eliminate food waste holistically: 1) School Commitment, 2) Data Collection, 3) Food Waste Elimination, 4) Lunchroom Policy Changes, 5) Food Recovery & Redistribution, 6) Food & Climate Education, and 7) Easy Wins. These initiatives are intended to create a blueprint not only for eliminating food waste in schools but also for creating lasting behavioral changes in how society views and addresses food waste while alleviating food insecurity among school-aged children. Using this blueprint, this development plan aims to provide specific actions that Make Food Not Waste and schools can take to demonstrate the economic, environmental, and social benefits of reducing food waste and enhancing food security while allowing students to see the direct consequences of their actions and inspire them to advocate for and adopt sustainable food practices.

The successful implementation of this development plan will support Make Food Not Waste's mission of keeping food out of landfills while helping Michigan eliminate one billion pounds of food waste and contribute to the United Nations' goal of cutting food waste in half by 2030 while providing education on the importance of adopting sustainable food practices to ensure that food-insecure children are prioritized when schools have excess food. Not only will implementing this development plan reduce food and trash costs, but successful implementation will also provide experiential learning opportunities that keep students engaged during school, inspire students to enroll in higher education STEM programs, reduce childhood food insecurity, and help build community.

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Table 16: *Initiative 7 Risk Matrix*

ACRONYMS & ABBREVIATIONS

Abbreviation	Meaning
SNAP	Supplemental Nutrition Assistance Program
US	United States
FV	Fruits & Vegetables
USMP	Universal School Meals Program
MDE	Michigan Department of Education
USDA	United States Department of Agriculture
MFNW	Make Food Not Waste
WWF	World Wildlife Fund
NRDC	Natural Resources Defense Council
EGLE	Environment, Great Lakes, and Energy
EPA	US Environmental Protection Agency
SPS	Southfield Public Schools
TCS	Temperature Controlled for Safety
COPD	Chronic obstructive pulmonary disease

CHAPTER 1: SPONSORING ORGANIZATION

1. SPONSORING ORGANIZATION

Make Food Not Waste (MFNW) is a Detroit, Michigan-based environmental nonprofit organization that aims to keep food out of landfills and slow climate change through education, food upcycling, and advocacy.[9]

Founded in 2017, Make Food Not Waste has worked to fill gaps within the food waste reduction ecosystem. Initially focusing on public engagement, the organization shifted to direct action during the COVID-19 pandemic, opening its first *Upcycling Kitchen* (***Figure 1***) in 2021 to repurpose surplus food into nutritious meals for the community.[2] By 2023, their operations expanded significantly, increasing meal production and demonstrating the power of innovation in food waste management.[10]

Figure 1

Upcycling Kitchen Detroit Logo

Make Food Not Waste honed its expertise in food waste reduction by representing Detroit in the Natural Resources Defense Council's (NRDC) Food Matters Great Lakes Cohort from January 2021-June 2023. During that time, the organization also secured funding from the Environmental Protection Agency (EPA) to pilot the international food waste certification, The PLEDGE™ on Food Waste (***Figure 2***), to reduce food waste in the hospitality industry throughout the US.[11]

Figure 2

Upcycling Kitchen Detroit Logo

As a recognized leader in food waste advocacy, Make Food Not Waste has played a crucial role in policy development and implementation, including significant contributions to the Michigan Department of Environment, Great Lakes, and Energy's (EGLE) MI Healthy Climate Plan and the Roadmap to Food Loss and Waste Reduction to identify barriers, potential solutions, and opportunities to eliminate food waste throughout Michigan.[12] Supported by seed funding from the EGLE, Make Food Not Waste continues to drive forward with The 2030 Project, its initiative to cut food waste in half by 2030, aligning with the state of Michigan, the US, and the United Nations, while also maintaining its Upcycling Kitchens and educational programs.[1]

The 2030 Project was formed in response to the urgent need for a coordinated effort to meet Michigan's and global food waste reduction targets.[1] By concentrating on highly populated areas, the project seeks to maximize impact and efficiency in reducing Michigan food waste by one billion pounds annually.[1] With foundational support from EGLE, The 2030 Project is developing a tactical blueprint to divert 100% of food waste from landfills in Southfield, setting a replicable model to reduce food waste in 14 additional Southeast Michigan cities over the next six years.[1] Key to The 2030 Project's success is the involvement of multiple food waste reduction service providers and support from city and state officials. Together, these experts and officials are developing a blueprint for how they can best work together to divert 100% of food waste in the most efficient way possible, including the development of a highly detailed plan that defines costs, logistics, partnerships, policies, communications, and infrastructure requirements for each sector contributing to the creation of food waste.[1] Once the blueprint is complete, Make Food Not Waste will oversee its implementation in Southfield, begin working with two additional cities to adapt the blueprint to their locations, and continue this process until it has been implemented within all 15 Southeast Michigan cities.[1]

Mission & Values

Make Food Not Waste's mission is to "keep food out of landfills and slow climate change by creating lasting solutions to food waste through education, food upcycling, and advocacy."[9] The organization operates by the following set of values:

i. Joy; remain positive and supportive and treat others with kindness;
ii. Courage; take on big challenges and atypical projects;
iii. Generosity; serve the community and partners;
iv. Commitment to data; follow best practices whenever possible;
v. Transformation; make large-scale change;
vi. Listening; co-create experiences with the community.[1,10]

Business Model & Goals (Financial, Community, Environmental)

The nonprofit generates revenue through donations from government sources, foundations, corporate sponsors, and individual donors.[10] Make Food Not Waste's operating budget for Fiscal Year 2024 (FY24) is $565,000, and currently employs four full-time and seven part-time employees.[10]

Make Food Not Waste aligns its operational strategy with four key goals to reach its vision of cutting Michigan's food waste in half by 2030.[10] These goals are:

i. Be the voice of food waste reduction in Michigan by providing leadership and public engagement,
ii. Reduce food waste in leading food waste generators by providing technical training to foodservice operators and public education campaigns,
iii. Provide a home for edible food that has nowhere to go by processing it in the Upcycling Kitchen, and
iv. Maintain a healthy organization by committing to their employees and board members' health and well-being.[1,10]

CHAPTER 2: DEVELOPMENT PLAN OBJECTIVES

2. DEVELOPMENT PLAN OBJECTIVES

This development plan was created for Make Food Not Waste to develop a tactical blueprint for eliminating food waste in Michigan schools, as part of The 2030 Project's initiative to eliminate one billion pounds of food waste from Michigan landfills by 2030.

In 2022, 17.7 tons of food, equaling 29.5 million meals, were discarded in Michigan's Pre-K-12 schools, costing the state $127 million.[8] This volume of food waste is equivalent to 79% of the approved $160 million budget to fund the Michigan School Meals Program for just one year.[13] Not only does this volume of food waste suggest that the 1.4 million students participating in the program are not consuming the food, but it also means that nearly 40 million pounds of food intended to feed children is being sent to landfills instead, wasting seven billion gallons of water and releasing roughly 81 metric tons of carbon dioxide annually.[8,14] To effectively address food waste created by schools, a comprehensive strategy is needed to understand what, how, and why food is being wasted in schools.

Therefore, the goal of this development plan is to ***create a comprehensive, actionable strategy for effectively eliminating food waste in Michigan's Pre-K-12 schools that can be deployed in 15 cities in Southeast Michigan over the next six years.***

OBJECTIVES

To achieve this goal, this development plan aims to address the following three objectives:

4. Eliminate food waste in Michigan schools by prioritizing food waste prevention and diversion instead of disposal, as outlined in the EPA's Wasted Food Scale (***Figure 3***).[15]
5. Integrate food and climate education into the Pre-K-12 curriculum.
6. Reduce childhood food insecurity through school food recovery and redistribution.

Figure 3

U.S. EPA's Food Waste Scale[15]

By using the information and recommendations provided in this development plan, Make Food Not Waste will be able to work with schools to:

- determine what, how much, and why food is wasted in Michigan schools,
- fill existing knowledge gaps surrounding solutions schools can adopt to eliminate food waste,
- implement comprehensive food waste diversion programs in school lunchrooms to divert food waste from landfills,
- adopt best practices in the lunchroom to recover uncompromised food,
- recommend experiential and enrichment opportunities to improve food and climate education in Pre-K-12 curriculums,
- develop a food redistribution model prioritizing food insecure students within each school before diverting into the community, and
- build a stronger community between the city and its schools.

PROJECT SCALE

The scale of this development plan is specific to schools within the borders of Southfield and Lathrup Village, as depicted in **Figure 9**. However, the development plan will only apply to schools within the Southfield Public School system, as all other schools in the city declined to participate.

The additional 14 cities earmarked for participation in The 2030 Project after Southfield are out of scope. However, the implementation model developed for Southfield will be replicated in and adapted for each city over the next six years.

SCOPE

The scope of this development plan is to create a comprehensive, actionable blueprint that encompasses the above objectives, allowing Make Food Not Waste to implement the recommended initiatives outlined in Chapter 8 successfully.

Implementation of the recommendations outlined in this development plan is out of scope. However, the consultant will be available to provide additional consultation and assistance throughout the implementation process.

CHAPTER 3: BACKGROUND

3. DEVELOPMENT PLAN OBJECTIVES

This section discusses existing barriers to addressing food waste and food insecurity throughout Michigan and the United States to provide necessary background information to understand the connection between food waste and food insecurity. This section discusses the United States' stance on the Right to Food and how it shapes food access, the United States' existing food access, food waste, and child health paradox, and the federal and state laws regulating food access.

THE FOOD ACCESS, FOOD WASTE, CHILD HEALTH PARADOX

The United States food system demonstrates a distressing paradox between healthy food access, food waste, and childhood health because the United States' stance on the right to food remains deeply entwined in a complex web of politics that significantly influences the current food system's economic, environmental, and social dimensions. For example, the US spends roughly $92 billion annually on food and nutrition programs, yet nearly $218 billion of edible food goes uneaten, while 38 million people, including 12 million children, battle food insecurity yearly.[5,16,17] Although 1 in 6 Americans, including 1 in 4 children, are food insecure, the country discards more than enough edible food to feed them.[3]

The critical importance of healthy food for positive health outcomes cannot be overstated, particularly during early childhood. The repercussions of malnutrition in children have lifelong and often irreversible health issues, including diminished gut biodiversity, developmental stunting, obesity, allergies, asthma, diabetes, and mental health disorders.[18–21] This uneaten food exacerbates food insecurity and causes irreparable environmental and social harm that adversely affects children's health and quality of life. Addressing this paradoxical food system requires a comprehensive, systemic approach that mitigates cost-related barriers to healthy food, curtails food waste, and enhances exposure to healthy food through educational initiatives simultaneously. The interconnected nature of child health, access to healthy food, and food waste presents a complex but critical challenge that demands immediate and concerted efforts for resolution.

The Right to Food

Food insecurity is a global public health concern; thus, Zero Hunger is the second of the 17 SDGs.[22] While the SDGs recognize water, health, and education as human rights, access to safe and nutritious food does not carry the same importance in the United States political framework.[23] For example, the US is one of only two countries that have not ratified the Convention on the Rights of the Child, where Article 24 states that children have the right to be both physically and mentally fulfilled and should have adequate nutritious food and clean drinking water to combat disease and malnutrition.[24] Furthermore, the US has not ratified the International Covenant on Economic, Social, and Cultural Rights due to its opposition to Article 25.1 of the United Nations' Universal Declaration of Human Rights.[23,25] Article 25.1 states that everyone is entitled to a standard of living adequate to maintain health and well-being, including access to food.[23] Yet, during the 2015 United Nations General Assembly, the US was one of several developed countries opposed to food as a human right and remains the only country that has not ratified the International Covenant on Economic, Social, and Cultural Rights, opposed including the right to food in the 1996 and 2002 World Food Summit declarations, and continues to resist economic, cultural, and social rights.[23,26] Therefore, the US has made its opposition to food as a human right known globally, leaving US food insecurity to be shaped by a system that views food as a commodity to be purchased with the appropriate means rather than a requirement for life.[27]

Food Waste

Addressing food waste is critical for eradicating food insecurity.[28] Yet, the United States discards approximately 40% of all edible food, amounting to 133 billion pounds, annually, of which nearly 1.5 billion pounds is discarded just from Pre-K-12 schools.[5,29] This food waste spans the entire food supply chain, causing environmental degradation and hindering sustainable food production and consumption.[30] The nearly 138 billion pounds of food wasted in the US generates 3.3 billion tons of greenhouse gas (GHG) emissions and consumes 14% of the Earth's freshwater, leading to biodiversity loss and desertification.[31–35] Moreover, 75% of this waste is sent to landfills, contributing to nearly 20% of the country's methane emissions, while food packaging comprises over 63% of the solid waste in landfills.[32,36] Furthermore, modern agricultural practices, such as monocropping and synthetic fertilizers, deplete the soil of micronutrients, turning fertile land into barren dirt, further threatening the land's capacity to produce food.[37] Therefore, food waste not only affects current food accessibility but also poses a long-term threat to food security and human survival.

The economic impact of food waste is equally staggering, costing the US nearly $218 billion annually.[16,38] These figures underscore the urgency for innovative solutions to divert food from landfills and highlight the existing food system's failure to prevent food waste, causing considerable environmental damage and impairing the supply chain's ability to sustain future food production. Despite the effects of food waste on the environment and food supply, little progress has been made across the entire supply chain to mitigate and divert food waste from landfills, leaving millions without sufficient access to healthy food. Therefore, a multifaceted approach that addresses food waste's economic, environmental, and social dimensions is urgently needed to create a sustainable food system that ensures equitable access to sufficient healthy food.[39]

Child Health and Food Access

a. Healthy, Hunger-Free Kids Act

The Healthy, Hunger-Free Kids Act of 2010 marked a pivotal step in combating childhood obesity, achieving a notable reduction in obesity risk for 5.9 million children by 2018.[40] This legislative milestone enhanced nutritional standards in national school programs, contributing to a 47% decrease in the likelihood of obesity among impoverished children in just eight years.[40] Before its implementation, obesity rates among this demographic were consistently rising. Despite its success, dietary requirements were relaxed in 2020, driven by concerns about excessive school food waste.[40] These relaxed dietary requirements allowed schools to reduce the healthy food served and replace it with unhealthier options, including pizza and fries.[40] Although food waste is problematic, nutrition standards should not be manipulated as a potential mitigation strategy. Instead, strategies, such as composting programs and food conservation, preparation, and recovery education, should be integrated into K-12 curriculums to reduce food waste.

b. Michigan School Meals Program

In July 2023, Michigan became the 7th state to adopt a Universal School Meals Program for the 2023-2024 school year, with legislation introduced to make the program permanent.[13,13,41–44] The Michigan School Meals program's $160 million budget will provide 1.4 million children with free breakfast and lunch in all public K-12 schools participating in the National School Lunch and Breakfast Programs.[13] The decision to adopt a statewide program was based on the widespread success of the USDA's Child Nutrition Program (CNP) waivers, which provided universal meals to all students during the COVID-19 pandemic, regardless of income.[13,13,41–44] However, the income-based CNP waivers ended in the summer of 2022, leaving students without universal meals for the 2022-23 school year.[13]

Prior to the COVID-19 pandemic, low-income families of four with an annual income of $36,075 or less qualified for free meals and no more than $51,300 to qualify for reduced-cost meals through the National School Lunch and Breakfast Programs.[45] However, the Michigan School Meals Program (***Figure 4***) is expected to save families an estimated $850 annually, ensuring children do not go hungry by providing healthy meals that prepare them for learning.[13]

Figure 4

Michigan School Meals Logo

The program not only ensures healthy meals are accessible to all students but also supports Michigan agriculture by working with 10 Cents a Meal, a local food incentive program that helps fund Michigan's School Nutrition Programs by encouraging the purchase of fresh, locally grown produce and dried beans for school meals.[13] However, with more students receiving free meals, the risk of excessive food waste in schools increases.

For example, in 2022, Michigan's Pre-K-12 schools discarded 17.7 thousand tons of food, equaling 29.5 million meals, costing the state $127 million.[8] This volume of wasted food accounts for 79% of the Michigan School Meals Program's $160 million budget for the 2023-24 school year.[13] Not only does this suggest that the 1.4 million students participating in the program are not consuming the food, but it also means that nearly 40 million pounds of edible food is sent to landfills instead of feeding these children. Furthermore, this volume of waste food is also responsible for wasting natural resources, including seven billion gallons of water and releasing roughly 81 metric tons of carbon dioxide annually.[8] With the program's high taxpayer cost, it is critical to implement innovative solutions that target reducing food waste produced by schools to ensure the program's longevity at feeding children nutritious meals.

Charity & Donations

Charitable food donations have become a leading approach to tackling food insecurity in the United States. In 2022, Gleaners Community Food Bank, one of Metro Detroit's largest food banks, provided roughly 47 million pounds of food to families in southeast Michigan, highlighting the magnitude of food insecurity throughout Metro Detroit.[46] Yet, this impact extends beyond southeast Michigan. Since the early 1930s, food charity has been a critical mechanism for addressing food insecurity throughout the U.S., serving as a governance system that influences food policy and access by linking private, public, and non-profit sectors together.[47] However, the existing legal and political framework governing the U.S. food system fails to address the systemic issues driving food insecurity, thus only providing families with temporary relief.

This framework not only perpetuates the cycle of food insecurity but also creates excessive food waste. A substantial amount of donated food often reaches expiration before distribution or is not suitable for consumption due to quality concerns, leading to significant food waste.[47] Consequently, a substantial percentage of food in charity networks is discarded, contradicting the fundamental objective of these organizations.[47] Although charitable food donations play a role in the short-term alleviation of hunger, their limitations in addressing the root causes of food insecurity and their inadvertent contribution to food waste require innovative and comprehensive strategies to address it.

a. Federal Food Donation Policy

Federal food policy is regulated through top-down legislative efforts to address food insecurity by redirecting surplus food for hunger relief.[47] During the Great Depression, the 1933 Agricultural Adjustment Act was enacted to allow the USDA to purchase surplus food from farmers and distribute it for hunger relief, and it remains the foundation of U.S. food and nutrition policy today.[47,48] Since 1933, 42 federal food policies have been enacted, allowing nearly all entities—from individuals and communities to corporations, farmers, and schools—to donate surplus food in good faith.[47–49] Yet, none encourage healthy food donations nor set nutrition and quality requirements for donated food.[48] Although the primary purpose of food charity is to protect donors from liability and reduce food waste, only 2% of surplus food is donated by individuals and companies alike, wasting 108 billion pounds of food annually.[48,50] Despite nearly a century since its enactment, federal food policy has yet to address food insecurity or irresponsible consumption and production practices effectively. Instead, the existing food system views sufficient healthy food access as an entitlement instead of a fundamental human right.

i. Bill Emerson Good Samaritan Food Donation Act

Enacted in 1996, the Bill Emerson Good Samaritan Food Donation Act serves as a legal safeguard for businesses and individuals making good-faith food donations, designed to alleviate concerns about liability in the event of harm caused by donated food.[51] Under this Act, individuals and public and private institutions—including schools—are protected from legal liability when donating food in good faith.[51] Yet, schools frequently discard rather than donate surplus food due to a tangled web of logistical and perceptual barriers.[5,29] Lack of awareness about what protections the Act protects hinders donation efforts, as educational administrators remain concerned about liability and food safety—a fear underscored by the misconception that schools could face legal repercussions if a recipient gets sick from donated food.[52–54] Moreover, logistical challenges, including inadequate refrigeration and transportation costs, further deter schools from donating excess food.[55] These challenges, along with perceived food quality and safety concerns, further discourage schools from donating excess food, thus wasting millions of nutritious meals from being eaten.[8] Consequently, the legal framework to support food donations is in place. However, the practical barriers and persistent misconceptions surrounding liability protection prevent schools from fully engaging in efforts to mitigate food waste and food insecurity through food donations.

a. State Food Donation Policy

Federal and state policies regulate United States food charity, but policies and regulations vary by state. Although the FDA Food Code heavily impacts the food safety laws that each state has in place, the FDA Food Code is not binding, as states have the authority to decide which food laws to adopt and enforce.[56] Furthermore, topics not covered within the FDA Food Code are rarely addressed in each state's codes, including laws and regulations pertaining to school food donation safety.[56] For example, of the 252 food donation policies across all 50 states and the District of Columbia (D.C.), none have consistent state-level policies regulating food donations, which negatively impacts food nutritional quality.[57] All 51 states provide donors with liability protection, but only 14 have policies encouraging healthy food donations.[57] While the USDA encourages using "share tables" in school lunchrooms, few states have included food safety requirements for what can be collected and redistributed to other students during mealtimes, outside of the basic requirement that all items must be whole or unopened.[56] Therefore, all 50 states and the District of Columbia have adopted a version of the FDA Food Code, but few ensure

donated food is high quality and nutritionally dense, thus hindering access to healthy food for Americans experiencing food insecurity.[56]

Michigan has six policies that regulate food charity, two establish date labeling requirements, and two provide liability protection to donors.[57,58] None, however, encourage healthy food donations or establish food safety requirements, which suggests that food donation policies are not intended to target food insecurity.[57] Instead, these policies are intended to incentivize protected entities—such as corporations and farmers—to donate low-quality, over-produced, and unsalable food to charity rather than sending these items to landfills. However, not requiring food donations to meet minimum nutrition, quality, or safety standards eliminates any incentive for entities to prioritize quality control over profit. Consequently, low-income Americans receive donated food, which can often be poor quality, unsalable food items, without adequate resources to secure safe and nutritious food for a healthy life through other means.[59] Food policies at the local, state, and federal levels should be revised to implement nutrition, quality, and safety standards for food donations and identify possible solutions that promote food sovereignty rather than promoting continued reliance on food charity with no alternative.

CHAPTER 4: COMMUNITY DESCRIPTION

4. COMMUNITY DESCRIPTION

The Development Plan (DP) will be initially deployed in Southfield schools as part of the citywide food waste reduction initiative in partnership with Make Food Not Waste for The 2030 Project. The DP will then act as the framework for implementing a comprehensive food waste diversion program in schools throughout Michigan over the next six years.

Southfield as the Center of It All™

Situated on the southeastern border of Oakland County (***Figure 5***), the City of Southfield serves as a quintessential example of the dynamic interplay between suburban charm and urban energy within Metro Detroit. What was once a rural farming community has, over the span of six decades, transformed into a bustling hub for business and a highly desirable community for residential life.[60] Southfield is celebrated not only for its iconic gold skyscraper skyline but also for its serene, tree-lined neighborhoods.[60] Known as the "Center of It All™" (***Figure 6***), the city is more than just a home for its 76,000 residents; it acts as a critical nexus within Metro Detroit, strategically located mere minutes from other key Metro Detroit locations, enhancing its accessibility and the vibrancy of community life.[61]

Figure 5

U.S. EPA's Food Waste Scale

Figure 6

The Center of in All Logo

Spanning more than 26 square miles, Southfield is noted for its extensive green spaces, including over 800 acres of parkland, several public golf courses, and a network of trails that encourage physical fitness and a deeper connection to nature.[61,62] Southfield is also home to over 10,000 businesses, including 110 Fortune 500 companies. The city includes roughly 27 million square feet of office space and retail and industrial space that spans more than 7 million square feet, catering to a daytime population of approximately 175,000 people.[61] With more office space than neighboring major cities, including Cleveland, Cincinnati, Detroit, Indianapolis, and Kansas City, Southfield reinforces itself as Michigan's undisputed business center.[61] The city's unique blend of expansive natural landscapes and robust economic infrastructure underscores its dedication to continuous growth, enhanced connectivity, and community building. Therefore, Southfield exemplifies a unique urban model where urban development and environmental sustainability coexist, establishing it as an essential cornerstone of Michigan's economic and environmental future.

Sustainable Southfield

In 2016, Southfield adopted the Sustainable Southfield Master Plan—only the second Master Plan to be adopted in the city's history—which aims to transform the city into an environmentally conscious, economically prosperous, and socially equitable community that enhances the quality of life for all living things.[63] A cornerstone of the Sustainable Southfield initiative is collaboration between city residents,

businesses, students, and elected officials to promote sustainability through community-oriented projects that balance Southfield's economic assets, natural resources, and social priorities to create a prosperous and equitable city that meets the diverse needs of all residents, now and in the future.[64]

Figure 7

Sustainable Southfield Logo

Sustainable Southfield (***Figure 7***) incorporates six principles to help create a more sustainable community, which include livable built environments, harmony with nature, resilient economies, interwoven equity, healthy communities, and responsible regionalism.[63] The Master Plan's focus on healthy living is particularly important for this development plan because it includes promoting and supporting urban agriculture, establishing sustainable food systems, and enhancing education, all of which directly relate to this development plan's three objectives.

Urban Agriculture:

Sustainable Southfield understands how impactful urban agriculture can be in building sustainable communities. Therefore, to promote urban agriculture, the Sustainable Southfield Master Plan includes:

i. adopting policies and regulations that ensure urban agricultural initiatives are integrated into future city planning,
ii. establishing community gardens to promote local food production and increase access to nutrient-dense food,
iii. promoting greenhouse projects to extend Michigan's growing season and provide community educational opportunities,
iv. providing municipal support for community-run urban agricultural programs, and
v. supporting programs that encourage residential and commercial composting while minimizing nuisances.

Food Systems:

Sustainable Southfield acknowledges the importance of having sufficient access to healthy food for community health. Therefore, to promote sustainable food systems, the Master Plan includes:

i. establishing new and expanding existing healthy food access in underserved areas of the city,
ii. improving school food environments and public facilities by reducing the sale of unhealthy, calorically dense foods,
iii. Supporting local food systems to improve food security and reduce the environmental impact of the food supply chain,
iv. increasing the use of public benefit programs to improve access to healthy foods, and
v. encouraging institutions—including schools, hospitals, colleges, and universities—to purchase healthier, locally sourced foods.

Education:

Sustainable Southfield recognizes the importance of education, its connection to food, and its necessity for improving educational attainment and improving economic growth. Therefore, to promote education, the Master Plan includes:

i. improving school food offerings to include healthier options,
ii. providing education on the benefits of healthy, locally grown food and sustainable food systems,
iii. developing educational programs that incorporate sustainability into the curriculum and community awareness initiatives, and
iv. increasing educational attainment and skill levels required for high-quality jobs.

To further support the city's community-building efforts, the Sustainable Southfield Master Plan also highlights working with neighboring communities to promote a shared community interest in sustainability and share best practices and lessons learned. Not only does this plan recognize that sustainability efforts cannot thrive nor survive in silos, but it also embraces the importance of community involvement.

Southfield Schools

In addition to its thriving business and residential offerings, Southfield is equally committed to education. The city hosts 30 public and private schools, including a nationally recognized public school system, a specialized early childhood development center, and parochial and Hebrew schools. Refer to Table 1 for a summary of all Pre-K-12 schools in Southfield and **Figure 8** for their locations depicted on a city map.

The city also promotes lifelong learning through its higher educational offerings, which include seven colleges and universities, as well as articulation agreements between the high schools and these institutions.

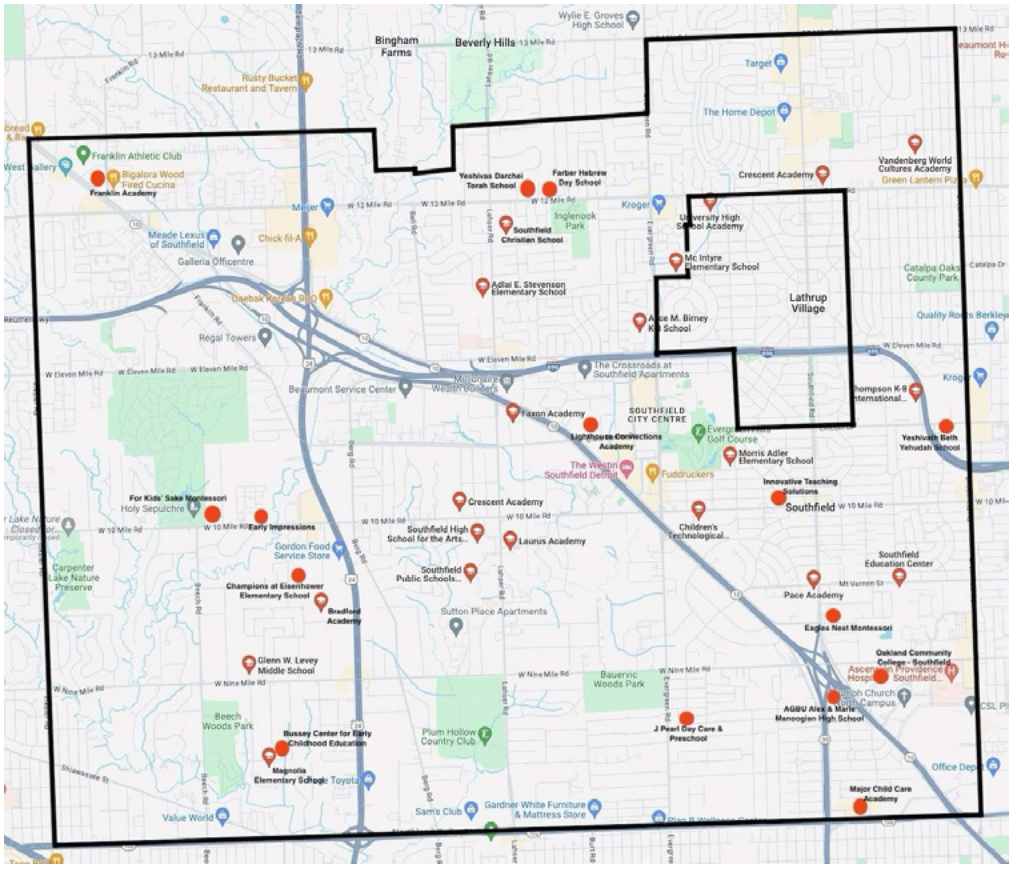
Table 1

Number and Type of Schools in Southfield

Grades	College	Day Care	Independent Charter	Montessori	Private	SPS	Grand Total
Day Care		1					**1**
Pre-K				2	1	1	**4**
K-5			1		1	5	**7**
K-8			4		1	3	**8**
Pre-K-8					2		**2**
6-8						1	**1**
Pre-K-12			2		2		**4**
9-12						2	**2**
2-Year College	1						**1**
Grand Total	**1**	**1**	**7**	**2**	**7**	**12**	**30**

Figure 8

Southfield, Michigan Schools[65]



NOTE: *Each red pin and dot represents a Pre-K-12 school in Southfield. The figure was created using Google Maps.*[66] *However, not all schools were displayed at once. Therefore, the red dots were added to indicate the location of all schools that were not displayed by view Google Maps presented.*

CHALLENGES & REQUIREMENTS

Challenges

Of the more than 76,000 residents living in Southfield, 70.1% of the population is black, and 21% is white.[67] While the median household income in Southfield is $60,006, over 11% of the population—including 13% of households—lives in poverty.[67] Consequently, Southfield residents living in poverty experience significant challenges not only in accessing sufficient nutrient-dense food but also with their health.

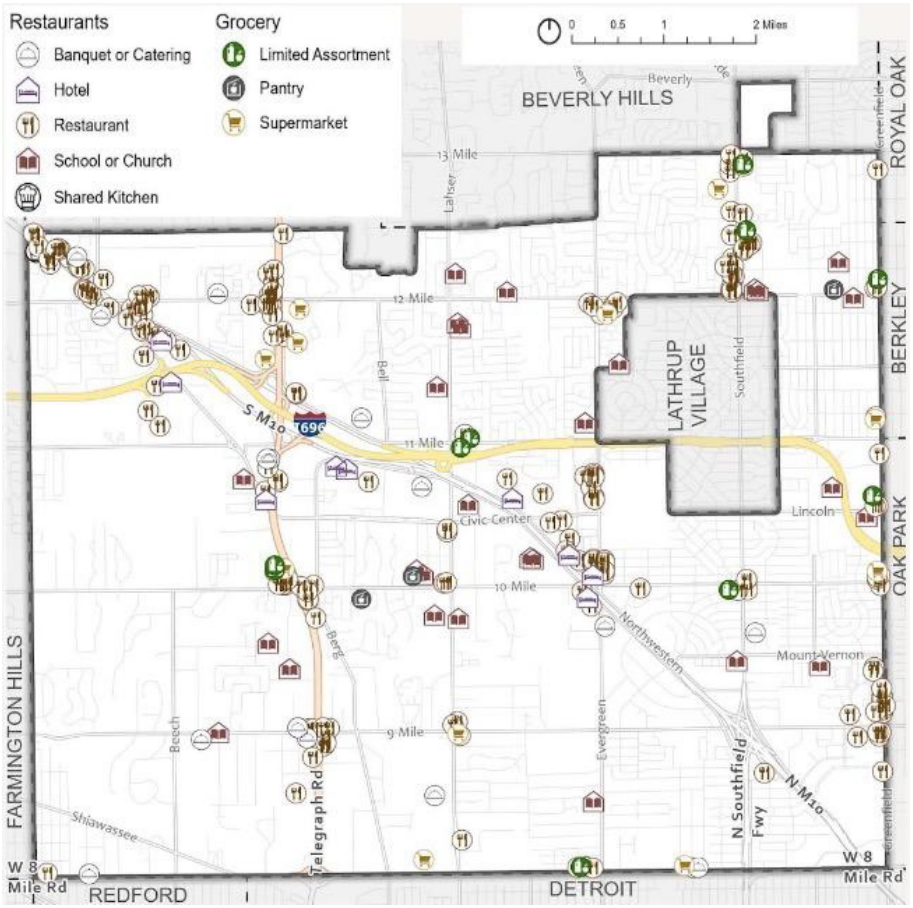
Healthy Food Access

Having sufficient access to enough safe and nutritious food is critical to support and maintain an active and healthy life.[59] Yet, an estimated 17% of Southfield residents, of which 22% are children, rely on the Supplemental Nutrition Assistance Program, the largest of 15 food and nutrition assistance programs in the United States.[4,6,68]

Full-service food access points in Southfield are limited, accounting for only 11 of the 292 food access points throughout the city.[69] With only 11 supermarkets, many Southfield residents reside in a food desert.[67] The United States Department of Agriculture (USDA) defines a food desert as a community or neighborhood with limited to no access to affordable and nutritious food.[70] More descriptively, an urban community residing more than one mile, or a rural community residing more than 10 miles, from a supermarket or large grocery store resides in a food desert.[71] Therefore, a major challenge that Southfield residents experience is limited access of affordable, nutrient-dense food. Refer to **Figure 9** for a map of the food access points throughout Southfield.

Figure 9

Southfield Food Access[67]



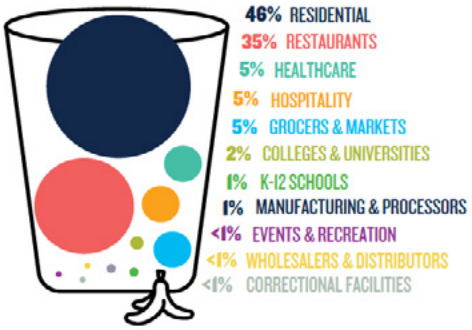
Food Waste

Roughly 9% of Southfield residents are food insecure, equaling $4.4 million in unmet meals.[6] However, the city also creates 15,000 tons of food waste, equaling 30 million pounds, annually.[69]

Southfield schools, in particular, account for only 1% of the food waste created throughout the city.[69] However, this 1% accounts for roughly 330,000 pounds and $38,000 in wasted food from schools alone.[69] Furthermore, this 1% accounts for 44,000 unmet meals for Southfield children.[69] Southfield schools experience significant challenges addressing food insecurity among their students due to the volume of food discarded each year.

Figure 10

Southfield Food Waste Distribution



Food Service for Southfield Public Schools prepares food at Southfield High School for the Arts and Technology (A&T) for seven of the district's 12 schools, while the remaining five prepare food for each meal onsite. It is currently unclear whether all 12 schools have the capacity and resources necessary to store prepared foods onsite if and when there is food leftover after each meal. Without proper resources to store surplus food safely, schools would be required to either transport it back to Southfield A&T to be packaged and stored or throw it away.

Healthy Living

Insufficient access to nutrient-dense food significantly also increases the risk of developing non-communicable diseases, such as diabetes, obesity, or cardiovascular disorders.[18–20] Consequently, 12% of Southfield residents have diabetes, nearly 38% are obese, and nearly 290 people out of 100,000 pass away from cardiovascular disease each year due to insufficient access to healthy food.[72]

Requirements

Southfield requires a comprehensive strategy for eliminating food waste in schools and diverting surplus food to children experiencing food insecurity. By eliminating food waste in its schools, the city can not only achieve the goals outlined in the Sustainable Southfield Masterplan, but it can also help Make Food Not Waste and the state reach its communal goal of cutting food waste in half and helping alleviate childhood food insecurity throughout the city. Therefore, this development plan serves as a comprehensive blueprint for how Make Food Not Waste can work with Southfield Public Schools and the city of Southfield to eliminate food waste in schools and alleviate childhood food insecurity.

CHAPTER 5: THEORY OF CHANGE

5. THEORY OF CHANGE

ToC Narrative

The Theory of Change (ToC) diagram shown in **Figure 11** illustrates how implementing a composting program in Michigan schools and integrating food waste, conservation, and recovery education into the K-12 curriculum can positively impact Make Food Not Waste's efforts to divert food from landfills to feed the community and fight climate change while ensuring all children enrolled in K-12 schools receive healthy, nutritious meals that they enjoy.

The diagram depicts how rescuing food from ending up in lunchroom trash bins allows schools to rescue edible, uncompromised food from the trash and redirect it to feed food-insecure residents and compost any food remaining. This process not only allows schools to reduce food waste but also presents a critical opportunity to alleviate food insecurity while simultaneously fighting climate change.

The ToC diagram in **Figure 11** describes activities that fulfill the following seven initiatives:

1. Secure Student Commitment
2. Collect Baseline Data
3. Eliminate Food Waste
4. Change Lunchroom Policies
5. Recover and Redistribute Food
6. Implement Food & Climate Education into the K-12 Curriculum
7. Implement Easy Wins

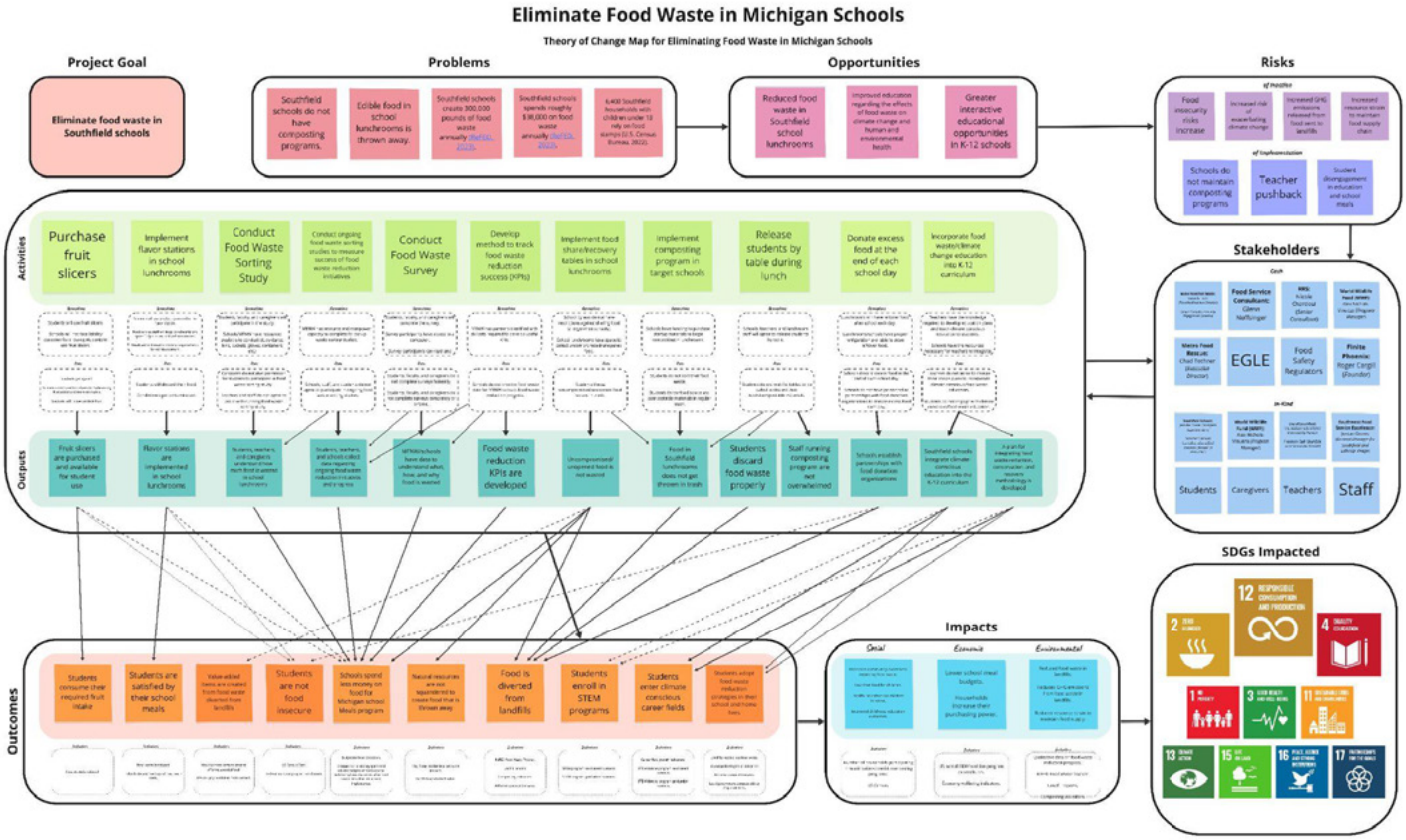
Theory of Change Statement

IF schools integrate food waste reduction, conservation strategies, and climate education into the Pre-K-12 curriculum and facilitate experiential learning through activities like food waste audits and comprehensive composting and recycling programs, **THEN** they will create a tactical blueprint for eliminating food waste that can be replicated in other schools and districts **BECAUSE** establishing a successful pilot program demonstrates the economic, environmental, and social benefits of reducing food waste and enhancing food security, while allowing students to see the direct consequences of their actions and inspire them to advocate for and adopt sustainable food practices.

Theory of Change Diagram

Figure 11

Theory of Change Diagram for Eliminating Food Waste in Michigan Schools[73]



Outputs

The outputs depicted in the Theory of Change Map represent the immediate results from implementing the recommended initiatives outlined in this development plan.

i. Fruit slicers are purchased and available for student use.
ii. Flavor stations are implemented in school lunchrooms.
iii. Students, teachers, and caregivers understand how much food is wasted in school lunchrooms.
iv. Students, teachers, and schools collect data regarding ongoing food waste reduction initiatives and progress.
v. Make Food Not Waste and schools have data to understand what, how much, and why food is wasted in schools.
vi. Food waste reduction Key Performance Indicators (KPIs) are developed.
vii. Surplus food is not wasted.
viii. Food in lunchrooms is not discarded in trash bins.
ix. Students discard food into proper waste streams.
x. Staff running the composting program are not overwhelmed.
xi. Schools have established partnerships with food rescue organizations.
xii. Schools integrate climate-conscious education into the K-12 curriculum.
xiii. A plan for integrating food waste reduction, conservation, and recovery methodology is developed.

Outcomes

The outcomes depicted in the Theory of Change Map are the anticipated results of implementing the recommended initiatives outlined in this development plan.

Short-Term Outcomes

xiv. Students consume their required fruit intake.
xv. Students are satisfied with their school meals.
xvi. Food is diverted from landfills

Medium-Term Outcomes

i. Value-added items are created from food waste diverted from landfills.
ii. Schools spend less money on food as part of the Michigan School Meals Program.
iii. Students adopt food waste reduction strategies in their daily lives.

Long-Term Outcomes

i. Students enroll in STEM programs.
ii. Students enter climate-conscious career fields.

Impacts

The impacts depicted in the Theory of Change Map represent the anticipated long-term results from implementing the recommended initiatives outlined in this development plan.

Economic

i. Lower school meal budgets
ii. Increased household purchasing power

Environmental

i. Reduced food waste in landfills
ii. Reduced GHG emissions from food waste
iii. Reduced resource strain to maintain food supply

Social

i. Increased community awareness regarding food waste
ii. Healthier food for children
iii. Improved health indicators for children
iv. Improved childhood academic performance

CHAPTER 6: STAKEHOLDERS & PARTNERSHIPS

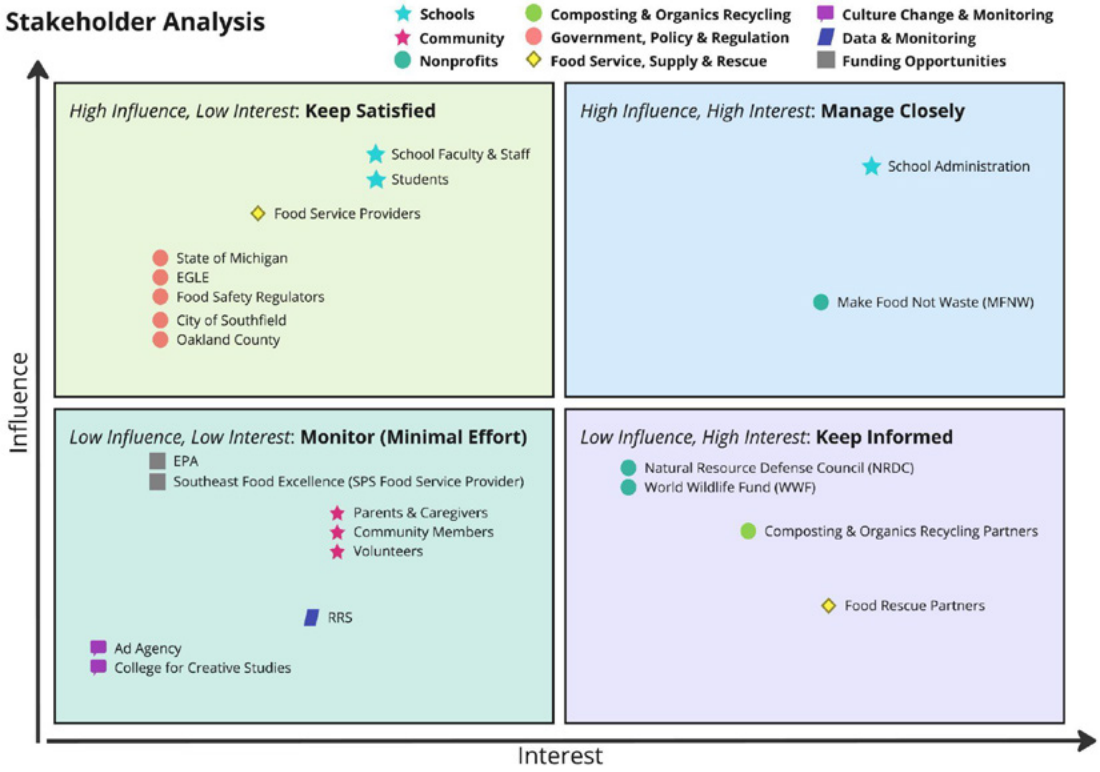
6. STAKEHOLDERS & PARTNERSHIPS

There are several key stakeholder groups that will be impacted and/or involved in the implementation of this development plan. Stakeholders are broken into nine (9) groups: Schools, Food Service, Supply & Rescue, Composting & Organics Recycling, Government, Policy & Regulation, Community, Nonprofits, Culture Change & Messaging, Data & Monitoring, and Funding Opportunities.

Figure 12 provides a comparative analysis of these stakeholder groups impacted and/or involved, directly or indirectly, in diverting food waste created by Michigan schools from landfills as part of The 2030 Project.

Figure 12

Stakeholder Matrix for Eliminating Food Waste in Michigan Schools



NONPROFITS

Make Food Not Waste

Make Food Not Waste is one of the most influential and interested stakeholders in the success of this project. Therefore, the nonprofit will be responsible for coordinating and overseeing the implementation of all recommendations and actions described in this development plan over the next six years.

I. Danielle Todd

Danielle is the founder and executive director of Make Food Not Waste. She is the sponsor of this project and will use this project to implement a food waste reduction program in all schools across 15 Southeast Michigan cities over the next six years, starting with Southfield.

Throughout the project, Danielle will be responsible for coordinating key stakeholders for the schools within each city, developing project deliverables, and working with each city to oversee the implementation of the recommendations and programs described in this development plan.

- **Stakeholder Type:** *Positive*

  If Danielle moves forward with implementing this development plan, she will help ensure that Make Food Not Waste meets its goal of cutting food waste in half by 2030.

II. Qing Tiffany

Qing is the community engagement director for Make Food Not Waste. Throughout the project, Qing will be responsible for helping coordinate connections between K-12 education and the colleges and universities in the area to ensure the initiatives implemented in K-12 institutions continue into higher education.

- **Stakeholder Type:** *Positive*

  If Qing uses the recommended initiatives provided in this development plan with the next two cities selected to adopt The 2030 Project's blueprint, she will be able to secure school support within these cities and help their K-12 schools reduce their food waste more effectively.

World Wildlife Fund

III. Alex Nichols-Vinueza

Alex is the program manager for food loss & waste at the World Wildlife Fund. He supports the project portfolio for the US Food Waste team, which includes projects related to agriculture, grocery retail, hospitality, and food service.[74] Alex is also responsible for the Food Waste Warrior program, which focuses on teaching students and teachers about food waste and sustainable food systems to help schools reduce food waste.[74]

Throughout the development of this plan, Alex will provide information on food waste reduction strategies in schools, existing information gaps, successful food waste reduction strategies, educational and enrichment opportunities to learn about food waste, preparation, conservation, storage, and reduction, and key considerations for successful food waste reduction strategy implementation in schools. His involvement in this project will ensure that known information gaps are not overlooked and key considerations are included in the development plan.

- **Stakeholder Type:** *Positive*

  If Alex uses the recommended initiatives outlined in this development plan, he can expand his food waste reduction efforts with schools by providing them with additional food waste reduction opportunities in addition to the best practices he currently works with schools to adopt.

SCHOOLS

Southeast Michigan schools are the targeted beneficiaries of this development plan and have the greatest influence over the success of this development plan and its implementation. Therefore, schools are the primary stakeholders of this development plan, as its outcomes will directly impact them. As part of The 2030 Project, Southfield schools, in particular, will have significant responsibility in the development of the food waste reduction program that will be implemented not only in Southfield as part of the pilot but will be used as the blueprint to replicate the program in 14 additional Southeast Michigan cities over the next six years.

Sustainable development projects are most successful when the targeted community is involved in their development, including identifying and implementing solutions unique to their community. Including the target community in the development process increases the likelihood that the target community will accept proposed solutions and actions and builds trust while providing the greatest opportunity that proposed solutions and actions will address all of the community's needs.

Therefore, Southfield schools will be a key stakeholder in developing a well-rounded food waste reduction program that eliminates food waste within each school and will also be critical for identifying opportunities to integrate climate-based education into the K-12 curriculum, including how food waste contributes to climate change.

Administration

IV. Superintendent and/or Deputy Superintendent

Each school district's superintendent and/or deputy superintendent will be critical for coordinating food waste reduction initiatives within each school in the district, connecting with school administrators and teachers, and providing information about any existing food waste reduction efforts the district has tried or plans to pursue.

- **Stakeholder Type:** *Positive*

  If the school Superintendent or their deputy supports the school food waste reduction initiative, they can help make the deployment of this development plan in schools as

comprehensive as possible while advocating for students and improving teacher morale to create a positive learning environment for all.

V. Director and/or Executive Director of Instruction

The director and/or executive director of instruction's involvement in this project will directly impact whether climate-based education, food conservation, and waste reduction education can be integrated into the K-12 curriculum. This role is critical for creating a circular education strategy far beyond the classroom. This role's involvement in the project will be necessary for designing and integrating lessons and experiential learning opportunities that help younger students pass their knowledge through each school they enter, helping to shift the culture of wasting food to a culture rooted in environmental stewardship and sustainability.

- **Stakeholder Type:** *Positive*

  If the Director of Instruction supports the school food waste reduction initiative, they can help develop age- and grade-appropriate curriculums that incorporate food & climate education, including designing experiential learning opportunities for students to not only learn hands-on, but also learn from each other. The Director of Instruction can also ensure that the curriculum meets the state educational requirements for each grade.

VI. Chief Financial and/or Operations Officer

The Chief Financial and/or Operations Officer for each school district will be responsible for connecting the district's food service provider with the project team and coordinating internal stakeholders within each school. This role will also be necessary for determining whether schools have Excess Fund Balances (EFB) that can be allocated to purchase materials and equipment to establish a comprehensive composting and recycling program in schools.

- **Stakeholder Type:** *Negative*

  If they are unable or unwilling to connect Make Food Not Waste's project manager with the district's food service provider or be transparent about available funds, the project manager will be unsuccessful in collaborating with each school collectively to develop a comprehensive food waste diversion process that seamlessly integrates into each school.

Food Service

VII. Food Service General Manager and/or Assistant Manager

Each district's food service general manager and/or assistant manager will be critical for integrating food waste reduction strategies and educational opportunities into Southfield school lunchrooms. This role is responsible for developing meal plans, ordering, preparing, and storing food for all schools within the district while also responsible for ensuring meals are high quality, nutritionally dense, and comply with meal reimbursement policies for the federal and Michigan school meal programs. This role is also responsible for tracking meal quantities, production volumes, and serving volumes, making this role critical for determining how the project can utilize existing data to establish accurate baselines.

- **Stakeholder Type:** *Positive*

If food service General and Assistant Managers support the school food waste elimination initiative, they can reduce food costs, better plan for meal requirements, and only order food items that students will consume, ensuring that food ordered becomes food eaten.

Schools

VIII. Teachers

Teachers will be key stakeholders in this project, as their participation will be critical for identifying and implementing the most feasible and effective solutions to integrate climate-based education, food conservation, and waste reduction strategies into the K-12 curriculum. Any proposed strategies must respect teachers' existing workload, ensuring that these new elements blend seamlessly into the curriculum without imposing additional responsibilities or burdens on them. Therefore, involving teachers in developing this plan is beneficial and essential, as their insights and practical experiences in and out of the classroom will ensure that their needs as educators are met while providing world-class, climate-conscious education to their students.

- **Stakeholder Type:** *Positive & Negative*

  If teachers embrace climate-based education and food waste reduction strategies, they can use the lunchroom as a classroom to inspire their students to eliminate food waste while teaching them how their actions contribute to climate change and aid global efforts to achieve the 17 Sustainable Development Goals. Therefore, their efforts will position them as change agents, which is instrumental in cultivating future generations of environmentally conscious and responsible citizens. However, if the proposed strategies burden teachers with additional responsibilities, they will likely push back against the program, preventing them from encouraging their students to become food waste warriors and agents of change to prevent climate change.

IX. Lunchroom Staff

Lunchroom staff will be key stakeholders in ensuring students and staff separate their plate waste correctly.

- **Stakeholder Type:** *Positive & Negative*

  If they are unable or unwilling to enforce the composting and recycling program rules consistently, schools will be unable to successfully divert food waste from landfills or reduce food insecurity among the student body. However, if lunchroom staff fully support the food waste diversion program, they will help mitigate unnecessary contamination within each waste stream, ensuring it is successfully diverted from landfills.

X. Custodial Staff

Custodial staff will be key stakeholders in determining how discarded items are handled by the school and responsible for helping Make Food Not Waste collect baseline data on how many bags of trash are thrown away each day and week.

- **Stakeholder Type:** *Positive*

  If they embrace the composting and recycling program, custodial staff will have fewer trash bags to replace and fewer trash bags to take to the dumpster each day. By reducing the

number of trash bags discarded every day, custodial staff will reduce their likelihood of ergonomic injuries, including binding, reaching, and pulling.[75–77]

FOOD SERVICE, SUPPLY & RESCUE

Food Service Contractors

Southeast Food Excellence (SFE) is the food service provider for Southfield Public Schools. SFE will be a key external stakeholder for the project. The company supports sustainability efforts by utilizing local vendors to reduce the food supply chain's carbon footprint, sponsoring K-12 gardening clubs and associated programs, onsite composting programs, and providing interactive educational opportunities for students, parents, and administrators to learn about cooking, nutrition, and culinary arts opportunities. Therefore, SFE's involvement in this project will be critical for implementing onsite composting programs in Southfield schools and developing associated educational opportunities that can be integrated into the K-12 curriculum to reinforce the importance of healthy food choices and food waste reduction to promote sustainability.

- **Stakeholder Type:** *Positive*

  If food service contractors support the school food waste elimination initiative, food costs will be reduced, and staff can better plan for meal requirements and only order food items that students will consume, ensuring that the food ordered becomes food eaten.

Food Rescue Partners

Food rescue partners will be critical for developing a strategy for diverting excess food from school lunchrooms to community members who are food insecure.

- **Stakeholder Type:** *Positive*

  If food rescue partners participate in the school food waste elimination initiative, they can help reduce food waste by redistributing surplus food throughout the community.

Make Food Not Waste's existing food rescue partners include:

i. Forgotten Harvest: rescues and redistributes surplus food to local charities throughout Metro Detroit to provide food insecure families with free, fresh, and nutritious food.[78]
ii. Metro Food Rescue: rescues surplus food that would otherwise be thrown away and delivers it to distribution sites around Metro Detroit.[79]
iii. One More Meal: works with high schools to package and redistribute surplus food to students and families at day's end.[80]

GOVERNMENT, POLICY & REGULATION

City Sustainability Planner

The city sustainability planner will be responsible for initiating contact and scheduling initial meet-and-greets with Southfield school representatives. This role will also be critical in coordinating efforts between K-12 institutions and other sectors to create circular economies.

- **Stakeholder Type:** *Positive*

  If the city sustainability planner supports the implementation of this development plan, it can help the city meet its sustainability goals.

Food Safety Regulators

Food safety regulators are critical stakeholders, as they will be responsible for confirming whether each school's share tables and food donations comply with food safety standards. They will also be responsible for establishing which food items—and under what conditions—can be shared and donated directly to students within each school and to food rescue organizations.

- **Stakeholder Type:** *Positive & Negative*

  If food safety regulators authorize schools to perform direct redistribution of food to students, they can support food waste elimination by ensuring students can receive direct access to food. They can also help reduce GHG emissions by authorizing direct redistribution of surplus food without additional transportation, storage, or refrigeration requirements. However, if food safety regulators do not authorize schools to perform direct redistribution of food to students, schools will continue to produce food waste, and students will continue to experience food insecurity.

Michigan Department of Education

The Michigan Department of Education (MDE) is a critical stakeholder, as it is responsible for setting standards and requirements for the Michigan School Meals program, determining whether schools adhere to the requirements established in each national child nutrition program, and determining reimbursement eligibility for all meals through the Michigan School Meals Program. MDE will be invaluable for clarifying schools' existing confusion and misunderstandings regarding meal reimbursement eligibility and how to implement Offer Versus Serve (OVS) for all meals served in K-12 institutions.

- **Stakeholder Type:** *Positive*

  If MDE supports the school food waste elimination initiative, they can ensure that school curriculums not only incorporate food and climate education into the K-12 curriculum and align with the MI Healthy Climate Plan's educational goals, but they can help design lessons and experiential learning opportunities that engage students while ensuring each lesson complies with each grade's educational attainment requirements.

CHAPTER 7: OPPORTUNITIES & RISKS

7. OPPORTUNITIES & RISKS

OPPORTUNITIES

Successful implementation of the recommended initiatives outlined in this development plan presents several opportunities to improve human and environmental health throughout Michigan.

Economic Savings

By eliminating food waste in Southfield schools, the city has the potential to recover $38,000 by adopting responsible food production and consumption strategies and implementing initiatives that follow the U.S. Environmental Protection Agency's (EPA) Food Waste Scale, including responsible food purchasing, donating and upcycling excess food, feeding animals, implementing composting programs, turning non-compostable products into biogases, and avoiding sending food to landfills and incinerators.[15,69]

Food Diverted from Landfills

By implementing comprehensive composting and recycling programs in Michigan schools, Make Food Not Waste has the potential to help Southfield schools recover roughly 330,000 pounds of food annually.[69] Furthermore, Make Food Not Waste can help the State of Michigan achieve its communal goal of cutting food waste in half by 2030 as part of The 2030 Project and the MI Healthy Climate Plan.[12]

Michigan School Meals Program Made Permanent

By conducting food waste audits and surveys to understand what, how, and why food is wasted and implementing comprehensive composting and recycling programs in Michigan schools, Make Food Not Waste can help safeguard the Michigan School Meals Program by ensuring the $160 million in taxes collected to fund the program are not thrown away in the form of uneaten food.[13]

Furthermore, the data collected as part of these food waste audits and surveys will be critical for measuring the program's success, determining the amount of waste created by the program, and estimating its annual cost for future budgets. Therefore, the successful implementation of this development plan will provide the necessary data to support making the Michigan School Meals Program permanent for all public schools.

Improved Climate-Based K-12 Education

By integrating food and climate education into the K-12 curriculum, Make Food Not Waste can help the State of Michigan achieve its goal of implementing climate-conscious education into the K-12 public school curriculum statewide.[81]

Reduced Greenhouse Gas (GHG) Emissions

By diverting food discarded in schools from landfills, Make Food Not Waste can help the State of Michigan achieve its goal of reducing Greenhouse Gas (GHG) emissions by 52% by 2030 and reaching 100% carbon neutrality by 2050.[81] Food waste accounts for nearly 8% of GHG emissions in the city of Southfield.[69] Therefore, successfully implementing a food recovery and redistribution process in Michigan schools will not only help mitigate one of the worst contributors to climate change, but this process will also help protect and improve the health of Michigan residents while protecting the state's natural resources.[81]

RISKS

Failure to implement the recommended initiatives outlined in this development plan presents several high-level risks to the health and well-being of Michigan residents and its environment. The full risk matrix can be found in Appendix G. Individual risks and mitigation strategies associated with each recommendation are further explored in Chapter 8.

Logistics Risks

Schools may not be able to secure partnerships with food rescue organizations that ensure consistent food drop-offs by school representatives or pickups by food rescue organizations. Without a logistics plan in place for who will be responsible for transporting excess food for community distribution, edible food will continue to go to waste through spoilage and end up in landfills.

Financial Risks

Financial risks associated with food waste in schools are significant. These risks include:

- Higher trash pickup costs due to food waste weight and the volume of trash thrown away each day/week.
- Funding provided by the federal school meals and Michigan School Meals programs is thrown away and cannot be used to feed food-insecure students and community members.
- The Michigan School Meals Program could lose funding when legislation advances in 2024 to make the program if program data indicates significant financial losses due to excess food waste.

Communication Risks

Make Food Not Waste may experience difficulty identifying and connecting with key school representatives necessary for successfully implementing the recommendations outlined in this development plan.

Environmental Risks

Environmental risks associated with food waste include increased Greenhouse Gas (GHG) emissions from food sent to landfills and irresponsible usage of natural resources—like water—to grow food that will be discarded, leading to biodiversity loss and desertification.[31–35] Food waste also contributes to 20% of the methane gas emissions in the United States, while accounting for 63% of the solid waste in landfills through food packaging.[32,36] Lastly, modern agricultural practices—such as monocropping and the use of synthetic fertilizers—deplete the soil of micronutrients, turning fertile soil into barren dirt, which threatens food production capabilities.[37]

Health Risks

Health risks associated with food waste include greater rates of respiratory illness in communities residing in close proximity to landfills, including asthma and COPD.[18–21] Food recovery and redistribution also has the potential to cause food-borne illnesses if food is spoiled or expired, or if surplus food is not properly stored during recovery and redistribution.

CHAPTER 8: RECOMMENDED INITIATIVES

8. RECOMMENDED INITIATIVES

This section includes detailed recommendations and deliverables to achieve the project's three objectives. This blueprint will allow Make Food Not Waste to implement these strategies in Southfield, followed by 14 additional Southeast Michigan cities. These strategies can also be adopted statewide, regionally, and nationally, with additional organizational and governmental support for food waste reduction efforts.

For these strategies to be successful, stakeholder engagement within each school, district, and local government will be necessary to secure support, participation, and resources for each activity.

The recommendations are broken down into seven initiatives, which are provided in **Figure 13**. Refer to **Chapter 12**, **Figure 21** for a complete timeline of each initiative's actions.

Figure 13

Project Initiatives for Implementation

School food waste elimination efforts should begin with Initiatives 1-2, ensuring commitment and support from school administrators and to capture baseline data to measure food waste reduction efforts over time. Once complete, each school can begin implementing Initiatives 3-7.

Initiatives 3-7 can be implemented independently or in parallel. However, it is recommended to begin with Initiative 3 to ensure each school has an established detection and diversion method to manage food waste and divert it from landfills while they tackle the challenges of implementing effective long-term food waste prevention methods.

While the importance of adopting comprehensive food waste prevention methods cannot be understated, these methods often require significant behavioral modification to effectively reduce food waste long-term. For example, only about 2-10% of the 108 billion pounds of surplus food available in

the US is donated.[1–3] Although anyone—including individuals and schools—can donate food, most donations are made by farmers, food manufacturers, distributors, or retailers, indicating significant knowledge gaps and barriers preventing schools from reducing food waste by donating their surplus food to their students or community.[15] Therefore, robust detection and diversion methods are critical and must be adopted to ensure schools can work through the challenges of implementing effective food waste elimination strategies while simultaneously keeping food out of landfills.

This approach not only aligns with the EPA Food Waste Scale's emphasis on recovery options when prevention is not yet feasible, but also creates a solid foundation for an adaptable and comprehensive food waste elimination program that supports the gradual integration of food waste prevention methods.[15] As each school works through the challenges of instilling lasting behavioral changes and refining their food waste reduction practices—processes that take considerable time to adopt and often encounter various challenges and setbacks—a robust composting and recycling program in each school will help Michigan to achieve its goal of eliminating one billion pounds of food waste from its landfills by diverting it to create compost instead of methane.[15]

Easy Wins can be implemented at any time during the implementation of the development plan.

NOTE:
Implementation of Initiatives 3-7 should begin at the start of a new academic year not only to establish rules and expectations but also to provide structure, order, and consistency throughout the school year.[82,83] However, if the timing does not align with the implementation of Initiatives 3-7 at the start of a new academic year, implementation should begin at the start of the spring semester.

INITIATIVE 1 — SCHOOL COMMITMENT

INITIATIVE 1 — SCHOOL COMMITMENT

The first initiative of this development plan requires establishing a relationship with each school to secure their commitment to eliminate food waste. This initiative will involve reaching out to each school and district, meeting with school leadership to explain the project's objectives, establishing a relationship with school representatives, appointing environmental champions for each school, and appointing an environmental lead for the district.

Initiative 1.1
Appoint a School Lead (Schools Coordinator)

This individual will represent Make Food Not Waste throughout the implementation of this development plan within each school. This individual will be responsible for:

i. identifying and engaging with representatives from each school,
ii. bridging communication between schools, city officials, and identified stakeholders, and
iii. developing a communication plan to engage stakeholders throughout each project initiative.

1.a. Create a citywide school contact matrix.

Once appointed, this individual will be responsible for creating a citywide school contact matrix that will serve as a comprehensive list of school-associated contacts for each school and the district. This matrix should include a minimum of the following information for each school:

i. School Name
ii. Grades (i.e., K-5, K-8, 9-12)
iii. Building Type (i.e., STEAM School, Administrative Office)
iv. Public or Private
v. Address
vi. Clubs and Organizations
vii. District Name
viii. Contact Names
ix. Contact Roles/Titles
x. Contact Information

Refer to Appendix A for a school contact matrix template.

1.a.1. Identify key stakeholders.

This individual should define the roles and responsibilities of each stakeholder, including the extent of their involvement in the implementation activities for each initiative. Several required stakeholders include:

i. Chief Financial and Operations Officer
ii. Principals of each school
iii. Food service
iv. Custodial/facilities staff
v. School administrators
vi. Students
vii. Parents
viii. Director of Instruction

This individual should decide whether a separate contact list containing only active stakeholder contact information would be beneficial. If the citywide contact matrix will be used for active stakeholders, a column should be added to note which contacts are actively involved in the project. If a separate contact list for active stakeholders is preferred, the contact matrix template available in Appendix A can be used.

1.b. Create a communication plan.

This individual should collaborate with the Work Department to create a communication plan for how to engage with project stakeholders throughout the implementation of the development plan in each school.

This plan should include recommended stakeholder engagement strategies, including all necessary meetings and workshops, to secure a commitment from schools, students, and community members. This plan should also align with the target school's academic calendar year to ensure the following:

i. Administration, faculty, staff, and students are available to organize, support, and conduct the recommended initiatives outlined in Initiative 2,

ii. Data collection during Initiative 2 can be completed during the academic year before implementing Initiatives 3-7, and

iii. Initiatives 3-7 can ideally be implemented at the start of the new school year (or following winter break, at the start of the semester).

Initiative 1.2
Secure Administration and Staff Support

2.a. Attend a school staff meeting to discuss the initiative.

Attending a staff meeting allows the School Lead to address the school's faculty and staff at once to explain the project, share ideas, identify champions, and begin developing project teams for each project initiative.

Initiative 1.3
Appoint a Sustainability Director for the District

This individual will be the main point of contact for the school district's sustainability efforts. This individual will be responsible for the following:

i. overseeing the planning and implementation of all district-wide sustainability initiatives and progress made at each school,

ii. working directly with each school's Sustainability Coordinator within their district to develop appropriate implementation strategies for each school, and

iii. ensuring strategies implemented at each school are consistent to ensure programs can be maintained seamlessly as new students matriculate in each year, and

iv. facilitating collaboration between schools, local communities, and external organizations to promote and integrate sustainable practices into the educational framework and improve the district's environmental impact.

Initiative 1.4

Identify a Project Team for Each School

4.a. Appoint a Sustainability Coordinator.

This individual will be the primary contact and lead sustainability efforts within their school. They will be responsible for the following:

i. overseeing and facilitating the food waste diversion program planning and implementation to monitor and promote its benefits and ensure the program is developed effectively, and

ii. championing sustainable practices within the school and helping to integrate them into the K-12 curriculum.

NOTE:
It is important to note that this individual is not solely responsible for carrying out every action outlined in this development plan but should serve as the main point of contact and coordinator in charge of arranging for each action step to be completed.

Suggested Representatives:

i. School administration
ii. School staff member (custodial/facilities, librarian)
iii. School teacher
iv. Active PTA member
v. Student
   - It is important to note that a student should only be appointed to this position if another school leader cannot commit to the role. In this case, the Sustainability Director for the district would need to take additional precautions to ensure the role does not interfere with the student's academic work.

4.b. Elect a Student Environmental Lead.

This individual will be the student ambassador for all sustainability initiatives and lead all student-led environmental projects happening within their school. This individual will also be the liaison between the student body, school administration, and external stakeholders to ensure a comprehensive and sustainable approach is adopted to implement this development plan and any future initiatives. ***This role will require close collaboration with the school's Sustainability Coordinator and the district's Sustainability Director to integrate this plans recommended initiatives into the school's broader goals.***

While this individual will champion and lead these initiatives as the student ambassador, it is important to understand that the Student Environmental Lead's involvement in these initiatives are supplementary to their academic commitments and must be balanced accordingly. ***Therefore, the selected individual will need to work with their Sustainability Coordinator and guidance counselor to determine what level of involvement is appropriate for this role***.

4.c. Form a Sustainability Council.

The Sustainability Council will serve as the planning committee for how best to implement the initiatives outlined in this development plan and the school's future sustainability initiatives. The council will be responsible for:

i. identifying and maintaining funding sources for implementing the recommended initiatives,
ii. maintaining adopted initiatives over time,
iii. planning future sustainability initiatives,
iv. measuring the progress of each initiative over time.

The responsibility of establishing a Sustainability Council will likely fall to the school's Sustainability Coordinator. However, forming a Sustainability Council as early in the implementation of this development plan as possible will distribute the project's workload across the entire council, mitigating the likelihood of any single member becoming overwhelmed and unable to fulfill their role as a council member in addition to their other obligations.

Suggested Representatives:

- School administration
- School staff member (custodial/facilities, librarian)
- School teacher
- Kitchen staff
- Lunch monitor
- Active PTA member
- Student/Student Council member

Council members should include members of the student body to ensure the following:

i. prevent potential conflict and pushback,
ii. build ownership through shared responsibility,
iii. build leadership and collaboration skills, and
iv. provide experiential learning opportunities.

Stakeholders

The key stakeholders for Initiative 1 include:

i. School administration
ii. Principals
iii. Teachers
iv. Students
v. Parents
vi. Food Service

Key Performance Indicators (KPI)

Short-Term:

- Identify key stakeholders, including a Program Manager, Sustainability Director, Sustainability Coordinator, and student representatives.

- Completion of a communication plan.
- Establishment of a Sustainability Council.

Medium-Term:

- Establishment of a recurring council meeting schedule.
- Establishment of a council charter.
- Completed list of council roles & responsibilities.

Long-Term:

- Meeting Minutes from council meetings.
- Elections for future council roles.
- Progress updates for school sustainability initiatives.
    - Newsletter
    - Email
    - Morning announcements

Summary of Actions

Table 2

Initiative 1 Summary of Actions

Task			Time to Complete		Costs	Party Responsible	Notes
			Days	Months			
1. SCHOOL COMMITMENT			306	11	$0	School Lead	
1.1.	**Appoint a School Lead**		32	1	$0	School Lead	
	1.a.	Create A Citywide School Contact Matrix	22	1	$0	School Lead	
		1.A.1. Identify Key Stakeholders	239	8	$0	School Lead	
	1.b.	Create Communication Plan	195	7	$0	School Lead	
1.2.	**Secure Administration And Staff Support**		215	8	$0	School Lead	
	2.a.	Schedule And Attend School Staff Meeting To Discuss Initiative With Each School	230	8	$0	School Lead	
	2.b.	Meet With Food Service Provider To Discuss Food Waste Elimination And Cost Saving Opportunities	31	1	$0	School Lead	
1.3.	**Appoint A Sustainability Director For The District**		155	6	$0	School Lead, District Administrators	
1.4.	**Identify A Project Team For Each School**		81	3	$0	School Lead, School Principal	
	4.a.	Appoint A Sustainability Coordinator For Each School	171	6	$0	School Lead, School Principal	
	4.b.	Elect A Student Environmental Lead	31	1	$0	School Lead, Sustainability Coordinator	
	4.c.	Form A Sustainability Council	153	6	$0	School Lead, Sustainability Coordinator	

Risks & Mitigations

Table 3

Initiative 1 Risk Matrix

Title	Description	Mitigation(s)
Resource limitations	Limited resources (financial, human, time, etc.) prevents the PM from securing support from schools.	Raise awareness for MFNW's mission and goal, post volunteer and job opportunities to job boards, and share help needed to post on LinkedIn.
No administration support	Administrators do not support the project.	Attend school board meetings. Provide savings estimates if food waste is eliminated by the schools within each district. Meet with county officials to secure support for the project.
Limited staff participation	Staff resist project due to concerns over perceived workload.	Provide staff with potential resource savings by implementing the project. - Less trash (lower weight, less bags), less meal preparation
Limited student participation	Students resist the project due to not understanding how it relates to them and their futures.	Organize and hold a trash reduction competition. - Sports teams, clubs, etc. manage lunchroom waste sorting. - Team with the least amount of compostable/recyclable material in the trash at the end of the semester wins a prize (i.e., pizza party, early school release). Utilize lesson plans to teach students about food waste and climate change (*Initiative 6*).
Lack of coordination	Project manager faces challenges coordinating initiatives across multiple schools and departments.	Clearly define the PM's responsibilities and authority.
Stakeholder resistance	School staff and students do not support the project.	Involve stakeholders early in the project to answer questions and secure buy-in.
Ineffective communication	Communication plan does not meet MFNW or school expectations, nor align with the project timelines.	Tailor communication plan to each audience (staff, students, parents).
Stakeholder engagement	Difficulty engaging stakeholders throughout project.	Establish a clear plan for how PM will engage with stakeholders throughout the project.
Ineffective operations	Sustainability council unable to effectively implement project due to poor organization or lack of clear goals.	Define sustainability council's structure, objectives, and methods of operation. - Charter, role elections, role expectations, meeting schedule
Limited representation	Selected participants do not attend meetings nor have sufficient representation for ongoing initiatives.	Ensure sustainability council includes members from different school positions and grades to ensure comprehensive representation throughout each school.

INITIATIVE 2 — DATA COLLECTION

INITIATIVE 2 — DATA COLLECTION

The second initiative of this development plan requires collecting data from each school to establish a baseline for how much food is wasted, understand food quality, and evaluate what resources are available in each school's lunchroom and kitchen. The data collected then will be used to estimate cost savings, identify areas of opportunity to improve food quality and consumption, and determine what resources will be needed to eliminate food waste from each school's lunchroom and kitchen.

Initiative 2.1
Perform Resource Assessments & Meal Observations

Conducting a food service resource assessment for each school and performing meal observations are critical for developing effective food waste reduction strategies. These assessments will:

i. provide a comprehensive understanding of each school's existing resources—from appliances and equipment to utensils and consumables—which is instrumental for identifying areas of inefficiency and potential improvement in their existing waste reduction efforts,

ii. enable each school to optimize their food waste reduction strategies to work effectively within their kitchen, lunchroom, and classroom's existing capabilities while providing schools with future investment opportunities to further support their long-term sustainability efforts,

iii. identify opportunities to implement food waste prevention and diversion strategies within their existing systems.

Therefore, such an assessment is necessary to ensure that any proposed food waste reduction strategies are feasible and aligned with each school's existing operational capacity.

Refer to Appendix B for a food service resource checklist.

Initiative 2.2
Conduct A Food Waste Audit

Conducting a food waste audit in each school serves two primary purposes:

1. The audit allows each school to establish a baseline for the volume and nature of wasted food. Establishing this baseline is critical for schools to effectively measure the success of each food waste reduction initiative over time and help schools determine which composting method will be most applicable to accommodate their volume of food waste.
    a. Although collecting data from each school is ideal to establish accurate baselines, auditing a sample of schools with the same food service provider would likely be sufficient to understand what universal opportunities exist for reducing food waste in all schools within the district. However, audits should occur at schools of varying grade levels to ensure a clear understanding of how food consumption and disposal habits differ between elementary, middle, and high schools.
2. The audit provides students and staff with a hands-on and visual understanding of how their daily food consumption and disposal habits impact their environment. By conducting a food waste audit, schools can inspire future generations to become environmental stewards, extending its impact beyond the classroom. Refer to **Figure 14** for waste sorting examples.

Refer to Appendix B for existing food waste audit resources and guides.

Figure 14

School Food Waste Audit[84]

Recommended Steps Ahead of the Audit

1. Reach out to each school's Sustainability Coordinator and Sustainability Council to organize and conduct a food waste audit.
2. Conduct a training session with the audit volunteers (students, staff, parents, etc.) on conducting a food waste audit.
3. On the day of the audit, remove all trash bins that will not be used during the audit from the lunchroom.

Items Needed:

- Tables
- Large trash cans
- 5-gallon buckets
- Trash bags
- Scales (i.e., luggage, bathroom, or package)
- Signs
- Clipboards
- Writing utensils (i.e., markers, pens, pencils)
- Weight log sheet
- Interview sheets
- Gloves
- Food labels or photos for buckets
- Tape
- Cleaning suppliers
- Tarp

For every 100 students served in the lunchroom, it is recommended that the project team responsible for organizing and conducting the food waste audit consists of a minimum of the following:

- 1 - Facilitator (School Lead or individual trained to conduct food waste audits)
- 1 - School Administrator
- 2 - Teachers
- 1 - Nutrition or Food Service Representative
- 4 - Students

It is also recommended that there be a separate audit station for each grade to ensure that plate waste can be audited in a timely manner and identify differences between each grade's food waste practices to determine whether age impacts the volume and type of food wasted. Collecting audit data by grade level provides an opportunity for food service providers to make adjustments to their food orders to provide options that appeal to a majority of students across all grades, and adjust food offerings to accommodate grade preferences, when available.

Each station should consist of two (2) tables to conduct the following:

- The first table will be used for students to drop off their trays, where food will be separated into each bucket to be weighed and recorded.
    - Trays should be counted and recorded after each lunch period.
- The second table will be used to interview students regarding why they did not finish their food.

Potential Partnerships

a. Michigan State University Extension (MSUE)

Michigan State University Extension (MSUE) has expressed interest in supporting SPS to conduct food waste audits as part of their ongoing Policy, Systems, and Environmental Change (PSE) work to improve community health and well-being by improving access and practicality of making healthy choices.[85–87]

Therefore, it is recommended that the School Lead work with MSUE, the Sustainability Direcotr, and the Sustainability Coordinator for each school to schedule and plan food waste audits at each school.

Initiative 2.3
Conduct A Food Survey

A food survey is essential for gathering critical data regarding the types, quantities, and reasons for food waste in each school. This survey will also allow students and staff to provide feedback regarding their food preferences, consumption habits, and perceptions of food quality. It will also identify what culturally appropriate foods should be offered daily, allowing each school to pinpoint the key drivers of food waste. The survey results will help each school identify effective food waste reduction strategies and enable schools to make more sustainable, student-oriented decisions to improve meal satisfaction.

Refer to Appendix B for resources to conduct school food surveys.

Initiative 2.4
Host Meal Tastings

Meal tastings provide an opportunity for food service providers to test new recipes while providing students an opportunity to provide feedback on available food offerings.

Meal tastings can be implemented in several ways:

i. Tasting Days

a. Tasting days provide students with hands on opportunities to learn about their food, where it comes from, and how to prepare it. Not only do tasting days provide an

experiential learning opportunity, but they can provide direct feedback to food service staff.

ii.

Initiative 2.5

Compile A School Food Quality and Waste Report

Compiling a school food quality and waste report is critical for enhancing transparency and accountability in managing school food resources. This document will provide a detailed analysis of food quality and the extent of waste generated in schools, prompting schools to develop and implement targeted action plans with specific deliverables to improve food quality while simultaneously reducing food waste. Therefore, this report will increase transparency and reinforce each school's commitment to creating future generations of socially responsible citizens by building a culture rooted in environmental stewardship.

This initiative can be implemented in one of two ways:

1. Each school publishes a school food quality and waste report, or
2. Each school district publishes a school food quality and waste report that shows each school's progress and provides status indicators for the district's overall progress.

The School Lead, food service provider, and each school's Sustainability Coordinator should work together to determine the most feasible strategy. However, it is essential to note that if the district chooses to pursue strategy two, each school will still be responsible for providing an update as part of the overall report, including a summary of their school's sustainability initiatives, status indicators, updates for ongoing initiatives, and planned future initiatives.

Stakeholders

The key stakeholders for Initiative 2 include:

i. School administration
ii. Principals
iii. Teachers
iv. Students
v. Parents
vi. Food Service
vii. Custodial & facilities staff
viii. World Wildlife Fund

Key Performance Indicators (KPI)

Short-Term:

- Number of volunteers signed up to participate in food waste audits.
- Initial food surveys and interviews to capture student and staff opinions and experiences regarding food quality and causes of food waste.

Medium-Term:

- Food survey response rates.

- Composting program bin audits over time to evaluate initiative adoption over time.

Long-Term:

- Volume of compost collected over time to identify process inefficiencies.
- Bags of trash thrown away over time to identify additional waste reduction opportunities.

Summary of Actions

Table 4

Initiative 2 Summary of Actions

Task			Time to Complete		Costs	Party Responsible	Notes
			Days	Weeks			
2. DATA COLLECTION			**302**	**43**	**$0**	**School Lead**	
2.1.	**Perform Resource Assessments & Meal Observations**		62	9	$0	School Lead	Can potentially be performed during meetings with school staff
	1.a.	Perform Resource Assessments	62	9	$0	School Lead	
	1.b.	Attend Meal Observations	60	8	$0	School Lead	
2.2.	**Conduct A Food Waste Audit**		92	13	$0	School Lead	
	2.a.	Coordinate a Volunteer Signup	31	4	$0	Principals or Sustainability Coordinators	
2.3.	**Conduct A Food Survey**		60	8	$0	School Lead	Can be conducted throughout the year
	3.a.	Perform Data Analysis to Evaluate Findings	31	4	$0	RRS, Project Partner, Food Service, or Sustainability Council	
2.4.	**Compile A School Food Quality and Waste Report**		74	10	$0	School Lead, Sustainability Council, Sustainability Director	

Risks & Mitigations

Table 5

Initiative 2 Risk Matrix

Title	Description	Mitigation(s)
Inaccurate or incomplete data	Poor record-keeping during assessments and audits.	Provide resources and training to staff and students involved in the assessments and audits to ensure comprehensive data collection. - Interview questions, waste tracking sheets, scales, etc.
Resistance to change	Students and staff are resistant to altering existing waste operations.	Engage all stakeholders throughout the process to understand concerns, answer questions, and gain support (refer to Initiative 1).
Resource limitations	Insufficient resources (financial, human, or physical) prevent completion of assessments and audits.	Utilize existing materials to conduct assessments and audits. Request volunteers to help organize and conduct assessments and audits. Apply for grants available through the World Wildlife Fund and SFE to conduct audits.
Non-compliance	Students and staff do not cooperate with the food waste audit requirements.	Involve students and staff in the food waste audit planning process to encourage support and buy-in (refer to Initiative 1 - Sustainability Council).
Data management	Insufficient resources to collect, store, and analyze data collected from the food waste audit.	Utilize efficient data collection tools and methods to manage and analyze food waste audit data effectively.
Low response rate	Students and staff do not complete the survey.	Make the survey engaging and easy to complete.
Biased responses	Responses do not accurately reflect the true preferences or habits of the survey participants.	Work with students and staff to develop a list of questions to ensure views of each party are reflected accurately. Make the survey anonymous to encourage participation and honesty.
Overwhelming information	Food waste report is too dense or technical for schools to understand or utilize.	Work with technical report writers and MFNW marketing experts to structure the report in an easy-to-understand report with key findings highlighted.
Lack of actionable insights	Food waste report does not translate findings into clear, actionable recommendations.	Utilize the key findings to provide clear, practical recommendations that facilitate action.

INITIATIVE 3 — FOOD WASTE DIVERSION

INITIATIVE 3 — FOOD WASTE DIVERSION

The third initiative of this development plan requires implementing a composting and recycling program in each school's lunchroom within the target city.

Initiative 3.1

Establish A School Composting And Recycling Program

Establishing a comprehensive composting and recycling program is critical to eliminating food waste in schools. Such a program prioritizes feeding students by ensuring excess food is managed responsibly through strategies including share tables and food donations rather than sending quality food to landfills. Establishing a composting and recycling program also encourages schools to use food waste as a learning opportunity to teach students about environmental stewardship; by composting on-site, students can see first-hand how uneaten food turns into a product that can nurture their environment rather than harm it. Therefore, this approach not only mitigates the negative impact of food waste but serves as a tool to educate students on the importance of resource conservation and responsible waste management. See Figure 15 for an example of a school composting and recycling program.

Figure 15

School Composting Program[88]

1.a. Get Quotes From Waste Hauling Companies For Compost And Recycling Pickup.

During contract negotiations with waste haulers, include clauses where schools will renegotiate cost each year for the first 2 years to ensure that as schools become more comfortable with each food waste reduction initiative and food waste decreases, the cost for the required number of bins can be adjusted accordingly. The School Lead will work with the Sustainability Coordinator to help streamline the contracting process help each school determine which composting and recycling process is best for them by working with their waste hauling partners to answer the questions listed below. This list is not an all-inclusive list of questions, and therefore, the School Lead and Sustainability Coordinator should put together a list of questions that should be discussed with waste haulers before making a decision on which process each school will opt for.

i. Do contracts pay by the bin or pound?

ii. Can the contract be designed to allow for schools to renegotiate at a greater frequency (i.e., every semester, each year, every two years, etc.) to account for potentially significant changes in composting volumes?

1.b. Determine The Best Composting Method For Each School To Use.

There are several large-capacity composting options for schools to select from based on size, capacity, space, time, and financial requirements. Schools should work with their current waste hauler and city, as well as with Make Food Not Waste and their composting and organic recycling partners, to determine which composting and recycling process would work best for each school.

The School Lead will need to work with each school to determine the most appropriate bin setup for their school.

A matrix of several composting system options has been provided in Appendix C.

1.c. Conduct Training On Proper Bin Usage.

To ensure each school separates their plate waste and trash correctly, students, faculty, and staff will need to be trained on proper bin usage. Therefore, the School Lead will need train multiple representatives from each school in a timely manner to ensure each representative to provide training to the wider school community, which can be accomplished several ways. Refer to Appendix C for additional resources.

Training Options:

i. Conduct district-wide workshop with Sustainability Coordinators, administrators, student leads, food service staff, and custodial staff to provide training on proper bin utilization.

ii. Request volunteers to lead the composting and recycling program and conduct a training workshop at each school.

iii. Provide in-classroom training demonstrations.

1.d. Implement compost bins in high-traffic areas of the kitchen.

Identify where each trash bin is located, whether school kitchens use food scrap buckets during their food preparation, and where they discard their food scraps after food preparation is completed. These should be the locations where larger compost bins should be located throughout the kitchen to ensure maximum utilization and decrease the number of trash bags school custodial staff must replace each day.

Recommendations for Bin Setup

- Post clear signage with examples of what each bin should be used for.
- Provide a surface for students to set down trays/plates (mitigate spillage).
- Remove trash bins not being used as part of the compost & recycling program from the lunchroom.
- Make the existing process as inconvenient as possible for students and staff to stick to.
    - Make the trash bin the smallest within the Composting bin system, with the smallest opening as possible. If traysand containers can fit, they will end up in the trash.
    - Keep openings to the compost and recycling bins as large as possible.
    - Clearly mark each bin with labels and colors to differentiate them.

- Implement separate collection bins for returnables and recyclables. Schools, if they have recycling, typically have collection bins in or near their lunchroom for returnables, but not recyclables. Therefore, recyclables—such as plastic clamshell containers and plastic condiment cups with lids— are not separated from trash.

- Place each bin on a separate scale to measure the weight of each waste stream for easy tracking. This also serves as a tool to provide students and staff with visible, tangible, real-time data regarding how much food is being wasted vs. how much is being diverted from landfills.

Considerations for Bin Setup

i. If partnerships can be established with local farms or animal sanctuaries, an additional bin should be added to separate out food that is safe for animal consumption.

ii. If schools struggle to get students to throw trash in bins, the school should consider implementing a mobil composting bin system (i.e., volunteers or employees can roll bins throughout the lunchroom to collect items in their respective bins).

Initiative 3.2

Create A Food Waste Reduction Competition

Establishing a food waste reduction competition for students to participate in provides an effective strategy for reducing food waste in schools. By promoting friendly competition among their peers, students are encouraged to take ownership and responsibility over something that every person globally needs and is impacted by. Competition can ignite students' enthusiasm and motivation to actively engage in food waste reduction efforts while transforming them into change agents in their schools and communities.

Stakeholders

The key stakeholders for Initiative 3 include:

i. School administration
ii. Principals
iii. Teachers
iv. Students
v. Parents
vi. Food Service
vii. Custodial & facilities staff
viii. World Wildlife Fund
ix. CO Sustainability
x. City of Southfield

Key Performance Indicators (KPI)

Short-Term:

- Number of compost and recycling programs established in school lunchrooms.

Medium-Term:

- Bags of trash thrown away each week.
- Volume of compost collected each week.

- Number of schools with trash reduction competitions established.

Long-Term:

- Number of students and teams participating in trash reduction competitions each year.
- Changes in school meal budget spending over time.
- Changes in volume of food waste sent to landfills over time.

Summary of Actions

Table 6

Initiative 3 Summary of Actions

Task			Time to Complete		Costs	Party Responsible	Notes
			Days	Months			
3. FOOD WASTE DIVERSION			316	45			
3.1.	**Establish A School Composting And Recycling Program**		61	9	TBD	Sustainability Director, Sustainability Coordinator, School Lead	
	1.a.	Get Quotes From Waste Hauling Companies For Compost And Recycling Pickup	31	4	$0	School Lead	
	1.b.	Determine The Best Composting Method For Each School To Use	31	4	$0	Sustainability Coordinator	
	1.c.	Conduct Training On Proper Bin Usage	31	4	$0	School Lead, Sustainability Coordinator, Sustainability Director	
3.2.	**Create A Food Waste Reduction Competition**		302	43	$100	School Lead, Sustainability Director, Sustainability Coordinator	

Risks & Mitigations

Table 7

Initiative 3 Risk Matrix

Title	Description	Mitigation(s)
Insufficient buy-in	Insufficient support/participation from students, staff, and/or parents for implementing and maintaining a school composting program.	Conduct workshops to educate the school community about the benefits of composting. Attend staff meetings to educate school officials about the benefits of composting. Present the project during morning announcements for each school.
Operational challenges	Insufficient capacity or resources to properly manage compost requirements, leading to odor, pests, or health hazards.	Work with composting experts to determine the best composting strategy for each school. - Have composting partners put together matrix of available composting systems and provide estimates for municipal composting.
Cost	Insufficient funding to implement and maintain a composting program.	Secure funding and/or grants to implement and maintain school composting programs. - Apply for grants through Southeast Food Excellence (SFE).
Non-compliance	Students and staff do not follow plate waste disposal requirements.	Make the existing waste disposal process as inconvenient as possible. - Make compost bin the largest and general trash the smallest bin in the system. - Remove excess trash bins from the lunchroom. Implement clear labeling for all bins within the composting program. Conduct educational campaigns to educate students and staff on proper disposal methods. Implement lunchroom walkthrough process, where lunch monitors/custodial staff/volunteers walk bins around lunchroom to collect plate waste to ensure it is disposed of properly.
Misuse	Students and staff use incorrect bins to dispose of plate waste.	Audit bins used for composting program to ensure compliance and adjust system accordingly.
Workload	Composting program creates additional work for custodial staff.	Conduct training sessions with custodial staff and provide necessary resources to manage the composting program effectively.
Ineffective incentives	Students not interested in participation incentives.	Offer incentives that students are interested in. - Pizza, coffee, early release from school
Short-term focus	Competition does not encourage long-term behavioral change.	Design the trash reduction competition to promote ongoing awareness and long-term integration into K-12 curriculum and daily habits.
Data integrity	Insufficient resources or capacity to ensure fair and accurate waste measurements from student teams.	Use clear, fair, and easy-to-understand metrics for administrators, teachers, and staff to measure waste reduction for each student team.

INITIATIVE 4 — LUNCHROOM POLICY CHANGES

INITIATIVE 4 — LUNCHROOM POLICY CHANGES

The fourth initiative of this development plan involves implementing lunchroom policy changes to minimize the creation of food waste in each school's lunchroom.

Initiatives 4.1-4.3 are best practices for reducing food waste in schools and are recommended by the United States Department of Agriculture (USDA) via all school nutrition programs and the Michigan School Meals Program. Initiative 4.4 is recommended based on school lunchroom observations that took place between January and Febraury 2024.

Refer to Initiative 6.1 for recommended actions to educate administrators and staff on proper implementation of the initiatives outlines in this section, and Appendix F for additional resources and training materials.

Initiative 4.1

Extend Mealtimes to a 25-minute Minimum Seating Time

Extending mealtimes is critical for reducing food waste while simultaneously promoting better nutritional outcomes for students. Allowing adequate time for mealtime ensures that students can eat mindfully and finish their meals, decreasing the volume of unfinished or untouched food being discarded, thereby minimizing food waste. Additionally, mealtimes are the only break students receive during the middle and high school days. Therefore, by extending mealtimes, students receive time to unwind and socialize while ensuring enough time to consume their high-fiber meals.

Research Findings:

- Shorter lunch times increase plate waste.[89–92]
- Students consume significantly lower volumes of milk, fruits, and vegetables when given less than 25 minutes to eat.[92–94]
- Shorter eating times leave children feeling hungry throughout the day.[92,94]
- Longer lunch periods promote better nutritional outcomes by providing students with enough time to consume larger volumes of fiber-rich foods.[95]

Initiative 4.2

Implement Share Tables in School Lunchrooms

Implementing share tables in school lunchrooms provides a practical and effective strategy to mitigate food waste while simultaneously addressing hunger. Allowing students to return unopened or uneaten food items to a designated area within the lunchroom makes them available to students who may be hungry during mealtimes. Share tables also provide opportunities for these items to be used during subsequent meals or as snacks during after-school programs. However, schools must enforce rigorous food safety standards when implementing and maintaining share tables to ensure that all items remain safe and uncompromised.

Refer to Appendix D for additional resources on Share Tables.

Figure 16

School Share Table

Consultant Observations:

- During school administration interviews, school principals raised concerns over food safety and what precautions should be taken when implementing share tables.[96]
- During a lunchroom observation at Oak Ridge Elementary School, a neighboring community school, faculty leaders shared that they previously had a share table, which was eliminated at the start of the Winter 2024 semester due to existing school bylaws preventing food sharing.[97]

Recommendations for Maintaining Food Safety Standards

- Utilize hot and cold storage to ensure items stay temperature controlled (i.e., hot food bag, fridge, buffet tray with ice, etc.).
- Post guidelines and visuals with examples of what can be returned to share tables.
- Conduct training and/or provide students with a flyer of what can be returned to share tables.
- Work with school administrators to update school bylaws to allow food sharing with requirements that ensure adherence to strict food safety laws and school-specific food requirements (i.e., allergen-free school, nut-free campus, etc.).

Initiative 4.3

Adopt Offer Versus Serve for Breakfast and Lunch in All Schools

Adopting Offer Versus Serve (OVS) for all K-12 meals and snacks can reduce food waste before food leaves the service line. Not only does OVS empower students by giving them autonomy to choose components of their meals, but this strategy better aligns meals with student preferences and appetites, thereby reducing the volume of food discarded. In school, choices are often limited. Therefore, OVS allows students to enhance their sense of independence and responsibility while encouraging them to choose healthy meal options.

Figure 17

Offer Versus Serve Example

Initiative 4.4

Release Students By Table at the End of Each Lunch Period

Releasing students by table in lunchrooms is a strategic approach to enhance the efficiency and effectiveness of lunchroom composting and recycling programs. This approach prevents an overwhelming number of students from attempting to sort their plate waste simultaneously, thereby allowing lunchroom staff and volunteers to manage the program effectively. By limiting the number of students trying to leave the lunchroom simultaneously, staff and volunteers stay calm, allowing them to more effectively guide students on sorting their plate waste properly, increasing the efficiency of the composting and recycling program. Therefore, this strategy enhances waste management effectiveness and instills in students a sense of order and responsibility while building a more sustainable and environmentally conscious culture.

Consultant Observations:

- During a lunchroom observation at Oak Ridge Elementary School, a neighboring Oakland County school, program volunteers became overwhelmed when students rushed to discard their plate waste at the end of each lunch period. The overwhelming environment led to greater mess,

more food ending up in trash bins, and program leaders taking students' trays and sorting plate waste instead of the students sorting themselves.[97]

- Keller Elementary School, a neighboring Oakland County school, releases students by table, which decreases the number of students trying to discard their plate waste at the same time, allowing program leaders to provide more instruction to students and better control the lunchroom composting program.[98]

Initiative 4.5

Implement Bulk Milk Dispensers

Milk is a required offering for all breakfast, lunch, snacks, and after-school child nutrition programs funded by the USDA. However, offering milk in cartons at least three times per day results in nearly 45 million gallons of milk wasted by schools, or roughly 32 cartons worth of milk wasted per student, across the country each year.[99] However, schools have the ability to recover 27.5 cartons worth of milk and solid waste per student by replacing individual milk cartons with bulk milk bags that, depending on the size, contain 48, 80, or 96 servings per bag.[100,101]

Bulk milk dispensers allow students to take the volume of milk they will consume without wasting the rest. They also ensure that students do not create unnecessary waste by taking a carton they will end up throwing away, thus encouraging students to be more mindful about what food items they take versus the items they actually consume.

It is recommended that the School Lead meet with the Sustainability Director, Sustainability Coordinators, and food service provider to discuss the feasibility of implementing bulk milk machines in school lunchrooms. During the meeting, the team should discuss the funding opportunities available to help schools offset the startup costs associated with bulk milk dispensers. Refer to Chapter 10 for additional details on funding opportunities available to schools.

Items Needed:

- Bulk Milk Machine
- Reusable or Compostable Cups
- Drying Racks
- Dishwasher
- Refrigeration
- Milk Waste Disposal Mechanism (Bucket & Drain)

Stakeholders

The key stakeholders for Initiative 4 include:

i. School administration
ii. Principals
iii. Students
iv. Parents
v. Food Service
vi. Custodial & facilities staff
vii. World Wildlife Fund
viii. City of Southfield
ix. Michigan Department of Education
x. Oakland County Health Department

Key Performance Indicators (KPI)

Short-Term:

- Changes in length of seated mealtimes.
- Adoption of share tables in school lunchrooms.
- Offer Versus Serve adoption rates in K-12 education.

Medium-Term:

- Uncompromised food collection rates over time.

Long-Term:

- Federal and state school food program budgets change over time.
- Fluctuations in milk purchases for school meals over time.

Summary of Actions

Table 8

Initiative 4 Summary of Actions

Task		Time to Complete		Costs	Party Responsible	Notes
		Days	Months			
4. LUNCHROOM POLICY CHANGES		**314**	**45**	**$0-12,000**	**Sustainability Director, School Administrators**	
4.1.	**Extend Mealtimes to a 25-minute Minimum Seating Time**	82	12	$0	School Administrators, Sustainability Director	
4.2.	**Implement Share Tables in School Lunchrooms**	35	5	$0	Sustainability Coordinator	
	1.a. Evaluate School Bylaws Regarding Food Sharing	47	7	$0	Schools	
4.3.	**Adopt Offer Versus Serve for Breakfast and Lunch in All Schools**	132	19	$0	Sustainability Director	
4.4.	**Release Students By Table at the End of Each Lunch Period**	29	4	$0	Sustainability Coordinator	
4.5.	**Implement Bulk Milk Dispensers**	212	30	$0-12,000	Sustainability Coordinator	

Risks & Mitigations

Table 9

Initiative 4 Risk Matrix

Title	Description	Mitigation(s)
Scheduling conflicts	Longer lunch periods interfere with instructional time or other school activities.	Revise school schedule to balance longer lunch periods with school start/end time and instructional time.
Supervision challenges	Longer lunch periods require additional staff or volunteers for supervision.	Allocate staff responsibilities to manage extended lunch periods without overburdening them. Create a rotating lunchroom supervision schedule for teachers and staff.
Health and safety concerns	Shared food increases food safety and allergy risks.	Establish and enforce strict health and safety protocols for share tables. - Cold storage, no packaged-at-home foods Implement signage to easily understand what can be returned to share tables. Provide training to students and staff regarding what can be collected and distributed through share tables.
Waste mismanagement	Share tables become another source of food waste.	Assign students, staff, or volunteers to oversee share tables to ensure only accepted items are collected.
System misunderstanding	Students and staff do not understand how Offer vs. Serve works, causing confusion and creating more waste.	Provide education and training to students and staff regarding how share tables and Offer vs. Serve works.
Imbalanced nutrition	Students return items they must take to comply with school meal programs, resulting in unbalanced diets.	Prepare a variety of healthy options for each meal that are appealing to students.
Inefficiency and delays	Releasing by table delays lunchroom clearing, preventing students and staff from returning to classrooms on time.	Develop procedures for how to release students by table during mealtimes that ensure adequate time to get from the lunchroom to each classroom.
Fairness issues	Students find releasing by table unfair.	Develop a rotating schedule for how the lunchroom will be released by table, ensuring that no one table is always first/last to be released.

INITIATIVE 5 — FOOD RECOVERY & REDISTRIBUTION

INITIATIVE 5 — FOOD RECOVERY & REDISTRIBUTION

The fifth initiative of this development plan involves implementing a food recovery and redistribution process within each school's lunchroom within the target city. This initiative will include establishing a process for recovering excess food to redistribute within each school, a process for redistributing excess food throughout the community for human consumption, and a process for redistributing food scraps for animal consumption.

Initiative 5.1
Serve Recovered Food During Other Meal Times

Reusing leftovers and food recovered from shared tables offers an opportunity for schools to teach students about the importance of food conservation and responsible consumption. By including these items in future meals, schools can show students that leftovers can be high quality, nutritious, and delicious. Furthermore, serving these items communicates that leftovers should not be discarded but, instead, appreciated as nutritious and viable choices that also help to reduce food waste. Incorporating these food items into future meals also provides an opportunity for teachers to engage students in conversations about healthy eating habits and the environmental impact of wasted food, thus empowering them to make more sustainable food choices. Therefore, schools can not only encourage students to make more sustainable food choices but also challenge societal norms that often perceive leftovers as lesser quality than freshly prepared meals.[102]

1.a. Serve Recovered Food During After-School Programs.

Serving food recovered from school meals during after-school programs reduces food waste while addressing hunger among at-risk students. Utilizing this unserved and uncompromised food from the school's daily meal services allows schools to teach students about food conservation while mitigating stigma regarding the perceived quality of leftover food. This strategy also demonstrates a sustainable approach to food management. Therefore, this strategy ensures that no child goes hungry and no food is unnecessarily wasted, confirming educational institutions' role in student health and well-being.

1.b. Serve Recovered Food During Next Day's Meals.

Serving recovered food during the next day's meals offers schools a dynamic solution for reducing food waste. Schools can repurpose leftovers from previous meals and combine them with fresh ingredients to create entirely new meals, thus minimizing waste and maximizing resource utilization. Additionally, recovered food can be integrated into the meal planning process to make a positive feedback loop, where surplus from one day becomes an integral component of the next day's menu. Therefore, this strategy allows schools to maximize resource utilization, reduce waste, and promote culinary innovation by allowing students to learn how to make new dishes from existing ingredients.

It is recommended that the School Lead works with the food service provider to determine whether each school can safely store leftover food onsite or if it is feasible to transport surplus food to Southfield A&T to be packaged and stored. It is also recommended that the School Lead evaluates the feasability of storing leftover food onsite while conducting resource assessments at each school.

Considerations for Food Re-Service

- Prioritize collecting food items that do not qualify as Temperature Controlled for Safety (TCS).[103]
- The School Lead should contact the Oakland County Health Department (OCHD) to confirm that the TCS food recovery system follows share table best practices and adheres to established food codes and regulations.[103]
- Equip share tables with temperature control mechanisms and establish a monitoring schedule with temperature logs to ensure TCS food items adhere to Food Code provision §3-306.14(B)(1) or (2) (i.e., mini fridge, fridge, etc.).[103,104]

Initiative 5.2

Package Surplus Food to Send Home with Students

Sending surplus food home with students at the end of the day and over the weekend provides a viable path to reducing food waste while ensuring that food purchased as part of the federal and Michigan School Meals Programs are used to feed students as they intended. By sending surplus food home with students, schools can ensure that students have enough to eat for dinner and over the weekend, which offers many benefits, including:

i. Alleviating food insecurity by ensuring students have food after school and on weekends,
ii. Increasing test scores by ensuring students are well nourished,
iii. Improving school attendance by incentivizing attendance by providing free meals,
iv. Reducing behavioral issues by eliminating hunger as a distraction, and
v. Increasing attention span by ensuring students don't experience hunger, allowing them to perform optimally in school.[105]

Potential Onsite Solutions

Various systems can be established to send surplus food home to students so they and their families can consume it. Some examples include:

i. Establishing school pantries for community distribution,
ii. Donating surplus food to food rescue organizations,
iii. Starting Backpack programs, and
iv. Performing direct redistribution of surplus food to students.

It is recommended that the School Lead work with schools to develop these food redistribution pathways, ensuring they are viable for each school and whether they would be better suited for implementation at the district level.

Potential Partnerships

Multiple organizations provide food to students after school and over the weekends. However, their structures and functionality differ. Three existing programs are described below. Refer to Appendix E for additional resources.

b. Blessings in a Backpack

Blessings in a Backpack is a nonprofit organization that provides "Weekend Food Packs" of ready-to-eat food to send home with students to ensure they have food over the weekend, free of charge.[106,107] The organization partners with Sysco to provide nutritional and kid-friendly food items that are peanut-free, require minimal preparation and no refrigeration and do not require the use of kitchen appliances—or items, such as can openers.[106,107]

Figure 18

Blessings in a Backpack Logo

Stevenson Elementary School, one of SPS' 12 schools, currently runs a Blessings in a Backpack program for its students, which has been very successful. Stevenson's Principal, Tonya Hickman, shared that her students take full advantage of the program's offerings.[96] Students even request backpacks to assist members of their community, indiciating the program's to reach far beyond schoolgrounds.[96]

The Blessings in a Backpack program could be used for redistributing surplus food in schools if the items are shelf-stable.[106,107] However, because the program's success is based on providing shelf-stable food to students, additional programs and strategies may need to be considered to redistribute prepared food items to students.

It is recommended that the School Lead work with Southfield Public Schools' program representative to determine if prepared food can be included in student backpacks and whether students are given choices of what items they get to take home.

c. One More Meal

One More Meal is a nonprofit organization that recovers and packages surplus food from secondary schools for redistribution to students and households at the end of the day.[80,80,108] By recovering surplus food that would otherwise be discarded, the organization addresses four top barriers to food donation: transportation, liability concerns, a lack of refrigeration, and regulatory constraints.[80,80,108]

Figure 19

One More Meal Logo

The program also allows students to decide what their next meal will be by serving surplus food buffet style.[80,80,108] By serving buffet style, students can take only the food items they or their families will eat, mitigating the risks of food waste by providing students with choices.

To make a partnership with One More Meal as sustainable as possible, the School Lead should work with the nonprofit and schools to determine whether utilizing reusable To-Go containers is possible, as well has how to best to ensure students return the containers in a timely matter to ensure their availability for future meals.

d. Green2Go

Figure 20
Green2Go Logo

Green2Go is a nonprofit organizatio that aims to transition takeout containers provided in dining halls from single-use consumables to more sustainable and reusable products.[109] Currently, the organization works with 52 universities throughout the US. However, establishing a partnership with Green2Go could not only support the organization's mission to reduce single-use plastics, this partnership could also keep packaging from wasted food out of landfills, which accounts for more than 63% of solid waste sent to landfills.[32,36] By adopting such a program, K-12 schools have the added potential to further reduce trash pickup costs, providing schools with greater flexibility to transition from trash pickup to compost pickup.

The program works by providing students with a carabiner at the beginning of their college career, which allows each student to exchange it for one reusable takeout container. Once students return their container to the dining hall, their carabiner is returned to them.

To make the program cost effective, dining services at Dartmouth University charge students $10, which covers costs for the reusable containers, carabiners, and replacements if lost or broken.[110] To ensure food safety remains the highest priority, the following should be enforced:

1. Staff or ServeSafe-trained volunteers should serve food into the containers, and
2. Students should not be allowed to reuse containers. Containers should be returned and exchanged for a container that has been sanitized by ServeSafe-trained staff or volunteers.

If partnering with Green2Go is not possible, the School Lead can work with schools to conduct a pilot of a similar program at one of Southfield's high schools to determine its feasibility in K-12 schools.

Items Needed

i. Reusable To-Go Containers
ii. Carabiners
iii. Drying Racks

Additional Opportunities

Although not explored as part of this initial development plan, additional opportunities can be explored to expand food waste elimination efforts beyond schools to help the local community. As time and resources permit, the opportunities listed below should be further explored to begin building circular economies between schools and the larger community.

i. **Implement community food pantries at schools.**

Principal Hickman shared that Stevenson Elementary School currently runs an onsite community food pantry. The school manages the pantry and Community members can put food in or take food as needed. Additionally, students help to sort food for the food pantry.

It is recommended that the School Lead work with the Sustainability Director, Sustainability Coordinators, and local food rescue organizations to determine whether expanding their food pantry model to other schools throughout the city would be feasible.

Timeline
Budgets
KPIs
Supporting Documents
Reports
Methods
Implementation Team
Glossary

ii. **Redistribute food unfit for human consumption to local farms.**

While Metro Detroit is not known for its vast farmland or farm animals, the area has several farms that could potentially utilize food discarded by schools for animal feed.

Consultant Observations:

- A lunchroom observation in Metro Detroit revealed that the school used separate bins for general compost and farm animal food scrap collections. The separate bins were used to separate foods typically toxic to various farm animals—such as meat or onions—from animal safe foods—like apples and bread.[111] After lunch, the animal-safe food bins were then taken to Pingree Farms in Detroit by a staff member or volunteer and served to the animals.

It is recommended that the School Lead reach out to local farms to guage their interest in serving food scraps to their animals. If farms express interest, the School Lead should coordinate meetings with the Sustainability Coordinators, Sustainability Director, Sustainability Council, and local farms to develop a feasible strategy to separate animal-safe food scraps from general compost and transport the food scraps to the local farms.

Stakeholders

The key stakeholders for Initiative 5 include:

i. School administration
ii. Principals
iii. Teachers
iv. Students
v. Parents
vi. Food Service
vii. Food Rescue
viii. Nonprofit organizations

Key Performance Indicators (KPI)

Short-Term:

- Adoption of a school food recovery strategy.

Medium-Term:

- Volume of uncompromised food that is collected over time.

Long-Term:

- Federal and state school food program budget changes over time.
- Food recovery donations received from schools over time.

Summary of Actions

Table 10

Initiative 5 Summary of Actions

Task			Time to Complete		Costs	Party Responsible	Notes
			Days	Months			
5. FOOD RECOVERY & REDISTRIBUTION			**284**	**40**		Schools	
5.1.	**Serve Recovered Food During Other Meal Times**		29	4		Schools	
	1.a.	Serve Recovered Food During After-School Programs	51	7		Schools	
	1.b.	Serve Recovered Food During Next Day's Meals	51	7		Schools	
5.2.	**Package Surplus Food to Send Home with Students**		212	30		Project Partner, Nonprofit	
	2.a.	Purchase Materials to Send Surplus Food Home with Students	224	32	$6,755	Sustainability Director, Food Service Provider	Cost to cover all HS students in SPS
	2.b.	Perform a Pilot to Test Reusable To-Go Container Feasibility at HS	90	13		MFNW	

Risks & Mitigations

Table 11

Initiative 5 Risk Matrix

Title	Description	Mitigation(s)
Food safety	Recovered food increases food safety and allergy risks.	Establish food safety protocols that require all excess food to be stored and reheated according to food safety guidelines.
Stigma	Students feel stigmatized for eating "leftover" food.	Utilize positive messaging to promote consumption of leftover food before preparing new food, emphasizing the importance of food waste reduction and community sharing.
Perceived quality	Students, staff, and parents perceive leftover food as lower quality.	Ensure leftover meals are prepared and presented with the highest quality possible. Organize cooking demonstrations that educate students, staff, and parents on how to creatively utilize leftovers.
Menu variety	Repeated meals decrease interest in school meals.	Provide opportunities to increase visibility for how to use leftovers creatively to prepare new meals.
Logistical challenges	Packaging and distributing leftover food to students is complex, requiring multiple 3rd parties.	Develop a streamlined system for packaging and discreetly distributing excess food (backpack programs).
Legal challenges	Packaging and distributing food directly to students is not protected by food donation laws.	Work with Michigan DoE, EGLE, and USDA to identify strategies to effectively and safely distribute food directly to students without unnecessary 3rd party involvement.
Privacy concerns	Identifying and targeting in-need students raises privacy and stigmatization concerns.	Work with counselors and social workers and utilize school meals program paperwork to discreetly identify food insecure students.
Maintenance and stocking	Keeping little pantries well-maintained and stocked causes resources constraints.	Assign students, staff, and volunteers to regularly check and maintain little pantries. Encourage the use of little pantries as volunteer opportunities for students.
Community participation	Community involvement and utilization of little pantries is insufficient to maintain them.	Promote little pantries through community events and collaborations to encourage their use and support. - MFNW's Annual Community Feast - Flyers (around the community and sent home with students)

INITIATIVE 6 — FOOD & CLIMATE EDUCATION

INITIATIVE 6 — FOOD & CLIMATE EDUCATION

Initiative 6.1

Organize a Workshop to Educate Schools on Existing Meal Program Requirements

Organizing a training workshop to educate school administrators and food service providers on the existing laws and requirements for the federal and state Child Nutrition Programs is a critical strategy to mitigate food waste in schools. During the conversations with school principals as part of this project, several notable discrepancies and uncertainties regarding school meal reimbursement regulations were identified, regarding Offer Versus Serve (OVS), share tables, and food donations, which hinder each school's ability to feed their students healthy but palatable meals and reduce food waste. Therefore, providing schools with training to clarify the convoluted laws and requirements regulating Child Nutrition Programs and food donations is imperative for ensuring the success of this development plan.

Refer to Appendix F for a list of resources available on the existing federal and Michigan school meals programs.

Consultant Observations:

- Foodservice general and assistant managers believed all Southfield Public Schools were participating in Offer Versus Serve (OVS), while nearly all principals indicated that students must take all meal components. This finding suggests one of the two following explanations:
    - Schools are not implementing OVS properly, or
    - Schools are simply not implementing OVS.
- Principals and the food service team were confused about the laws and regulations surrounding share tables and food donations.

Initiative 6.2

Integrate Food and Climate Education into the K-12 Curriculum

Integrating food and climate education into the K-12 curriculum is critical for reducing food waste in schools and aligning the K-12 curriculum with the initiatives outlined in the Michigan Healthy Climate Plan to promote a culture of environmental stewardship.

Refer to Appendix F for links to existing lessons, experiential learning opportunities, and field trip ideas.

2.a. Work with the Director of Instruction to Develop a Food & Climate Education Integration Strategy.

Working closely with the Director of Instruction for the school district will be instrumental in successfully integrating food and climate education into the K-12 curriculum. The Director of Instruction is responsible for overseeing curriculum development, encouraging educators to adopt innovative instruction strategies, and coordinating educational programs across each school and course of study. Their involvement will ensure that lesson plans align with academic standards for each age group and learning style and support the district's broader educational objectives. The Director of Instruction's influence and authority over the district's K-12 curriculum can also encourage support from educators and administrators, which is critical for the widespread adoption and implementation of curriculum changes.

This strategic partnership will not only enhance the curriculum but will also elevate students' understanding and engagement with sustainability topics, preparing them to make informed decisions about their food consumption habits and their environmental impact. By aligning efforts with the Director of Instruction, Make Food Not Waste can ensure that food and climate education is both impactful and sustainable, thus creating lasting behavioral changes in how society views and addresses food waste.

2.b. Promote Existing Resources Available on Food & Climate Education for Integration into the K-12 Curriculum.

Many lesson plans and ideas for creating experiential learning opportunities around food and climate education exist. Sources from the Massachusetts' Green Team, World Wildlife Fund, and the Institute of Science & Math Education provide free lessons, worksheets, workbooks, and how-to guides for teachers to integrate these topics into existing curriculums seamlessly.

Not only will utilizing existing lesson plans reduce the burden placed on teachers to create new and innovative ways to teach students about these topics, but it will also allow them to use previously tested resources with high success rates for student engagement. For example, the Massachusetts Green Team has designed its lesson plans to align with the Massachusetts Science and Technology/Engineering, Mathematics, and Language Arts curriculums and, since 2004, has been integrated into 159 schools throughout the state. They even provide ideas for in-person and virtual field trips and presentations to help make these topics interesting, engaging, and impactful for students of all ages.[112–114]

2.c. Implement Vermiculture Kits in Elementary School Classrooms.

Vermiculture is a form of aerobic compost production, which utilizes red wiggler earthworms to break down organic materials into nutrient-rich soil.[115]

Potential Partnerships

Multiple organizations offer vermiculture kits to schools to teach students about composting and encourage schools to begin composting food scraps instead of sending them to landfills.

a. CO Sustainability

CO Sustainability has partnered with another Oakland County school district to provide vermiculture kits to elementary schools and teach their students about the importance of composting.

Robb Harper from CO Sustainability has expressed interested in providing the same vermiculture kits and education to Southfield Public Schools. Therefore, it is recommended that the School Lead work with Robb, the Sustainability Coordinator, and the Director of Instruction to develop a classroom curriculum that provides students with an hands-on opportunity to learn about composting that connects back to Michigan's science curriculum requirements.

b. Bower School Farm

Bower School Farm, located in Bloomfield Hills, MI, is a nonprofit organization that provides nature-based teaching and learning activities to K-12 schools, including

education on local wildlife, native plants, various forms of compost—including offering vermiculture kit rentals—livestock, farming, and 4H.

Sara Covatta, one of Bower School Farm's Community Guides, has expressed interested in working with Southfield Public Schools to provide vermiculture kits and educational resources for teaching students about composting. Therefore, it is recommended that the School Lead work with Sara, the Sustainability Coordinator, and the Director of Instruction to provide place-based opportunities for K-12 students. These programs should focus on composting and its benefits for the local environment, ensuring that each opportunity integrates into the broader Michigan science curriculum. This approach will enhance students' understanding of sustainable food systems while ensuring adherence to state curriculum standards.

Recommendations for Lesson Plans

- Utilize data collected from food waste audits to connect the experiential learning opportunity to the classroom.
- Utilize composting to teach students the science behind how food scraps turn into soil.[116]
- Teach students about chemical reactions by teaching them how to can food while preventing bacteria and preserving nutrient content.[117–121]

Stakeholders

The key stakeholders for Initiative 6 include:

i. Superintendent (or deputy)
ii. (Executive) Director of Instruction
iii. Principals
iv. Teachers
v. School board
vi. Students
vii. Food Service
viii. Custodial & facilities staff
ix. World Wildlife Fund
x. CO Sustainability
xi. City of Southfield

Key Performance Indicators (KPI)

Short-Term:

- Number of volunteers that sign up for school sustainability initiatives.
- Student engagement and interest in food & climate education.

Medium-Term:

- Number of food & climate lessons integrated into the K12 curriculum.
- Number of food & climate experiential learning opportunities offered to students (field trips, demonstrations, workshops, etc.).
- Food & climate assignment completion rates and performance.

Long-Term:

- Michigan STEM/climate college program enrollment numbers over time.
- Michigan STEM/climate college program graduation rates over time.
- Number of schools that become certified as Michigan Green Schools over time.
- Number of school gardens started over time.
- Number of sustainability-related clubs and after-school activities that are created over time.

Summary of Actions

Table 12

Initiative 6 Summary of Actions

Task			Time to Complete		Costs	Party Responsible	Notes
			Days	Months			
6. FOOD & CLIMATE EDUCATION			**365**	**52**	**$0**	**Superintendent, Director of Instruction**	
6.1.	**Organize a Workshop to Educate Schools on Existing Meal Program Requirements**		74	10	$0	School Lead	
6.2.	**Integrate Food and Climate Education into the K-12 Curriculum**		365	52	$0	Superintendent, Director of Instruction	
	2.a.	Work with the Director or Instruction to Develop Food & Climate Education Integration Strategy	201	29	$0	School Lead, Director of Instruction, Superintendent, Southfield Sustainability Office	
	2.b.	Promote Existing Lesson Plans to Integrate Food & Climate Education into the K-12 Curriculum	201	29	$0	School Lead, Director of Instruction, Superintendent	

Risks & Mitigation

Table 13

Initiative 6 Risk Matrix

Title	Description	Mitigation(s)
Teachers overburdened	Extra work is required for teachers to create lesson plans for food & climate education.	Provide teachers with ready-to-use lesson plans to integrate food & climate education into the K-12 curriculum. - Utilize existing lesson plans from Massachusetts' Green Team. - Utilize existing lesson plans from the World Wildlife Fund. - Utilize STEM Teaching Tools' lesson plans created by the Institute of Science & Math Education.
Resource constraints	Teachers do not have enough time or resources to teach students about food waste and climate change effectively.	
Data complexity	Data collected during audits is too complex to integrate into lesson plans.	Utilize existing lesson plans created to supplement food waste audits and integrate findings into the classroom.
Student engagement	Students don't engage with material.	Utilize experiential learning opportunities to create lessons that are interactive, engaging, and relatable.
Curriculum integration	Teachers cannot find opportunities to integrate food waste and climate change lessons into curriculum.	Align lesson plans with existing subjects and test standards to ensure seamless integration and alignment with existing standards.

INITIATIVE 7 — EASY WINS

INITIATIVE 7 — EASY WINS

Initiative 7.1
Procure Child-Safe Fruit Slicers

Procuring fruit slicers for students to use during mealtimes is an innovative strategy that can not only reduce food waste but also enhance accessibility and enjoyment of fruit among students. Providing such tools allows students to consume fruit in a manner that suits their individual needs and preferences. Moreover, serving whole fruit without a convenient method of slicing can render it inaccessible to a significant portion of students, including those with dental or orthodontic limitations, such as missing front teeth or braces.[122,123] Additionally, providing fruit slicers better aligns school meals with students' preferences, as they often prefer sliced fruit for convenience and ease of consumption.[124–126] Therefore, this strategy promotes healthier eating habits by encouraging students to consume nutritious foods in their preferred form and improves accessibility while reducing food waste in schools.

Research Findings:

- Children prefer to consume sliced fruit.[124–126]
- High fiber foods take longer to consume and reach satiety.[127–129]
- Elementary-aged children begin losing their baby teeth around six, making whole fruit inaccessible for students to consume or meet their recommended daily fruit intake.[122,123]
- 14.5% of US children between 8 and 18 years of age undergo orthodontic treatment—including braces and retainers—which limits the types of food they can consume while undergoing treatment.[130] Patients undergoing orthodontic treatment are provided lists of foods they should avoid, which include whole apples and crunchy veggies when unchopped or uncooked.[131,132] However, orthodontists provide alternative consumption options for patients to continue enjoying foods they love, including chopping apples into slices and serving baby carrots instead of whole.[131,132]

On-Demand Versus Prepare Ahead

The table below provides a comparison of on-demand versus preparing ahead sliced fruit in schools. The table compares advantages and disadvantages of both methods and provides several examples of personal and commercial grade tools that schools could purchase to increase students' consumption of fresh fruit. However, the information in this table is not an exhaustive list; it is provided to help the Sustainability Coordinator for each school make the best decision possible for their students and schools.

Table 14

On-Demand versus Prepare Ahead Fruit Slicer Matrix

		On-Demand		Prepare Ahead	
#	**Category**	**Advantages**	**Disadvantages**	**Advantages**	**Disadvantages**
1	**Waste**	• Less fruit wasted due to storage and preservation requirements • No food packaging waste	• Fruit can fall on fall on the ground during slicing	• Students waste less by taking fruit to go, if portioned out ahead	• More fruit wasted due to storage and preservation requirements • Increased food packaging waste, depending on storage capabilities • Increased food packaging waste if portioned out ahead
2	**Resources**	• No refrigeration required • No oxidation concerns • No storage required	• Requires purchase of fruit slicers ○ i.e., handheld or commercial grade	N/A	• Requires refrigeration • Requires storage • Requires oxidation control (lemon juice)
3	**Labor**	• As needed	• Labor intensive if staff support is required • Students strength not enough to use handheld unit	• Students can grab and go • Less labor labor intensive	• High labor costs
4	**Meal Reimburse**	• Reimbursable because students take whole piece of fruit	N/A	• Reimbursable if portions are measureable	• Not reimbursable if students do not take the required portions
5	**Portion Sizes**	• Students take required portion sizes	• Students take more than they can eat	• Students take as much or as little as they want to eat	• No regulation over volume students take ○ i.e., Students don't take whole serving
6	**Autonomy**	• Students are given autonomy to decide for themselves how they prefer to consume their food	• Younger students may need assistance to use	N/A	• Students cannot decide how they want to consume their food

7	**Time**	• Students can prepare their food quickly • Can grab and go if they don't mind whole fruit	• Students have to wait for slicer to be available for use • Students can't grab and go if they want sliced fruit	• Students can grab prepared food quickly, leaving more time for them to eat • Faster than by hand	• Requires significant staff time to prepare fruit ahead of time
8	**Safety**	**Commercial Grade** • Blade guards available **Handheld** • Requires both hands for use	**Commercial Grade** • Younger students would require supervision while using	**Commercial Grade** • No risk to student safety	**Commercial Grade** • Potential injury loading fruit in slicer ○ i.e., Time restraints, repetitive action (reduced focus)
9	**Difficulty Level**	**Commercial Grade** • Load and pull/press handle **Handheld** • Place fruit, press with both hands	**Commercial Grade** • Student demonstration required for proper use **Handheld** • Requires both hands for use	**Commercial Grade** • Load and pull/press handle	N/A
10	**Options**	**Commercial Grade** • Can place tray/bowl under unit to catch fruit • Multiple blades to cut a variety of fruits and vegetables	**Handheld** • Single purpose use ○ i.e., apple corer/slicer, orange wedger • Requires plate/cutting board	**Commercial Grade** • Multiple blades to cut a variety of fruits and vegetables	**Commercial Grade** • Requires consistent cleaning
11	**Cost**	**Handheld** - Affordable	**Commercial Grade -** Expensive	**Commercial Grade -** Expensive	**Commercial Grade -** Expensive
12	**Models - Handheld**	133	134		
13	**Models - Commercial Grade**	135	136	137	138

Initiative 7.2

Establish A "Flavor Station" in School Lunchrooms

Establishing flavor stations in school lunchrooms is a strategic initiative that reduces food waste by empowering students to personalize their meals to their taste preferences. By offering a variety of condiments and spices, schools can empower students to enhance the flavor profile of their dishes, making them more appealing and enjoyable, which is particularly beneficial when school meals contain larger volumes of whole fruits and vegetables, grains, and lean proteins. This customization encourages students to eat healthier options by allowing them to experiment with enhancing their flavor using different sauces or dips. Therefore, by promoting student autonomy and culinary exploration, schools can turn the condiment and spice bar into a practical tool for nutrition education, healthy eating, and food waste reduction. Refer to Figure 21 for a sample flavor station in schools.

Figure 21

School Flavor Station[139]

Recommendations for Establishing Flavor Stations in Schools

- Provide an assortment of shelf-stable spices and sauces (i.e., Sriracha, balsamic vinegar, red pepper flakes, garlic powder, etc.).[140]
- Provide fresh items, such as lemon or lime slices, to brighten the flavor of school meals.[140]
- Provide daily spice recommendations based on the day's meals (i.e., taco sauce or chili powder when serving tacos or black bean soup, etc.).[140,141]

- To ensure spice and condiment offerings adhere to existing nutrition standards, salt should not be available at the flavor station. However, if needed, salt should be made available to students through the kitchen upon request and under supervision.

Stakeholders

The key stakeholders for Initiative 7 include:

i. School administration
ii. Principals
iii. Food Service
iv. Custodial & facilities staff
v. Oakland County Health Department

Key Performance Indicators (KPI)

Short-Term:

- Initial student food satisfaction surveys.

Medium-Term:

- Changes in fruit and vegetable discard rates (in compost and trash bins) over time.

Long-Term:

- Changes in student food choices over time.
- Long-term student food satisfaction surveys.

Summary of Actions

Table 15

Initiative 7 Summary of Actions

Task		Time to Complete		Costs	Party Responsible	Notes
		Days	Months			
7. EASY WINS		**120**	**16**	**$0-200**	**Schools**	
7.1.	**Purchase child-safe fruit slicers**	103	15	$20-200*	Food Service	• 3-pack (apple, orange, and mango slicers) • Industrial fruit slicer with 9 attachments available (sold separately)
7.2.	**Establish a lunchroom condiment and spice bar**	29	4	$60-200*	Food Service	• Insulated condiment dispenser • Bulk condiment dispenser

Prices listed are per unit. Refer to the budget matrix provided in **Chapter 10, Table 17 for additional details and links.*

Risks & Mitigations

Table 16

Initiative 7 Risk Matrix

Title	Description	Mitigation(s)
Safety concerns	Increased risk of injury if students utilize sharp tools without supervision.	Establish a safety protocol for students to utilize fruit slicers. - Utilize under the supervision of staff (particularly younger students) - Implement safety mechanisms to ensure safety during use
Hygiene and sanitation	Multiple people utilizing tools without an established cleaning schedule increases contamination risks and spread of diseases/illnesses.	Implement a strict cleaning and maintenance protocol to reduce contamination risks.
Equipment misuse or damage	Frequent equipment utilization increases risks of misuse or damage, requiring higher maintenance costs.	Provide training and clear instructions for how to use fruit slicers correctly and safely.
Condiment overuse or waste	Students use more condiments than needed, creating excess waste.	Use dispensers that limit the amount dispensed at a time to reduce waste.
Cross-contamination	Open containers increase contamination risks.	Label all condiments and spices clearly, to avoid cross-contamination. - Do not include options with known allergies to avoid potential exposure. - Use dispensers instead of jars or vessels requiring spoons for proper serving.
Mess and maintenance	Frequent utilization creates a mess and shortages, requiring additional resources to maintain and keep options full.	Assign students, staff, and volunteers to maintain, clean, and restock the condiment & spice bar regularly.

CHAPTER 9: PERFORMANCE MANAGEMENT & REPORTING

9. PERFORMANCE MANAGEMENT & REPORTING

GENERAL KPIs

While the Key Performance Indicators (KPI) listed in the previous chapter are specific for measuring progress of each initiative individually, the KPIs in this section can be used to measure long-term progress for the overall project over time.

Long-Term:

- US Census data to evaluate societal impact across key indicators, including poverty, food insecurity, health, and education.
- GHG emissions from food waste over time.
- Household purchasing power fluctuations.
- Federal and state school food program budgets change over time.

ACTIVITIES FOR MEASURING PROGRESS

Data Collection & Audits

The metrics outlined above require recurrent collection and monitoring to evaluate progress over time. Make Food Not Waste should work with key stakeholders for each target district and school to determine which metrics are critical for evaluating the initiative's long-term success and who will be responsible for collecting and monitoring each metric and at what cadence. ***The above list is not all-inclusive and should be reviewed and adjusted to capture the most critical metrics for measuring food waste reduction progress in schools.***

Make Food Not Waste, and the target schools should identify and train at least two long-term volunteers (one as primary and one as backup) who will be responsible for collecting and monitoring the agreed-upon metrics. Establishing a collaborative database, such as Google Docs (short-term) or Domo (long-term), is recommended to capture each metric over time, easily analyze the available data, and show real-time progress. Once a database has been established, it is also recommended that Make Food Not Waste perform an annual audit to ensure any data collected is captured correctly and any errors identified can be corrected in a timely manner. However, Make Food Not Waste could utilize existing partnerships, such as with ReFED, to capture food waste data on a local level, in addition to capturing statewide data.

It is important to capture baseline values for any metric that will be used to track long-term progress. While Initiative 2 includes actions to establish baseline measurements for food waste, opinions and suggestions regarding food waste and quality, and resource availability, any metrics not captured under Initiative 2 will require additional actions to ensure a baseline measurement can be established.

REPORTING

A robust reporting strategy will create transparency between schools and Make Food Not Waste and between schools and the Federal and Michigan School Meals Programs. This transparency will ensure that key stakeholders work together to ensure funding for the Federal and Michigan School Meals

Programs is not wasted, remains fully allocated to feeding children enrolled in K-12 education, and funding remains available to keep each program running with taxpayer support.

Furthermore, a robust reporting strategy is critical for creating transparency regarding Michigan's direct contributions to SDG2: Zero Hunger and SDG12: Responsible Consumption and Production. Therefore, the following reporting opportunities are recommended:

1. **Annual School Food Quality and Waste Report**

   Make Food Not Waste should work with schools to produce annual progress reports on school adherence to agreed-upon Key Performance Indicators (KPI) for reducing food waste. Annual reporting provides an opportunity to hold both schools and Make Food Not Waste accountable for their efforts towards Michigan's ambitious goal of eliminating 1 billion pounds of food waste from landfills by 2030. This can also create transparency between schools, state legislators, and taxpayers to demonstrate the effectiveness of food waste reduction initiatives while ensuring that funding allocated for feeding students is utilized efficiently. Therefore, schools and Make Food Not Waste can use annual KPI reporting to effectively monitor food waste reduction progress, thus reinforcing accountability and responsible resource management.

   In addition to measuring food waste, this report should also analyze food quality to assist schools in developing targeted strategies to enhance the nutritional value and appeal of school meals. By collecting student feedback, schools can integrate collected input into meal planning processes, ensuring that meals are enjoyable while promoting healthier relationships with nutrient-dense foods among their students.

   Recommended Methods for Data Collection:

   i. Surveys
   ii. Focus Groups
   iii. Taste Tests
      i. For students
      ii. For staff
   iv. Student Food Shows
   v. Student Participation on Food and Nutrition Advisory Committees
   vi. Lunchroom Suggestion Boxes

2. **Bi-Annual Indicator Report**

   School districts should collaborate with their city's sustainability office and Make Food Not Waste to develop a bi-annual school food quality and waste report that offers more comprehensive reporting on food waste Key Performance Indicators (KPI) every two years.

   This bi-annual report should provide a more in-depth analysis of each school's progress compared to other schools in the district and how the district's overall progress aligns with the city's broader sustainability goals.

   This type of collaborative reporting can also help facilitate community support for school sustainability initiatives and encourage residents to actively participate. Additionally, partnering with the city's sustainability office can help both parties identify opportunities for enhancing static and dynamic sustainability efforts citywide. Therefore, collaborative bi-annual reporting can not only provide transparency but can also promote a more resilient and environmentally conscious community.

CHAPTER 10: FUNDING REQUIRED, SOURCES & PROCESSES

10. FUNDING REQUIRED, SOURCES & PROCESSES

Make Food Not Waste has already secured funding for The 2030 Project through donations from consultants, nonprofit organizations, higher education institutes, and public donations. The organization has also secured in-kind support from these entities and city, county, and state officials who are providing expertise and support to the project.

However, as part of The 2030 Project, existing resources should be utilized before seeking new equipment and materials to make the initiative as sustainable as possible. Therefore, Make Food Not Waste should work with schools to develop a blended funding approach consisting of previously secured funding, in-kind support from project partners, school Excess Fund Balances (EFB), and grants, as applicable. Not only will this approach promote sustainability efforts, but it will also help ensure the continuity of school composting and recycling programs by keeping long-term maintenance costs low.

EXPENSES

The largest expense that schools should expect to implement the recommendations outlined in this development plan will be the composting strategy they choose to adopt. A matrix containing available composting options—along with estimated costs and labor requirements—can be found in Appendix C.

A list of resources needed to implement the recommendations outlined in this development plan can be found in Appendix G.

While the cost of implementing a comprehensive composting and recycling program in schools can vary greatly, it is important to remember that having **any** waste diversion program established is better than having **no** waste diversion program established. Therefore, schools can keep costs low by utilizing existing equipment and resources, eliciting donations, applying for grants, and allocating EFBs to implement and maintain these programs.

FUTURE INVESTMENT OPPORTUNITIES

If additional funding becomes available, purchasing the following items should be considered to transition school lunchrooms into zero-waste lunchrooms:

i. Dishwasher
ii. Dishwasher racks
iii. Bulk milk dispenser
iv. Reusable cups
v. Reusable utensils
vi. Reusable trays

GRANTS

This section contains a list of grant opportunities that schools can apply for to establish and maintain sustainability initiatives that help create circular economies to combat food waste in schools. Make Food Not Waste should work with schools to evaluate each suggestion and determine the most suitable grants to achieve each school's goals.

PATRICK LEAHY FARM TO SCHOOL GRANT PROGRAM

The Patrick Leahy Farm to School Grant Program offers schools 24 months of funding to increase access to locally grown foods and help connect students to their food sources. Funding can be used for education, school gardens, field trips, taste tests, and the purchase of locally sourced foods for school meals. It is important to note that recipients must match 25% of their project budget with cash or in-kind donations.

- **Potential Grant Amount:** Up to $500,000
- **Application Timeline:** October to January each year
- **Website(s):**
  - Farm to School Grant Program Guide[142]
  - Resources for Farm to School Grant Program Applicants[143]
  - Farm to School Fact Sheets[144]
- **Point(s) of Contact:** SM.FN.FarmToSchool@usda.gov

LEANPATH 12.3 INITIATIVE

Leanpath offers free or reduced-cost hardware and software to culinary educators and nonprofits to educate, measure, and track efforts to reduce food waste. The hardware and software are available as part of the Leanpath 12.3 Initiative, which aligns the organization's efforts with the United Nations SDG12.3 to cut food waste in half by 2030.[145]

- **Potential Grant Amount:** N/A
- **Application Timeline:** Unclear. Interested schools and educators should fill out the food waste prevention application and discuss the available opportunities with a Leanpath representative.
- **Website:**
  - Food Waste Prevention Application[146]
  - Leanpath 12.3 Initiative[145]
- **Point(s) of Contact:** initiative@leanpath.com

COMPOSTING

The grants listed below provide funding to establish and maintain school composting programs.

Food Waste Warriors Program

World Wildlife Fund's Food Waste Warriors program offers K-12 schools grants, stipends, toolkits, and lesson plans to engage students in food waste reduction initiatives. Funding can be utilized for teacher stipends, training, materials, and educational or project-related costs.

- **Potential Grant Amount:** Varies.
  - $7,500 for implementation support in 3-5 schools.
  - $25,000 for implementation in at least 7-10 schools across a district.
- **Application Timeline:** July 20th

- **Website:** https://www.worldwildlife.org/pages/bring-food-waste-warriors-to-your-school[147]
- **Point(s) of Contact:** fwwstaff@googlegroups.com

EDUCATION

The grants listed below provide funding for schools to incorporate food & climate education into the Pre-K-12 curriculum.

National Agriculture in the Classroom

The National Agriculture in the Classroom Organization (NAITCO) offers an opportunity for general education teachers to incorporate agricultural education into Pre-K-12 classrooms.[148]

- **Potential Grant Amount:** Up to $500
- **Application Timeline:** April 15, 2024
- **Website:** https://agclassroom.org/teacher/grants/[148]
- **Point(s) of Contact:** Michelle Blodgett - mblodge@michfb.com

GARDENING PROGRAMS

The grants listed below offer an opportunity for schools to implement school gardens, which would provide educational and experiential learning opportunities for students and create a circular economy where excess food waste created by a school can be used to feed the onsite garden.

Big Green Jumpstart Program

As part of their Jumpstart Program, Big Green offers Metro-Detroit schools a grant to establish onsite gardens to support and engage students in outdoor education.[149]

- **Potential Grant Amount:** $2,000
- **Eligibility Criteria:** https://biggreen.org/wp-content/uploads/2023/05/Program-Summary.pdf[150]
- **Application Timeline:** March 1st - March 29th each year
- **Website:** https://biggreen.org/jumpstartdetroit/[149]
- **Point(s) of Contact:** info@biggreen.org

Samull Classroom Herb Garden Grant

The Herb Society of America is offering elementary schools in grades K-6 funding to establish herb gardens. The funding can be used to purchase supplies, including soil, tools, and containers.

- **Potential Grant Amount: $300**
- **Application Timeline:** Unclear. Interested schools should visit The Herb Society of America's website during the summer 2024 for information on when the 2025 application cycle opens.
- **Website:** https://www.herbsociety.org/get-involved/grants-scholarships/[151]
- **Point(s) of Contact:** https://www.herbsociety.org/about/contact.html

MEAL IMPROVEMENT GRANTS

Fuel Up Grant

The United Dairy Industry of Michigan offers a grant to help schools improve access to healthy meals by providing school nutrition equipment to K-12 schools.

cover the startup costs for schools to implement bulk machines.

- **Potential Grant Amount:** Unclear. The grant application
- **Eligibility Criteria:** https://www.fuelup.org/funding-information
- **Application Timeline:** March 12th - April 16th each year
- **Website:** https://www.fuelup.org/funding-information
- **Point(s) of Contact:** https://www.fuelup.org/contact-us

Moolah for Schools

The United Dairy Industry of Michigan offers a grant to help schools cover the startup costs to implement bulk machines in their lunchrooms.

- **Potential Grant Amount:** $500-6,200
  - https://www.milkmeansmore.org/wp-content/uploads/2024/04/Moolah-for-Schools-Grant-Option-2.pdf [152]
- **Eligibility Criteria:**
  - https://www.milkmeansmore.org/wp-content/uploads/2024/04/Moolah-for-Schools_Grant-Overview-Packet_06-2024_WEB-1.pdf [153]
- **Application Timeline:**
  - Round 1: March 14th - May 10th each year
  - Round 2: March 14th - November 22th each year
- **Website:** https://www.milkmeansmore.org/schools-educators/grants/moolah-for-schools/ [1]
- **Point(s) of Contact:** https://www.fuelup.org/contact-us

CASH

Make Food Not Waste should work with schools to identify opportunities for how to spend their Excess Fund Balances (EFB) to implement recommendations outlined in this development plan.

Under Section 206 of the Healthy, Hunger-Free Kids Act, Child Nutrition Programs must operate a Non-Profit Food Service Account (NFSA), which accrues all revenue earned from selling non-reimbursable food items.[154] Schools must reinvest these funds into their food service program to benefit the children enrolled in these programs.[154]

As part of this provision, NFSAs are only allowed to carry a balance equating to the three-month average expenditures for the program.[154] For anything over this amount, the Michigan Department of Education

(MDE) requires that schools create a Spend Down Plan of Action (POA) for how they will use their EFBs at year-end.[154]

These funds allow schools to upgrade existing kitchen equipment and purchase new equipment and supplies to decrease meal preparation time, improve food quality and service times, and create more sustainable lunchrooms.[154] EFBs can also be used to purchase supplies and equipment for school garden programs.[154]

- **Website(s):**
  - Instructions for Completing the Excess Fund Balance Spend Down Plan of Action Form[155]
  - Spend Down Plan of Action Ideas for Excess Fund Balances[156]
  - Pre-Approved Food Service Equipment List[157]
- **Contact Information:**
  - **Email:** MDE-Fiscal@michigan.gov
  - **Phone:** 517-241-5380

IN-KIND DONATIONS

Make Food Not Waste should work with schools to identify potential in-kind donors for establishing and maintaining school composting and recycling programs and provide experiential learning opportunities. In-kind donations can include:

i. Volunteers to help run the lunchroom composting and recycling program.
ii. Volunteers to build lunchroom composting stations and onsite compost bins.
iii. Organics experts to provide composting workshops and expertise as to which composting style will be best for each school.
iv. Hardware stores to provide buckets, grow bags, tarps, shovels, and gloves for waste audits, composting, and workshops.
v. Restaurants to provide meals to food waste reduction competition winners.
vi. Chefs to provide cooking demonstrations to students.

Let's Go Compost

Let's Go Compost offers free composting tools for schools to integrate composting education into the K-12 curriculum. This 501(c)(3) nonprofit organization designed its program to improve environmental literacy, improve understanding of the importance of waste reduction and recycling, and create the next generation of environmentally conscious citizens.[158]

- **Potential Grant Amount:** N/A
- **Application Timeline:** Unclear. Interested teachers and schools should contact Let's Go Compost to determine when applications are due for Fall 2024 support.
- **Website:** https://www.letsgocompost.org/request-school-composting-support[158]
- **Point(s) of Contact:** education@letsgocompost.org

FUNDING MANAGEMENT PROCESS

Funding provided as part of The 2030 Project should be managed by Make Food Not Waste and released as each initiative begins implementation. The Project Manager will be responsible for ensuring that each initiative of the project remains within the established budget and determining whether adjustments or additional funding will be required.

Funding secured by schools should be jointly managed by the Sustainability Council and the district's Chief Financial Officer (CFO) if the CFO is not an appointed council member. This will provide the council with financial expertise to ensure the project requirements align with the existing budget.

The Project Manager and Sustainability Council should also work together to align existing funding streams and determine how available funding should be allocated to implement each project initiative. This partnership will be critical for identifying potential budget risks and developing an appropriate risk mitigation strategy to ensure implementation can continue.

BUDGET

Budget

Table 17

Budget Matrix

CHAPTER 11: VISION, GOVERNANCE & STAFFING

11. VISION, GOVERNANCE & STAFFING

VISION

Make Food Not Waste envisions Michigan as a state whose residents value food and prevent it from ending in landfills. Driven by its mission to keep food out of landfills and slow climate change by creating lasting solutions to food waste through education, food upcycling, and advocacy, the organization focuses on food source reduction and feeding people by developing solutions to stop food waste before it occurs and turning excess food into value-added products for the community. While a majority of their work aligns with their mission's actions, specifically upcycling excess food and raising awareness about how to reduce food waste, the recommendations outlined in this development plan expand upon Make Food Not Waste's mission by integrating food and climate education into the K-12 curriculum, providing greater opportunities to educate a community's youngest residents on the importance of reducing food waste so these practices become apart of their everyday lives.

The successful implementation of this development plan will support Make Food Not Waste's mission of keeping food out of landfills while helping Michigan eliminate one billion pounds of food waste by 2030. Furthermore, successful implementation will contribute to the UN's goal of cutting food waste in half by 2030 while providing education on the importance of reducing food waste to ensure that food-insecure children are prioritized when schools have excess food. Not only will this reduce food and trash costs, but successful implementation will also provide experiential learning opportunities that keep students engaged during school, inspire students to enroll in higher education STEM programs, reduce childhood food insecurity, and help build community.

STAFFING

Once The 2030 Project blueprint is completed, Make Food Not Waste will oversee its implementation in Southfield, begin working with the next two cities to adapt the blueprint to their locations, and continue this process until it is implemented in all 15 Southeast Michigan cities.[1] Therefore, as part of The 2030 Project, Make Food Not Waste will require the following internal project roles to implement the recommendations outlined in this development plan successfully:

- **Danielle Todd:** As founder and executive director, Danielle will support the implementation of the development plan by connecting the project team with city, county, and state representatives and existing project partners. Additionally, Danielle will be responsible for determining what funding from The 2030 Project will be allocated for this implementation. Danielle's support will be available throughout Initiatives 1-7.
- **Project Manager:** The project manager will be responsible for executing Initiative 1 and coordinating efforts with each school throughout Initiatives 2-7. For a list of the project manager's responsibilities, refer to Chapter 8, Initiative 1.
- **Volunteers:** Make Food Not Waste volunteers will support the project manager in executing Initiative 2 in each school and support the project manager and Sustainability Council where needed throughout Initiatives 3-7.
- **Culinary Director:** The culinary director will support the project manager and each school's food service provider in executing Initiatives 5-6 in each school. They will provide expertise on transforming excess or leftover food into new meals. They will also provide support in

developing experiential learning opportunities to teach students how to improve the palatability of their food while reducing waste.

GOVERNANCE

Communication and information sharing between the project manager and volunteers will be as follows:

- Bi-weekly meetings between the project manager and volunteers to provide status updates on each Initiative's deliverables.
- Between bi-weekly meetings, the project manager and volunteers will communicate and provide feedback via email and documents shared through Google Drive.

During the project's initial kickoff meeting, the project manager and volunteers will need to discuss whether to use phone or text communication methods—in addition to the methods outlined above—for quicker communication, as needed.

Throughout the project, if the established communication method is determined to be insufficient or additional interim meetings are needed, the project manager will work with the volunteers to adjust their communication methods and meeting cadence to meet the project's objectives and deliverables.

CHAPTER 12: MILESTONES & TIMELINES

12. MILESTONES & TIMELINES

This development plan is divided into seven Initiatives to give Make Food Not Waste the greatest opportunity for success with implementing a food waste reduction initiative in Michigan schools.

The development plan is designed to begin with Initiatives 1 and 2, allowing Make Food Not Waste to secure school commitment for participation in The 2030 Project and collect baseline data required to measure progress over time. The plan is designed to then begin implementation of Initiatives 3-7, either independently or in parallel, depending on school funding and resource availability.

While Make Food Not Waste plans to begin executing implementation of the The 2030 Project in November 2024, Initiatives 1 and 2 are currently underway in Southfield, and Initiatives 3-7 are designed to begin implementation in late August or early September, at the start of the 2024-2025 school year.

For each city after Southfield, Make Food Not Waste will ideally begin outreach efforts for Initiatives 1 and 2 in the fall before planned implementation. However, school outreach should begin no later than mid-January to provide enough time for data collection and planning of Initiatives 3-7 well ahead of starting a new academic year. Refer to **Figure 22** for a GANTT Chart for the development plan.

NOTE:
Implementation of Initiatives 3-7 should begin at the start of a new academic year not only to establish rules and expectations but also to provide structure, order, and consistency throughout the school year.[82,83] However, if the timing does not align with the implementation of Initiatives 3-7 at the start of a new academic year, implementation should begin at the start of the spring semester.

Milestones

INITIATIVE 1 — SCHOOL COMMITMENT — FALL 2023 TO WINTER 2024

Make Food Not Waste should begin communicating with target city schools as soon as possible to secure commitment from school administrators, food service, teachers, custodial staff, students, and parents. Therefore, Make Food Not Waste should plan to have a project manager onboarded by January of the planned implementation year to kick off communication with schools and key stakeholder identification.

INITIATIVE 2 — DATA COLLECTION

Make Food Not Waste should begin the data collection initiative no later than mid-April of the planned implementation year and complete actions 2.1-2.4 by the end of the academic year. Action 2.4 will be ongoing and begin at the end of the following academic year to provide a progress report for each school within the district.

INITIATIVE 3 — FOOD WASTE DIVERSION

Make Food Not Waste should work with schools to begin implementing the food waste diversion initiative by mid-July of the planned implementation year. Action 3.1 would be completed by the end of September. Action 3.4 will be ongoing but will be completed by the end of each academic year.

INITIATIVE 4 — LUNCHROOM POLICY CHANGES

Schools should begin planning for the lunchroom policy changes outlined in Initiative 4 by the end of May of the planned implementation year and fully implemented by the end of September.

INITIATIVE 5 — FOOD RECOVERY & REDISTRIBUTION

Make Food Not Waste should work with schools and food rescue partners to begin planning food recovery and redistribution strategies by September of the planned implementation year and be fully established by the end of the calendar year.

INITIATIVE 6 — FOOD & CLIMATE EDUCATION

Make Food Not Waste and schools should begin developing food and climate lesson plans and experiential learning opportunities by the end of May of the planned implementation year and have a fully established curriculum incorporating food and climate education by the end of the academic year.

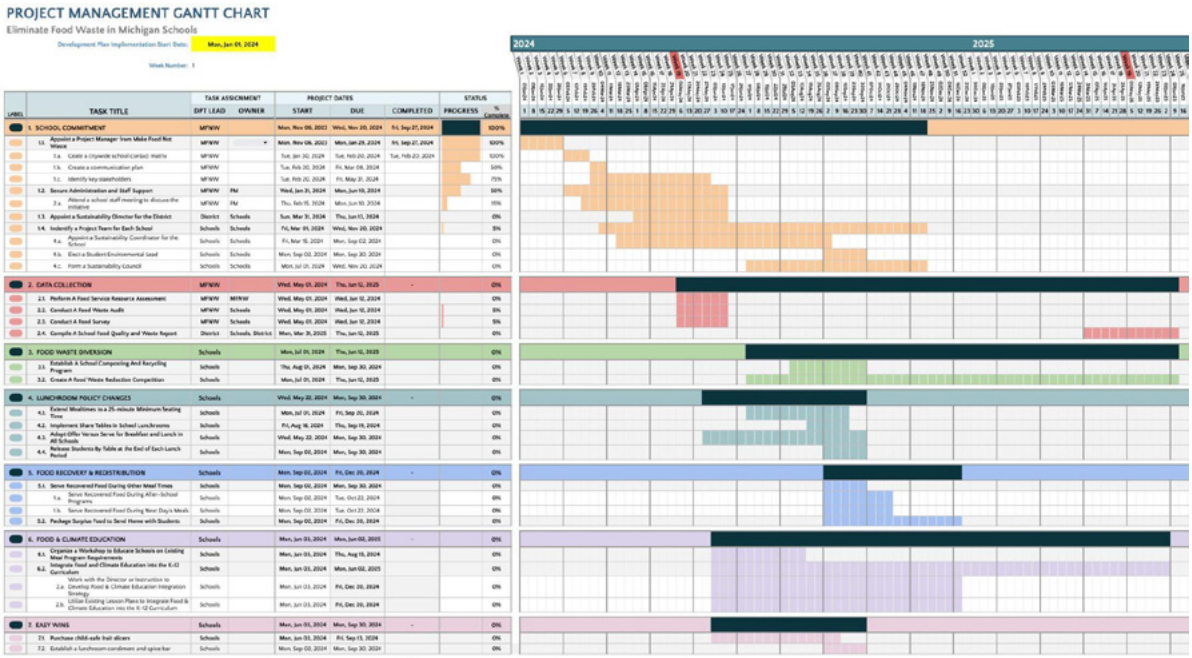
INITIATIVE 7 — EASY WINS

Schools should begin planning to allocate some of their Excess Fund Balances (EFB) to purchase materials needed to implement Initiative 7 by the end of May of the planned implementation year. Schools should also plan to have the required materials acquired and implemented in school lunchrooms by the end of September.

GANTT Chart for Recommended Initiatives

Figure 22

GANTT Chart for the Development Plan's Recommended Initiatives



CHAPTER 13: SUSTAINABILITY GOALS & CONTRIBUTIONS TO THE 2030 AGENDA

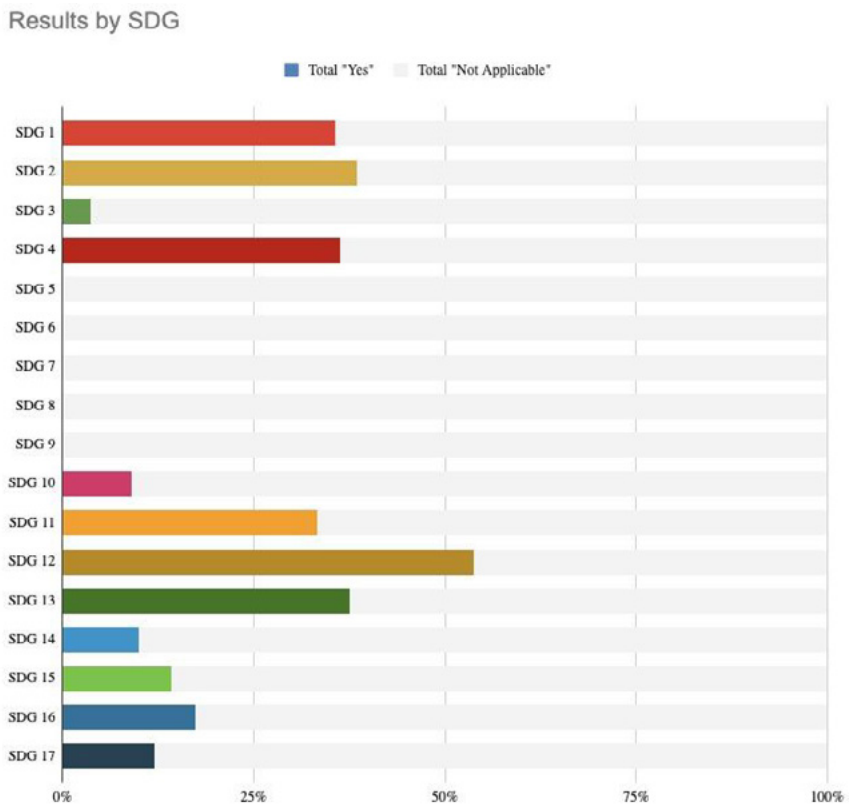
13. SUSTAINABILITY GOALS & CONTRIBUTIONS TO THE 2030 AGENDA

In 2015, the 195 United Nations Member States unanimously endorsed The 2030 Agenda for Sustainable Development.[159] The 2030 Agenda is a comprehensive master plan for fostering global peace and prosperity, benefiting humanity and the environment in the present and future. The 17 Sustainable Development Goals (SDGs) are central to this agenda, each with multiple targets and associated indicators to measure global progress over time.[159] Together, the SDGs serve as a call to action by all countries, emphasizing the need for worldwide collaboration. These goals acknowledge the connection between eradicating poverty and other hardships with strategies to improve health and education, reduce inequality, and fuel economic advancement while addressing climate change.[159] Therefore, the SDGs provide a blueprint representing the United Nations' collective vision for a balanced and sustainable future that benefits humanity and the planet.

Figure 23 shows how this development plan contributes to each SDG and its associated indicators. Each colored "**Yes**" bar represents the SDG indicators this project addresses, while each gray "**Not Applicable**" bar represents the SDG indicators not influenced by the project.

Figure 23

Contributions to the SDGs



Strengths & Direct Contributions to the SDGs

As discussed in Chapter 2, this development plan intended to address three objectives: food waste elimination, food & climate education, and food insecurity reduction. Accordingly, this project directly contributes to the following Sustainable Development Goals (SDGs):

SDG2: Zero Hunger

This project relates to SDG2 because nearly 40% of all edible food available in the United States, equivalent to 108 billion pounds, goes uneaten each year.[160] More than enough food is available to feed every person in America, yet 38 million people battle food insecurity yearly.[31,31] Furthermore, this project relates directly to SDG2 because reducing food waste can help reduce all forms of malnutrition and ensure all people, especially the poor and those in vulnerable situations, have access to nutritious and sufficient food all year.[28]

SDG4: Quality Education

This project relates to SDG4 because students must be well nourished to receive an inclusive and equitable quality education. Experiencing even short-term or intermittent food insecurity can result in poorer test scores, reduced school attendance, behavioral issues, and decreased attention span.[105] Therefore, reducing food waste, integrating food and climate education into the K-12 curriculum, and using food purchased as part of the federal and Michigan School Meals Programs effectively not only ensures that students have sufficient access to nutrient-dense foods to improve their academic outcomes, but also ensures that students are provided real-world examples of how their food consumption habits impact the environment around them.

SDG12: Responsible Consumption and Production

This project relates to SDG12 because the United Nations, as well as the State of Michigan, intends to cut food waste in half by 2030.[161] Therefore, this project directly aligns with the U.N.'s initiative. Furthermore, it supports the global effort of creating sustainable food systems that eliminate food waste at every stage of the supply chain. The project also emphasizes the importance of providing adequate education regarding sustainable development and harmony with nature by integrating food and climate education into the K-12 curriculum to educate not only students but also teachers, administration, parents, and the outstanding community to begin making long-term behavioral changes regarding how society addresses food waste and views sustainable food systems.[161]

Additional Contributions to the SDGs

This project also contributes to the following SDGs, either directly or indirectly:

SDG1: No Poverty

This project relates to SDG1 because the federal school meal programs provide social protection systems for food-insecure children, while the Michigan School Meals Program expands this social protection to not only ensure that food-insecure children do not go hungry but also eliminate the stigma associated with utilizing such programs by providing meal access to all students, regardless of income.

SDG3: Good Health and Well-Being

This project relates to SDG3 because healthcare costs associated with malnutrition and pollution are significant. The Food and Land Use Coalition (FOLU) estimates that wasted food costs almost $12 trillion

annually.[162] Furthermore, excess food waste increases reliance on pesticides and fertilizers, which pollute the soil used to grow food and can negatively affect human and environmental health, increasing the risk of cancer and groundwater contamination.[163]

Food waste diverted from landfills can be composted, promoting soil health, reducing reliance on pesticides and fertilizers, and reducing risks of respiratory illnesses, including asthma and Chronic obstructive pulmonary disease (COPD).[164–167]

SDG10: Reduced Inequalities

This project relates to SDG10 because reducing food waste in schools ensures that food purchased through the federal and Michigan School Meals Programs is used effectively to feed students rather than sent to landfills. By ensuring this food is used effectively, schools can help alleviate food insecurity.

SDG11: Sustainable Cities and Communities

This project relates to SDG11 because reducing food waste in schools can divert 17.7 thousand tons of food from landfills, allowing cities to reduce the burden of food waste on their waste management systems by keeping compostable materials out of solid waste streams.[8]

SDG13: Climate Action

This project relates to SDG13 because irresponsible food consumption and production causes climate change, biodiversity loss, and pollution. Nationally, food waste accounts for 2% of energy, over 25% of fresh water, and 31% of cropland available to produce discarded food.[54] Furthermore, food waste sent to landfills accounts for nearly 20% of US methane emissions, while food packaging accounts for 63% of all solid waste sent to landfills.[32,36] Therefore, this project relates to SDG13 by taking steps to reduce the negative impact of food waste on the planet's natural and finite resources.

SDG14: Life Under Water

This project relates to SDG14 because an estimated 7 billion tons of food waste pollutes the oceans annually. Food waste not only disrupts ocean ecosystems but is also responsible for population surges in some bird species and population reductions in some fish species.[168] Furthermore, food waste that ends up in waterways depletes them of oxygen as it decomposes, creating dead zones where marine life cannot sustain life.[169]

SDG15: Life on Land

This project relates to SDG15 because nearly 30% of global farmland, equaling about 80 million acres, produces food that is never eaten.[168] This land could be better utilized as wildlife habitats, housing, or greenspaces for communities to benefit from, while the food currently wasted could be recovered and redistributed to the nearly 238 million people battling food insecurity each year.[170]

SDG16: Peace, Justice, and Strong Institutions

This project relates to SDG16 because creating robust reporting strategies that provide transparency to school meal spending, food waste, and meal satisfaction can help schools transition to more sustainable food practices while holding them accountable to adopt measures to reduce food waste and become more sustainable over time.

SDG17: Partnerships for the Goals

This project relates to SDG17 because reducing food waste in Michigan schools would allow them to maximize the funding provided through the federal and Michigan School Meals Programs to feed students they enjoy more effectively. Additionally, the Michigan School Meals Program is fully paid for through federal reimbursements and state funding and requires participating schools to fully utilize funding provided through the federal program.[171] By implementing comprehensive food waste reduction initiatives, schools can encourage and promote sustainable food systems and leverage available funding effectively to ensure students obtain quality education while providing transparency regarding how these funds are utilized.

Opportunities for Continued Contribution to the SDGs

Some additional opportunities for Make Food Not Waste to further contribute to the SDGs but are currently out of The 2030 Project's scope are listed below:

SDG11.7.1: "Average share of the built-up area of cities that is open space for public use for all, by sex, age, and persons with disabilities."

Make Food Not Waste can further contribute to SDG11 by working with city officials and their sustainability offices to require all new or redeveloped properties to implement comprehensive compost and recycling systems. They can also collaborate to identify opportunities for community green spaces that can act as compost drop-off sites and community gardens to grow food and provide educational opportunities for the community.

SDG12.6.1: "Number of companies publishing sustainability reports."

Make Food Not Waste can further contribute to SDG12 by working with schools, city officials, and sustainability offices to develop strategies for robust sustainability reporting.

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APPENDICES

APPENDIX A: INITIATIVE 1 RESOURCES

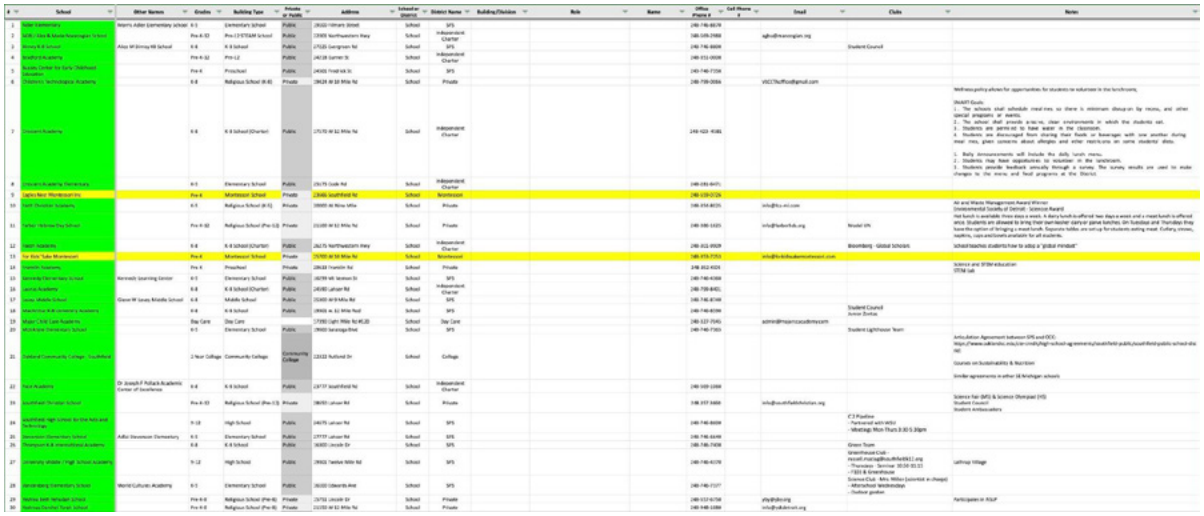
SCHOOL CONTACT MATRIX

The table provided below (***Figure 24***) is the contact matrix containing school-specific information only. The link provided in this Appendix contains the full contact matrix used throughout the project, which was already been shared with Make Food Not Waste early in the project.

A link to the matrix can be found here: School Contact Matrix Template

Figure 24

School Contact Matrix



APPENDIX B: INITIATIVE 2 RESOURCES

FOOD SERVICE RESOURCE CHECKLIST RESOURCES

The materials provided in this appendix are meant to help Make Food Not Waste perform a comprehensive food service resource assessment effectively.

The Michigan Department of Education provides schools with materials to determine what their kitchens require to prepare and store food for their students, as well as resources for schools to determine how to utilize their Excess Fund Balances (EFB).

Excess Fund Balance (EFB) Resources

i. All About Excess Fund Balances [172]
ii. School Food Service Account Revenue from the Sale of Non-Program Foods [154]
iii. Nonprofit School Food Service Account Nonprogram Food Revenue Requirements [173]
iv. Completing the Excess Fund Balance Spend Down Plan of Action Form [155]
v. Spend Down Plan of Action Ideas for Excess Fund Balances [174]
vi. Pre-Approved Food Service Equipment List [157]

a. The Food Service Resource Checklist created for this development plan was adapted into a Google Sheet from MDE's Pre-Approved Food Service Equipment List[157] so that Make Food Not Waste can perform resource assessments for each school efficiently and asynchronously. Refer to **Figure 25** for a sample of the Food Service Resource Checklist created for this development plan.

i. *The full checklist can be found here: Food Service Resource Checklist*

Figure 25

Sample Food Service Resource Checklist

	School	District-Wide Information	Adler Elementary	Birney K-8 School	Bussey Center for Early Childhood Education	Kennedy Elementary School
55	**LUNCHROOMS (refer to the link below:)**					
56	Pre-approved Food Service Equipment List from MDE					
57	**Lunch Monitors**					
58	*Staff Member*					
59	*Students*					
60						
61	**Do students have access to condiments, sauces, and spices?**					
62	*Bulk Dispensers*					
63	*Individual Packets/Servings*					
64						
65	**Meal Service**					
66	Recyclable Clamshells (For Salads/Meals)					
67	Disposable Plastic Cups (Fruit, Vegetables, or Condiment Servings)					
68	Paper Boats					
69	Washable Plates					
70	Washable Trays					
71	Washable Silverware					
72	Washable Cups					
73	Milk					
74	Milk Cartons - Individual					
75	Milk Dispenser					
76	Straws?					
77	Disposable Silverware Packets					
78						
79	**Composting & Recycling**					
80	Liquid Separation (Bucket)					
81	Compost Bin					
82	*All Food Scraps*					
83	*Separate Bins for Produce/Grains and Meat*					
84	Recycling (Well Managed, Not Contaminated)					
85						
86	**Carts/Cabinets**					
87	Can Dispenser Rack					
88	Condiment Cart/Bar					
89	Dish Dolly/Caddy					
90	Heated Transport Cart					
91	Holding Cabinet					
92	Insulated Transport Cart					
93	Kiosk					
94	Proofing Cabinet					
95	Refigerated Transport Cart					
96	Sheet Pan Rack/Speed Rack					
97	Storage Rack					
98	Trash Cart					
99	Tray Dispenser					
100	Utility Cart					
101						
102	**Cleaning**					
103	Commerical Sinks/Three Compartment Sinks					
104	Containers to Handle Recyclables					
105	Dish Machine/Dishwasher					
106	Dish Tables					
107	Floor Troughs					
108	Garbage Disposal					
109	Pot and Pan Machine					
110	Specialty Sinks: Hand, Pot & Pan, Prep, Produce, Utility					
111	Sprayer Hose					
112	Water Booster Heater					
113	Water Softener (food service exclusive)					
114						
115	**Computers/Hardware & Software**					
116	Cash Registers/Point-of-Sale (POS) Equipment/Hardware					
117	Computer Hardware					
118	Point of Sale (POS) Software					
119	Software/programs for management (i.e., inventory, nutritional analysis)					
120	Meal counts, eligibility application approval					
121						
122	**Cooking**					
123	Barbeque					
124	Broiler					
125	Char broiler					
126	Cook Chill Kettle					
127	Cook Top/Range					
128	Exhaust Hood/System					

FOOD WASTE AUDIT RESOURCES & GUIDES

The materials provided in this Appendix are to help Make Food Not Waste conduct food waste audits.

Pre-Consumer Food Waste Audit Guides

i. Measuring Tracking and Analyzing Pre-Consumer Food Waste [175]

Food Waste Audit Guides

i. Lunchroom Waste Audit Guide [176]

ii. Guide to Conducting Student Food Waste Audits: A Resource for Schools [177]

iii. Food Waste Audit for Schools - Sustainable New Jersey [178]

Policy, Systems, and Environmental Change Information

i. FY 2024 SNAP-Ed Policy, Systems, and Environmental Change Intiative Data Toolkit [85]

SCHOOL FOOD SURVEY RESOURCES

The materials provided in this Appendix are to help Make Food Not Waste conduct a school food survey.

School Lunch Survey Guides and Example Survey Questions

i. School Lunch Survey Guide and Sample Questions [179]
ii. Student School Food Survey [180]
iii. A Curriculum Guide Companion to the film Nourish: Food + Community [181]
iv. Food Service School Questionaire [182]
v. Lunch Survey Questions for Students [183]
vi. Lunch Survey for Parents [184]
vii. Kids Taste - Food Hero Kids' Tasting Survey Resources [185]

APPENDIX C: INITIATIVE 3 RESOURCES

FOOD WASTE REDUCTION GUIDES & TOOLKITS

Food Waste Reduction Guides and Toolkits

i. School Food Waste Reduction Toolkit [186]
ii. A STEP-BY-STEP GUIDE TO LUNCHROOM COMPOSTING [187]
iii. WASTING LESS FOOD IN K-12 SETTINGS: BEST PRACTICES FOR SUCCESS [188]
iv. US Composting Council: Backyard composting and vermicompsting resources and links - by state [189]

COMPOSTING MATRIX

The matrix provided below is not an exhaustive list of available composting options. However, it provides several options at various price points and labor requirements for schools to get started. The composting and organics recycling partners involved with The 2030 Project helped develop the matrix shown in **Figure 26**, which has been shared with Make Food Not Waste.

The composting and organics recycling partners involved with The 2030 Project also helped create a matrix outlining some benefits and challenges with available composting options, including municipal, on-site compost piles, and on-site digesters, which are shown in **Figure 27**.

A link to the matrix can be found here: Composting Matrix

Figure 26

Composting Options Matrix

#	Name	Photo	Municipal or Onsite	Weight	Unit Size	Unit Material	Type	How it Works	Capacity	Composting Time	Need to Stir or Turn?		Options	Accepted Material	Not Accepted Material	Tips	Cost
1	Kitchen composter (such as Lomi, Reencle or Harp)		Residential	23kg (50lbs)	17"X26"X18"	Plastic and metal	Kitchen	Add food waste and the machine mixes and breaks the food scraps down in 24 hours.	12kg (27lbs) per week	24 hours	No	Manages food waste as it occurs eliminating smell and rodent issues;	everything is included	BPI certified compostable products. proteins, vegetables and fruits	non compostable plastics and oil	NOTE: Proper communication about these systems is very important. These systems are "compost alternatives" or "producers of feedstock suitable for composting" or "producers of products that are not compost and are suitable for amending soil". They are generally designed either to "collect food scraps" or "reduce food scraps into another form". The product literature for Lomi calls the product "Lomi Earth" and describes it as homemade fertilizer. Research is underway to learn about the produce produced by Reencle system.	$800
2	Aerobic Digestion (Harp)		Drop off site, hotel, hospital, school casino and downtown district.	1000-2500 lbs	From 75"X49"X 48" to 259" X 159" X 91"	Stainless steel	On site management	Add food waste and the machine mixes and breaks the food scraps down in 24 hours.	from 440 lbs to 5.5 tons per 24 hours	24 hours	No	Allows to manage food waste immediatly without developing smell or attracting rodents	Cart dumper, shredder and auto feed	BPI certified compostable products. proteins, vegetables and fruits	non compostable plastics and oil	Unlike traditional composting, there is no need to create a recipe as the food at it's freshest it can be placed inside the machine. Many food scrap collection programs are shut downbecause of odor. There is no odor during processing.	$38,000-$600,000
3	CO Sustainability		Business Food Waste Collection	Up to 400 lbs when full	64 Gallon	Plastic and metal	Institution and Business	Put front and back of the house scraps into container. Gets picked up weekly for compost.	64 Gallon	NA	No	Pick up frequency and number of carts on site is flexible to best fit collection volume/ customer need	Compostable liners	All food scraps BPI Certified compostables	Non-compostable items (traditional plastic, metal, glass) Un-certified compostable products Bulk grease	Liners keep bins cleaner, reduces smells, prevent freeze-in during winter	Pick up service prices vary
4	My Green Michigan		On site collection + commercial pick up		44" tall, 22" wide, 26.5" deep	HDPE	Commercial	Curbside food waste collection bin	64 gallons 224 lbs	NA	No	Pick up frequency and number of carts on site is flexible to best fit collection volume/ customer need	Compostable liners	All food scraps BPI Certified compostables	Non-compostable items (traditional plastic, metal, glass) Un-certified compostable products Bulk grease	Liners keep bins cleaner, reduces smells, prevent freeze-in during winter	Pick up service prices vary
5	3-bin system + feedstock storage (food scraps, browns) + Kitchen collection carts/buckets		On-site		1 typical sized wooden bin = 4x4x4 (cube) (can be larger) wire bins vary in size	COMPOST SYSTEM Wood, 1/4" Hardware cloth, Corregated metal for lids; locking system; hardware; (Note: modified Compost Know system design) AERATED SYSTEM COMPONENTS (recommended to reduce labor requirements) FOUNDATION Concrete slab or pavers - place composting system on; also used for mixing materials FEEDSTOCK COLLECTION AND STORAGE SYSTEMS Food scraps: Jori tumbler; Compost for food scrap storage Yard Waste (leaves, wood chips, saw dust, grass clippings): 2-3 bin wire system FINISHED COMPOST STORAGE Open pile; Bin or Bay	Community-Scale	Collect yard waste in wire bin system Collect kitchen food scraps in bins or buckets Transport food scraps to compost system site Transfer food scraps to tumbler & mix with browns Build compost pile using best practices recipe (food scraps, yard waste, water) Put materials in 3 bin system (1st bin); monitor temperatures and moisture to ensure reduction/elimination of pathogens and weed seeds Manage through remaining 2 bins to the curing phase	Depends on size	~9 months	Yes	Requires management of incoming materials, composting, storage and distribution of finished compost	size can be changed based on need	Vegetative food waste; Yard Waste	Meats, bones, FOG (fats, oils, grease), dairy	PARTICIPATORY IMPLEMENTTION Identify an experienced composter or someone willing to learn how to compost; Someone with capacity to serve as the "composter and compost system manager"; Best Practice: Partner with an experienced composter during learning curve Composter training: on-line with facilitated discussions (4-6 hours),. 5 day hands-on Offer training to teachers, volunteers and students engaged in composting: on-line training w/facilitated discussions (4-6 hours); on-line training self-paced (4 hours), hands-on training (.5 day) Train kitchen staff how to "collect clean" food scraps (no labels, twist ties, plastic, inorganic materials, etc)(only acceptable materials); introduce them to the composter to build relationship Train general services staff how to "collect appropriate" yard waste; introduce them to the composter to build relationship Identify uses of compost and engage users about how they will use compost in advance of starting the program; encourage them to take the on-line training to build awareness and appreciation for the process; introduce them to the composter to build relationship NOTE: Proper communications about this system is very important. This system is a "compost alternative that produces feedstock suitable for composting". The system is designed "collect food scraps" through the garbage disposal system. The product literature illustrates how the disposal system "collects food scraps" and makes recommendations to divert food scraps to curbside bin or composting of food scraps. The system itself does not produce compost.	between $50-300 varies based on material selection
6	Sepura		On-site		15.25"-20.25" X 11" X 12.5"	Plastic and metal	Kitchen	https://sepurahome.com/products/sepura	2.6 gallons	2-4 weeks	No	Unit collects food scraps through kitchen sink disposal system; Recommends emptying sealed food scrap bin every 2-4 weeks	NA	All food scraps BPI Certified compostables	Non-compostable items (traditional plastic, metal, glass) Un-certified compostable products Bulk grease	The product literature illustrates how the disposal system "collects food scraps" and makes recommendations to divert food scraps to curbside bin or composting of food scraps. The system itself does not produce compost.	$800

Figure 27

Composting Benefits and Challenges Matrix

	Municipal		Onsite (Compost Pile)		Onsite (Digester)	
#	Benefits	Challenges	Benefits	Challenges	Benefits	Challenges
1	Less labor intensive (No regular compost pile maintenance)	More expensive	Cheaper (lower waste hauler costs)	Labor intensive (daily maintenance)	Lower waste hauler costs	Less labor intensive (No regular compost pile maintenance)
2	No risk of ratios being off balance	No circular economy integrated into the composting process for the schools	Experiential learning opportunities for students (integration into K-12 curriculum and enrichment activities, like gardening or green clubs; compost crews)	Greater risk of ratios being off balance	Experiential learning opportunities for students (integration into K-12 curriculum and enrichment activities, like gardening or green clubs)	Higher upfront and maintenance costs (initial purchase & electricity)
3	Doesn't require a dedicated space to compost	No onsite use for compost created from onsite food scraps	Can use compost for onsite landscaping	Requires adequate volume of carbon ("brown") materials to maintain correct balance	Can use compost for onsite landscaping	Requires a dedicated space to establish and maintain compost (Need enough space to install)
4	Builds community connections	No experiential learning opportunities available to students (in K-12 curriculum or in enrichment activities)	Can sell compost created onsite for fundraisers to the community	Requires a dedicated space to establish and maintain compost (Need enough space to install)	Can sell compost created onsite for fundraisers to the community	Requires staff and student support and buy-in
5	Less onsite logistics to figure out	No fundraising opportunities	Schools keep the finished composted product	Requires staff and student support and buy-in	Schools keep the finished composted product	Power supply is 240V 3-phase at remote sites that can be a challenge, usually a street light has this power.
6	Quicker to start	Must coordinate with waste hauler to pick up compost	School doesn't need to coordinate days and times for someone to pick up compost	Requires initial startup costs build and setup compost site	School doesn't need to coordinate days and times for someone to pick up compost	The soil amendment needs to cure for 6 days after it exits the machine prior to use. Once the 6 days have passed the amendment can be used exactly like compost.
7		Schools do not keep final composted product	Students have an active role in the process		Students have an active role in the process	
8		Storage containers must be kept outside until pickup			Eliminates the carbon impact of transportation, food, miles add CO2, methane and cost.	
9					Eliminates on site bad smells, the only smell would be the containers if they ae not washed or the site does not use compostable bags.	
10					Eliminates the recipe required of composting by focusing on browns and greens instead the site is balancing moisture (for example if it is too wet from watermelon day just add brown paper towels from the bathroom)	
11					The above makes the process a lot less labor intensive than piling and turning.	
12					Fully automated literally open the lid throw it in and restart the machine.	
13					Machine can be outside	
14					Remote access through an application allowing the user to know the weight, temperature and any other aspect of the process without being on site.	
15					Complete and total pathogen elimination, food waste carries a lot of harmful pathogens especially if it has been sitting for a week!	

APPENDIX D: INITIATIVE 4 RESOURCES

SHARE TABLES RESOURCES

There are many resources available to help schools integrate food and climate education into the K-12 curriculum. Therefore, the materials provided in this Appendix are to help Make Food Not Waste work with schools and Directors of Instruction to utilize existing and develop new lesson plans and experiential learning opportunities for students that can be integrated into the K-12 curriculum.

Share Tables

i. HELPING SCHOOLS SAVE FOOD: Food Share Table [190]
ii. Share tables at schools [191]
iii. Use of Share Tables in Child Nutrition Programs [192]
iv. CalFresh Healthy Living Share Table Implementation Guide [193]

USDA-Approved Recipes

i. Recipes - FoodHero - Oregon State University [194]
ii. Information for Schools - Food Hero [195]
iii. Recipes by Ingredient - Food Hero [196]

APPENDIX E: INITIATIVE 5 RESOURCES

FOOD RECOVERY & REDISTRIBUTION RESOURCES

The materials provided in this Appendix are to provide Make Food Not Waste with resources to assist schools with establishing a food recovery & redistribution system to provide surplus food to students and their communities.

Blessings in a Backpack

i. Blessings in a Backpack Michigan - Benefits [197]
ii. Southfield - Blessings in a Backpack [198]
iii. Blessings in a Backpack - Program Specifics [106]
iv. Blessings in a Backpack - National Food Solutions [199]

One More Meal

i. One More Meal Explained [108]

Green2Go

i. Green2Go Website [109]
ii. Green2Go Information Guide [110]
iii. Green2Go Grant Application [200]

APPENDIX F: INITIATIVE 6 RESOURCES

FOOD & CLIMATE EDUCATION RESOURCES

There are many resources available to help schools eliminate their food waste and connect the lunchroom to the classroom through integration of food and climate education into the K-12 curriculum, while ensuring school meals adhere to child nutrition standards. Therefore, the materials provided in this Appendix are to eliminate existing knowledge gaps that prevent schools from adopting strategies currently supported by the federal and Michgian School Meals programs, and provide existing lessons, experiential learning opportunities, and field trip ideas to connect strategies adopted by school lunchrooms back to the classroom.

This Appendix contains online training courses for school administrators and food service staff, various educational resources for classroom tie-ins, and resources to ensure schools can adopt the lunchroom strategies outlined in Initiative 5 successfully.

Online Training Courses

General

iv. Online Training Modules [201]
v. The Michigan School Meals Program - Overview [202]
vi. Michigan School Meals Training Materials for Schools [203]
vii. Offer Versus Serve Training Course [204]
viii. FAST: Excess Fund Balances (EFB) [205]

Breakfast in the Classroom

ix. Breakfast in the Classroom [206]
x. Project breakFAST toolkit [207]

Lessons, Experiential Learning Opportunities, Field Trip Ideas

i. Food Systems and Food Waste Reduction: Green Team and Classroom learning and activities [208]
ii. Field Trips and Presentations | The Green Team [112]
iii. Educational Resources for Schools - Classroom and Lunchroom - Food Hero [195]
iv. Food Waste Warrior Toolkits by Grade Level - WWF [209]

APPENDIX G: MISCELLANEOUS RESOURCES

RISK MATRIX

The table presented in this Appendix (**Figure 28**) lists the potential risks and their mitigations, likelihood, and impact on implementing the development plan successfully.

A link to the risk matrix can be found here: Risk Matrix

Figure 28

Risk Matrix

	Label	Initiative	Title	Description	Mitigation(s)	Likelihood	Impact
2		1	Resource limitations	Limited resources (financial, human, time, etc.) prevents PM from securing support from schools.	Raise awareness for MFNW's mission and goal, post volunteer and job opportunities to job boards, and share help needed post on LinkedIn.	Low	Medium
3		1	No administration support	Administrators do not support the project.	Attend school board meetings. Provide savings estimates if food waste is eliminated by the schools within each district. Meet with county officials to secure support for the project.	Medium	High
4		1	Limited staff participation	Staff resist project due to concerns over perceived workload.	Provide staff with potential resource savings by implementing the project. Less trash (lower weight, less bags), less meal preparation	Medium	Medium
5		1	Limited student participation	Students resist the project due to not understanding how it relates to them and their futures.	Organize and hold a trash reduction competition. Sports teams, clubs, etc. manage lunchroom waste sorting. Team with the least amount of compostable/recyclable material in the trash at the end of the semester wins a prize (i.e., pizza party, early school release). Utilize lesson plans to teach students about food waste and climate change (Initiative 6).	High	High
6		1	Lack of coordination	Project manager faces challenges coordinating initiatives across multiple schools and departments.	Clearly define the PM's responsibilities and authority.	High	Medium
7		1	Stakeholder resistance	School staff and students do not support the project.	Involve stakeholders early in the project to answer questions and secure buy-in.	Medium	Medium
8		1	Ineffective communication	Communication plan does not meet MFNW or school expectations, nor align with the project timelines.	Tailor communication plan to each audience (staff, students, parents).	Medium	High
9		1	Stakeholder engagement	Difficulty engaging stakeholders throughout project.	Establish a clear plan for how PM will engage with stakeholders throughout the project.	Medium	High
10		1	Ineffective operations	Sustainability council unable to effectively implement project due to poor organization or lack of clear goals.	Define sustainability council's structure, objectives, and methods of operation. Charter, role elections, role expectations, meeting schedule	Medium	Medium
11		1	Limited representation	Selected participants do not attend meetings nor have sufficient representation for ongoing initiatives.	Ensure sustainability council includes members from different school positions and grades to ensure comprehensive representation throughout each school.	Low	Medium
12		2	Inaccurate or incomplete data	Poor record-keeping during assessments and audits.	Provide resources and training to staff and students involved in the assessments and audits to ensure comprehensive data collection. Interview questions, waste tracking sheets, scales, etc.	Medium	Medium
13		2	Resistance to change	Students and staff are resistant to altering existing waste operations.	Engage all stakeholders throughout the process to understand concerns, answer questions, and gain support (refer to Initiative 1).	Medium	High
14		2	Resource limitations	Insufficient resources (financial, human, or physical) prevent completion of assessments and audits.	Utilize existing materials to conduct assessments and audits. Request volunteers to help organize and conduct assessments and audits. Apply for grants available through the World Wildlife Fund and SFE to conduct audits.	Low	Low
15		2	Non-compliance	Students and staff do not cooperate with the food waste audit requirements.	Involve students and staff in the food waste audit planning process to encourage support and buy-in (refer to Initiative 1 - Sustainability Council).	Medium	High
16		2	Data management	Insufficient resources to collect, store, and analyze data collected from the food waste audit.	Utilize efficient data collection tools and methods to manage and analyze food waste audit data effectively.	Medium	Medium
17		2	Low response rate	Students and staff do not complete the survey.	Make the survey engaging and easy to complete.	Medium	Medium
18		2	Biased responses	Responses do not accurately reflect the true preferences or habits of the survey participants.	Work with students and staff to develop a list of questions to ensure views of each party are reflected accurately. Make they survey anonymous to encourage participation and honesty.	Medium	Medium
19		2	Overwhelming information	Food waste report is too dense or technical for schools to understand or utilize.	Work with technical report writers and MFNW marketing experts to structure the report in an easy-to-understand report with key findings highlighted.	Medium	Medium
20		2	Lack of actionable insights	Food waste report does not translate findings into clear, actionable recommendations.	Utilize the key findings to provide clear, practical recommendations that facilitate action.	Medium	Medium

	Label	Initiative	Title	Description	Mitigation(s)	Likelihood	Impact
21		3	**Insufficient buy-in**	Insufficient support/participation from students, staff, and/or parents for implementing and maintaining a school composting program.	Conduct workshops to educate the school community about the benefits of composting. Attend staff meetings to educate school officials about the benefits of composting. Present the project during morning announcements for each school.	Medium	High
22		3	**Operational challenges**	Insufficient capacity or resources to properly manage compost requirements, leading to odor, pests, or health hazards.	Work with composting experts to determine the best composting strategy for each school. Have composting partners put together matrix of available composting systems and provide estimates for municipal composting.	Medium	Medium
23		3	**Cost**	Insufficient funding to implement and maintain a composting program.	Secure funding and/or grants to implement and maintain school composting programs. Apply for grants through Southeast Food Excellence (SFE).	Low	Low
24		3	**Non-compliance**	Students and staff do not follow plate waste disposal requirements.	Make the existing waste disposal process as inconvenient as possible. Make compost bin the largest and general trash the smallest bin in the system. Remove excess trash bins from the lunchroom. Implement clear labeling for all bins within the composting program. Conduct educational campaigns to educate students and staff on proper disposal methods. Implement lunchroom walkthrough process, where lunch monitors/custodial staff/volunteers walk bins around lunchroom to collect plate waste to ensure it is disposed of properly.	Medium	High
25		3	**Misuse**	Students and staff use incorrect bins to dispose of plate waste.	Audit bins used for composting program to ensure compliance and adjust system accordingly.	Medium	High
26		3	**Workload**	Composting program creates additional work for custodial staff.	Conduct training sessions with custodial staff and provide necessary resources to manage the composting program effectively.	Medium	Medium
27		3	**Ineffective incentives**	Students not interested in participation incentives.	Offer incentives that students are interested in. Pizza, coffee, early release from school	Medium	Medium
28		3	**Short-term focus**	Competition does not encourage long-term behavioral change.	Design the trash reduction competition to promote ongoing awareness and long-term integration into K-12 curriculum and daily habits.	Low	Medium
29		3	**Data integrity**	Insufficient resources or capacity to ensure fair and accurate waste measurements from student teams.	Use clear, fair, and easy-to-understand metrics for administrators, teachers, and staff to measure waste reduction for each student team.	Medium	Medium
30		4	**Scheduling conflicts**	Longer lunch periods interfere with instructional time or other school activities.	Revise school schedule to balance longer lunch periods with school start/end time and instructional time.	Medium	Medium
31		4	**Supervision challenges**	Longer lunch periods require additional staff or volunteers for supervision.	Allocate staff responsibilities to manage extended lunch periods without overburdening them. Create a rotating lunchroom supervision schedule for teachers and staff.	Medium	High
32		4	**Health and safety concerns**	Shared food increases food safety and allergy risks.	Establish and enforce strict health and safety protocols for share tables. Cold storage, no packaged-at-home foods Implement signage to easily understand what can be returned to share tables. Provide training to students and staff regarding what can be collected and distributed through share tables.	Medium	Medium
33		4	**Waste mismanagement**	Share tables become another source of food waste.	Assign students, staff, or volunteers to oversee share tables to ensure only accepted items are collected.	Medium	High
34		4	**System misunderstanding**	Students and staff do not understand how Offer vs. Serve works, causing confusion and creating more waste.	Provide education and training to students and staff regarding how share tables and Offer vs. Serve works.	Medium	High
35		4	**Imbalanced nutrition**	Students return items they must take to comply with school meal programs, resulting in unbalanced diets.	Prepare a variety of healthy options for each meal that are appealing to students.	Medium	High
36		4	**Inefficiency and delays**	Releasing by table delays lunchroom clearing, preventing students and staff from returning to classrooms on time.	Develop procedures for how to release students by table during mealtimes that ensure adequate time to get from the lunchroom to each classroom.	Medium	Low
37		4	**Fairness issues**	Students find releasing by table unfair.	Develop a rotating schedule for how the lunchroom will be released by table, ensuring that no one table is always first/last to be released.	Low	Low
38		5	**Food safety**	Recovered food increases food safety and allergy risks.	Establish food safety protocols that require all excess food to be stored and reheated according to food safety guidelines.	Medium	Medium
39		5	**Stigma**	Students feel stigmatized for eating "leftover" food.	Utilize positive messaging to promote consumption of leftover food before preparing new food, emphasizing the importance of food waste reduction and community sharing.	Medium	Medium
40		5	**Perceived quality**	Students, staff, and parents perceive leftover food as lower quality.	Ensure leftover meals are prepared and presented with the highest quality possible. Organize cooking demonstrations that educate students, staff, and parents on how to creatively utilize leftovers.	Medium	Medium

1	Label	Initiative	Title	Description	Mitigation(s)	Likelihood	Impact
40		5	**Perceived quality**	Students, staff, and parents perceive leftover food as lower quality.	Ensure leftover meals are prepared and presented with the highest quality possible. Organize cooking demonstrations that educate students, staff, and parents on how to creatively utilize leftovers.	Medium	Medium
41		5	**Menu variety**	Repeated meals decrease interest in school meals.	Provide opportunities to increase visibility for how to use leftovers creatively to prepare new meals.	Medium	Medium
42		5	**Logistical challenges**	Packaging and distributing leftover food to students is complex, requiring multiple 3rd parties.	Develop a streamlined system for packaging and discreetly distributing excess food (backpack programs).	Medium	High
43		5	**Legal challenges**	Packaging and distributing food directly to students is not protected by food donation laws.	Work with Michigan DoE, EGLE, and USDA to identify strategies to effectively and safely distribute food directly to students without unnecessary 3rd party involvement.	Low	Medium
44		5	**Privacy concerns**	Identifying and targeting in-need students raises privacy and stigmatization concerns.	Work with counselors and social workers and utilize school meals program paperwork to discreetly identify food insecure students.	Low	Low
45		5	**Maintenance and stocking**	Keeping little pantries well-maintained and stocked causes resources constraints.	Assign students, staff, and volunteers to regularly check and maintain little pantries. Encourage the use of little pantries as volunteer opportunities for students.	Medium	High
46		5	**Community participation**	Community involvement and utilization of little pantries is insufficient to maintain them.	Promote little pantries through community events and collaborations to encourage their use and support. MFNW's Annual Community Feast Flyers (around the community and sent home with students)	Medium	Medium
47		6	**Teachers overburdened**	Extra work is required for teachers to create lesson plans for food & climate education.	education into the K-12 curriculum. Utilize existing lesson plans from Massachusetts' Green Team.	Medium	Medium
48		6	**Resource constraints**	Teachers do not have enough time or resources to teach students about food waste and climate change effectively.	Utilize existing lesson plans from the World Wildlife Fund. Utilize STEM Teaching Tools' lesson plans created by the Institute of Science		
49		6	**Data complexity**	Data collected during audits is too complex to integrate into lesson plans.	Utilize existing lesson plans created to supplement food waste audits and integrate findings into the classroom.	Medium	Medium
50		6	**Student engagement**	Students don't engage with material.	Utilize experiential learning opportunities to create lessons that are interactive, engaging, and relatable.	Medium	High
51		6	**Curriculum integration**	Teachers cannot find opportunities to integrate food waste and climate change lessons into curriculum.	Align lesson plans with existing subjects and test standards to ensure seamless integration and alignment with existing standards.	High	High
52		7	**Safety concerns**	Increased risk of injury if students utilize sharp tools without supervision.	Establish a safety protocol for students to utilize fruit slicers. Utilize under the supervision of staff (particularly younger students) Implement safety mechanisms to ensure safety during use	Medium	High
53		7	**Hygiene and sanitation**	Multiple people utilizing tools without an established cleaning schedule increases contamination risks and spread of diseases/illnesses.	Implement a strict cleaning and maintenance protocol to reduce contamination risks.	Medium	High
54		7	**Equipment misuse or damage**	Frequent equipment utilization increases risks of misuse or damage, requiring higher maintenance costs.	Provide training and clear instructions for how to use fruit slicers correctly and safely.	Medium	Medium
55		7	**Condiment overuse or waste**	Students use more condiments than needed, creating excess waste.	Use dispensers that limit the amount dispensed at a time to reduce waste.	Low	Medium
56		7	**Cross-contamination**	Open containers increase contamination risks.	Label all condiments and spices clearly, to avoid cross-contamination. Do not include options with known allergies to avoid potential exposure. Use dispensers instead of jars or vessels requiring spoons for proper serving.	Medium	Medium
57		7	**Mess and maintenance**	Frequent utilization creates a mess and shortages, requiring additional resources to maintain and keep options full.	Assign students, staff, and volunteers to maintain, clean, and restock the condiment & spice bar regularly.	Medium	Low

RESOURCE LIST

The resources needed to implement the recommendations outlined in this development plan include:

i. Time
ii. Space
iii. Lesson plans
iv. Fruit slicers
v. Materials to implement a comprehensive compost and recycling program
    a. Tables
    b. Bins
    c. Buckets
    d. Colander
    e. Lids
    f. Bags
    g. Gloves
    h. Aprons
    i. Signage
vi. Materials to implement an onsite food donation program
    a. Wood
    b. Plexiglass
    c. Screws
vii. Materials to implement a condiment and spice bar
    a. Table or cart
    b. Bulk dispensers
    c. Cups
    d. Spices
    e. Condiments
viii. Materials to implement onsite composting (*if applicable*)
    a. Composter
    b. Materials to build a compost pile
        i. Wood
        ii. Screws
        iii. Chicken wire
        iv. Shovels
        v. Gloves

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APPENDIX F:

Methods

Appendix F: Methods

The Team

Make Food Not Waste (MFNW) worked with various departments and stakeholders in each community that was included in this planning cohort.

In Livonia, the main point of contact was from the Mayor's office. Representatives from the city's GreenLeaf commission, City Council, the Department of Public Works, and the Chamber of Commerce also provided input and feedback on the Blueprint.

Many of the local and national experts convened as part of the pilot food waste elimination Blueprint planning in Southfield supported the development of this Blueprint on an as-needed basis. Input from these experts in food waste prevention and communication, schools, food rescue, and organics recycling were specifically used to tailor the strategies to overcome challenges and be successful in Livonia. The project was managed by Giffels Webster, a consultant hired by MFNW.

Meetings

The commitment shared with all communities when asked to participate in the *Every Bit Counts* initiative was participation in three meetings. The first meeting was held October 31, 2024, at the Livonia Department of Public Works building. This meeting convened all five communities participating in this cohort of the planning effort and served as a kick-off to explain the project, share findings about food waste in each community, and discuss opportunities for collaboration.

The second meeting was held between January and March 2025 with each community. Representatives from multiple departments and stakeholder groups were present and a menu of strategies was discussed to discuss potential barriers and resources and determine feasibility and palatability of each strategy. The information collected during this workshop and additional follow up information was used to draft the Blueprint.

The third meeting was held on July 1, 2025, at Westland City Hall. This meeting reconvened representatives from all five communities in this planning cohort as well as from the City of Southfield, the pilot community. The focus of this meeting was discussing opportunities for collaboration and economies of scale between all of the participating communities. Representatives also learned about the upcoming Materials Management Plans (MMPs), what the changes in those plans would mean for their communities, and how the food waste plans support what will be asked of each municipality once the MMPs are adopted.

Outreach

Surveys to capture resident and food-based business owner knowledge, attitudes, and practices related to food and food waste were developed by MFNW, Giffels Webster, and researchers at Eastern Michigan University. Promotional materials for social media, newsletters, and printing were created and shared with the point person for sharing to the appropriate people for distribution. Arabic and English versions of the materials were available.

The city declined to release surveys to residents and business owners due to concerns about the length of the surveys and over-surveying the community. Therefore, no resident or business input was collected for this Blueprint.

Drafts

Following the second meeting and additional feedback gathering, the narrative of strategies and implementation timeline for each community were drafted. The draft was sent to the point person to distribute for review and feedback. Feedback was incorporated into the final draft and timeline and the narrative was used to create a budget for implementation in each community. Final drafts were provided to the point person in each community in July with an itemized list of all changes made from the original document. These drafts were reviewed for any final revisions.

Calculating Food Waste by Sector

A calculator for estimating food waste developed by the Natural Resources Defense Council was used to estimate the baseline amount of food wasted in each community by sector, as well as the potential for rescue and upcycling. The following provides more detail about the methods used to gather and input the data required for the calculator.

A search for specific NAICS codes in ESRI Business Analyst were used to identify sites such as grocery stores, markets, convenience stores, restaurants, hospitality sites, and food manufacturers, processors, and wholesalers where food waste may occur in each community. Schools and related data like enrollment numbers were found mainly via publicschoolreview.com and privateschoolreview.com. A Google Search was also conducted to cover all bases and find any missing information. When ESRI Business Analyst's query did not find any hospitality sites, hospitality sites were identified via Google. Senior facilities were found using matchnursinghomes.org. The information from these sources was tabulated, and additional online searches and phone calls to sites were conducted to find any necessary missing information. All entries were cross referenced with Google searches, and businesses that closed or moved out of the community were removed from the list. Additional healthcare facilities like hospitals were found via Google searches. Event and recreation facilities were found through Google searches and correctional facilities were found through prisonpro.com/correctional-facilities-by-state, a source provided by the NRDC, and Google searches.

Once the project team had exhausted these ways to complete and clean the data set, the information was sent to the subject community for review, corrections, and gathering some of the missing values. The following describes how the missing information was estimated to complete the data inputs for the food waste calculator, and any deviations from what was provided by the community:

- Schools - publicschoolreview.com and privateschoolreview.com were used to obtain school enrollment for K-12 schools. Enrollment numbers for colleges and universities were obtained from a variety of sources, including specific school websites and third-party sites.
  - » The City of Livonia provided an estimate of 13,000 and 15,000 for their two districts. However, when enrollment data from publicschoolreview.com and privateschoolreview.com was used, the total number of students enrolled exceeded the number provided by the city. In an effort to ensure that the baseline measurement encompasses all of the food thrown away, the greater number of enrolled students was used in this calculation.
- Hospitality – All communities, except Westland, had some hospitality sites. We were unable to get employee numbers for most sites so we used 10 FTEs for all sites for which we could not find this data, as that was representative of the number of employees at other hospitality sites among the four communities.
- Healthcare – Over 75% of all healthcare facilities in Farmington Hills and Livonia provided the number of beds, and approximately 50% of the facilities in the other three communities also made that information available. For those sites that we did not have bed data for, the number of beds was estimated via benchmarking facilities with known bed counts and used their footprints, floors, windows, and doors to estimate this value.
- Grocery and Markets – Revenue was missing from only four grocery/market sites among all five communities. All sites had information regarding the number of employees. The four missing values for revenue were estimated by calculating the average revenue of sites with the same employee count as the site with missing revenue. Large grocery sites such as Target and Costco were identified through a Google search as they were not included in the NAICS codes and locations were added to the list of food-based businesses, but not included in the calculator as this was outside the instructions for using the calculator.
- Convenience stores - Revenue was missing from only four convenience store sites among all five communities. This information was completed using the method that was used for grocery and markets.
- Restaurants – While the data required for the calculator (number of full-time equivalent employees and revenue) were available for most restaurants, it was not provided for all restaurants. Those were taken on a case-by-case basis. For example, one Starbucks in a community did not have the data, but the other four Starbucks sites did. The number of employees and revenue was averaged for the four sites with this information and that value was used to fill in the missing information. For restaurants that are not chains, a restaurant of a similar size, style (sit down, take out, etc.), and type of food (when possible) from the same community that had the required information was used as a benchmark for the missing values.
- Catering – No adjustments were made to this data category beyond the information provided via the NAICS code search in ESRI Business Analyst.

- Food Wholesalers and Distributors – No adjustments were made to this data category beyond the information provided via the NAICS code search in ESRI Business Analyst with the exception of estimating the revenue for Sysco Detroit, located in Canton. This site had 625 employees, and no other sites among the five communities had a wholesaler with that many employees. Dearborn's Shatila Food Products was the closest with 60 employees. The number of employees and revenue was extrapolated from Shatila to estimate revenue of Sysco Detroit in Canton.
- Food Manufacturing and Processing - There were three food manufacturing and processing sites in Livonia that had missing data. These were all sites that create to-go food within grocery stores. The calculator required only information about revenue, and the information from the NAICS codes provided employee count and revenue. Therefore, the employee count was used as a proxy for size of operation and output, and the average revenue of those sites with the same employee count as the subject business were averaged to estimate the missing revenues.
- Event and Recreation Facilities – If the website for the site did not provide the required number of seats or number of annual visitors for the calculator, the project team called the location or provided and estimate based on the site's size.
- Correctional Facilities – No adjustments were made to this category beyond the information provided via prisonpro.com/correctional-facilities-by-state and Google searches.

Strategies Explored, but Not Suitable for Livonia

There are several food waste prevention, reduction, and elimination strategies that are feasible and effective in other communities, but were determined to not be an appropriate fit for Livonia. These are described below.

Advanced upcycling

There are numerous advanced upcycling technologies and specialized equipment manufacturers that can process large quantities (millions of pounds annually) of underutilized food and organic material to make it suitable for human consumption. Many of these systems employ dehydration technologies that evaporate water by applying direct or indirect thermal energy typically with infrared, heat pump or gas-fired devices. Others employ microwaves or proprietary methods (e.g. cavitation or latent process energy) to densify, sanitize and render the organics shelf stable --and ultimately edible.

Even though these technologies could provide substantial food waste diversions and environmental benefits that surpass aerobic and anaerobic digestion, they were omitted from further evaluation given the fact that Livonia does not have sufficiently large food or beverage producers to make this economically viable. Furthermore, residential food waste cannot be sourced readily as an input given the potential for contamination. Many of these advanced upcycling systems require consistent and predictable feedstocks and substantial capital expenditures at the outset to operate at necessary economies of scale. Although these technologies are not included in our initial recommendations, there could be situations in the future where further evaluation is warranted.

Require large food waste generators to report and divert food scraps

More and more municipalities and states are requiring large food waste generators to report their waste and diversion volumes. While reporting requirements vary from program to program, they all support the idea that simply measuring these amounts helps change behavior and reduce food waste.

Legislation on this topic is currently being discussed at the state level. It was determined that the state would be best equipped to handle this instead of the city, and that businesses within the city would most benefit from using the tracking and prevention strategies discussed in the Food-Based Businesses section that may result in similar outcomes to required reporting and diversion.

Include waste collection service as a line item on property tax bill

Currently, property tax bills are issued without the services provided being itemized so residents do not know how much they are spending on each service. National best practices suggest that this could disincentivize waste reduction as it makes waste collection appear and feel to be free when it is really a service that is paid for. However, listing the cost as a specific line item could encourage people to throw away more in order to get their monies' worth for the service that they are required to pay. Therefore, we decided not to include this strategy in the Blueprint.

Implement an organics waste ban

The state ban on yard waste in landfills has been effective and shows a possible strategy to also divert food waste from landfills. However, it was felt that this top-down approach would create more contention and division than other strategies that may reach the same outcome of full diversion of food from landfills.

Site a new compost facility in Livonia

Siting a new compost facility within the city was discussed as a way to reduce emissions associated with hauling food scraps and to alleviate pressure on existing sites that can accept yard waste and food scraps. However, a compost facility was not deemed feasible within the city due to the relatively few parcels of land large enough to accommodate this use and their proximity to residential lots. The existing City of Livonia Landfill, a capped landfill at 32500 Glendale Ave, was explored as an option but will need further assessment and exploration with the state regarding what can and cannot be done at the site.

Permit soup kitchens in more districts to process surplus food

Finding ways to increase upcycling of excess food in the city was discussed, including following the model of MFNW's Upcycling Kitchens, both located in Detroit. Livonia currently does not have any soup kitchens within the city limits, but the city does use Community Development Block Grant (CDBG) funds to support organizations outside the city that support residents in this way. City staff were confident that this funding partnership would continue, and suggested that surplus food preservation and processing techniques be included in future funding collaborations with these sites.

Create a workforce development program in circular waste management

A dearth of knowledgeable, trained workers in the area of circular waste management, particularly for organics, has been recognized through this planning process. If all food waste is to be diverted from landfills, Southeast Michigan will need many more compost facilities and staff that can operate them. The City of Livonia felt that this is something that could be considered at a later time, but felt that it would mostly be in the purview of local schools such as Schoolcraft College and Livonia Public Schools' Technical Center to create a workforce pipeline and training pathway for these jobs. It was noted that Mayor Brosnan has identified workforce development for local jobs as one of her top priorities, and that this training is something that the city may endorse.

Pay As You Throw trash collection fees

Pay As You Throw (PAYT) is a method of collecting fees for trash pickup that has been used in other communities to incentivize diversion from landfill to recycling and composting. Tags are purchased to pay for bags of trash that are collected at curbside, so the more one throws away, the more tags are needed. This was not seen as a viable option in Livonia due to the likelihood that the financial incentive to divert waste from landfill would result in high recycling and food scrap contamination rates and therefore not pursued.

Unbundle waste collection service fees and reduce fees for those who compost

Currently city property taxes are not itemized to show the cost of waste collection versus recycling or other services. If unbundled and itemized, the cost of waste collection and food scrap pickup could be shown separately, and a discount could be provided to those who participate in the food scrap collection program. However, it was determined that this would be difficult to manage and confirm participation, and reduced fees would be unlikely. Therefore, this was not further explored in the plan.

Increase frequency of food scrap collection and decrease frequency of landfill collection

As food scraps go from the trash bin to the compost bin, the amount of trash disposed of will greatly decrease, as will the likelihood of odors and other nuisances associated with food. If all food scraps are diverted, trash bound for the landfill could be picked up less frequently than it currently is. Adjusting the pickup schedule where food scraps are picked up weekly and trash less frequently could incentivize diversion. However, it could also lead to greater rates of contamination as people throw non-organic matter into the organics collection bin just to have it removed. Due to these concerns, this idea was not further explored, but may be in the future if the food scrap collection participation rate is high and weekly trash collection is no longer needed.

Bulk purchase compostable serviceware for restaurants and events

Contamination is a large issue associated with addressing food waste, and much thought has been put into this plan to identify ways to reduce contamination in all situations. Providing support to prevent contamination, such as bulk purchasing of napkins, plates, silverware, and other dishes used by patrons at restaurants where they bus their own table was discussed.

However, given that the scope of this plan is really focused on just food waste and other compostable material, this idea was not included in the plan although it may be something to consider if contamination at restaurants and events becomes an issue.

Partner with an anaerobic digestion facility

Currently, the closest anaerobic digestion facility is in Flint, Michigan. Given the distance and the associated greenhouse gases required for transport of food scraps and its position on the EPA Wasted Food Scale compared to composting, this plan does not recommend the use of anaerobic digestion for food scraps from Livonia.

APPENDIX G:

Project Implementation Team

Appendix G: Project Implementation Team

Project Management and Staff

A coordinated team dedicated to plan implementation is needed to facilitate the roll out of the various interventions throughout the city to reach the food waste elimination goal. MFNW is qualified and ready to serve as the organizing body of the implementation of this plan, but other organizations may also enter the space and be able to fill this role. Positions will be posted once funding has been identified for each, and recruitment and screening of candidates will begin immediately. Positions specific to each sector will facilitate implementation, coordinating and collaborating with partners who have expertise in the sector and/or the strategy being employed. Following that structure, the following positions and partners have been identified.

Coordinating and Management Staff

The following team members all aspects of implementation

- Project Manager - This person would oversee the Every Bit Counts initiative in its entirety. This person would also support implementation of the overarching government and policy changes needed to address food waste. Reporting would also be a task for someone in this role. Strong project and people management skills are needed for this position.
- Commercial Food Waste Elimination Coordinator - This person would specialize in implementing food waste elimination strategies for restaurants, grocery stores, restaurants, hotels, convention centers, venues, and other non-residential and non-school sites. Experience in hospitality, food and beverage services, grocery, catering, food rescue, and/or safe food handling is ideal for this position.
- Residential Food Waste Elimination Coordinator - This person would focus on how to address food waste in homes. This person may also assist and work collaboratively with the Schools Food Waste Elimination Coordinator, as the two sectors are closely linked. Experience in communications, community outreach, and/or behavior change would be ideal for this position.
- Schools Food Waste Elimination Coordinator - This person would specialize in eliminating food waste in schools, adapting plans and strategies to meet the needs of each school. This position would benefit from someone with experience working in schools, food service, and/or child nutrition food policy.

Partner experts

- Food rescue organizations - Food rescue organizations such as Metro Food Rescue, Forgotten Harvest, and Food Rescue US Detroit are currently operating in Southfield and surrounding areas. They work to divert excess food from grocery stores, hotels, restaurants, and catered events to distribution sites such as food pantries and other resource hubs. Their contact information will be provided to commercial food businesses and to City of Livonia leadership and staff as a resource for food donations and distribution to people facing food insecurity.
- Creative design and communications - The overarching and targeted sub-communication campaigns are key components of this plan as they give identity to the initiative, motivate and inform stakeholders, and support the other strategies. Modish has been working on MFNW's communications for this campaign thus far, and will likely continue that work.
- Backyard composting - The Suburban Rat Hater Guide to Composting teaches individuals how to compost effectively in backyards, covering the use of different styles and materials. If backyard composting becomes more common and/or problematic in the City in the future, this is a good resource.
- Community composting and demonstration sites - There are some opportunities to begin community composting as well as demonstration sites in Livonia. Several organizations in the region have experience setting up these sites and helping maintain and manage them, and could be employed to do this in Livonia.
- Single-family food scrap collection, curbside and community drop-off sites - There are several local food scrap haulers that could work with the City and MFNW team to develop a contract for Citywide curbside single-family food scrap collection and collection from community drop-off sites, and work with schools for their food scrap diversion program. Priority Waste, the City's current waste hauler, has confirmed that it could also provide curbside food scrap pick up in carts for single-family residences similar to regular trash pick up. Midtown Composting already serves the area, with local residents subscribing to their services.
- Commercial and multi-family composting - My Green Michigan is a food scrap hauler that currently serves businesses in southeast Michigan, including Livonia. They are willing and able to expand their operations to meet the food scrap diversion needs of all commercial, office, and institutional sites in the City.
- Evaluation - The implementation of all of these strategies calls for robust evaluation and monitoring, both to make adjustments in real time based on learnings but also to share outcomes and findings from the overall project for use in other communities. MFNW currently has a partnership with a team of researchers at Eastern Michigan University who are experts in food and program evaluation who are able to manage the evaluation portion of this initiative.

Community Leads and Supports

- City of Livonia - The City of Livonia's Government Affairs and Community Outreach will publicly support plan implementation by community partners and service providers, assisting with connections to other city departments, providing guidance on how to roll out the strategies, and other facilitative tasks. They will collaborate with the Planning Department and City Council to create the policy pieces such as those about use of compost in city projects and special events. City administrators and City Council will take the lead on negotiating contracts with a citywide food scrap hauler for single-family residences. The Communications Department will assist with promoting the initiative and sharing practical information about food waste management strategies through their usual channels. Staff from the Public Works Department will assist with implementation of food scrap pickup at single-family residences and maintaining the community food scrap drop-off sites while Park & Recreation staff will assist with food scrap diversion in parks and other community spaces. Economic Development staff will collaborate with the Chamber of Commerce to connect businesses with technical support to prevent and divert food waste, as well as relaying information about food waste diversion options and facilitating bulk purchasing of contracts if that is of interest to the property owners. In general, staff from all the departments listed will work closely with the MFNW team to ensure smooth implementation of the various strategies that their department can support.
- Livonia Westland Chamber of Commerce - The Chamber of Commerce will work with the City's Economic Development staff to reach business owners to provide technical assistance and resources to manage food waste at their site. As this plan implementation progresses, Make Food Not Waste will work closely with the Chamber to identify ways to collaboratively engage businesses in addressing food waste.
- GreenLeaf Commission - The GreenLeaf Commission will support outreach efforts to residents, businesses and institutions, share information about the intiative and resources, host events, and provide feedback to the implementation team.

Community Groups and Resource Hubs

The following tables provide a list of resources that may be used for engagement, surplus food distribution, or other resources throughout implementation of this plan.

TABLE 33. Community Groups

Group Name	Description	Location	Email	Phone Number
Blessings in a Backpack—Livonia	Provides weekend meals to students in need within Livonia Public Schools.		biablivonia@gmail.com	
Growth Works	Providing youth and family support and addiction counseling in Wayne County, Michigan.		INFO@GWCARES.ORG	(734) 455-4095
The Kiwanis Club of Livonia Early Risers	A volunteer organization that has been committed to serving the holistic needs of serving children and young adults in Livonia since 1982.	Livonia Chamber of Commerce 33300 Five Mile Rd #212 Livonia, MI 48154	kiwanisoflivonia@gmail.com	
L. E. A. R. N.	We connect people to resources and assistance. We organize, we fund, we support. Equity, justice, and anti-racism are at the heart of all that we do.		info@sunuplivonia.com	
Livonia Cares	A network of Christian churches partnering with social service agencies and the government to meet the basic needs of individuals and families in Livonia.	Christ Our Savior Lutheran Church 14175 Farmington Road Livonia, MI 48154	info@christoursavior.org	(734) 522-6830
Livonia-Westland Chamber of Commerce		Livonia office: 33300 Five Mile Road, suite 212	chamber@livoniawestland.org	(734) 427-2122
LPS Education Foundation	Expand the resources available to the Livonia Public Schools district, which will foster and expand educational opportunities for programs impacting students by building effective collaborations.	15125 Farmington Rd Livonia, MI 48154	lpsfoundation@livoniapublicschools.org	734-744-2500 ext. 42150
The Livonia Junior Chamber/Livonia Jaycees	Individuals ages 21 to 40 looking to engage with their community through social networking and service.	39209 Six Mile Rd	livoniajaycees@gmail.com	

Group Name	Description	Location	Email	Phone Number
Livonia Lions Club	The Lions are a 100% volunteer Community Service Organization serving those in need in Livonia and Redford, especially the blind and visually impaired, deaf and hard of hearing, special needs children and the community at large. Additional service focuses include diabetes awareness, pediatric cancer, hunger and humanitarian needs.	37637 Five Mile Rd #262 Livonia, MI 48154	LivoniaLions@gmail.com	
Livonia PTSA Council	Provides support and assistance to the group of 22 local PTA/PTSA Units within the Livonia Public Schools District. The Council is organized under the authority of the Michigan PTA to promote conferences, communications, leadership development and coordination of the efforts of the local units.	15125 Farmington Rd Livonia, MI 48154	president@livoniaptsacouncil.org	
Mi Work Matters	Livonia-based nonprofit that provides training and employment for people with Intellectual and Developmental Disabilities (I/DD). Mi Work Matters' activities include grassroots advocacy, education, outreach, and directly employing individuals who have been historically marginalized and left out of the workforce.	Anastasia and Katie's Coffee Shop & Cafe. 19215 Merriman Road		248-957-8019
The Rotary Club of Livonia AM	Meets weekly to socialize, discuss the needs of the community and the world around us, and take action to address those needs.	Mailing: 37637 Five Mile Road, #179 Meeting: Rotary at the Livonia Senior Center Complex, 15218 Farmington Road	LivoniaAMRotary@gmail.com	

Group Name	Description	Location	Email	Phone Number
Mai Family Services	Raise awareness of the problems facing the South Asian community in Michigan and to provide support services in the areas of partner and family violence, substance abuse, mental health and senior issues through confidential and culturally sensitive intervention.Referrals to shelters, attorneys, community health resources, therapists	32401 W Eight Mile Rd Livonia, MI 48152	info@maifs.org	(248) 477-4985
Greenleaf Commisison	The Greenleaf Commission on Sustainability shall promote efficiency, conservation and environmentally sustainable practices in the City of Livonia.	Livonina DPW 12973 Farmington Road		(734) 466-2655
Economic Development Corporation	The EDC provides a partnership between the public and private sectors and offers an incentive program designed to help businesses grow and prosper.			(734) 466-2290

TABLE 34. Community Facilities

Facility Name	Address	
City Hall	33000 Civic Center Dr, Livonia, MI 48154	
Police HQ	15050 Farmington Rd, Livonia, MI 48154	
Fire Station 1	14910 Farmington Road, Livonia, MI 48154	
Fire Station 3	35000 Seven Mile Road, Livonia, MI 48152	
Fire Station 4	12300 Middlebelt Road, Livonia, MI 48150	
Fire Station 5	18910 Middlebelt Road, Livonia, MI 48152	
Fire Station 6	37876 Plymouth Road, Livonia, MI 48150	
Greenmead Historical Park & community garden	20501 Newburgh Road, Livonia, MI 48154	
Senior Center Civic Park	15218 Farmington Road, Livonia, MI 48154	
Bennett Civic Center Library	32777 Five Mile Road, Livonia, MI 48154	
Sandburg Library	30100 7 Mile Rd, Livonia, MI 48152	
Ford Field	33841 Lyndon, Livonia, MI 48154	
Fox Creek Golf Course	36000 Seven Mile, Livonia, MI 48152	
Idyl Wyld Golf Course	35786 Five Mile, Livonia, MI 48152	
Jack E. Kirksey Recreation Center	15100 Hubbard, Livonia, MI 48154	
Noble Library	32901 Plymouth Rd, Livonia, MI 48150	
Public Service Headquarters	12973 Farmington Road, Livonia, MI 48150	
Sandburg Library	30100 West Seven Mile Road, Livonia, MI 48152	

Facility Name	Address	
Whispering Willows Golf Course	20500 Newburgh, Livonia, MI 48152	
Eddie Edgar Ice Arena	33841 Lyndon St, Livonia, MI 48154-5401	
Devonaire Ice Arena	9510 Sunset St, Livonia, MI 48150-2948	
Bicentennial Park	36000 West Seven Mile Road, Livonia, MI 48154	
Rotary Park	32184 Six Mile Road, Livonia, MI 48152	
Stymelski Park	14407 Stark Rd, Livonia, MI 48154	
Bien Park	14900 Eckles St, Livonia, MI 48154	
Broadmoor Park	29036 Broadmoor St, Livonia, MI 48154	
Moelke Park	19422 Lathers St, Livonia, MI 48152-2206	
Castle Gardens Park	14503 Hix Livonia, MI 48154	
Compton Park	28874 Lyndon St, Livonia, MI 48154-4560	
Country Homes Park	35414 Orangelawn Ave, Livonia, MI 48150-2539	
Devonaire Woods Park	9514 Sunset St, Livonia, MI 48150-2948	
Meadows Park	18000 Deering St, Livonia, Mi 48152	
Mies Park	32305 W Chicago St, Livonia, MI 48150-3866	
Pastor Park	32255 Lyndon Ave, Livonia, MI 48154-4252	
Clements Circle Park	Clements Circle Splash Park 9999 Harrison St, Livonia, MI 48150-31ND	
Stymelski Veterans Park	14275 Stark Rd, Livonia, MI 48154-5414	
Hearthstone Park	20472 Brentford, Livonia, MI 48152	
Hillcrest Park	19575 Sunset Blvd, Livonia, Mi 48152	
Beverly Park	30601 Pickford St, Livonia, MI 48152-3309	
Jaycee Park	32500 Pembroke St, Livonia, MI 48152-1314	
Robert E. McCann Park	Robert E. McCann Park 16285 Levan Rd, Livonia, MI 48154	
Quakertown Park	16243 Quakertown Lane, Livonia, MI 48154-1113	
Greenwood Park	15503 Blue Skies St, Livonia, MI 48154	
Dooley Park	14400 Harrison St, Livonia, Mi 48154”	
Nash Park	14800 Henry Ruff St, Livonia, MI 48154-3632	
Kleinert Park	32401 Orangelawn St, Livonia, MI 48150	
Social Security Office	34010 Plymouth Rd, Livonia, MI 48150-1512	
Livonia Health Center	20321 Farmington Rd, Livonia, MI 48152	
DPW Department	12973 Farmington Rd, Livonia, MI 48150	
16th District Court	15140 Farmington Rd, Livonia, MI 48154	
Quest Inc	36141 Schoolcraft Rd, Livonia, MI 48150	
Livonia Family YMCA	16360 Hubbard St, Livonia MI 48154	
Foster Closet of Michigan-Western Wayne County	28051 W Chicago St, Livonia, MI 48150-3229	
MaiFS (Mai family services)	32401 W. Eight Mile Rd, Livonia, MI 48152	
United States Postal Service	11800 Merriman Rd, Livonia, MI 48150	
United States Postal Service	37500 Pembroke Ave, Livonia, MI 48152	

TABLE 35. Places of Worship

Name	Address	Phone Number
Clarenceville Church Pantry Plus	20300 Middlebelt Rd, Livonia, MI 48152	(734) 432-1969
Alpha Baptist Church	28051 W Chicago St, Livonia, MI 48150	(734) 421-6300
Berean Baptist Church	38303 8 Mile Rd, Livonia, MI 48152	(248) 477-6365
Berean Bible Church	35375 Ann Arbor Trl, Livonia, MI 48150	(734) 425-5585
Chinese Gospel Church	35301 5 Mile Rd, Livonia, MI 48154	(734) 464-7077
Christ Our Savior Lutheran Church	14175 Farmington Rd, Livonia, MI 48154	(734) 522-6830
Church of Christ	15431 Merriman Rd, Livonia, MI 48154	(734) 427-8743
Clarenceville United Methodist	20300 Middlebelt Rd, Livonia, MI 48152	(248) 474-3444
Emmanuel Lutheran Church	34567 7 Mile Rd, Livonia, MI 48152	(248) 442-8822
Fellowship Bible Church	34541 5 Mile Rd, Livonia, MI 48154	(734) 464-2096
Grace Baptist Church	28440 Lyndon St, Livonia, MI 48154	(734) 425-6215
Grace Christian Fellowship	16751 Middlebelt Rd, Livonia, MI 48154	(734) 525-6019
Holy Cross Lutheran Church	30650 6 Mile Rd, Livonia, MI 48152	(734) 427-1414
Holy Trinity Lutheran Church	39020 5 Mile Rd, Livonia, MI 48154-1338	(734) 464-0211
Kenwood Church of Christ	20200 Merriman Rd, Livonia, MI 48152	(248) 476-8222
Lighthouse Worship Center	19827 Middlebelt Rd, Livonia, MI 48152	(248) 476-7933
Memorial Church of Christ	35475 5 Mile Rd, Livonia, MI 48154-2366	(734) 464-6722
Mount Hope Congregational Church	30330 Schoolcraft Rd, Livonia, MI 48150	(734) 425-7280
Newburg United Methodist Church	36500 Ann Arbor Trl, Livonia, MI 48150	(734) 422-0149
Open Arms Church	33015 7 Mile Rd, Livonia, MI 48152	(248) 471-5282
Parkview Baptist Church	9355 Stark Rd, Livonia, MI 48150	(734) 261-6180
Peace Evangelical Lutheran Church	9415 Merriman Rd, Livonia, MI 48150	(734) 422-6930
Plymouth Road Bible Chapel	30130 Hathaway St, Livonia, Mi 48150	(734) 535-0220
Rosedale Gardens Presbyterian Church	9601 Hubbard St, Livonia, MI 48150	(734) 422-0494
Saint Priscilla Catholic Church	19120 Purlingbrook St, Livonia, MI 48152	(248) 476-4700
St Aidan's Parish	17500 Farmington Rd, Livonia, MI 48152	(734) 425-5950
St Colette Catholic Church	17600 Newburgh Rd, Livonia, MI 48152	(734) 464-4433
St Edith Church	15089 Newburgh Rd, Livonia, MI 48154	(734) 464-1222
St. Genevieve – St. Maurice	29015 Jamison St, Livonia, MI 48154	(734) 427-5220
St Pauls Presbyterian Church	27475 5 Mile Rd, Livonia, MI 48154	(734) 422-1470
St Timothy Presbyterian Church	16700 Newburgh Rd, Livonia, MI 48158	(734) 464-8844
Stark Road Gospel Hall	9280 Stark Rd, Livonia, MI 48150	(734)-425-4910
Timothy Lutheran Church	8820 Wayne Rd, Livonia, MI 48150	(734) 427-2290
Crossroads Church	34500 Six Mile Rd, Livonia, MI 48152	(734) 338-5149
Devon Aire Community Church	9435 Henry Ruff, Livonia, MI 48150	(734) 237-4620
His Church Anglican	34500 6 Mile Rd, Livonia, MI 48152	(734) 367-0422
Ignition Church	31000 Joy Rd, Livonia, MI 48150-3916	(313) 937-2050
Life Church Livonia	16200 Newburgh Rd, Livonia, MI 48154	(734) 679-8366
Riverside Park Church of God	11771 Newburgh Rd, Livonia, MI 48150	(734) 464-0990
Unity of Livonia	28660 5 Mile Rd, Livonia, MI 48154	(734) 421-1760
Apostolic Christian Church of Livonia	29575 Wentworth St, Livonia, MI 48154	(734) 422-1840
Bell Creek Community Church	30000 5 Mile Rd, Livonia, MI 48154	(734) 367-4632

Name	Address	Phone Number
Bethel Baptist Temple	29475 6 Mile Rd, Livonia, MI 48152	(734) 525-3664
Faith Community Wesleyan Church	14560 Merriman Road, Livonia, MI 48154	(734) 522-3570
Holy Transfiguration Orthodox	36075 7 Mile Rd, Livonia, MI 48152	(248) 476-3432
Riverside Park Church Of God	11771 Newburgh Rd, Livonia, MI 48150	(734) 464-0990
Sacred Heart Byzantine Church	29125 6 Mile Rd, Livonia, MI 48152	(734) 522-3166
Saint Genevieve Parish	29015 Jamison St, Livonia, MI 48154	(734) 427-5220
St. Matthews United Methodist Church	30900 6 Mile Rd, Livonia, MI 48152	(734) 422-6038
St Andrew's Episcopal Church	16360 Hubbard St, Livonia, MI 48154-6100	(734) 421-8451
St. Michael the Archangel	11441 Hubbard St, Livonia, MI 48150	(734) 261-1455
St. Paul's Ev. Lutheran Church&School	17810 Farmington Rd, Livonia, MI 48152	(734) 261-1360
Detroit Livonia Christadelphian Ecclesia	36516 Parkdale St, Livonia, MI 48150-2559	(734) 425-7610
Detroit Korean Seventh-Day Adventist Church	15956 Middlebelt Rd, Livonia, MI 48154	(517) 331-6199
The Way Church	8900 Middlebelt Rd, Livonia, MI 48150	(734) 308-9535
Life Pentecostals	30900 6 Mile Rd, Livonia, MI 48152	(734) 751-7333
Journey Church LVNA	32320 Five Mile Rd, Livonia, MI 48154	(734) 742-5109
The River	17235 Middlebelt Rd, Livonia, MI 48152	(734) 437-8971
Four Winds Church	31840 7 Mile Rd, Livonia, MI 48152	(248) 482-7322
Jehovah's Witnesses	32070 7 Mile Rd, Livonia, MI 48152-1348	(248) 477-6776
Immanuel Evangelical	18858 Mayfield St, Livonia, Mi 48152	(248) 476-9427
2|42 Community Church|Livonia	35475 5 Mile Rd, Livonia, MI 48154	(810) 231-0190
Madonna University Chapel	14221 Levan Rd, Livonia, MI 48154-5020	(734) 432-5839
Sri Shirdi Saibaba Temple	28875 W Seven Mile Rd, Livonia, MI 48152	(866) 222-2789

TABLE 36. **Pantries**

Name	Address	Hours	Email	Phone Number
Clarenceville Church Pantry Plus	20300 Middlebelt Rd, Livonia, MI 48152	Wednesday 9:30am - 12:30pm	Clarencevillechurch@gmail.com	(734) 432-1969
Christ Our Savior Lutheran Church	14175 Farmington Rd, Livonia, MI 48154	Fridays 10:00am - 12:00pm	info@christoursavior.org	(734) 522-6830
Rosedale Gardens Presbyterian Church	9601 Hubbard Street, Livonia MI 48150	24/7 self-serve shelf	officergpc@yahoo.com	(734) 422-0494
Devon Aire Community Church	9435 Henry Ruff, Livonia, MI 48150	24/7 self-serve shelf		(734) 237-4620

TABLE 37. **Pre K-12 Schools**

School	Address	Type	Number of Students	Grades	Phone Number
Webster Elementary School	32401 Pembroke St Livonia, MI 48152	Public	282	1st-6 (magnet)	(734) 774-2795
Coolidge Elementary School	30500 Curtis Rd Livonia, MI 48152	Public	536	Elementary K-4	(734) 744-2705
Nw Wayne Trainable Center	32401 Pembroke St Livonia, MI 48152	Public	51	K-6 special ed	(734) 744-2795
Hoover Elementary School	15900 Levan Rd Livonia, MI 48154	Public	500	Elementary K-4	(734) 744-2730
Kennedy Elementary School	14201 Hubbard St Livonia, MI 48154	Public	457	Elementary K-4	(734) 744-2745
Grant Elementary School	9300 Hubbard St Livonia, MI 48150	Public	465	Elementary PK-4	(734) 744-2720
Randolph Elementary School	14470 Norman St Livonia, MI 48154	Public	500	Elementary K-4	(734) 744-2770
Frost Middle School	14041 Stark Rd Livonia, MI 48154	Public	626	Middle 6-8	(734) 744-2670
Buchanan Elementary School	16400 Hubbard St Livonia, MI 48154	Public	467	Elementary K-4	(734) 744-2690
Nijiiro Japanese Immersion Elementary School	36611 Curtis Rd Livonia, MI 48152	Public	225	Mixed K-6 (magnet)	(734) 744-2785
Holmes Middle School	16200 Newburgh Rd Livonia, MI 48154	Public	656	Middle 7-8	(734) 744-2675
Stevenson High School	33500 6 Mile Rd Livonia, MI 48152	Public	1,636	High 8-12	(734) 744-2660
Roosevelt Elementary School	30200 Lyndon St Livonia, MI 48154	Public	381	Elementary PK-4	(734) 744-2775
Churchill High School	8900 Newburgh Rd Livonia, MI 48150	Public	1,241	High 7-12	(734) 744-2650
Riley Upper Elementary School	15555 Henry Ruff St Livonia, MI 48154	Public	644	5th-6	(734) 744-2680

School	Address	Type	Number of Students	Grades	Phone Number
Rosedale Elementary School	36651 Ann Arbor Trl Livonia, MI 48150	Public	278	Elementary PK-4	(734) 744-2800
Franklin High School	36651 Ann Arbor Trl Livonia, MI 48150	Public	1,327	High 9-12	(734) 744-2655
Cleveland Elementary School	28030 Cathedral St Livonia, MI 48150	Public	428	Elementary	(734) 744-2700
Emerson Middle School	29100 W Chicago St Livonia, MI 48150	Public	641	Middle 6-8	(734) 744-2665
Garfield Community School	10218 Arthur St Livonia, MI 48150	Public	56	High 12th grade	(734) 744-2810
Jackson Center	32025 Lyndon St Livonia, MI 48154	Public	91	PK-K	(734) 744-2813
Livonia Career Technical Center	8985 Newburgh Rd Livonia, MI 48150	Public	1	Career/ Tech School (vocational) 9-12	(734) 744-2816
Livonia Transition Program	18600 Haggerty Rd Livonia, MI 48152	Public	45	Mixed (special education school)	(734) 744-2615
Grandview Elementary School	19814 Louise St Livonia, MI 48152	Public	353	Elementary PK-5	(248) 919-0404
Botsford Elementary School	19515 Lathers St Livonia, MI 48152	Public	342	Elementary PK-5	(248) 919-0402
Clarenceville High School	20155 Middlebelt Rd Livonia, MI 48152	Public	674	High 9-12	(248) 919-0408
Clarenceville Middle School	20210 Middlebelt Rd Livonia, MI 48152	Public	383	Middle 6-8	(248) 919-0406
American Montessori Academy Elementary School	14800 Middlebelt Rd Livonia, MI 48154	Public	143	Elementary PK-1 CHARTER & MONTESSORI	(734) 525-7100
Explore Academylivonia	31100 Plymouth Rd, Livonia, MI 48150-2104	Public	23	Middle 6-8 CHARTER	(734) 772-1650
St. Michael the Archangel Catholic School	11311 Hubbard Livonia, MI 48150	Private	731	PK-8	(734) 421-7360 Ext. 225

School	Address	Type	Number of Students	Grades	Phone Number
Brookfield Academy	38945 Ann Arbor Rd. Livonia, MI 48150	Private	71	Montessori PK-4	(734) 464-2789
Livonia Montessori School	31840 W. Seven Mile Road Livonia, MI 48152	Private	32	Elementary PK-K	(248) 474-4764
Montessori Center Of Our Lady	14200 Newburgh Rd. Livonia, MI 48154	Private	89	Montessori PK-6	(734) 838-0841
Peace Evangelical Lutheran School	9415 Merriman Rd Livonia, MI 48150	Private	100	PK-5	(734) 422-6930
St. Edith Catholic School	15089 Newburgh Rd Livonia, MI 48154	Private	234	PK-8	(734) 422-6930
St. Paul's Lutheran School	17810 Farmington Rd Livonia, MI 48152	Private	159	PK-8	(734) 421-9022
Blended Learning Academies Credit Recovery High School	30218 Plymouth Rd Livonia, MI 48150	Public	23	High 9-12 CHARTER	(248) 425-5868
Branch Line School	16360 Hubbard St Livonia, MI 48154	Public/private	150	PK-8 CHARTER	(734) 335-0663
Grand River Academy	28111 8 Mile Rd Livonia, MI 48152	Public/private	736	K-8 CHARTER	(248) 893-6100
Christ Our Savior Early Childhood Program	14175 Farmington Rd Livonia, MI 48154	Private	79	ns-pk	(734) 513-8413
Little Guys N Dolls Learning Center	30900 W Six Mile Livonia, MI 48152	Private	6	k	(734) 525-3730
Livonia KinderCare	38880 W. 6 Mile Rd. Livonia, MI 48152	Private		ns-pk	(734) 591-2083
Livonia Little Tots Day Nursery	34633 Munger Livonia, MI 48154	Private	255	pk-k	(734) 905-1195

TABLE 38. **Higher Education**

School Name	Address	# of Students Non Res	# of Students Res	Grades	Contact
Schoolcraft College	18600 Haggerty Rd, Livonia, MI 48152	7,650	0	College	(734) 462-4400
Madonna University	36600 Schoolcraft Rd, Livonia, MI 48150	1,759	685	College	(734) 432-5300

TABLE 39. **Daycares**

Name	Address	Type	Conatct
Learning Tree Child Care Center - South	32955 Plymouth Rd, Livonia, MI 48150	Daycare	(248) 986-8837
The Learning Tree Child Care - North	33901 Curtis Rd, Livonia, MI 48152	Daycare	(248) 986-8837

Annual Events

The following events generally occur every year. Many of them have food and therefore have the potential to not only reach ressidents on this issue but also showcase how food can be rescued and diverted from landfills.

Event Name	Approximate Date	Description
Under The Sea Someone Special Dance	January 26	Come dance, play, snack, and make memories!
Under The Sea Daddy Daughter Dance	January 27	Come dance, play, snack, and make memories!
Polka Dots and Pie Tea Party	January 27	Bottomless tea, tea sandwiches, scones, and dessert
Chocolate 101	February 7	Chocolate tasting class, chocolates from around the world
The Snow Ball	February 10	Winter-themed snacks
Under The Sea Mother and Son Dance	February 24	Come dance, play, snack, and make memories!
St. Patrick's Tea	March 16	bottomless tea and Irish fare
Bunny Brunch	March 23	Lunch will be provided
Yoga and Yogurt	April 4	Yogurt parfait bar after yoga class
Stories, Snacks, & Crafts! Spring Chickens!	April 26	Enjoy a delicious snack
Livonia AIR Spring Dance	April 27	Light refreshments
Yoga and Yogurt	May 7	Yogurt parfait bar after yoga class
Super Bros. Party	May 18	Power-up treats
Stories, Snacks, & Crafts! Cultivating Kids	May 24	Vegetable garden-themed Stories, Snacks, and Crafts!
Memorial Day Ceremony and Lucheon	May 25	Luncheon
S'mores and Stories	June 14	Roasting and eating smores
Livonia Spree	June 25-30	Expect good food
S'mores and Stories	July 12	Roasting and eating smores
The BIG Picnic	July 27	People bring their own picnic food
S'mores and Stories	August 23	Roasting and eating smores
Touch-A-Truck	August 24	Concessions and food vendors
S'mores and Stories	September 20	Roasting and eating smores
Dining With Yesterday	September 21	Lunch and dessert inspired by the automotive industry
Cheese 101	September 26	Cheese tasting
Highland Tea	October 5	Menu of fare and bottomless tea
Harvest Tea	November 2	Fall-inspired sandwiches, scones, dessert, and bottomless tea
Stories, Snacks, & Crafts! - Cranberry Bounce	November 5	Delicious snack
Coffee Culture 101 Class	November 23	Coffee tasting
Stories, Snacks, & Crafts! - All Aboard!	December 16	Themed snacks

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APPENDIX H:

Glossary & List of Acronyms

Appendix H: Glossary & List of Acronyms

Glossary

Aerobic Digestion
Aerobic digestion is the natural process in which microorganisms break down organic matter in the presence of air (an aerobic environment)

Anaerobic Digestion
Anaerobic digestion is the natural process in which microorganisms break down organic matter in the absence of air (an anaerobic environment). Anaerobic digestion creates usable products such as biogas and digested material. (EPA).

Biosolids
Nutrient-rich organic materials resulting from the treatment of sewage sludge (the name for the solid, semisolid or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility). When treated and processed, sewage sludge becomes biosolids which can be safely recycled and applied as fertilizer to sustainably improve and maintain productive soils and stimulate plant growth.

Conmingled
Refers to a mixture of several recyclable materials in one container.

Compost
The product manufactured through the controlled aerobic, biological decomposition of biodegradable materials. Compost is typically used as a soil amendment, but may also contribute plant nutrients. (USCC).

Compostables
See Organics.

Composting
A controlled, aerobic (oxygen-required) process that converts organic materials into a nutrient-rich, biologically stable soil amendment or mulch through natural decomposition.

Composting, Community
A model of composting that sources organic materials locally, engages the community in the composting process, and uses the compost produced in local soils. For the purposes of this plan, it is anything under 500 cubic yards (when regulations from EGLE become applicable).

Composting, Commercial
A model of composting that sources organic materials potentially from both inside and outside the community it occurs at. For the purposes of this plan, it is a site that handles at least 500 cubic yards of organic material and is subject to regulation via EGLE.

Drop-off Site
A decentralized, publicly accessible location with collection containers serviced by a designated hauler meant for use by individual residents to leave their organic material for recycling.

Excess Food
Food that is donated to feed people. Also known as “Surplus Food.”

Food Desert
A community or neighborhood with limited to no access to affordable and nutritious food (USDA).

Food Loss
Unused product from the agricultural sector, such as unharvested crops, and production up to (and not including) the retail level.

Food Scraps
See Food Waste. This term is typically used to describe food that is composted.

Food Waste
Food that is not ultimately consumed by humans that is discarded or recycled, such as plate waste (i.e., food that has been served but not eaten), spoiled food, or peels and rinds considered inedible. Also known as "Food scraps" but typically used to describe food that is sent to a landfill, a sewer system, or incinerator.

Food Rescue
Proven method of "rescuing" surplus nutritious food and redistributing it to people instead of destroying it. Frequently, food rescues are charitable organizations that pick up or receive donated food across the food supply chain. Food rescue operations may also include distribution to people facing food insecurity.

Organics
The remains, residues or waste products of any organism that are recovered resources from solid waste disposal. Such materials may include, but are not limited to: food residuals; yard debris; and wood, plant or paper products. Also known as Compostables.

Packaging, Compostable
Capable of undergoing aerobic biological decomposition in a compost system, such that the material becomes visually indistinguishable and breaks down into carbon dioxide, water, inorganic compounds, and biomass. (USCC)

Product, Compostable
Any product specifically manufactured to break down in a compost system at the end of its useful life. May be made from plastic, paper, or plant fibers, along with other ingredients that provide necessary form and functionality. (USCC)

Scratch cooking
The practice of preparing food items from raw, whole ingredients rather than using pre-packaged or processed products. This typically involves techniques such as chopping, measuring, and mixing ingredients by hand, rather than relying on pre-made mixes or prepared ingredients.

Surplus Food
See Excess Food.

Upcycling
The processing of food, usually raw components, into another product that increases the longevity of the original.

Vermicomposting
Composting done with worms. The output material is frequently referred to as "worm castings" or "vermicompost."

Wasted Food
An overarching term to describe food that was not used for its intended purpose and is managed in a variety of ways, such as donation to feed people, creation of animal feed, composting, anaerobic digestion, or disposal in landfills or combustion facilities. This can be used to refer to both Excess Food and Food Scraps.

List of Acronyms

ACS
American Community Survey

DDA
Downtown Development Authority

EGLE
Department of Environment, Greats Lakes, and Energy

EPA
Environmental Protection Agency

FEMA
Federal Emergency Management Agency

MFNW
Make Food Not Waste

NRDC
National Resources Defense Council

RRRASOC
Resource Recovery and Recycling Authority of Southwest Oakland County

RRS
Resource Recycling Systems

SEMCOG
Southeast Michigan Council of Governments

USCC
United States Composting Council

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