Food Scrap Recycling Programs: Case Studies Relevant to the City of Madison

A Project of 350 Wisconsin's Community Climate Solutions Team

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Author
Madyson Friese, Senior studying Political Science and Environmental Studies with a certificate in Integrated Liberal Studies at the University of Wisconsin-Madison, graduating in the spring of 2025. (mefriese@wisc.edu)
Supervisor
Susan Millar, Senior Scientist Emeritus, UW-Madison; Co-Lead, 350 Wisconsin Community Climate Solutions Team (sbmillar@gmail.com)

350 Wisconsin is a community-led environmental organization focusing on the transition to a world in which change is facilitated by sustainable actions that protect the rights of all beings to a healthy future. The goal of the Community Climate Solutions Team is to aid Wisconsin's local and state governments in a smooth and rapid transition to reach climate goals, increasing general awareness about climate change public action. 350 Wisconsin is dedicated to supporting the infrastructure, education, and research that is necessary to divest from polluting industries and change behavior patterns to help produce a Wisconsin that protects and supports the future of all beings on this planet.

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More pressing now than ever, the climate crisis urges us to make great changes in the present and work towards a future that is liveable and characterized by the smart use of our resources. Our generation will not be here forever, but what we can do for those in the future is press for change at all levels of government, whether local, state, or federal. Working hard now will pay off, and even the smallest headway will make a difference. The creation of this report and the immense hope I have for the future wouldn't have been possible without the contributions of the many people who are doing all they can, wherever they may be, to make a change.
– Madyson Friese

I. Introduction

This report aims to provide the City of Madison, as well as other cities, with case study-based information about Food Scrap Recycling Programs (FSRPs)[1] underway in diverse U.S. cities. The primary objective of these programs is to reduce the amount of methane emitted from traditional landfill food scrap disposal.

FSRPs use various methods and tools to both reduce the amount of food waste in landfills and provide financial benefits from, for example, the sale of the resulting compost and renewable energy. The C40 Initiative claims that organic waste is a valuable resource for municipalities due to its ability to produce renewable energy, reduce hunger, and create more nutrient-rich and moisture-filled soils.[2]

The Global and Local Benefits of FSRPs in Addressing the Climate Crisis

According to the UN Environment Programme, every year around 1.3 billion tonnes of food is lost or wasted and 570 million tonnes of this loss occurs in homes.[3] Composting reduces greenhouse gas emissions produced from this behavior, thus reducing 8-10% of global emissions as of 2021 data.[4] Ultimately, there also is an issue with upstream waste production; for these systems to work most effectively, we need to reduce the amount of food that is purchased and not consumed. On a more local scale, the Wisconsin Department of Natural Resources reports that food waste makes up 20.5% of Wisconsin landfills, illustrating the City of Madison's opportunity to reduce emissions and waste.[5] The City has also identified landfill waste reduction by 50% as one of its Sustainability Plan objectives by 2030.[6] To meet this goal, the City must implement an FSRP that aims to reduce both residential and commercial waste.

II. The Case Study Approach

After learning about Madison's FSRP (see Madison Case Study, below), I gathered similar information about other generally comparable cities around the U.S. that are engaged in food scrap recycling. From this research, I compiled a set of five case study cities: Seattle, Austin, Boston, Ann Arbor, and Minneapolis. The criteria used to select these cities are: comparable political makeup, city size, weather conditions, overall program success, and composting strategies that are diverse yet feasible. Though each city was chosen for different reasons, their

[1] All FSRPs referenced, with the exception of the current City of Madison program, in this report accept fruits, vegetables, meats (including bones), etc. Thus, when "food scraps" is mentioned, all of these are implied. Programs differ on other accepted materials.
[2] C40 Cities Climate Leadership Group and C40 Knowledge Hub 2019.
[3] UN Environment Programme 2021.
[4] Ibid.
[5] City of Madison Sustainability Plan, 2024.
[6] Ibid.

specific characteristics are relevant to the City of Madison's current situation. Importantly, the City of Madison also serves as a case study in itself. I hope that not only Madison, but other cities around the U.S. will be able to use this report to learn more about what options are available, what does and does not work, and who they can contact to learn more.

Each case study begins with program contact information and is then organized into the same three sections used to present Madison's FSRP:

- Program History and Description, providing information concerning timelines, contractors, processing facilities, and what is done with the organic material.
- "Sticks and Carrots," describing the enforcement mechanisms (Sticks), and ways residents benefit from program participation (Carrots).
- Key Takeaways, a section intended to identify the most important information about each case, organized into program successes, challenges, costs, and opportunities.

III. The Case Studies

Madison, WI

Program Information: Dane County Department of Waste and Renewables: Composting, City of Madison Streets and Urban Forestry: Compost Food Scraps
Contact Information: Bryan Johnson, Recycling Coordinator, City of Madison; Bjohnson2@cityofmadison.com, Delaney Gobster, Business Development and Outreach Coordinator, Dane County Department of Waste and Renewables, Gobster.Delaney@danecounty.gov, Lorenza Zebell, Program Director, Sustain Dane; Lorenza@sustaindane.org

Program History and Description

A curbside FSRP was first conducted in 2011, with around 500 trial homes. The program worked well and was even expanded until the facility operating an organics processor closed relatively soon after. The new processor enforced different acceptable guidelines for their organics, forcing rules to change. As a result of miscommunication between city staff and participants, contamination continued for many years as the scraps were continuously denied by processors. The City ended the pilot program in 2018 due to a cumulation of reasons, but primarily contamination, miscommunication, and funding.

In 2019, it launched a new pilot curbside program that emphasized participant communication and volunteer oversight. Although this pilot successfully addressed the contamination problem, as very few carts were rejected, the process required more volunteers than were available. In 2020, the city opted to transform this pilot into a drop-off FSRP, removing the volunteer labor

issue entirely. This program also utilized a contractor that used a processor to create compost. In 2021, the program ended entirely when this contractor stopped accepting food altogether.

Today, Madison's FSRP (which differs from the others mentioned in this report in that meat and bones are not accepted) relies on grant funding and is facilitated by Sustain Dane, a local non-profit. Program staff regard it as a largely educational effort in preparation for a food scrap recycling future that is currently being solidified.[7] The current program uses drop boxes to collect food scraps from Dane County residents visiting one of the three local farmers' markets. It is staffed by members of Sustain Dane who weigh and check the scraps for contamination.[8] Most recent data suggests that the program has diverted 31, 651 pounds of food waste from the landfill in 2024, with participation increasing with every market.[9] For financial reasons, the program only operates through the outdoor market season, making it clear that there is both a want and need for a more sustainable city-sponsored FSRP in Madison, WI.[10]

Sticks and Carrots

Sticks: According to Madison officials, the original (2011) program had no tools to educate residents, so contamination was high. With this in mind, it is important to note that the pilot program restarting in 2019 did have some oversight via volunteers who would check carts upon pick-up. As stated above, although this second approach solved the contamination problem, it required more volunteer time than was available.
Carrots: The current Sustain Dane program provides education and enforcement, as staff are present at all drop-off locations and can observe the food scraps before they are added to bins. This kind of oversight provides needed education which is beneficial to residents.

Key Takeaways

1) Successes: A major success of this program is that the City of Madison is now aware of many things that have not worked. Trying different strategies during pilot programs is important when developing a food scrap recycling system that works best for a specific city. Currently, the program operating under Sustain Dane is largely an educational success, as it provides residents with a way to learn about food scrap recycling and composting. According to Lorenza Zebell, the leader of education and outreach programs at Sustain Dane, the program works both "because it is free," and entails a tremendous amount of oversight and manpower. This educational push and the support for the program have enabled city officials to begin work on a new drop-off program set to launch in the Spring of 2025.

2) Challenges: Program officials have identified many things they would have done differently. First, allowing residents to put almost anything that could be composted in their food scraps was

[7] Lorenza Zebell, Interview by author, Madison, September 27, 2024.
[8] Ibid.
[9] Sustain Dane 2023.
[10] Lorenza Zebell, Sustain Dane.

a mistake. This is because later, when processors changed and they learned that new processors did not accept materials like pet waste, etc., it was difficult to communicate to residents that certain items were no longer accepted. In hindsight, staff identified that once program participants learned one way it was difficult to learn a new way of food scrap recycling. In retrospect, it would have been better to end the program when the first processor closed; the 2011 program's automated collection process made it impossible to stop contamination before it reached the processor and no one could be held accountable for this problem. As the head of recycling and waste management in Madison said, "We smiled too early." Another issue was finding new places that would accept food scraps, as there were limited processors in the area and many had already rejected what collection produced. A third challenge was the name given to the material; eventually, it became clear that the word "organics" confused participants. Many things that are "organic" are not compostable. Lastly, finding ways to fund a food scrap recycling program has been a constant issue.

3) Cost: Funding has always been an issue for Madison's FSRP. The current educational outreach program operated by Sustain Dane began through a USDA grant but is only funded through the farmers' market season. This program is considered more successful not only because it is convenient and easy, but also free to residents. One of the main issues with past programs was the cost. The costs of updating or purchasing equipment became unrealistic; officials noted that the use of a depackager would have helped address contamination issues, but the cost was unattainable. Likewise, collection oversight would have helped prevent contamination but was unavailable due to lack of funding.

4) Opportunities: Excitingly, there are future plans to build five drop-off kiosks throughout Dane County, with two of these sites tentatively existing in Madison, and the rest in the surrounding areas. The Dane County Department of Waste and Renewables received a Composting and Food Waste Reduction Grant from the USDA in 2024 and will use it to build and install these kiosks. Some sites will have limited oversight and be serviced by a satellite dump truck funded by the grant and run by country officials. Delaney Gobster, the Business Development and Outreach Coordinator for the Department of Waste and Renewables, noted that the grant approval and subsequent funding have been fundamental in the new program, and that there are plans in the future to implement a food scrap recycling program into the new Yahara Hills Sustainability Campus.

This Sustainability Campus' goal is to implement a better waste management approach and focus on the reuse and repair of materials while also researching ways to reduce the impact waste has on the environment.[11] The grant from the USDA has given officials the ability to control the timeline for new and improved initiatives. The grant will fund the first year of the program, and many hope that in the long term, the program will be financed through municipality service

[11] City of Madison Sustainability Plan, 2024.

taxes, not direct residential taxes. Dane County has contracted Purple Cow Organics, a composter located in the Madison area, to process the scraps. This contract is for all organic materials because in the future they would like to process more than just food. At the time, no food service compostables will be allowed due to a lack of infrastructure and resident confusion. Officials mentioned that in the future the County would like to continue to invest in community composters, keeping operations local and reducing travel. Kiosk locations are still being decided, but tentatively, they will be located in Verona, McFarland, Middleton, Madison, and the Henry Vilas Zoo in Madison. In the future, residential pick-up could be an option, pending grant funding, kiosk use, and contamination rates.

Seattle, WA

Program Information: Seattle Public Utilities: Food and Yard Waste
Contact Information: Kate Kurtz, Organics and Landscape Resources Conservation Planner and Program Lead, Seattle Public Utilities; Kate.Kurtz@seattle.gov

Program History and Description

Seattle began its composting program in the 1980s, with yard waste being collected separately from recyclables and refuse. Over time, they slowly evolved into food waste collection, based on a voluntary participation basis. Starting in 2009, the city began requiring residential properties to participate in food and yard waste collection services via ordinance. In 2011, they expanded this requirement to multi-family buildings and in 2015 prohibited the discarding of food waste in all garbage. Today, they require food scrap and yard waste recycling in all places, whether at home, work, school, or public events.

To finance the program, the city charges monthly fees for all waste collection services, with food scrap carts being priced according to their size. If residents have an at-home composting area, they can claim an exception from these fees. Scraps are collected by contracted haulers (WM or Recology) who (1) deliver the materials to city-owned and -operated transfer stations, and (2) move them to a commercial composting facility contracted to compost the products (LENZ Enterprises or Cedar Grove), who in turn sells the material as a soil amendment. Either the City of Seattle or one of many other buyers purchase this product for their needs.

Sticks and Carrots

Sticks: Enforcement focuses on refuse contamination. The city issues the owners of multi-family residences two warnings before issuing a $50 fine. They also issue fines to commercial properties whose garbage includes 10% compostables or recycling. Finally, city officials issue phone calls, letters, and fines to single-family homeowners whose waste bins are contaminated or are not present for collection.

Carrots: As a reward for producing less waste, Seattle's bins are priced according to size, meaning residents are positively reinforced for producing less food waste by saving money.

Key Takeaways

1) Successes. The leaders of Seattle's program credit its success to investment in the program over time. This program saves an enormous amount of energy, as 1/3 of the waste previously transported 300 miles away to an Oregon landfill was food. To date, they have a relatively low contamination rate of 2.1%, which they attribute to the longstanding nature of the program and their investment in education. By allowing it to grow and putting immense effort into making food waste recycling as easy as filling trash bins, the act of composting has become second nature to many residents.

2) Challenges. Their program's biggest issue was separating food and yard waste, which in the end did not work. Another problem was compostable food ware, which they identified as a mistake because, in the words of Kate Kurtz, "....those products create a behavior of thinking that all kinds of things belong in the compost, thus possibly leading to higher contamination rates."

3) Costs. As for most case studies, education, and outreach are ongoing costs in this FSRP. These tools are necessary to ensure non-contaminated food waste and high resident participation. The cost of food scrap recycling is passed on to the residents, who must pay for a compost cart according to its size.

4) Opportunities. Seattle has been conducting an FSRP for nearly 14 years. Though the program can be deemed successful, there is always room for more education concerning what is acceptable to compost and how to reduce the amount of food waste produced, to begin with.

Austin, TX

Program Information: City of Austin: Curbside Composting Collection
Contact Information: Jeff Patterson, Public Information Specialist Senior, Austin Resource Recovery Network; Jeffery.Patterson@austintexas.gov

Program History and Description

Beginning in 2012, Austin's Resource Recovery Network (ARR) launched a curbside compost collection program with 14,000 households, and then expanded the program over the next 9 years, with the final phase being completed in 2021. Residents are provided with a 32-gallon cart for their compostables; food scraps, yard trimmings, and natural fibers are accepted. Beginning October 1st, 2024, they required all multi-family communities with 5 or more units to provide residents access to food scrap recycling services. The city provides these services to everyone living in a building with 5 units or less. The city does not require but strongly encourages

residents to compost. Residents place this cart outside with waste and recycle bins, weekly. They are picked up by ARR staff and transported to a commercial composting vendor.

The City of Austin pays a processing fee to the vendor; the service does not generate revenue but it does reduce the amount of waste in the landfill, so overall has been a fiscally and environmentally beneficial project. The compost made at the vendor's facility is sold back to the community. Today, ARR's program provides composting services for nearly 216,000 households.

Sticks and Carrots

Sticks: Austin currently has no enforcement mechanisms to ensure the quality of their compost. Due to the new nature of their program (encouraged, but not required), most residents who participate are generally quite intentional about what they are placing in their bins. Austin levies a $20.50 fee if waste collectors must return outside of the weekly scheduled collection time.
Carrots: Austin rewards composting by making it a free service, in contrast to trash disposal, which is billed according to the size of the cart that residents choose to use. By using the free composting service, Austin residents can use a smaller, less expensive, trash cart.

Key Takeaways

1) Successes. Since its inception, ARR has collected nearly 303,011 tons of compostable material and has served 216,000 residential homes. The average compostable contamination rate is relatively low (1.44%), consisting mostly of plastics, trash, metal, and glass. The program has significantly decreased residential trash, according to a 2014 survey.

2) Challenges. Austin officials have emphasized the constant struggle of educating residents about what is and is not compostable. They believe that investing in education, advertising, and accessible information is important. Additionally, as other case studies suggest, products that claim to be compostable or biodegradable often pose a challenge. Some commercial facilities are not able to process certain compostables, so being strict and clear about what compostable products are allowed (e.g., BPI certified) is very important.

3) Costs. The program is financially accessible to all residents. The base fee that customers pay to the waste services division is the same for all, meaning that no one is charged more to participate in the program. Rather, by composting, residents can reduce their costs by reducing their trash cart size. The cost of ongoing education and communication is included in the operating costs of the program. Austin also pays a processing fee to the vendor processing the material.

4) Opportunities. Austin has sought to make their program as convenient as possible for residents, which seems to be the most effective way to increase participation in programs like

these. City officials have signaled they would like to expand the program as much as possible in the future and reach more residents.

Boston, MA

Program Information: City of Boston: Curbside Food Waste Collection
Contact Information: Hannah Mermin, Zero Waste Outreach and Communications Coordinator, Boston Public Works Department; hannah.mermin@boston.gov

Program History and Description

The program began in 2022 and offers free curbside collection of food scraps through a partnership with Save That Stuff Inc. and Garbage to Garden Inc. Garbage to Garden collects the bins and services them for city officials, sending the scraps to an anaerobic digester. These partners use the resulting material to make soil and clean energy. To participate in the curbside program, a resident must live in a building with 6 or fewer units. People who live in a larger building may use the community food waste drop-off program. This drop-off program is referred to as Project Oscar; all residents can bring food waste to any of the 19 bins throughout the city. All drop-off bins are green and locked to keep rodents and non-organic waste out; the lock code is noted on the bin. Black Earth, an interstate compost collector and retailer, collects the scraps from these bins and uses them to make soil. Both the curbside and drop-off programs accept food scraps and certified compostable products.

Sticks and Carrots

Sticks: This program is based on enrollment, and no enforcement mechanisms currently are used.
Carrots: There are no cost benefits to participation in the FSRP, but city officials have noted that participating lessens rodent activity, which may be a positive benefit for some community members.

Key Takeaways

1) Successes. According to city officials, today 24,000 residents have enrolled in the curbside composting program. Because no sign-up is required for the drop-off bins, it is hard to estimate how many people utilize them, but the number of bins has expanded as demand has increased in certain areas of the city. Contamination has not been a huge issue with the curbside pick-up program because the digester facility has a depackager, ensuring that human error does not harm the composter. A depackager is utilized to stop any unwanted materials from entering the compost. This is important because waste like trash, metals, plastics, etc., can hurt the digester, leading to scraps being rejected from a facility. Much of the success of this program can be attributed to its dual nature. Offering curbside collection along with drop-off bins has made composting hassle-free for residents, regardless of their living situation. Unlike other case study

programs, the City of Boston partners with a curbside composting service (Garbage to Garden) for both pick-up and processing. Their choice to engage with private businesses appears to have enabled Boston to avoid some of the challenges that other cities have experienced.

2) Challenges. The drop-off bins have, in some cases, been contaminated when people mistook them for trash cans. To combat this issue, locks were added in December of 2024. This contamination was limited to certain bins in certain neighborhoods and the city uses outreach programs to focus on these areas before deciding if the bins need to be taken away. This situation made clear that it does not work to purchase cheap bins for the drop-off sites. Boston recommended that other cities pilot a few bins before committing to a single style. Bins must be sturdy, rodent-proof, and able to withstand all seasons.

3) Costs. The City of Boston understands that ongoing education and outreach efforts are a necessary cost of FWR programs. Boston contracts and pays Save That Stuff Inc. and Garbage to Garden Inc. to haul and process the organics. While City officials are aware the program is not currently saving them any money, they believe the benefits have outweighed these costs. Residents see no cost in participating in the program.

4) Opportunities. Officials noted that an education component is crucial for any composting program. Residents must understand why it is important to separate food waste and the benefits of doing so. Due to many misconceptions that increase the rodent population, the City needed to educate residents about the rodent-proof bins and the fact that separating food waste reduces the rodent problem. While the curbside collection program and Project Oscar are not saving the city any money, Boston officials expect that, as efforts scale up, the program will be financially beneficial.

Ann Arbor, MI

Program information: City of Ann Arbor: Compost
Contact information: Sarah Mason, Resource Recovery Manager, City of Ann Arbor Public Works; SMason@a2gov.org. Mallory Lawson, Temporary Compost Program Coordinator, City of Ann Arbor Public Works, Wheeler Service Center; MLawson@a2gov.org

Program History and Description

Ann Arbor's program began in 2014 and today consists of a combined yard waste and food scrap pickup by city waste management officials who drop off organic materials at WeCare Denali. WeCare Denali is a sustainable compost manufacturer operating in Ann Arbor, MI. The city pays a per ton processing fee to WeCare Denali; while the facility where the compost is processed is owned by Ann Arbor, the contractor runs its operation. The city receives a revenue share for each yard of finished product sold, but this does not completely cover the cost of processing, collection, and hauling.

The city encourages, but does not require, residents to compost food waste. To enroll, people living in single-family homes need only to contact the customer service facility, located on the City composting page. These residents are allowed 1 free 64-gallon compost cart, but for additional carts an annual fee of $44 is added to their quarterly water bill. Ann Arbor allows residents living in multi-family homes to bring up to one cubic yard of organic waste to the WeCare Denali facility per day at no direct cost. The program picks up organic matter weekly from summer to fall and monthly in the winter. Most compostable materials are accepted, but BPI-certified materials were banned due to confusion regarding compostable, biodegradable, and recyclable products beginning in 2024. Today, only listed materials along with CMA-W-certified compostables are allowed.

Sticks and Carrots

Sticks: No fiscal enforcement mechanisms are involved in the FSRP, as it is based on enrollment and is not required of residents. People living in multifamily properties may drop off their food scraps at the WeCare Denali facility where they are weighed and reviewed by staff, meaning there is a certain level of oversight in that process.
Carrots: Ann Arbor provides single-family residential properties with one free 64-gallon trash cart. Residents may save money by using the free composting service, and thus reducing the number of trash bins they use.

Key Takeaways

1) Successes. Ann Arbor's FSRP has been largely successful and has seen extreme public support for its waste reduction and diversion efforts. While officials lack exact data concerning resident participation, they know that they offer the program to 57% of all households. Contamination rates have been low, as participating residents often take care to sort their scraps correctly. Food scrap diversion rates have increased at a rate not yet known, as the State of Michigan has enforced a landfill ban on yard waste for almost 30 years and the largest portion of the scrap recycling program is yard material. The City of Ann Arbor receives a hosting payment for owning the processing facility.

2) Challenges. Though overall contamination rates have been low, officials have suggested that household trash, mulch bags, and plastic flower pots have been found from time to time in the organic material. Importantly, education and outreach programs are used to combat these challenges.

3) Costs. City officials reported a small per-ton processing fee on the scraps collected by WeCare Denali. Importantly, this cost does not outweigh the perceived social and environmental benefits of the program. As with other programs, continued outreach and education is a cost that

falls on the city. Residents are not burdened financially by the program as it is free for residents utilizing the provided 64-gallon cart.

4) Opportunities. As with other case studies mentioned in this report, the City of Ann Arbor finds it very important to include an education component in FSRPs to keep residents aware and up to date on procedures and allowed materials. Investment in education is one of the best ways to ensure a successful program with little contamination and high participation rates. If not quarterly, city officials suggest that, as a best practice, at least once annually residents should be made aware of the program and any changes made.

Additionally, to serve multi-family properties, Ann Arbor has been investigating food scrap drop-off boxes, which seem to be a very popular option for cities to meet resident demands across many types of housing. In the future, the City of Ann Arbor would like to expand its voluntary FSRP to all residents and commercial facilities beyond single-family homes before making food scrap recycling a requirement. They have applied for grant funding to formulate a more convenient drop-off program, similar to the bins in Boston. This would make food scrap recycling more accessible to multi-family residents. Though the program is not financially beneficial yet, expanding clientele through further curbside enrollment and drop-boxes may allow the city to break even or even produce a profit. Drop boxes may be beneficial fiscally, as they would reduce the collection time. The downside is that residents may not participate if boxes are not near them.

Minneapolis, MN

Program Information: City of Minneapolis Public Works: Organics Recycling
Contact Information: Minnesota Composting Council; Kellie.Kish@minneapolismn.gov

Program History and Description

Minneapolis is located in Hennepin County, which requires cities with a population above 10,000 to provide organics collection and requires smaller municipalities to provide drop-off options. Residents who live in buildings with up to 4 residential units and have city garbage pick-up are encouraged but not required to participate. Those who sign up for food scrap collection are provided with a composting kit. Staff evaluate and empty carts weekly. If they determine a bin is contaminated, they leave a tag and do not empty it. The city services 50% of the residential participants, and the other half are serviced by a contractor called MRI. The food scraps are dropped off at a station and then transferred onto a semi which takes it to a composting facility referred to as Specialized Environmental Technologies (SET), located in Rosemount, MN. (Only two facilities in the Twin Cities metro area are permitted to accept food scraps.) SET uses an aerated static pile method to create their compost. Every year, 600 cubic yards of finished compost are returned to the city and distributed back into the community to

gardens or residents at little to no cost. Minneapolis also offers the owners of buildings with 5 or more residential units a composting service for a fee.

Residents without city garbage service can sign up to bring scraps to drop-off locations, or kiosks. These people participate in the drop-off program by signing up, choosing from one of the 20 composting kiosks across the city, and receiving instructions on how to use the drop box.

Sticks and Carrots

Sticks: Curbside pick-up is mostly located in alleyways, and collection crews are asked to evaluate cart contents before they dump it. Carts found to be contaminated are tagged and left for residents, thus informing participants there is contamination. In 2024, crews left only 955 tags. This use of manpower and tagging has aided in the program's success, as it is an efficient way to reduce contamination and communicate to residents that something was not right with their food scraps. Staff said they are tracking the different types of contamination. Reasons for tagging carts include both contamination and failure to put carts out. If there is continued contamination in the same cart, eventually it will be taken away.

Carrots: There are no direct rewards for participation, but some indirect benefits may sway residents to get involved. Recycling food scraps can reduce the amount of waste placed in one's trash bin. This matters because Minneapolis prices trash bins by size and number, so residents can save money by recycling food scraps and thus reducing the space needed in their trash bins. According to program officials, many residents have mentioned the benefit to future generations and that knowing this is the right thing to do is enough. Participating in food scrap recycling programs also often makes individuals more aware of the amount of food they are wasting, and thus buying food they do not need. This awareness can save money and change purchasing habits.

Key Takeaways

1) Successes. A great achievement of this program has been its participation rate: 52.13% of people living in buildings with up to 4 residential units participate, which currently is more than 56,000 households in the city. In addition, some 5,500 other residential units (without city garbage service) have signed up to use the drop-off kiosks. While officials know how many of these residential units have signed up to use a specific kiosk, they do not know how many are using it. In the last year, there was a 1.1% contamination rate in carts picked up by city garbage service, indicating program success. This may be attributed to the fact that, when curbside scrap bins are collected, staff evaluate the content before adding it to the rest of the material. Of note, Minneapolis officials conducted a capture rate study in 2024, hand-evaluating food scraps from a sample of homes where the carts were not evaluated by collection crews beforehand. The study found a 10% contamination rate of these carts, compared to the 1.1% contamination rate when picked up by the collection crew. This illustrates the success and potential benefits of using staff-evaluated collection, as it has stopped much contamination.

2) Challenges. Though Minneapolis' food scrap recycling project has largely been successful, there have been challenges. Getting people to not only sign up for curbside collection or drop off, but also to participate in food recycling has been an issue. Some people who have received their cart and printed materials have not yet started collecting food scraps. To address this, staff have created a home set up guide and used campaigns showing how to collect in one's home.

Composting entails the issues of pests and possible smells, which sometimes deter residents from participating. Also, because Minneapolis has a large renting population and many multi-unit apartments, it has the challenge of communicating with new renters about their food scrap recycling options. While there is enough funding to renotify residents once a year, staff have no way to identify if people move during the year. Additionally, an experiment conducted in 2024 found that nearly 20% of the "trash" placed in participants' waste bins consisted of compostable food scraps. Officials also noted challenges communicating with non-native English speakers and have found that native speakers have had difficulty distinguishing between "organics," "waste," and "food scraps," and thus have recommended using the term "food scrap recycling" instead of "organics."

3) Costs.
Drop-off bins: The cost of the compost drop-off bins/kiosks has been relatively reasonable. Due in part to their simple design, as well as their convenient location along residential pickup routes, city officials found that providing these food scrap bins was an easy decision. In addition, due to a memorandum of understanding providing waste and recycling bins in City Parks, officials arranged for food scrap collection bins in 5 park locations as well. These park bins are reasonably priced because they are not enclosed, as enclosure is often the biggest expense. All bins are equipped with a simple padlock costing around $20/bin and the city already owned these bins. According to figures provided by city officials, annual costs per park cart are $923 for hauling, $523 for disposal, and $600 for education and outreach. Given the number of carts and these costs, the City of Minneapolis spends around $15,000 for 5 sites a year.
Residential pick up. The residential FSRP is funded by residential service fees along with garbage and recycling. Trash fees are based on cart numbers and sizes. Considering all these services together, the cost for the average residential unit is $37/ month.

4) Opportunities. Importantly, officials working with the City of Madison and Dane County have suggested that Madison would most likely develop a program similar to Minneapolis' drop-box program. There has been ongoing conversation between the two cities regarding the drop-box program details. Minneapolis is currently gathering more information about the residents participating in the drop-box program in order to better understand if there is a demand to include buildings with more than 4 residential units in its food scrap disposal program. In the future, they would like to develop a program where participants receive finished compost at a

discounted rate in return for their participation. In this way, the programs would support each other and further the local economy. Staff have also made clear that starting a pilot program of drop-off sites was very helpful, as it helped them learn about residents' questions and interests. Flexibility when it comes to composters is also important because they often change due to regulations or closures. Continued ongoing and open education is key to maintaining resident engagement and keeping compost from contamination. Program staff learned that most people heard about the food scrap recycling program through word of mouth, either through tabling, door knocking, or friends. In addition to advertising campaigns and mail notices, public engagement events were important.

IV. Summary of Key Takeaways

In light of what I have learned from the case studies above, I present takeaways that may serve cities - whether Madison or elsewhere in the country - seeking to establish or improve their food scrap recycling program.

1. **Education:** The most successful programs incorporate education and emphasize continuous communication in their outreach to participants. All cities involved in this report mentioned the importance of education and often pointed to a lack of education or communication when discussing their challenges. Specifically, face-to-face outreach has proven effective. Therefore, investing in education and outreach is key.
2. **Non-food Scrap Compostables:** Seattle, Ann Arbor, Austin, and Madison all mentioned issues arising when non-food scrap compostables, especially food ware were included in their programs. Items labeled BPI Certified, CMW-W Certified, ASTM certified, while compostable, may not be acceptable at a specific processor. Residents are also confused if officials are not extremely clear about what certified compostables are accepted and that the terms "biodegradable" and "organic" are not synonyms for "compostable."
3. **Automated vs Labor Intensive Collection:** Notably, automated collection often results in more contamination than collection by staff who are able to check curbside or drop-off bins. Specifically, Minneapolis found that there was a 9% difference in contamination rates between bins that were checked and those that were not. Though it is more expensive and time-consuming, it proves effective to have a labor-intensive collection process that produces better compostable material.
4. **Depacker Use:** Boston specifically pointed to their use of a depacker at the composting facility as a reason for low contamination rates and a hassle-free process. The depacker is often utilized to prevent non-compostables from entering the digester. These materials pose both a threat to the quality of the compost produced and the functionality of the digester.

5. **Convenience:** When formulating a program, convenience to residents is key. Having a curbside collection is ideal because there is no extra step for participants, no going out of their way. If curbside collection is not an option, having many and evenly distributed drop box locations across the city provides everyone with access to food scrap recycling, thus lessening its perceived burden. Additionally, these programs seem to work well because they are funded by city waste fees and thus free to users, thereby distributing costs evenly and indirectly.
6. **Drop-off Bins:** What works for one city may not automatically work for another. Hence, it is extremely important when, for example, piloting a food scrap drop off program, to test different bin types before committing to a certain style. (In this case, sturdy, rodent proof, locked and weather appropriate bins generally work best.)
7. **Program Phrasing:** This study indicates that how a program describes "food scraps" is vital in communicating its intent. Words like "organics" and "compost" have caused confusion, and the term "food waste" has negative connotations. Even if a program accepts more than just food scraps, many cities have suggested that referring to a program as "food scrap recycling" gets the point across without causing miscommunication.
8. **Program Variation:** Because FSRPs differ depending on each city's needs and characteristics, I chose to include various programs in this report. Some cities partner with curbside composters who handle the majority of the work, some use solely drop-off locations, others use curbside service, and yet others some developed programs that charge residents for their participation. Most programs use a combination of all these various methods, using drop-off sites and curbside collection to promote convenience. It is recommended that undertaking just one of these methods (curbside or drop-off) to begin will build a strong foundation for future development.

Why Food Scrap Recycling Programs Can and Should Happen Now

Reducing food waste is a powerful way to reduce climate emissions, and thus programs like those described here are beneficial for our shared future. Many cities have noted that food scrap recycling and the creation of compost is the least expensive waste management option, making it an important tool in our fight against the climate crisis. Cities all across the world have undertaken food scrap recycling programs and are seeing great involvement, success,, and progress towards a new future. It is my hope that the information provided here will provide cities wanting to learn from others elsewhere the information they need to get started successfully..

I thank those who have contributed to this report and are committed to doing the hard work that must be done to achieve a sustainable future.