



Organics Collection Pilot Study Final Report

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Introduction

In the fall of 2014, City of Milwaukee Common Council file 140611 was adopted directing the Department of Public Works (DPW) to evaluate the feasibility of a citywide household compost collection program. A report was submitted in January of 2015 via communication file 141469. DPW's review, findings, and projections for Milwaukee drew largely from national data and case study information available from other communities operating source separated organics collection programs. On September 22, 2015, the Common Council adopted resolution 150196 which instructed DPW to implement a 1-year pilot program of curbside residential collection of compostable materials encompassing the neighborhoods of Bay View and the East Side of the City of Milwaukee. Participation would be voluntary and opt-in, i.e., a subscription based service. Households would be charged for the service, excluding cart costs, and the City would acquire a private hauler and processor through a Request for Proposals process.

As a result, DPW Sanitation staff planned, designed, and implemented a Source Separated Organics (compostable food and yard waste separated from other discards) Pilot Collection Program, more commonly known as the Compost Pilot. The City recruited interested participants and the first 500 "early adopter" households began receiving service in November 2016. Kitchen food scraps, yard clippings, and other compostable items were set out by residents in 65-gallon carts for a city contractor to collect from the regular collection point, whether curbside or at the alley line. The 1-year results of that pilot are the subject of this report.

Executive Summary

Currently, most household food waste goes from the kitchen to the garbage can and then to the landfill.

In 2009, Wisconsin threw away over 830,000 tons of compostable food and yard waste (DNR 2013) and the potential value associated with this organic stream had it been collected separately and processed for recovery. Compostable organics represent over 37% of residential waste which is now the single largest component of what is currently being thrown away in Wisconsin landfills.

When these compostable materials break down in the landfill, they become powerful contributors to greenhouse gas emissions. They decompose anaerobically, or without oxygen, in a landfill, producing methane which, while having a shorter lifetime than carbon dioxide, has far more heat trapping capability than carbon dioxide. According to the US EPA, the Global Warming Potential of methane is 84-87 times that of carbon dioxide on a 20-year basis and 28-36 times that of carbon dioxide on a 100-year basis. Since landfills are the single largest direct human source of methane (Platt 2008), capturing organic materials and processing them

for recovery rather than land disposal is in the public interest and thus increasing prioritized by public policy.

Additionally, Milwaukee and other cities face the challenge of poor soils and soils potentially contaminated with heavy metals while residents are ever more interested in growing and buying local foods. Hazardous amounts of lead have been documented in the backyards and communities of many major cities like Milwaukee where residents are making efforts to grow food. The result of composting is the creation of a soil amendment that has the potential to grow healthy food and mitigate contaminated soils.

There are social, economic, and environmental benefits created by reducing the amount of organic material sent to landfills by composting. Composting adds value to the community through social benefits, like those of neighbors connecting and gardening together. Economic benefits include saving money on groceries and landfill disposal costs. Environmental benefits include avoided pollution and the creation of the end product: clean, fertile soil. As awareness of these benefits has grown in the Milwaukee community, so too has the interest in source separated organics programs and services.

Milwaukee residents in the pilot program want to compost organics and are willing to pay to have the service provided. It has been shown that composting creates local jobs, saves the city landfill fees, helps mitigate climate change, contributes to thriving neighborhoods, and makes Milwaukee a better place to live.

The composting pilot found that the participants will separate food waste much in the same way they separate recyclables with negligible contamination . They have a great deal of investment in the success of the pilot and want it to become a citywide service. Participants can clearly see that they can reduce the size and/or frequency of their garbage service . They overcome the "ick" factor of separating food waste from the garbage and make it an everyday habit.

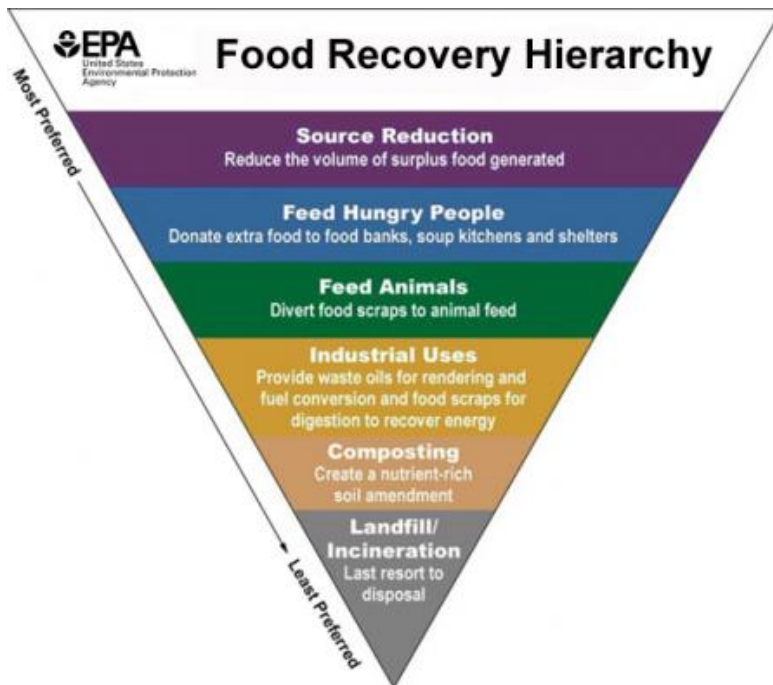
This report focuses on the curbside collection and then processing of compostable organics which are major components of a composting program. However, a comprehensive approach includes programs that move people to avoid creating wasted food in the first place, creates opportunities for backyard or on site composting of what cannot be avoided, and then creates options to recover and compost what cannot be avoided or composted on site. The most cost effective, environmentally beneficial program is one that avoids wasting all together (Eureka Recycling 2013). It requires that we make efforts to eat the food we buy, compost as close to the source as possible, and see that the end result of our compost has the highest benefit for the environment and the community by preserving and creating soil, a rapidly depleting resource. Wisconsin has experienced great success at removing traditional recyclables from landfills (DNR 2009) over the past 20 years

by focusing on reduction, reuse and recycling efforts. At the same time the percentage of compostable organics being buried in the landfill has increased significantly (DNR 2009). The opportunity exists to address organics much in the same way as recycling. Cost effective composting efforts to avoid waste and increase recovery will yield the greatest diversion for Milwaukee.

Background

A major driver for this project was the establishment of the “40 by 2020” vision set by Mayor Tom Barrett and the Common Council in 2011 with the goal of increasing solid waste diversion from landfills to 40% by the year 2020. (This goal was later also incorporated into the City’s adopted Sustainability Plan, *ReFresh Milwaukee*.) A 40 by 2020 proposed implementation plan was developed by DPW and included a phased in approach to achieve additional recovery:

- Control outside of cart garbage and solid waste pricing
- Change from separated, dual stream recyclables to Single Sort
- Rebrand recycling and increase education and outreach
- Create more recycling opportunities at two City Drop Off Centers
- Move to Every Other Week (EOW) recycling collections
- Implement volume based solid waste pricing (Pay As You Throw)
- Conduct a curbside compost collection pilot study



This report includes the results of Milwaukee’s composting pilot of curbside collected, residentially generated, food and yard waste from selected areas that are known high performing recycling neighborhoods.

Existing services around compostables were limited to seasonal collection of brush and leaves as well as year round drop off access for yard waste. The Request for Proposals process to solicit collection and processing services for the pilot program allowed for either food

waste only or food waste plus yard waste programs. The selected proposal included yard debris so both categories of material were included in DPW’s pilot program. Together, these items are referred to as compostables and organics.

Although the project's focus was to determine the feasibility of the collection of compostables curbside in Milwaukee, staff was grounded in the overall recovery and diversion principals represented by the U.S. Environmental Protection Agency's (EPA's) hierarchy for the overall management of food recovery which illustrates the order of preference for recovery.

The background data used to create the pilot was gathered from numerous community, university, and federal research papers, pilot studies, and analysis data. While utilizing the outcomes from other programs piloted and implemented in other areas of the country, details around several key factors must be tested locally before an effective program can be designed and implemented for Milwaukee residents. The pilot program and study conducted by DPW produced positive and promising results. Those results, along with extensive research of other programs and staffs' in-depth knowledge and experience in resource management in Milwaukee, were used in the creation of this report.

Measures

Information gathered for evaluation included:

- Demand for service
 - Subscription rate
 - Setout rate
 - Customer turnover
 - Customer satisfaction
- Program operations
 - Container size
 - Collection Schedule
 - Materials accepted
 - Problems, successes, and opportunities
 - Processing capacity in the region
- Messaging and education tactics
 - Recruitment tactics
 - Continuing education tactics
- Resource recovery potential
- Economics

It was determined that this information would provide a basis to continue to explore organics recovery in the City of Milwaukee and provide information to model this type of service delivery in different areas of the City. This pilot study was limited to curbside collection of organics which is a key component to a comprehensive composting program for the City of Milwaukee. "Curbside collection" includes collection at the street or curb as well as in alleys.

History

Project Timeline

The pilot program had three distinct phases: a planning phase, an execution phase, and an assessment phase. The planning phase consisted of researching other programs, selecting a hauler and processor through a Request for Proposal process, and then negotiating a contract with the selected vendor. The Execution Phase included recruiting participants, launching the program, and collecting material for 12 months. The Assessment Phase included the decision to extend the pilot and the generation of an assessment report.

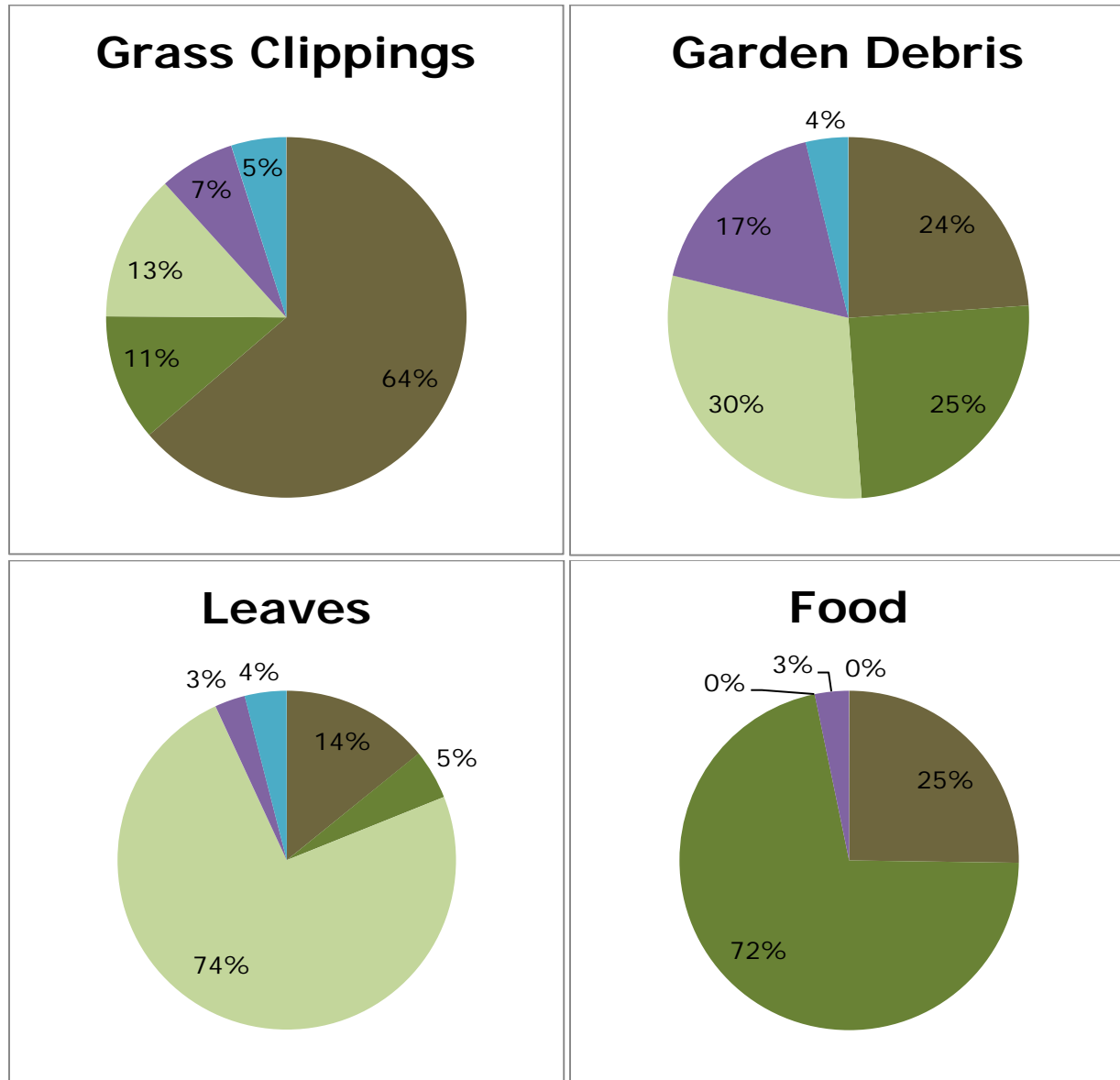
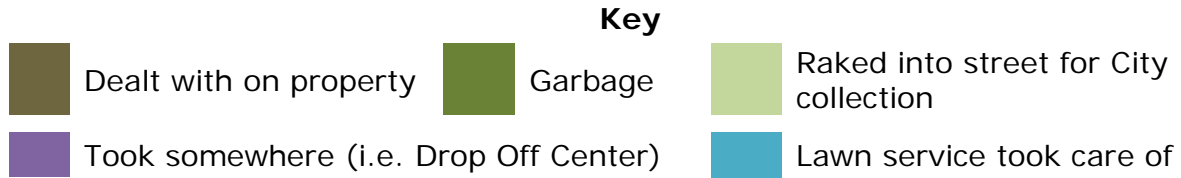
Project Phase	Timeline
Planning Phase	9/22/2015 – 7/21/2016
Research Phase	
RFP Phase	
Contracting Phase	
Execution Phase	7/21/2016 – 11/3/2017
Recruitment Phase	
Program Launch Phase	
Program Collection Phase	
Assessment Phase	9/18/2017 – 1/5/2017
Decision to proceed	
Reporting Phase	

Planning Phase

Research Phase

Other City's programs were researched, including Portland, Boulder, New York, Seattle, San Francisco, Austin, Minneapolis, Cambridge, and Madison to determine best practices. While yard debris diversion has been a portion of Department of Public Works (DPW) diversion strategy for over twenty years, diversion of food scraps and wasted food has been a more recent area of focus.

Through surveying of program participants it was discovered that prior to participating in the program residents handled organic material in a variety of ways. Although this could not be extrapolated to represent the entire City's population, it is instructive that one quarter of residents that are highly motivated to participate in a compost program self-reported that they were disposing of landfill banned yard materials in the garbage cart. It is thought that this is due to the lack of a cart based collection service for yard debris in the City. A few residents indicated that they would not participate in the pilot program because through the promotion of the pilot program they learned about other composting or responsible disposal options that they could utilize as alternatives.



RFP Phase

To properly assess regional ability and willingness to provide the collection and processing of organic materials, a competitive Request For Proposal (RFP) was issued on April 22, 2016.



Image 1: Compost Crusader Owner

The RFP allowed for a diverse set of options for collection and processing. The base scenario included food waste, non-recyclable paper, and yard waste. The alternate scenario allowed for just the collection of food waste and non-recyclable paper. This would allow for different types of processing facilities to accept the material. The base scenario included yard waste because the City does not have a year-round yard waste collection program.



Image 2: Compost windrows with mechanical turner

The RFP resulted in two proposals and the Contract was awarded to Compost Crusader with processing at Blue Ribbon Organics. Compost Crusader (Image 1) is a local hauling company that specializes in commercial organics hauling but was new to residential hauling. Blue Ribbon Organics is a processor in Caledonia, Wisconsin. They utilize large windrows that are mechanically



Image 3: DPW Staff and Blue Ribbon Organics Owner

turned (Image 2) for composting which allows the inclusion of food scraps as well as yard debris. DPW made several visits to the Blue Ribbon Organics facility throughout the pilot (Image 3).

Contract Phase

Contract negotiations established the fees, accepted materials list, cart ownership, and collection schedule.

Fees charged to resident	\$12.75 per household	This is the amount the resident pays per month for the service and processing of organic waste.
DPW Diversion Credit	\$1.00 per household	This is the amount of savings DPW anticipated to see from reduced landfill tonnages due to residents participating in the pilot program.
<hr/>		
Total Contracted Fee	\$13.75 per household	This is the total contracted amount paid to Compost Crusader.

The accepted material list was determined to be the spec in the RFP. The public accepted material list, however, did not include non-recyclable paper to ensure that in the beginning of the pilot it did not overwhelm the processor as blowing paper during processing was of concern. Later messaging clarified that non-recyclable paper was acceptable.

Carts were purchased through an existing City contract from Rehrig Pacific and the City retained ownership. Compost Crusader provided the kitchen caddies, or countertop receptacles, and the certified compostable bag samples distributed in the starter kits. BioBag manufactured both of these items.

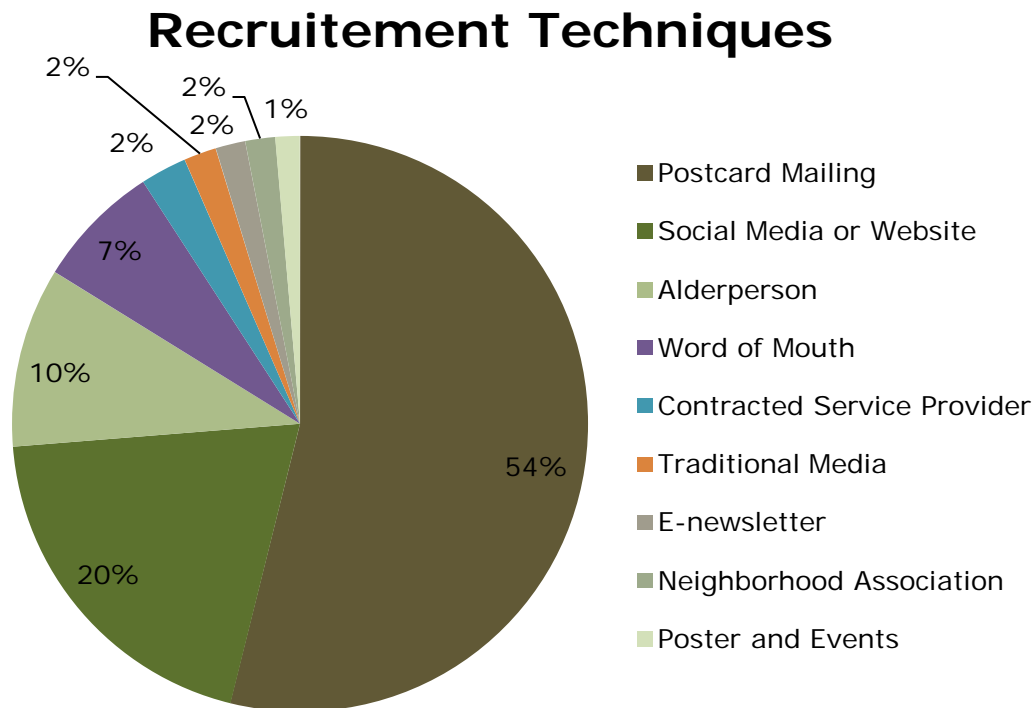
The collection schedule was modified from the original RFP to allow for every-other-week collection December through March. Due to the larger cart size (65 gallon) and the drop in temperatures over the winter, it was thought that this collection would meet the winter needs of the participants while also allowing for a lower collection cost.

Execution Phase

Recruitment Phase

Participant recruitment was the driving factor in determining the start date for service. Per the contract, service would be provided after at least 100 participants were recruited. Participants were made aware of the program utilizing a variety of means of communication. A postcard mailed to every single family and duplex

owner-occupied home in the pilot area was the most successful recruitment technique, followed by social media.



Communication to potential participants indicated that the program would be an optional subscription service for the carted collection of yard and food scraps. While it was made clear this would be a fee-for-service, the exact amount was not included in the initial communication.

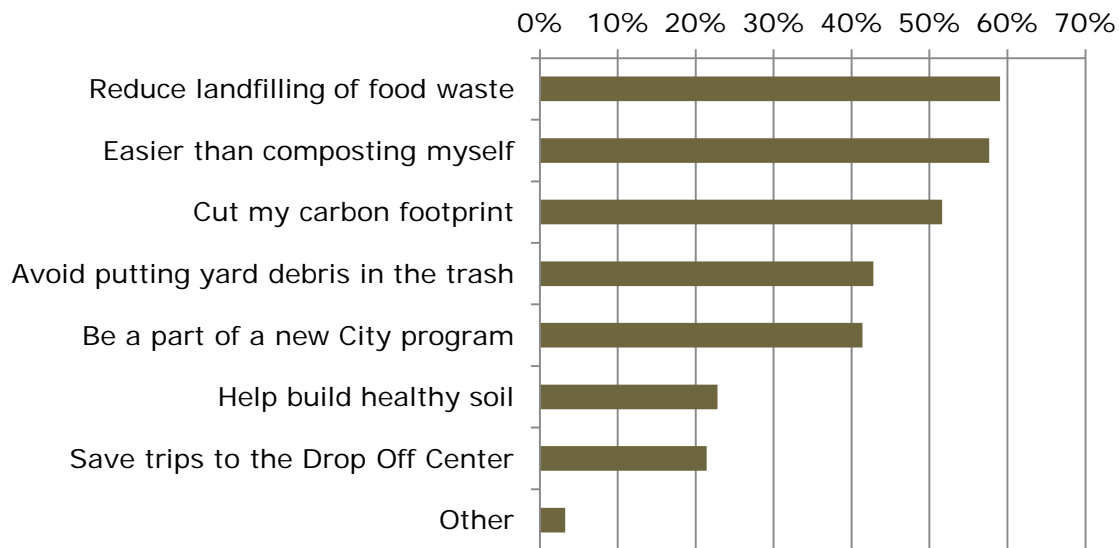
Interested participants were directed to a website for additional information about the program. Additional program information was available including a full material list, clear eligibility requirements, and the cost to participate (<http://city.milwaukee.gov/organicscollection>). Residents could either complete an interest form to be placed on the waiting list or they could take a one question survey indicating why they were not interested in the program.

In the first 30 days of the website being live, there were 2,915 unique page views and users spent an average of 4.8 minutes on the page. In that same span of time 125 page visitors completed the non-participant survey (4%) and 631 page visitors completed the interest form to be placed on the waiting list (22%). The 100 participant threshold for operating the pilot was met in 23 hours and the maximum number of participants was met in 8 days.

People who were interested and eventually participated in the program identified the main reasons they joined the program. 75% of eventual participants *primarily* joined because the program collected food scraps and wasted food while only 25% indicated that the *primary* reason for participating was because of the collection of yard debris.

When asked for more details, residents shared additional reasons for participating. Residents could identify up to 3 reasons and the answers are summarized below.

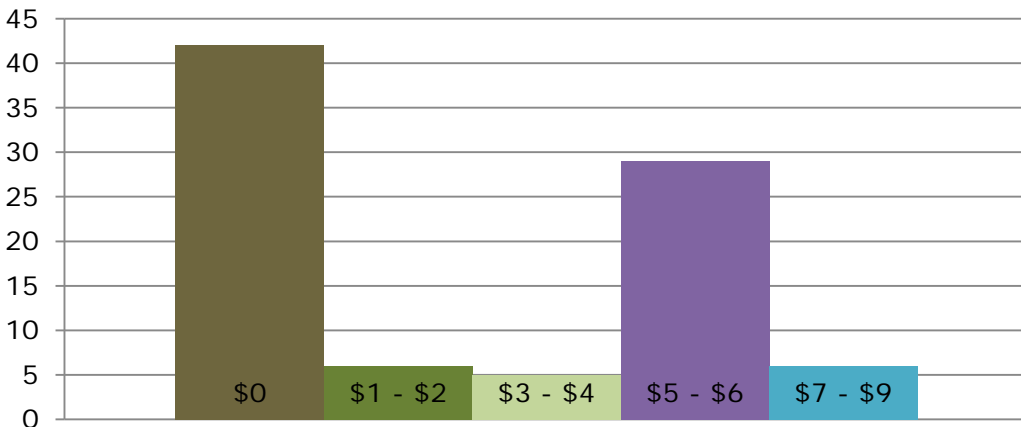
Reasons for Participating



Of the individuals *not* interested in participating a total of 139 took the survey to select the multiple reasons they were not interested. 67% of respondents said that the cost was too high, 27% already compost, 15% do not think they have enough material to justify participating, 14% do not have space for a third cart, 11% are not eligible due to the current geographic boundaries, and 2% had other reasons. No one identified that there was not enough of an environmental benefit to the program, which was a survey option.

Those who indicated they were not interested in participating due to the cost were asked a follow up question about what they would be willing and able to pay for this service. The question was a short answer so as not to skew the results. 91 residents responded. This data suggests reducing costs to \$5 per month would likely increase participation 38%.

Non-participants Willingness to Pay Per Month



The pilot was conducted using electronic communication to keep costs low. One potential participant indicated that they would not participate due to the electronic only restriction, although other residents may have not been able to participate due to this restriction and did not alert us to this as a potential issue.

Once residents completed their interest form, DPW verified eligibility based on housing type and geographic location. The first 500 residents were then emailed a billing authorization form, an e-mail indicating the start date, and an initial survey. Residents had 48 hours to complete the initial survey and billing authorization.

Of the individuals that completed the initial interest form, 20% did not return the authorization form. While some may have no longer been interested, anecdotally it is thought that many individuals did not receive the authorization e-mail as it was possibly captured by spam filters. This is due to feedback from participants who later found the e-mail in their junk folder. Clarifications were made to messaging to mitigate this issue with residents signing up as the program continued.

Program Launch Phase

Due to the pilot program’s maximum participation being met so rapidly, it was determined that there would be a phased program roll-out. Initially carts were delivered to one Bay View route and the East Side route. One month later the additional routes were added to ensure that any issues resulting from the deliveries or new routes were able to be addressed swiftly.

Cart Delivery Date	Route	Households
October 27, 2016	1 – Bay View	123
	3 – East Side	111
November 21, 2016	2 – Bay View	138
	4 – Riverwest	117

Per the contract, DPW purchased the carts and the contractor, Compost Crusader, supplied the starter kits. Compost Crusader assembled and delivered the carts. 65 gallon carts were purchased from Rehrig under the City's existing cart contract. 513 carts were purchased for \$42.86 each for a total cart cost of \$21,987.18. This cost was absorbed into DPW Sanitation's 2016 operating budget.

To allow for both yard debris and food scraps, a 65 gallon cart was selected. 83% of participants feel this is the right size cart for spring – fall. Half of these individuals also feel the cart is the right size in the winter while the other half feel the cart is too large in the winter. 15% of participants feel the cart is always too large and 2% feel the cart is too small. Seasonal tonnages, discussed later in this report, verify this survey finding.

The highest number of carts lost occurred during the delivery phase. Several residents were able to locate carts that had been delivered to neighboring households, Compost Crusader was able to recover several carts that had been delivered to neighboring households, and 2 carts were not recovered and had to be replaced. To better address this with later deliveries, Compost Crusader began identifying the address with duct tape on the cart and delivered all carts to the front of houses regardless whether an alley would be the service point. This dramatically increased the efficiency of cart delivery and reduced the number of misplaced or missing carts. Despite this, 97% of customers reported that there were no issues with the start of the pilot program.



Starter kit

- Kitchen caddy
- Biobag samples
- Welcome letter
- Schedule & setout instructions
- Acceptable material list
- Coupon book and window cling



Image 4: Cart with starter kit being delivered

Program Collection Phase

Collection occurred weekly April – November and every-other-week December – March. Most participants indicated that this collection schedule provided adequate levels of service because only 2% of survey participants required additional capacity for material. Tonnage reports indicate that even with every other week collection, there was additional available capacity.

Seasonal every-other week collection was agreed to in the contracting phase. Primarily this was done to reduce the per month price which was proposed at \$15 per household. Residents indicated through surveying that the reduction in service was not problematic. Residents still had enough capacity for their materials due to the seasonal reduction in yard debris. Due to the use of compostable bags for food material, there were only three reported incidents of material freezing in a cart.

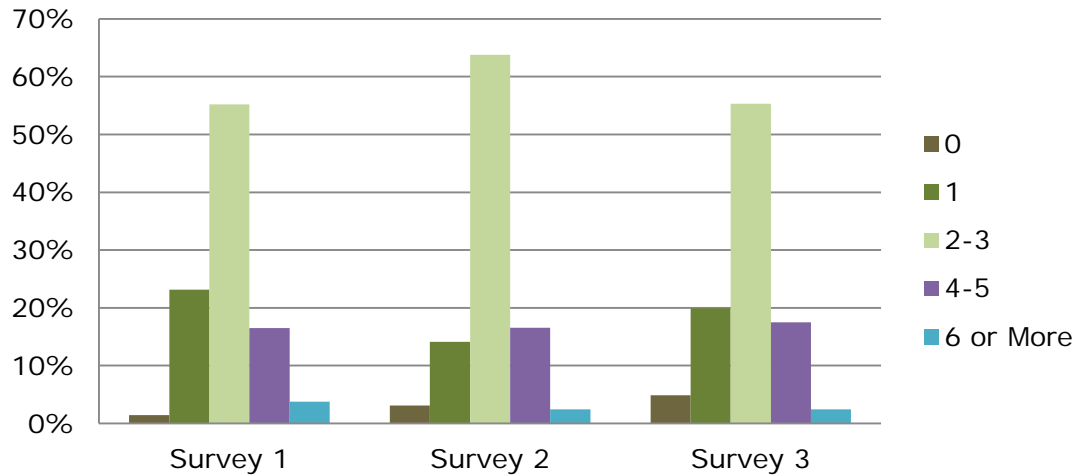
After 6 months of the pilot, residents were surveyed about pests and vermin. 97% of participants did not notice a change in rodents outside the home. 1% noticed an increase and 2% noticed a decrease in rodents outside their home.

Residents were also asked about fruit flies. 41% of survey respondents did not get fruit flies, 41% did get fruit flies due to the program and 18% were unsure. 80% of the individuals that got fruit flies responded by taking food scraps to the cart more frequently. Additional education on ways to prevent fruit flies (storing food scraps in the refrigerator or freezer, emptying scraps more frequently, use of traps) was provided to residents and 4% of respondents indicated that they temporarily stopped collecting food scraps for a time due to fruit flies. No one indicated that they left the program due to pests.

For collection, yard debris was specified to remain loose in the cart and food scraps were required to be bagged in a compostable bag. The bag could either be paper or

BPI certified compostable. A sample of Biobags and a coupon for the additional purchase of Biobags was given to residents in the starter kit. The chart below shows how many compostable bags (compostable plastic or paper) were used by participants throughout the program. These numbers were self-reported.

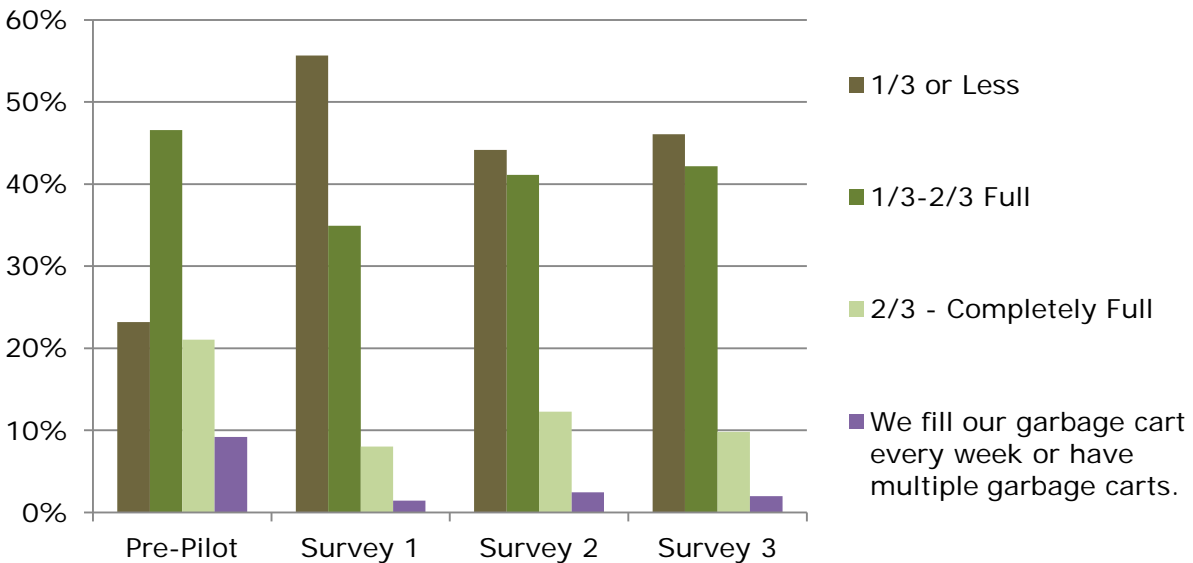
Number of Compostable Bags Used Each Week



In the beginning of the pilot 70% of individuals were only including food waste. This is primarily due to the pilot beginning outside the main growing season. Breakfast and dinner are the meals most frequently eaten at home, with 73% of participants eating breakfast at home 6 – 7 times per week and 63% eating dinner at home 6 – 7 times per week. 68% of participant households eat meat, 25% of households include some vegetarians and 7% of households are completely vegetarian.

Although participants' garbage was not weighed as a part of this study, participants were asked to self-report the fullness of the garbage cart throughout the pilot program. Prior to the program, 9% of individuals indicated that the garbage cart was filled every week or that they had multiple garbage carts. At the end of the program this number dropped to 2%. The results of this drop however, were seen by the time of the first survey. The number of people who reported the garbage cart was less than 1/3 full each week doubled over the course of the pilot.

Garbage Cart Fullness by Week



At the end of the pilot, 6 residents (3.1%) indicated that they had multiple garbage carts at the beginning of the pilot and were able to reduce the number of garbage carts at their home. 88% of respondents indicated that they could reduce the current level of garbage service they received due to the pilot program by either getting a smaller garbage cart or setting out their current 95 gallon garbage cart less frequently. Participants were evenly split on which of these options would work better for them. These results indicate the utility of an organics program in conjunction with a variable rate pricing structure for garbage collection.

Not only did participants see a change in the volume of garbage, but 74% reported that their garbage had less weight and 63% reported that their garbage had fewer odors.

Over the course of the program, residents had positive things to say about the service. There were a total of 12 service requests, 10 of which were missed collections. Out of 20,848 potential collections, this was a missed collection rate of 0.05% (five hundredths of one percent).

Customer management and invoicing was handled internally by DPW staff. ITMD, the City's internal IT Department, created a database for this purpose based on an existing platform used to manage apartment garbage accounts. Invoicing occurred quarterly. Paper invoices were printed and mailed as an invoice separate from any other service. It was not attached to the municipal services (water) bill or added to the tax bill. Participants had to return a check via mail or pay in person with cash or a check at the City Treasurer's office. 91% of participants indicated they were interested in online payment options. Participants pre-paid for service.

Residents were contacted for non-payment. After two instances of non-payment residents were issued a final warning and then carts were removed. 15 participants (3% of all account holders) were removed from the program due to non-payment.

Residents were provided ongoing education throughout the program. A website provided program information such as the material yes/no list, video tutorials, and route schedules. A dedicated phone number was created for the organics pilot to quickly connect participants with the correct DPW staff. Residents primarily used this phone number and emails to inquire about material acceptance and invoice related questions.

All residents were required to supply an e-mail for program related communication. Bi-monthly emails provided information to participants on frequently asked questions, reminders about set-out, and tips for making pilot participation easy.

Lastly, a private Facebook Group was created for the participants. This optional group had 253 members. 210 of those members reacted to or made a comment between July 15 and November 3, 2017 which shows this was a very engaged group. During that same time period there were 33 posts or conversations started. The group typically acted as a resource for itself to share information on materials that were accepted and tips for participating in the program. A DPW employee moderated the group, but involvement became much less over time due to the engagement of the participants.

One goal of education is to improve material quality. Overall the material quality was very high and contamination was very low. The processor officially reported 0 pounds of contamination. He noted that rarely he would notice an empty chip bag or some other type of garbage or litter and pick it out by hand, but it was never at a level that was measurable. Possible reasons for the low contamination rate could be due to the limited nature of this study, the subscription rate and price, and the ongoing education efforts.

If contamination was noticed at the cart an educational tag was left. Sometimes material could be removed and the cart could still be serviced. 39 times (0.25% of all carts set out) received an educational tag but still received service. 16 of these tags were for improper set out and 23 were for incorrect materials. 5 times carts were not able to be serviced. 3 of these tags were due to insufficient snow removal. 2 times the cart materials were too contaminated to be serviced. One time the cart was used for recyclables and another time a participant added grass clippings with paint chips. Although tags were not left, 3 times carts could not be completely emptied because material froze to the bottom of the cart.

The contractor, per the contract specifications, provided daily and monthly reports on cart set out, weights, residue, scale ticket numbers, service requests,

unaccepted setouts, and average pounds per household. Monthly reports also included information on tonnage processed and the amount of finished compost created and marketed as well as narrative feedback on the quality of the material, end markets, and any other observations.

Assessment Phase

Decision to Proceed

As the final quarter of the program began the Department assessed if the service would continue, expand, or terminate. After reviewing the goals of the original study, the feedback from participants, and the interest from the hauler and processor, it was decided in late September that the pilot program would continue for an additional year for at least 500 households in the original pilot study zone.

Reporting Phase

A series of 4 surveys were given to participants. 2 additional surveys were available, 1 for those not interested in participating in the pilot and 1 for those that left the pilot.

Survey	Date	Responses
Authorization & Pre-Program Survey	Varies	556/556
Survey 1	1/27/2017	214/500
Survey 2	8/3/2017	163/500
Survey 3	11/13/2017	207/500
Exit Survey	Varies	9/56
Non-Participant Survey	Varies	141

Anecdotal and qualitative data was also gathered through conversations, e-mails, and phone calls with participants as the pilot study progressed. This feedback along with data collected by DPW staff, the hauler and the processor were used to generate this report as well as 3 quarterly updates to Common Council on 11/30/2016, 3/8/2017, 7/19/2017 (File held).

Final Results

Demand For Service

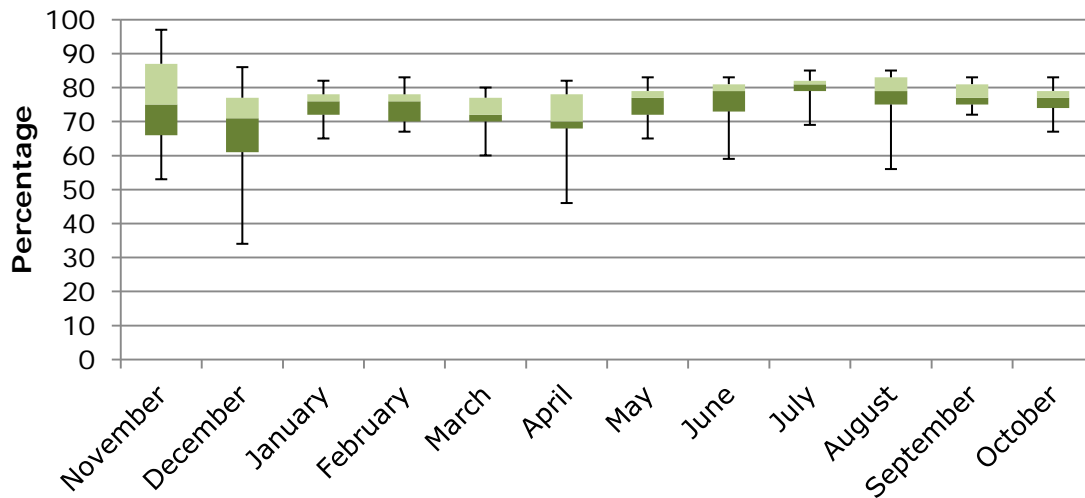
Subscriptions

The number of subscribers remained at the maximum level for the duration of the pilot study. A minimum of 100 participants were needed to begin the program and this threshold was met in 24 hours. The program maximum of 500 participants was met in 8 days. There has consistently been a waiting list of additionally interested participants.

Set Out Rate

The percent of participants that set out their cart each week for collection was measured. To be counted as a set out, residents with curbside collection needed to wheel their cart out to the curb line by 7 AM for collection on their scheduled day. Residents with alley collection needed to have their cart at the alley line by 7 AM and have some collectable items in the cart. This distinction prevented carts that were stored at the alley line from being counted as a set out. This distinction was not clear with the contractor in the initial month of the pilot and the set out rate had to be calculated after removing carts that were inadvertently marked as a set out but also were marked as having been empty. Despite this issue, there is a high degree of confidence in the set out rate. For the entire year the lowest set out rate was a week in December which had a set out rate of 34%. The maximum set out rate was a week in November with 97%. The average set out rate was 75%. As the chart below shows, set out rates were fairly consistent throughout the year.

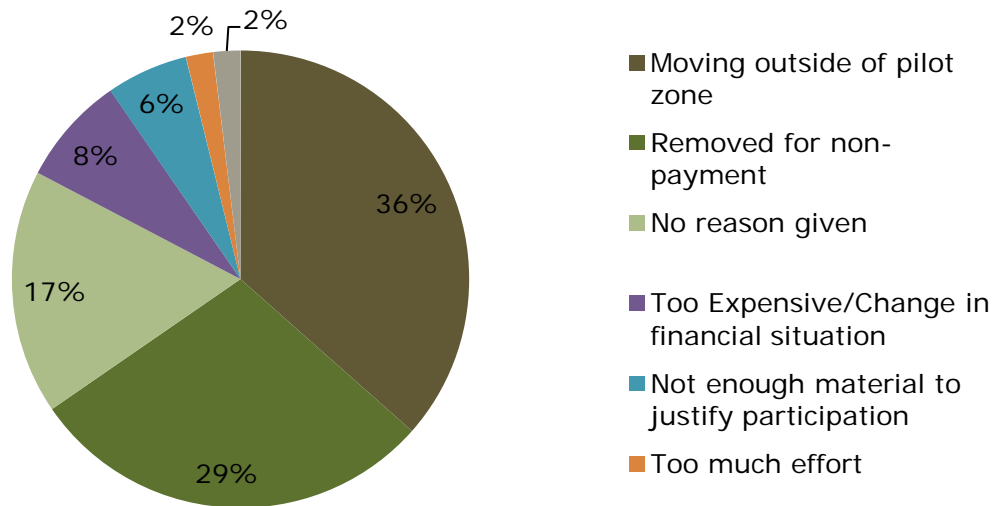
Set Out Percentage By Month 2016-2017



Customer Turnover

52 participants (9.5%) left or were removed from the program. 15 participants were removed from the program for non-payment. Reasons for voluntarily leaving the program included moving, not generating enough material to justify the expense, the program was too costly, and the program requiring too much effort. No one indicated that they left the program due to poor service or due to issues with bugs or rodents.

Reasons for Leaving Pilot

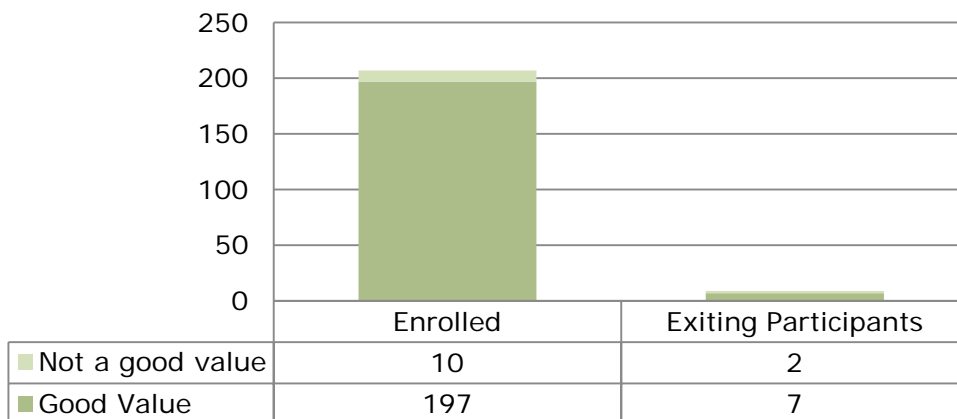


Customer Satisfaction

Customer satisfaction remained high throughout the pilot. 96.6% of participants indicated that there were no issues with the start of the pilot program. All reported missed collections were serviced within the contractual cure period.

Residents were asked to determine if the program was a "good value" either when they left the program or at the end of the pilot study. 78% of those that took the exit survey considered the program a good value, although only 16% of those leaving the program took the exit survey. Of the participants that were in the program at the time of the study conclusion, 95% felt the program was a "good value".

Was the program a "good value"?

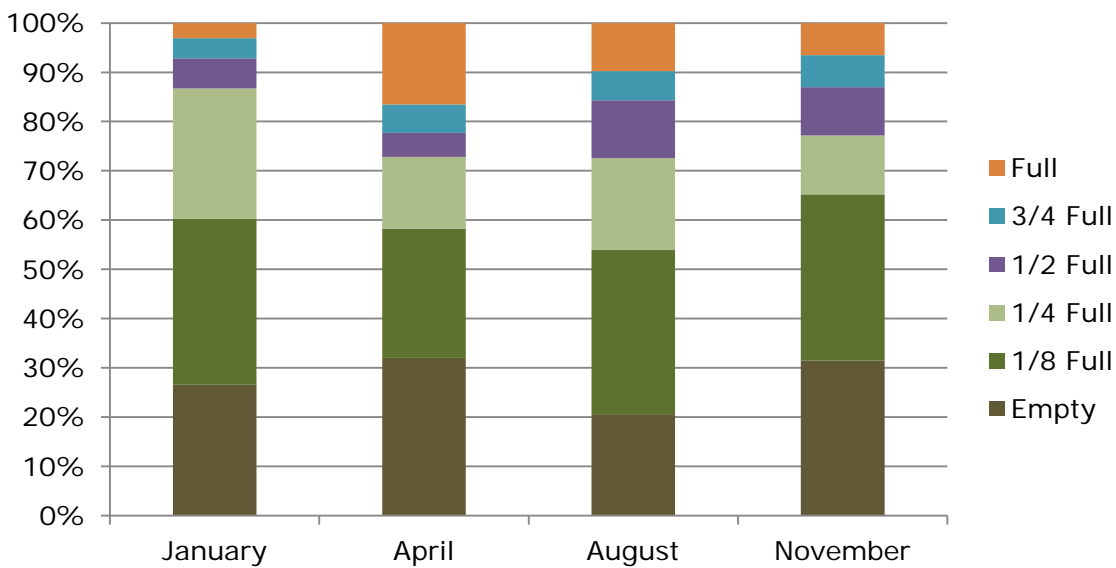


Program Operations

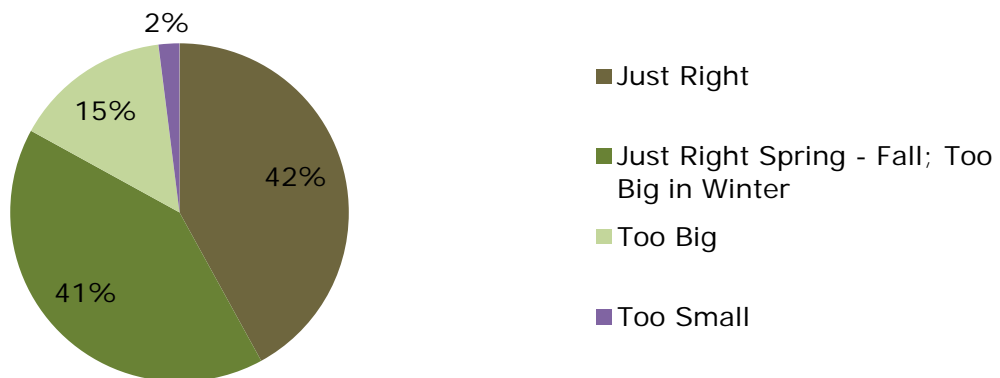
Container Size

The container size (65 gallon cart) was deemed appropriate for a food and yard debris program. Cart fullness was visually sampled with each collection. For analysis purposes a 2 week period was assessed for each season. April, August, and November showed the fullest carts, and even still less than 30% of carts were half-full. Even so, 83% of participants believed that the cart was the correct size spring – autumn. 15% believed the cart was always too large and 2% believed the cart to be too small.

Cart Fullness by Season



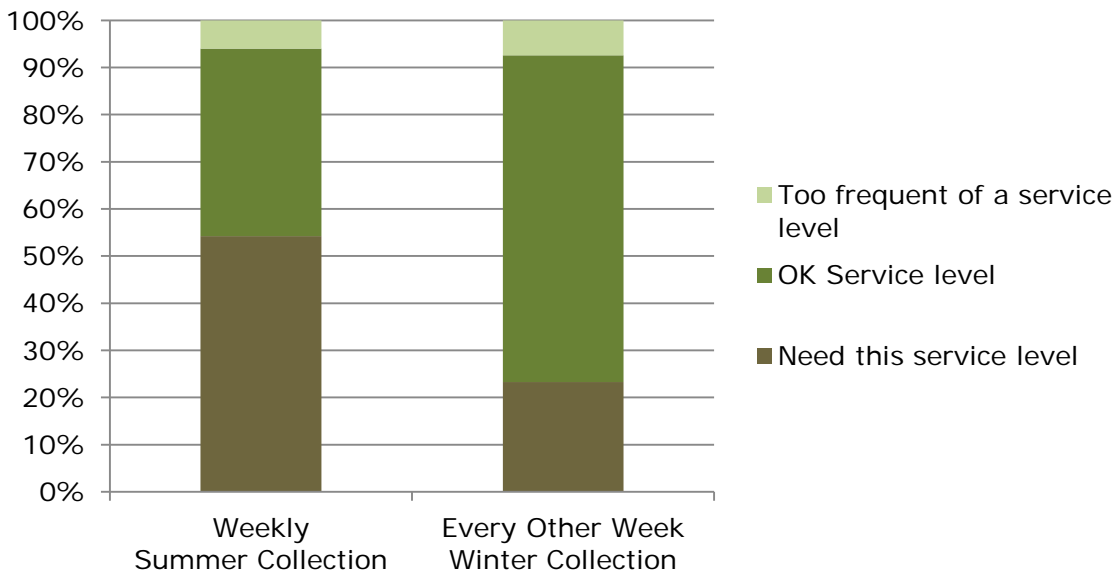
Participants Opinion on Cart Size



Collection Schedule

The collection schedule was deemed to be appropriate. Every-other-week collection during the winter months (December – March) provided adequate service while weekly service during the rest of the year allowed for the inclusion of more yard debris during the growing season. 94% of participants felt the frequency of service was adequate in the summer and 93% felt the frequency of service was adequate in the winter.

Service Frequency



Materials Accepted

All of the materials that were originally included on the acceptable material list (see attachment) proved to be successful. Compostable papers were excluded from the initial acceptable list shared with participants due to concerns from the processor that it would overwhelm the system and create litter issues. Some participants included compostable papers and there were not major issues, but there is no plan to add them to the official acceptable material list to prevent this from becoming an issue at the processing site. Additionally, there was a developing list of participant questions on items that will be developed into a more exhaustive yes/no list for publication on the website and available to future participants.

While 75% of participants indicated that the main reason they participated in the program was for food scraps and waste, many participants included both streams in their cart for collection.

Food vs. Yard Debris by Volume

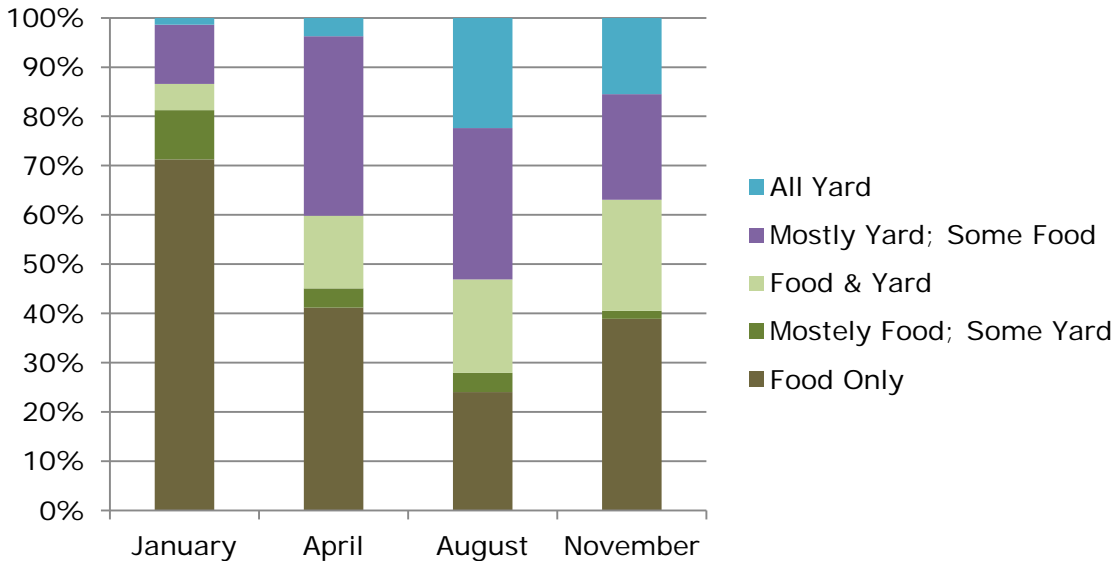


Image 5: Materials being tipped from pilot collection

Over 90% of participants included fruits, vegetables, coffee and tea grounds, and leftovers or spoiled food for collection. 76% of participants included grains and another 76% included eggs and dairy. 66% of participants included cooked meats and seafood.

During the peak growing season, nearly 75% of participants included some yard debris in the cart for collection. This may be due to the lack of year-round collection of these materials in the City. It is interesting to note that 61% of participants garden to grow food and 80% garden to grow flowers and plants.

Problems, Successes, and Opportunities

The greatest opportunities are around streamlining service. One example is the process for removing, moving, and onboarding participants. This process requires communication with DPW field personnel to issue the cart and correct starter kit, the contractor to add or remove the stop from the route, and the DPW invoicing staff. In a relatively small pilot this was able to be done

informally with spreadsheets and email communication.

Invoices are another area that could be streamlined. Due to the complexity of the invoice, a new version needed to be generated each quarter which required working with ITMD. A simplified invoice would remove this step.

Processing Capacity in the Region

Processing capacity in the region was identified as a limiting factor. Only one composting processor was represented in proposals received in response to the RFP. While this processor has additional processing capacity, the City will need at least one back up location for processing capacity in the region in order to make the program sustainable.

Messaging and Education Tactics

Messaging and education played off the theme “Because what you have isn’t waste”. Initially this messaging with graphics of food scraps and waste and yard debris were used on posters and postcards. These tactics were effective in recruiting individuals that were interested in reducing the amount of food scraps and waste that was being sent to the landfill. Almost 60% of the individuals who participated in the program identified this as one of the top reasons they joined. 75% of participants indicated that they *primarily* joined the program for the collection of food scraps and waste.

Digital communication was key to the ongoing success of the program due to its low cost. In addition to DPW e-mails, a Facebook group became an active way to communicate with residents. Over 40% of individuals indicated that one of the main reasons they participated in the program was to be a part of a new City program. Giving these individuals an opportunity to digitally network and collaborate with each other had benefits. Because many participants are geographically separated, the online forum allowed participants to connect with each other.

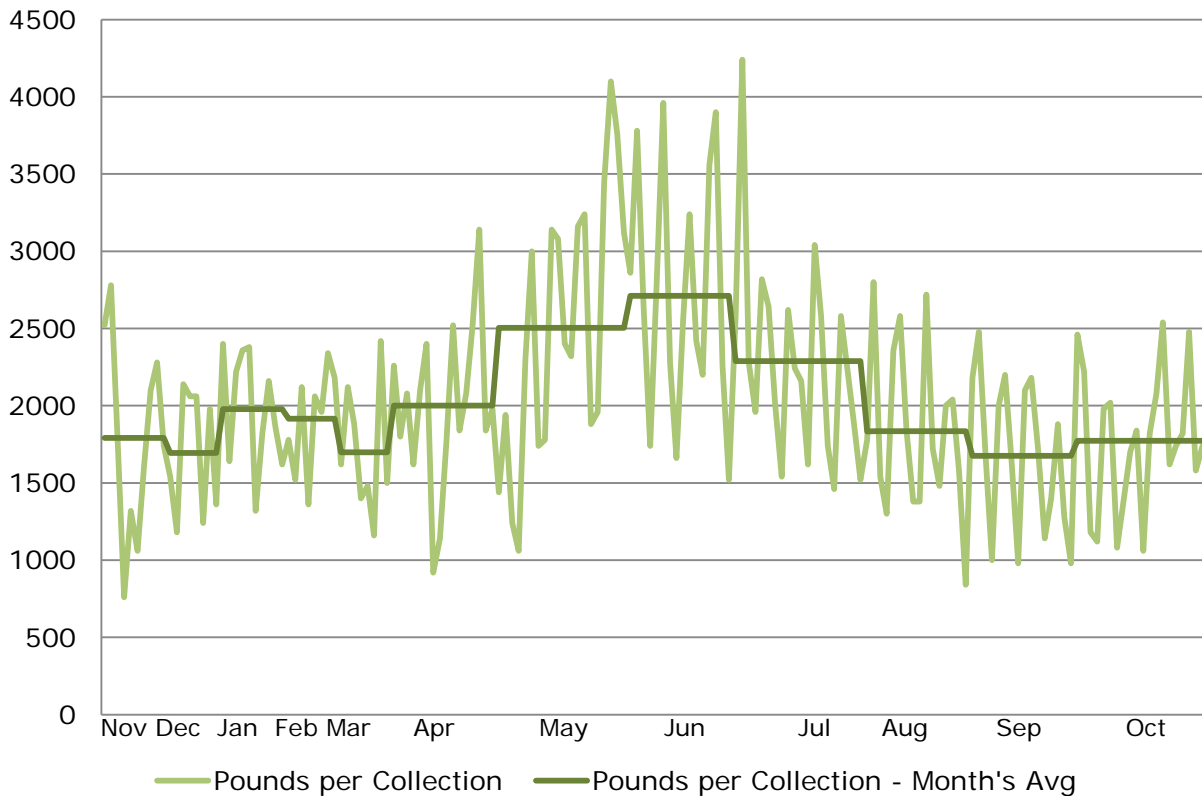
Resource Recovery Potential

The pilot program collected 171.5 tons, or 343,020 pounds, of material during the 12 months of collection. The first 12 full months of the program showed 720 pounds of material collected per subscribing household.

Each load was visually inspected to determine the volume of yard waste compared to the volume of food waste. There were a total of 4 routes, each having approximately 125 households. Routes were collected Mondays, Tuesdays, Thursdays, and Fridays. The average pounds collected per truckload was 2,042 pounds. The lightest load was 760 pounds and the heaviest load was 4,240 pounds. Collection frequency was every other week from December to March. As the chart below shows, while truckload weights did increase during the growing season, there

was a smooth transition in truck weights between March and April and again from November to December. This shows that the timing of switching from weekly to every-other-week collection is at an appropriate time of the year. The hauler also found the load sizes helpful in that a smaller vehicle was able to be used for collections.

Pounds Per Collection



Prior to the beginning of this program, 43% of participants were composting, but only 27% of participants were composting food scraps and waste.

Economics

The program costs were covered by the residents and DPW Operations-Sanitation's operating budget. The residents received a quarterly invoice which was separate from the municipal services (water) bill, which initially caused some confusion.

Residents were charged \$12.75 per month on a quarterly invoice. The contractor was paid \$13.75 per month per household. This \$1 savings to the resident was passed on by the Department as an "Eco Credit" towards the service cost of the program. This was done to acknowledge the monetized landfill savings anticipated from the participants' involvement in the program.

The City purchased the 513 carts for a total cost of \$21,987. The welcome kit costs were shared; the contractor provided the kitchen caddies and bags and the City printed the inserts (welcome letter, material list, and schedule) at a minimal cost. The costs associated with promoting the program were \$3,622 which included postcards and posters. Foth Infrastructure & Environment, LLC, a consulting firm, assisted in creation of the RFP.

The total cost of the one-year program with the exception of City employee staff time was \$113,109. 70% of this cost was covered by the participants' monthly billed fees. The 30% of hard costs borne by the City were essentially startup costs, with the majority being the purchase of the carts.

Although staff hours were not tracked specific to this project, there were significant hours invested throughout all phases of the pilot. During the execution phase City staff was responsible for invoicing, participant communication including ongoing education and data collection, managing the participant list, and delivering new carts and retrieving carts when people exited the program.

Conclusions

Demand for Service and Participation

With regard to residents showing interest in participating in the program, the pilot and subsequent surveys indicated that demand remained high with over 96% of participants wanting to continue the pilot program with the current fees in this area of the City. Surveys also indicated that new participants in an organics collection program would increase by as much as 38% if the price for service was lowered to \$5 per month. Although the level of interest in the pilot neighborhoods may not translate to other neighborhoods around the City, there is evidence that the current price point may need to be adjusted for a citywide program.

Average participation for the pilot remained at 75% for the duration of the pilot. That means that an average of 75% of the participating residents regularly set out a cart. And the participation rate remained consistent through the year i.e. winter vs. summer. The factor that had the greatest impact on participation was a change in collection day caused by city holidays i.e. shifting the collection day when the regularly scheduled day would occur on City holidays.

Although customer turnover was low during the pilot (less than 10%), roughly 1/3 of those that left the program did so by defaulting on payment and another 1/3 left the program due to moving outside of the pilot zone. This indicates that customer satisfaction was high.

Program Operations

Container Size

The container size, 65 gallons, proved adequate for the pilot that collected yard and food waste. At the same time, 14% of those that opted not to participate indicated that one of the reasons they would not participate was because they did not have space for a third cart. Despite the fact that over 97% of participants felt the cart size was adequate, the amount of unutilized cart capacity could be addressed by either offering a smaller cart size option or promoting a cart-sharing program. 83% of participants would be interested in a program that allowed them to share a cart with a neighbor. Allowing loose yard debris and bagged food scraps and waste assisted with the collection of the material.

Collection Schedule

The collection schedule was sufficient with weekly collection April – November and every other week collection December – March. The reduction in frequency during the winter months proved successful and reduced collection cost. Since the food waste was required to be bagged, there were very few incidents of frozen material sticking to the bottom of the cart. To that end, providing the starter kit with the kitchen caddy and samples of bags was very helpful despite the fact that eventually 32% of participants replaced or considered replacing their kitchen caddy with a higher quality item. Approximately 50% of participants use 2 – 3 compostable bags per week with 25% using 0-1 and 25% using 4 or more.

Materials Accepted

100% of participants prefer a program that accepts both yard debris and food scraps and waste. Over 90% of participants include fruits, vegetables, and spoiled food. Although participants are less likely to include eggs, dairy, grains, and cooked meats and seafood, over 2/3 of participants are including these items as well.

Quality of Collected Materials

The quality of the materials collected was extremely high, with no measurable contamination as measured by the processor. Of the over 20,000 collections during the pilot, two carts were unable to be collected. The high degree of success in avoiding contamination is attributed to the following:

- Participants were highly motivated and self selected to participate (subscription service)
- The limited geographic area of the chosen pilot area
- Bi-monthly emails to all participants
- An active Facebook Group
- Collection drivers looked inside each cart before it was emptied
- Violations were tagged on the cart

Impact of Pests, Rodents, and Odors

One key factor of interest was the challenges and acceptance of sorting food waste in the kitchen. The pilot clearly indicates that participants did not experience the barriers of pests or odor in the kitchen. The carts also remained relatively odor free due to the requirement that the food scrap material be placed in a compostable bag before it was deposited in the curbside cart.

Process Optimization

Although invoicing and deploying new carts were successful with this size pilot, opportunities for streamlining these processes are available. Integrating these processes into the existing infrastructure (i.e. utilizing DPW Apps, Unified Call Center, etc.) would become more important if the pilot expanded. The lack of online bill payment was frustrating to participants and 91% would prefer an online payment option.

Use of Finished Compost

20% of participants believe the program needs to have a compost give-back component and 70% think it would be nice to receive free compost. This indicates a strong desire from residents to bring the material back to the neighborhood and indicates that the City investigate a mechanism to distribute and use finished compost locally—and to create a funding mechanism to support the program. Residents had a high degree of interest in the finished compost. Many residents inquired about the availability to purchase the material.

Processing Method and Capacity

There are two large scale methods of composting available in the Milwaukee area: aerobic composting and anaerobic digestion. Aerobic composting is a process of introducing air to aid in the decomposition process. This can be done using windrows where materials are placed in large mounds that are mechanically turned or by forcing air into windrows. Anaerobic digestion is a process that digests organic material in a chamber without oxygen. One by-product of anaerobic digestion is biogas called methane that, once cleaned can become a fuel source. Anaerobic digestion is not well suited for residentially generated compostable materials because of the high variability of the stream and the presence of yard waste which does not produce enough biogas to be a cost effective method.

Because 99% of participants surveyed wanted a program that accepted both food and yard waste, it was determined that the organics processing facility would be the aerobic windrow composting type or the Blue Ribbon Organics facility. Aerobic windrow composting provides the best economic, social, and environmental benefits for residentially generated material.

Processing capacity in the region remains a substantial barrier to ramping up the pilot to a full scale program. There was only one composting processor in the region that was represented in the proposals received in response to the initial Requests for Proposals. To date there remains a single processor for residentially generated mixed food and yard waste. Expanding capacity in the region for processing yard and food waste together, or aerobic composting will be necessary in order to allow for a more resilient and sustainable composting program.

Messaging and Education Tactics

Primarily, residents joined the pilot because they wanted to reduce food waste going to the landfill, it was easier than composting at home, and they wanted to lower their carbon footprint. The main message “What you have isn’t waste” was particularly effective with these participants. Different messaging may be more effective for residents that were more concerned about the convenience of year-round yard debris collection.

54% of the participants learned about the program through the postcard mailer. Although there was a cost associated with this recruitment technique, it’s success made it worthwhile. Social media and the website were the next ways residents learned about the program. Boosting social media posts were not used, but in the future this may be examined as a potential low-cost recruitment strategy.

Online communication via e-mail and social media was very successful and had a low cost.

Resource Recovery Potential

An average pilot participant household over the course of the year diverted 720 pounds. The factor that is probably affecting the higher than average diversion rate than would be expected from similar programs is that the City of Milwaukee does not currently offer any winter yard debris collection programs and the seasonal collection programs are limited to brush and leaves. Surveys showed that over 25% of residents that are highly motivated to participate in a compost program self-reported that they were regularly disposing of landfill banned yard debris in the garbage cart. At this level of diversion, each household is contributing to a landfill diversion savings \$15.63 per household per year if the assumption is that all material otherwise would have gone to the landfill.

While 43% of participants that completed the survey indicated that they composted prior to participating in this pilot, only 27% were composting food scraps and waste. Further, 25% of participants self-reported that they had been throwing garden debris in the garbage cart, so although this is already a landfill-banned

item, the organics collection program allows the City to capture this material due to the convenience of offering a curbside collection service.

Economics

70% of the 1-year program costs were invoiced to participating residents, although this does not include any reimbursement for City staff time.

While there was sufficient interest at the \$12.75/month price point in the pilot area, there would be additional interest at a lower rate. Data suggests \$5/month may be more successful. 93% of participants also indicated that they would be interested in having opportunities to save money on their solid waste fee. 88% of participants stated that they could decrease either the size of garbage cart or frequency of collection based on their participation in the program.

Leveraging Community Benefits

Participants in the pilot demonstrated a great deal of investment in the success of the pilot and growing it citywide.

Recommendations for Next Steps

Expand Access

The pilot data clearly demonstrates that there was demand to continue the service for the original 500 homes at the current cost to residents which is \$12.75 per month which is \$153 per year or about \$3 per week. With the initial carts purchased by the City, program costs now are largely covered by participants moving forward, so it is economically feasible to continue the program. In order to assess interest in a broader area, more neighborhoods need to be engaged. Therefore, perhaps using a similar method of recruitment of participants, other neighborhoods in Milwaukee could be engaged. Further, alternative pricing models should be tested to assess price sensitivity to the service. By including additional households in the pilot and implementing other pricing models, staff will be able to more accurately assess interest in subscription, cart based organics collection by more representative neighborhoods of the City.

At the same time, there is interest among residents to have their food waste composted even if they are not able to participate in a curbside collection pilot. Therefore, it is recommended that staff test the use of the City Drop Off Centers to create drop off options for food waste in addition to the existing yard waste option. This will allow those that would like to participate in the program but are not currently able to drive compostable food waste to one of the centers.

Develop Additional Processing Capacity

Collection of compostable material is only one part of building a successful program. Once the public is educated and the material is collected, it must then be safely processed into a nutrient rich soil amendment that can be returned to the community to grow healthy food. A successful composting program is able to access a number of processors with different capabilities. Processing capacity in the Milwaukee area remains a major barrier to ramping up a full scale composting program. We currently have only one major processor that is able to process food waste with yard waste in the metro area. In order to build a resilient composting program there must be at least one back up market to deliver large volumes of material. Therefore, it is recommended that staff determine the feasibility of transferring material to other regional processors.

It is also recommended that staff approach traditional yard waste only composting facilities to determine the level of interest in piloting the inclusion of food waste in their process.

Finally, it is recommended that small scale, neighborhood composting entities such as Kompost Kids, Growing Power (or its successor), urban farms, Vincent High School and others be engaged to help maximize the community value of the program. These groups can be an integral part of the overall compost collection strategy and create an extremely high value related to the community, with environmental and economic benefits to Milwaukee.

Assess City Provided Collection Services

Additional modeling is needed in order to assess the barriers and opportunities related to incorporating organics collection into the City owned and operated fleet. This will require detailed information on routing, collection times, collection methods, and other operational details in order to model the challenges, opportunities, and resource needs.

Research City Policy Changes

It is recommended that staff research existing city codes, ordinances, and policies to find opportunities to facilitate more organics recovery. By reducing barriers to composting and creating incentives, the City can influence residential and commercial habit change, lower disposal costs, and create jobs.

Assess Citywide Collections

The initial pilot has shown the potential for diversion of 720 pounds per household per year. This represents more than twice the diversion rate experienced by the Minneapolis compost pilot. Once the previously discussed recommendations have been completed, DPW can prepare a revised analysis and fiscal estimate concerning the potential of citywide implementation of an organics recovery program.

Attachments

1. Survey Questions
2. Acceptable Materials List
3. Educational Tag
4. Invoice
5. Insinkerator Project Summary

Additional References

1. ReFresh Milwaukee Sustainability Plan

<https://itmdapps.milwaukee.gov/citygov/refreshmke/index.html>

2. Zero-Waste Composting: Eureka Recycling 2013

http://makedirtnotwaste.org/sites/default/files/eureka_zw_composting_report_condensed_0.pdf

3. Stop Trashing the Climate. Institute for Local Self Reliance: Brenda Platt 2008

http://ilsr.org/wp-content/uploads/2008/06/fullreport_stoptrashingtheclimate.pdf

4. State of Wisconsin Solid Waste Statutes: Chapter 287 Solid Waste Reduction, Recovery and Recycling.

<https://docs.legis.wisconsin.gov/statutes/statutes/287>

Registration Survey

1. Name
2. Address
3. Home Ownership
 - a. I own my home.
 - b. I rent my home. I understand that I will need to notify the property owner if I participate in this program.
4. Email Address
5. Phone Number
6. Acknowledgement of electronic pilot study communications.
7. Acknowledgement of cost
8. Acknowledgement of limited term of study.
9. How did you hear about this pilot program?
 - a. Social Media
 - b. Alderperson
 - c. Contractor
 - d. DPW website
 - e. Postcard mailing
 - f. Event
 - g. TV
 - h. Poster
 - i. Other

Non participant Survey

1. Why are you choosing not to participate at this time? Choose all that apply.
 - a. I do not live in an eligible area
 - b. The cost is too high
 - c. I don't generate enough food or yard waste to make it seem worth-while.
 - d. I don't see the environmental benefits of participating.
 - e. I don't have space for another cart.
 - f. Other
2. If you answered the cost is too high above, what cost would you be willing and able to spend for this service?
3. Do you have any additional comments?

Authorization and Survey

1. Name
2. Email Address
3. Phone Number
4. Address

5. Billing Authorization
6. How full is your garbage cart in an average week?
 - a. 33% or less
 - b. 34% - 66%
 - c. 67% - 100%
 - d. We fill our garbage cart every week or have multiple carts.
7. How many adults and teens live in your household?
8. How many children live in your household?
9. How often do you eat breakfast/lunch/dinner at home?
 - a. Rarely (0-2 times/week)
 - b. Sometimes (3-5 times/week)
 - c. Usually (6-7 times/week)
10. Do you have any people in your household that are vegetarian or vegan?
11. Do you
 - a. Belong to a CSA?
 - b. Garden to grow food?
 - c. Garden to grow flowers/plants?
 - d. Compost?
12. Prior to this program how did you dispose of grass clippings/garden debris/leaves/food waste?
 - a. Dealt with on property (i.e. composting, grasscycling, etc.)
 - b. Threw away in trash
 - c. Raked out to curb for City collection
 - d. Took somewhere for disposal
 - e. Lawn care service disposed of

Survey 1

1. How full is your garbage cart in an average week?
 - a. 33% or less
 - b. 34% - 66%
 - c. 67% - 100%
 - d. We fill our garbage cart every week or have multiple carts.
2. How many green garbage carts do you have?
 - a. 1
 - b. 2
 - c. Other
3. How many compostable bags are you using each week? (compostable plastic or paper)
 - a. None
 - b. 1
 - c. 2-3
 - d. 4-5
 - e. 6 or more

4. Have you noticed a change in your garbage? Check all that apply.
 - a. No change.
 - b. Less weight.
 - c. Less smell.
5. When do you typically eat leftover food?
 - a. 1 – 3 days
 - b. 4 – 6 days
 - c. I freeze them so I can thaw them later
 - d. I never save leftovers
6. Approximately what percent of the food that you buy ends up being thrown away or composted?
 - a. 0% – 1%
 - b. 2% – 10%
 - c. 10% – 20%
 - d. 20% – 30%
 - e. 30% – 50%
 - f. Over 50%
7. What percent of your food waste could be prevented by preparing less, serving less, or by changing your cooking habits?
 - a. Less than 10%
 - b. 10% - 25%
 - c. 25% - 50%
 - d. Over 50%
8. Do you use a sink disposal for food waste?
 - a. No, my home does not have a sink disposal
 - b. No, my home has one but we don't use it
 - c. Yes, minimally
 - d. Yes, often
9. On average, how many meals do you prepare a week using fresh produce?
 - a. 0
 - b. 1 – 2
 - c. 3 – 4
 - d. 5 – 6
 - e. 7 – 8
 - f. 9 – 10
 - g. More than 10
10. Do you have any comments about the program so far?

Survey 2 (Summer)

1. How full is your garbage cart in an average week?
 - a. 33% or less

- b. 34% - 66%
 - c. 67% - 100%
 - d. We fill our garbage cart every week or have multiple carts.
2. Have you noticed less garbage?
 - a. Yes – I was able to return an extra garbage cart that was at my property
 - b. Yes – I have less garbage in my cart each week
 - c. Yes – I have decreased the amount of times I set out my garbage cart for collection (i.e. I only set out every other week)
 - d. No – The decrease has been minimal or not noticeable.
3. How many compostable bags are you using each week? (compostable plastic or paper)
 - a. None
 - b. 1
 - c. 2-3
 - d. 4-5
 - e. 6 or more
4. What type of food scraps do you collect in your kitchen container? Check all that apply
 - a. Raw fruit
 - b. Raw veggies
 - c. Cooked fruit/veggies
 - d. Grains
 - e. Cooked meats and fish
 - f. Eggs and dairy
 - g. Coffee and Tea grounds, filters, and bags
 - h. Leftovers and spoiled food
 - i. Compostable products (i.e. paper towel, BPI certified plates/cups, etc.)
5. Have you experienced fruit flies due to this program
 - a. Yes
 - b. No
 - c. Maybe
6. If so, what have you done to address the flies? Check all that apply.
 - a. Set out traps
 - b. Emptied the bag more frequently
 - c. Stored scraps in the refrigerator or freezer
 - d. Stopped collecting food scraps for a time
 - e. Other
7. Describe the usefulness of the kitchen container including thoughts on quality.
8. Thinking about rodents outside the home, since the pilot started have you noticed
 - a. More outdoor rodents
 - b. Fewer outdoor rodents
 - c. Similar number of outdoor rodents
9. Do you have any comments about the program so far?

1 year Survey

1. Initially, I chose to participate in this program because (pick 3)
 - a. Easier than composting myself
 - b. Save trips to the Drop Off Center for yard waste
 - c. Avoid putting yard waste in the trash
 - d. Avoid putting food waste in the trash
 - e. Help build healthy soil
 - f. Be a part of a new City program
 - g. Cut my carbon footprint
 - h. Other
2. I primarily joined this program because it collected
 - a. Yard debris
 - b. Food waste
3. How much did your garbage decrease while participating in this pilot?
 - a. Not reduced/barely noticeable
 - b. Reduced by 1/3
 - c. Reduced between 1/3 – 2/3
 - d. Reduced by over 2/3
4. Where there any issues with the start of the pilot program?
 - a. No
 - b. Yes, I didn't know how to use the cart when it was delivered. I needed more/better education.
 - c. Yes, there were issues with the delivery of my cart.
5. If you answered 'yes' to the question above, please explain.
6. Were there any issues with the compost collection service? If the answer is yes, please explain.
7. Were there any issues with billing? If the answer is yes, please explain.
8. How is the size of the brown organics cart?
 - a. Too big
 - b. Too small
 - c. Just right
 - d. Too big in winter, but just right in spring, summer, and fall
9. Where do you store the brown organics cart?
10. Have you cleaned your brown organics cart?
 - a. Yes
 - b. No – the cart is still pretty clean
 - c. No – but the cart could probably use it
11. How many compostable bags do you use each week?
 - a. 0
 - b. 1
 - c. 2-3
 - d. 4-5

- e. 6 or more
12. How full is your green garbage cart (for the landfill) on an average week
- a. Less than 1/3
 - b. 1/3 – 2/3
 - c. 2/3 or more
13. How is the size of your green garbage cart?
- a. If possible, I could have a smaller green garbage cart
 - b. I need the same size garbage cart, but I could set it out less frequently
 - c. I had multiple garbage carts, but due to the pilot I reduced the number of garbage carts at my property
 - d. I had multiple garbage carts and still need multiple garbage carts.
14. Do you feel the program is a good value?
- a. Yes
 - b. No
15. Thinking about additional options, for my participation the organics collection program must have/nice to have or could have/doesn't need to have or can't have
- a. Collects yard waste
 - b. Collects food waste
 - c. Weekly service in the summer
 - d. Every 2 week service in the winter
 - e. Online bill payment
 - f. Opportunities to save money on my solid waste fee
 - g. Free compost
 - h. A co-op program to share a cart with a neighbor
16. Is there any other feedback you would like to share about the program?
17. If you feel you need a response to any questions/concerns in this survey, what is your email address?

Exit Survey

1. Initially, I chose to participate in this program because (pick 3)
- a. Easier than composting myself
 - b. Save trips to the Drop Off Center for yard waste
 - c. Avoid putting yard waste in the trash
 - d. Avoid putting food waste in the trash
 - e. Help build healthy soil
 - f. Be a part of a new City program
 - g. Cut my carbon footprint
 - h. Other
2. What is the main reason you no longer are participating in this program?
- a. Moving
 - b. Too much effort

- c. Too costly
 - d. Not generating enough organics to justify using the program
 - e. Poor service
 - f. Issues with bugs or rodents
3. Has your garbage decreased while participating in the pilot?
- a. Not reduced/barely noticeable
 - b. Reduced by 1/3 – 2/3
 - c. Reduced over 2/3
4. During the Pilot – Garbage cart needs
- a. I could have a smaller garbage cart
 - b. I still need the same size cart
 - c. I have multiple garbage carts and still need the same number
 - d. I had multiple garbage carts but due to the pilot I reduced the number of garbage carts.
5. Have you noticed a change in your garbage? Check all that apply.
- f. No change.
 - g. Less weight.
 - h. Less smell.
6. Thinking about rodents outside the home, since the pilot started have you noticed
- i. More outdoor rodents
 - j. Fewer outdoor rodents
 - k. Similar number of outdoor rodents
7. Were there any issues with the start of the pilot program?
- a. No
 - b. Yes, I didn't know how to use the cart. I needed more/better education.
 - c. Yes, there were issues with my cart delivery.
 - d. Other
8. Were there any issues with the compost collection service? If yes, please explain.
9. Were there any issues with billing? If the answer is yes, please explain.
10. Did you feel the program was a good value?
- a. Yes
 - b. No
11. Is there any other feedback you would like to share about the program?

How can you tell if a plastic bag is compostable?
Look for the BPI logo.



COMPOSTABLE
BPI | US COMPOSTING COUNCIL

Only plastic bags with this logo are accepted.

Yes! These items belong in the bin.

Food waste must be bagged in a biodegradable bag (i.e. paper or compostable plastic.)
Remove all stickers, wrappings, twist ties, and other non-biodegradable items.

Fruit and Vegetable Scraps

- Cooked and raw
- Scraps or whole fruit
- Seeds and stems are OK



Bread and Grains

- Bread, including spoiled
- Rolls
- Cakes and sweet breads
- Pasta, cooked or raw
- Rice
- Grains

Eggs, Protein, and Dairy

- Eggs—cooked and raw
- Egg shells
- Cooked meat—NOT RAW
- Cooked seafood—NOT RAW
- Bones
- Cheese
- Nuts and Seeds



Other Food Materials

- Leftovers
- Spoiled Food
- Sauces are OK

Beverages

- Coffee grounds and filters
- Tea leaves and bags



Yard Waste

- Grass clippings
- Garden trimmings
- Weeds
- Diseased plants

No! These items do NOT belong in the bin.

Dangerous Waste

- Diapers
- Animal carcasses
- Animal waste
- Cat litter
- Medical Waste
- Hazardous Waste

Packaging

- Plastic bags
- Twist ties
- Fruit stickers
- Aluminum foil
- Plastic wrap

Non-Biodegradable Items

- Recyclables
- Ceramics
- Clothing
- Plastic bags
- Plastic containers
- Rocks

Other Food Waste

- Raw Meat
- Fats, Oil, and Grease
- Liquids

Questions?

(414) 286-3500

City.milwaukee.gov/Milwaukee-Recycles/organics



**CITY OF MILWAUKEE
DPW-OPERATIONS
SANITATION SECTION
ORGANICS PILOT PROGRAM COLLECTION INVOICE**

[NAME]
[NAME2]
[ADDRESS]
Milwaukee, WI [CSZ]

Invoice Number: [INV_NUM]
Invoice Date: [INV_DATE]
Service Period: [SERVICE_PERIOD]
Account Number: [ACCT_NUM]

Thank you for participating in the Department of Public Works' Organics Collection Pilot Program! If you choose to terminate your participation in this pilot program, you must notify us in writing. **No refunds will be made for early terminations.**

Make checks payable to **CITY OF MILWAUKEE** in the amount shown below and **REMIT PAYMENT IN THE ENCLOSED ENVELOPE**. When you provide a check as payment, you authorize us either to use information from your check to make a one-time electronic fund transfer from your account, or to process the payment as a check transaction.

Failure to pay will result in suspended service and the removal of the organics cart.
Please contact us at sanitation@milwaukee.gov or (414) 286-3500 with any questions.

Detailed Service Information

	Service Fee	Credit*	Final Cost
November	\$0	- \$0	\$0
December	\$13.75	- \$1.00	\$12.75**
January	\$13.75	- \$1.00	\$12.75**
Service Period [SERVICE_PERIOD]			[\$[AMT_DUE]**

*DPW is providing you a credit towards the service cost of this program to thank you for participating and to recognize the landfill savings anticipated from your involvement in this pilot program.

** This may be prorated based on service start or end date. See below for the total amount due.

Please detach and return this portion with payment in the enclosed envelope for:

City of Milwaukee-DPW Organics Pilot Program Collection Invoice

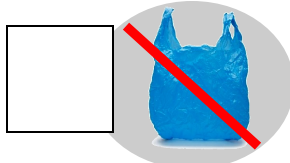
Bill To: [NAME] **Invoice Number:** [INV_NUM]
Account Number: [ACCT_NUM] **Amount Due:** \$[AMT_DUE]
Make Check Payable To: City of Milwaukee **Payment Due:** [DUE_DATE]

Mail To: City Treasurer PO Box 514062, Milwaukee, WI 53203-3462

Yes! I made corrections to my billing address, please see the reverse side.



We appreciate the effort you take to make composting happen. Please correct the marked items below for future collections.



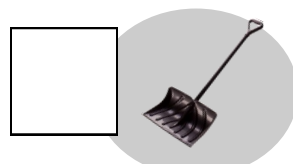
Only certified compostable plastic or paper bags.



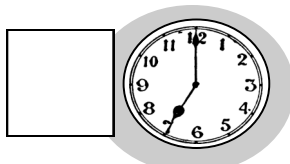
No unaccepted materials. (See reverse side for acceptable list.)



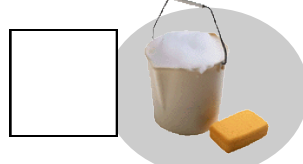
Bag food waste.
(Loose yard waste is OK.)



Snow not shoveled or cart frozen to the ground



Carts must be at the collection point by 7 AM



We recommend rinsing your cart with soap and water.

On ____/____/____ your organics cart

was emptied today for composting.

was referred for garbage collection.

Questions? Visit MilwaukeeRecycles.com or call (414) 286-3500.





Yes!

- Fruit and vegetable scraps
- Eggs (cooked and raw) and shells
- Cooked meat and seafood—NOT RAW
- Bones
- Cheese
- Coffee and tea grounds and bags
- Bread and grains
- Leftovers and spoiled food
- Yard waste (grass clippings, garden trimmings, weeds, diseased plant)



No!

- Packaging (plastic bags, twist ties, fruit stickers, foil or wrap)
- Diapers
- Animal carcasses, waste, or cat litter
- Medical or hazardous waste
- Other food waste (raw meat, fats, oil, grease, or liquids)
- Non-biodegradable items such as glass, metal, or plastic

Questions? Visit MilwaukeeRecycles.com or call
(414) 286-3500.





City of Milwaukee & InSinkErator® Food Waste Reduction Study & Demonstration Project

The City of Milwaukee partnered with InSinkErator® during the summer of 2013 to examine the efficacy of two different food waste reduction strategies: in-sink food waste disposers and backyard compost bins. Two groups of households were recruited through a partnership with Southside Organizing Committee. A total of 172 households participated, with 96 receiving food waste disposers and 76 receiving backyard compost bins. Pre- and post-project waste audits were carried out to measure the change in food waste.

▶ Food Waste Disposers

- Divert food scraps from disposal utilizing existing public infrastructure.
- Food scraps converted into liquid slurry which is cleaned for discharge at Milwaukee Metropolitan Sewerage District (MMSD) facilities.
- Organic solids are processed through anaerobic digestion to produce useful biogas, and the remaining digested solids are made into Milorganite, MMSD's branded soil amendment product.

▶ Backyard Compost Bins

- Encourage residents to manage organic materials including yard waste and compostable food scraps and other materials from the household.
- Most cost-effective management and sustainable strategy.

▶ Project Area: Neighborhood in Garbage Route With Highest MSW Generation

- 46.3 lbs/HH/week

▶ Education

- Partnered with Southside Organizing Committee and Keep Greater Milwaukee Beautiful to provide education to residents on how to use the disposers and bins.
- Phone calls, letters, flyers and house parties were used as recruitment tools.
- In-home visits by the plumber, flyers and postcards were used to educate residents receiving food waste disposers.
- Compost bin training meetings were held to teach residents how to assemble and use their backyard bins.

▶ Pre- and post-installation waste audits

- Conducted July/Aug 2013 (pre), Nov 2013 and July 2014 (post)
- Waste collected exclusively from each group of households

▶ Results

- Both strategies showed a reduction in food waste of approximately 25%.
- Participant surveys for disposer households revealed a high level of satisfaction with the disposers and reported a variety of benefits including reduced odors and trash, easier and faster kitchen clean up and reduced flies and pests.



▶ **Waste Sort Results – Compost Bins**

	% Food Waste in MSW	Lbs Food Waste in MSW
Before bin	26.1	14.61
With bin	23.8	10.97
Change	-2.3	-3.64
Percent Change	-9%	-25%

▶ **Waste Sort Results – Food Waste Disposers**

	% Food Waste in MSW	Lbs Food Waste in MSW
Before disposer	27.5	12.05
With disposer	17.8	8.88
Change	-9.7	-3.17
Percent Change	35.4%	-26.3%