



The InSinkErator® | City of Milwaukee
FOOD WASTE DISPOSER DEMONSTRATION
P R O J E C T

How Food Waste Disposers
Can Benefit Municipalities



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A collaboration between the City of Milwaukee and InSinkErator® demonstrated how in-sink food waste disposers reduced the amount of food waste that residents threw away in the trash, helping the City to achieve its environmental goals while saving money.

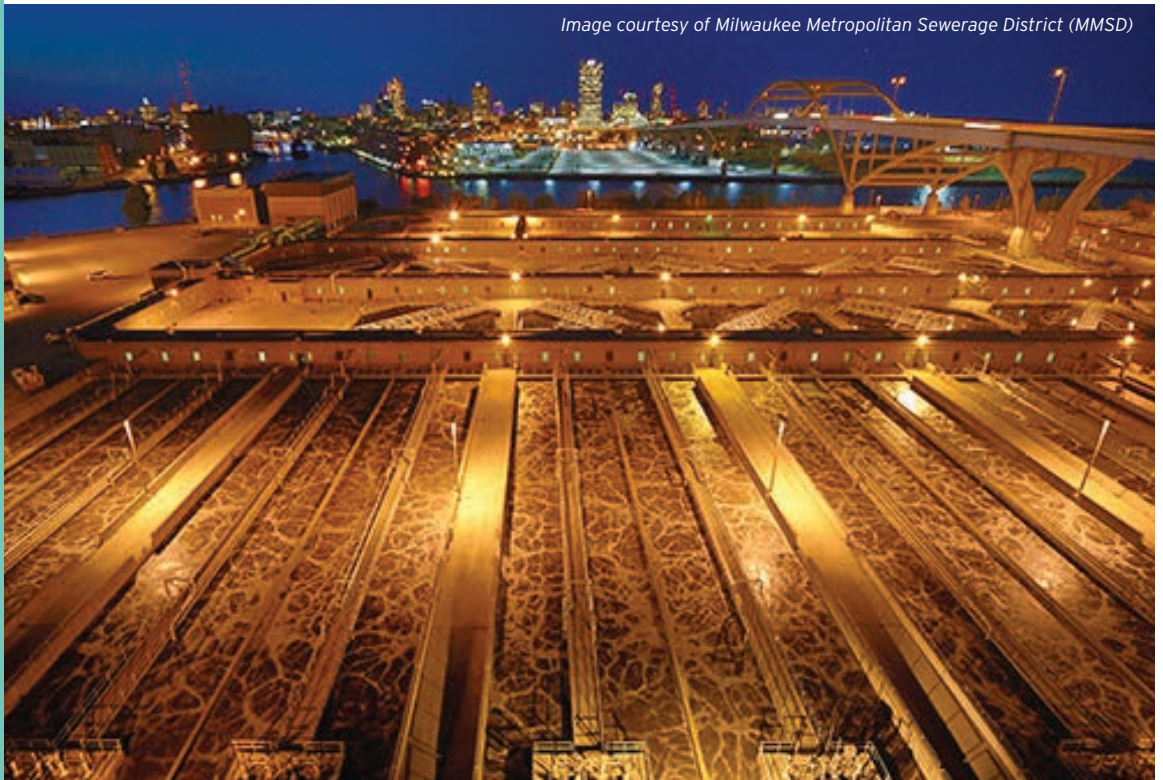
This document provides a review of the demonstration project conducted by the **City of Milwaukee** and **InSinkErator** from August, 2012 through July, 2014 to assess the efficacy of in-sink food waste disposers as an environmental tool.

The primary objective was to measure the reduction in food waste from homes that use an in-sink food waste disposer to manage food scraps. The City wanted to assess whether the expanded use of disposers could decrease the amount of waste collected by trucks and disposed in landfills, and improve the quality of life of city residents. Using data from the project, estimates could be made regarding increased production of biogas from food scraps, and the reduction in greenhouse gas emissions by diverting food scraps from disposal as trash.

A demonstration project was launched with the City of Philadelphia earlier in 2012.

The Milwaukee
 Metropolitan
 Sewerage District
 (MMSD)'s
 Jones Island
 Water Reclamation
 Facility in
 Milwaukee, WI

Image courtesy of Milwaukee Metropolitan Sewerage District (MMSD)





THE PROJECT

Used in homes and apartments, in-sink food waste disposers are a well-established tool for diverting food scraps from disposal. Disposers immediately convert food scraps into a liquid slurry for transport via existing sewers to Milwaukee's water resource recovery facilities operated by MMSD. At those facilities, water is cleaned for discharge; organic solids are processed through anaerobic digestion to produce biogas; and the remaining digestate produces Milorganite, MMSD's branded soil amendment product.

For the demonstration project, a team of City officials and InSinkErator representatives selected the neighborhood in which to implement the project. The area selected is largely composed of owner-occupied housing with many Spanish-speaking family households. It is served by City sewers with effluent managed by the Milwaukee Metropolitan Sewerage District (MMSD.) The area selected is bordered on the North and South by Burnham Street and Lincoln Avenue, respectively, and on the East and West by Muskego Avenue and 29th Street.

The Southside Organizing Committee, which operates many programs and services in that community, provided household recruitment and education assistance. A total of 96 households agreed to have a new food waste disposer installed, and to participate in project surveys. Over the following year and a half, those households received outreach efforts including mailings and phone calls in which they were advised how to use their new disposers to handle as much of their food waste as possible.

Residents' satisfaction, as well as the amount of food waste discarded, was measured before and after professional installation of disposers.



In-sink food waste disposers are an established method of managing food scraps



Microscopic organisms, "Good Bugs", used by MMSD in cleaning wastewater

The objectives were to measure the reduction in food waste from homes that use an in-sink food waste disposer to manage food scraps, as well as to determine residents' satisfaction with food waste disposers.



The project enlisted the cooperation of the Southside Organizing Committee because of its close relationship with the community

THE RESEARCH METHODOLOGY

The methodology was similar to demonstration projects conducted in Philadelphia, Tacoma, Chicago, Boston, and Calgary.

Two types of analyses were conducted over the course of the project:

- 1) Waste audits intended to quantify the diversion of food scraps from other means of disposal (especially in the trash).
- 2) Surveys of project participants to assess the messages and methods of outreach, and behavior changes stimulated by the presence of an in-sink food waste disposer.

The waste audits were conducted by Mid-Atlantic Solid Waste Consultants, which had previously worked with the City of Milwaukee and the State of Wisconsin on waste characterization studies. The audits were conducted over a two-week period before the new disposers were installed; and approximately one year later, in two separate, four-week audit periods. Resident satisfaction was measured using pre- and post-project survey instruments developed by SERA, a research firm specializing in measuring environmental behavior.

The Pilot Project neighborhood had a greater-than-average amount of trash

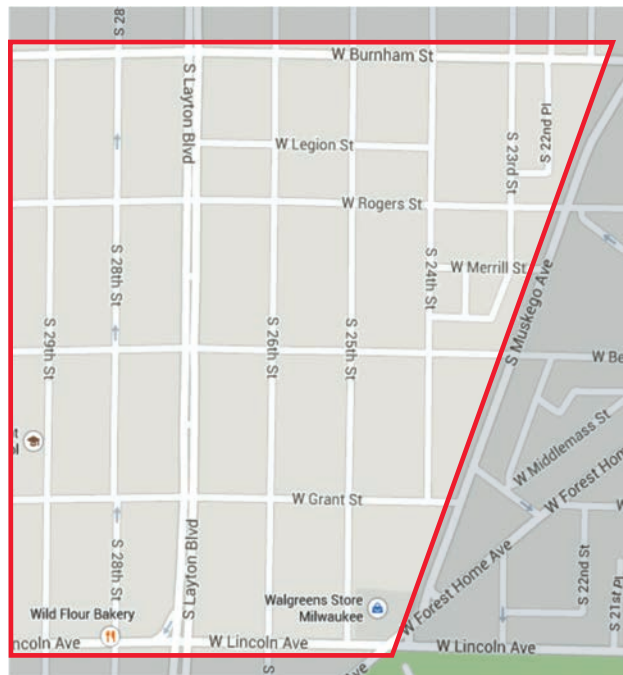
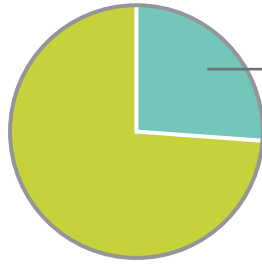




Image courtesy of Milwaukee Metropolitan Sewerage District (MMSD)

RESULTS OF THE WASTE COMPOSITION AUDITS



26%
(3.2 lbs)
less food
waste per
week

- Pounds of food disposed in the garbage per household decreased from 12.0 pounds per week to 8.8 pounds – a reduction of 26%.
- Within the garbage stream, overall food decreased from 22.8% to 17.8%.

RESIDENT BEHAVIOR AND SATISFACTION

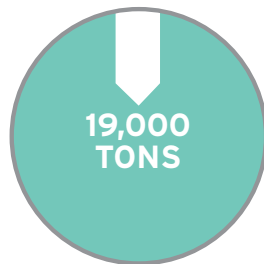
The evaluation of the survey responses determined that participants regard in-sink disposers as a highly effective food waste management tool.

- **Participants are overwhelmingly happy with their new disposer:**
93% said they were very satisfied. They report that the disposer reduced the trash; made cleaning up the kitchen easier; reduced odors and smells in the house and neighborhood; and limited vermin and pests associated with trash collection.
- **As a tool of convenience, disposer usage is high:**
The majority of respondents (78%) reported that they *almost always* use the disposer when preparing and cleaning up after meals; only one respondent reported disposer use of *less than half the time*.
- **Most participants report using their disposer aggressively:**
93% now put *more than half* or *nearly all* of the food scraps that were previously disposed of in the trash down the disposer. Only one respondent claimed to put only a little food waste down the disposer.
- **The disposer helps to decrease the amount of trash thrown away:**
More than half of respondents (59%) reported that since the disposer's installation, the amount of trash thrown away has decreased significantly. Reports of overflowing and completely full trash cans decreased from 37% to merely 4%.
- **Participants were satisfied and did not have any problems with the disposer:**
Overall, 93% of the respondents were *very satisfied* with the disposer. 96% of the respondents reported that they *did not have any problems* with the disposer. Only one person reported an issue, and it was the *inability to insert a lot of food waste*.
- **The disposer provided benefits beyond reduced trash:**
Reducing trash was the most common benefit recognized by participants; also highly valued were a clean kitchen, and fewer smells in the kitchen. Even more participants (74%) said they saw disposer use as *good for the environment*.



EXTRAPOLATION OF PROJECT RESULTS

Using data-modeling tools developed by InSinkErator, if the entire City of Milwaukee utilized food waste disposers in homes and apartments in ways similar to the target areas, the potential benefits to the City could include:



- Total annual residential food waste diversion from landfills of 19,000 tons



- Annual offset of GHG emissions equivalent to 25 million-plus auto miles



- Total methane production from anaerobic digestion of 2,100 ML annually



NEXT STEPS

Based on the results of this project, the City of Milwaukee, MMSD and InSinkErator are engaged in ongoing discussions about methods and means of encouraging expanded installation and use of in-sink food waste disposers. The ultimate objective is a permanent increase in the diversion of food scraps from households.

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H836-15L-83-10



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