CASE STUDY

FOOD WASTE DIGESTION

Summary

- Montefiore partnered with EnviroPure Systems for on-site food waste digestion and process to gray water.
- EnviroPure Systems' remote monitoring system allows customers to access data on their waste reduction program and process.
- Montefiore has diverted almost 250,000 pounds of food waste from the landfill since installing the on-site digester in September 2014.
- By eliminating the need to haul the organic waste, Montefiore has reduced carbon emissions and saved almost $15,000 in pickup charges, since 2014 installation.

The Problem

The EPA estimates over 133 billion pounds of food is wasted or lost each year in the United States. Recent studies show that nearly a third of all municipal landfill content is organic food waste. Organic material in landfills produces methane gas, which is 25 times more damaging to the atmosphere than carbon dioxide. While many municipalities recommend composting, the additional trucks on the road and food waste storage problems are considerations for healthcare facilities.

As part of its commitment to sustainability, Montefiore sought a change to its food waste management system. Montefiore New Rochelle Hospital produced about 4,200 lbs. of food waste each week and pays $120 a ton for disposal in landfills. They were combining their food

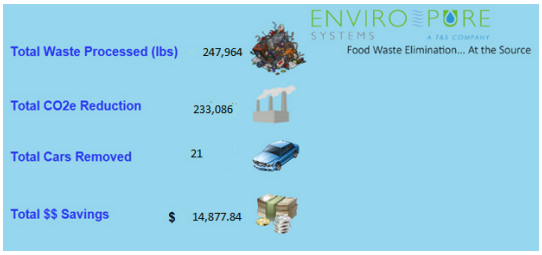
Montefiore Medical Center New Rochelle and Bronx Campuses

Montefiore New Rochelle Hospital is a 223-bed, community-based teaching hospital offering primary, acute and emergency care to the residents of southern Westchester. Montefiore New Rochelle Hospital, originally opened in 1892 as New Rochelle Hospital, has provided for the diverse medical needs of the community and region it serves.

Montefiore Medical Center's Wakefield Campus, located in the Bronx, is a 325-bed community hospital serving the northeast Bronx and lower Westchester. The hospital is located in the Woodlawn-Wakefield community of the Bronx, in proximity to the world-famous Bronx Zoo, Bronx Botanical Gardens and Yankee Stadium. A university hospital of Albert Einstein College of Medicine, this major teaching facility offers a full spectrum of medical and surgical care. The Division of Geriatrics is one of the strengths in the Department of Medicine at the Wakefield Campus.

waste with their regular trash and sending it to a landfill. The logistics of food waste collection, transport, storage and removal were a challenge for the organization. The team sought a solution that would contribute to their zero waste goal and make a positive impact on the environment.

The EnviroPure Systems digesters work through a combination of continuous mechanical processing of food waste, tightly controlled environmental conditions to maintain aerobic decomposition and hyper-acceleration of the decomposition process.



This is a screenshot of the data from the remote monitoring system from New Rochelle's digester. The data represents the total pounds processed since the equipment was installed on September 2014.

The Strategy Selected

Jeff Hogan, Montefiore's energy and sustainability manager, aimed to find a food waste disposal solution that would align with Montefiore's sustainability goals and improve working conditions for the food service team.

After researching a variety of options, the team decided on EnviroPure Systems due to its ability to integrate into their existing work flow and correspond with their sustainability goals. EnviroPure provided a solution that was custom fit for Montefiore's kitchen. The EnviroPure Systems customized solution allowed Montefiore to maximize the storage tank and machine size, to maximize the amount of food diverted from compactors.

Montefiore's New Rochelle and Wakefield locations installed EnviroPure Systems organic digesters to eliminate food waste at the source, converting it into a sewer-safe gray water. The EnviroPure Systems digesters work through a combination of continuous mechanical processing of food waste, tightly controlled environmental conditions to maintain aerobic decomposition and hyper-acceleration of the decomposition process. A proprietary blend of all-natural organic nutrients, BioMix, fuels the naturally occurring bacteria present in the food waste to increase metabolic efficiency and accelerate the biochemical reactions involved in decomposition.

Because the custom digesters are located inside the kitchens, they also reduce labor by removing the need to transport waste containers to compactors or a compost container at the loading dock.

The guarantee from Enviropure regarding the effluent discharge levels was of significant importance to Montefiore. They did not want to install a system that would create a product which would ultimately corrode any and all piping associated with the digester. In addition, they wanted to install a unit that could repurpose the grey water in the future for use throughout the facility without worry of its effluent levels. Currently, there is no planned use of the gray water within the next year. In the future Montefiore plans to evaluate the potential to incorporate this continuous water source into the facility's irrigation lines.

After determining that the original New Rochelle installation was successful in

reducing costs and the environmental impact associated with food waste, the health system added a second unit to the Wakefield location in 2015.

Implementation Process

EnviroPure Systems provided two-day training at each facility to ensure the staff understood the sorting procedures and proper use of the equipment.

The food waste digested by the Enviropure system is generated in the kitchen prep area, the cafeteria, and what they call the tray line (line utilized for creating patient meals). The kitchen prep is collected by the cooks and transported to the digester which is only around 40 to 50 feet away. Due to its proximity, the means of collection varies from bowls to trays or whatever is handy at the time. The cafeteria does not collect leftovers from individual meals due to the potential for contamination. Rather, they focus efforts on collecting the leftovers from the hot meal trays that cannot be reused in any way. These trays are sent down to the kitchen via a small dumbwaiter and dumped into the digester's loading area. Lastly, they collect the food from the tray line which is transported from the tray line to the point of disposal by kitchen staff. The individuals actually disposing of the organic material into the digester were trained by Enviropure staff upon the unit's installation. To account for employee turnover and to maintain awareness, Montefiore is planning on having Enviropure provide annual in-services to the kitchen staff.

"Getting buy-in from the staff is critical to making a zero waste strategy work," Jeff said. "Everyone has to believe in the cause and proper training is critical."

Likely, there was a learning curve associated with the unit in terms of what the unit could handle, but actually saw greater usage during the first few months of installation when compared to recent data.

Benefits

- With savings of nearly $120 per ton of food waste between hauling fees and the necessary BioMix additive, Montefiore realized a return on investment at 34 months.
- The EnviroPure remote monitoring system allows Montefiore to view the daily pounds diverted, carbon

emissions saved, and ongoing reduction of tonnage charges. This feature helps Montefiore analyze their waste and determine how they can reduce their waste before it is created.

- To date, nearly 248,000 pounds of food waste have been processed, resulting in 233,0866 fewer pounds of carbon emissions, the equivalent of removing 21 cars from the road, and almost $15,000 in savings.
- Depositing food waste into the grinder in the kitchen greatly reduced labor over previous practices of waste removal.

Challenges and Lessons Learned

There are always barriers to entry with any new technology. Getting the necessary departments to buy-in took some time, but at the end of the day the benefits of the system, which were spread across multiple departments (mainly Food Services and EVS), outweighed the resistance we experienced. The resistance deteriorated once the machine was fully functional, which is how they were able to expand the use of the system from one hospital to two.

The Team

Wakefield

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Janet Amely
Nutrition Chef Manager, Food and Nutrition Services

New Rochelle

Orlando Collins
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