

Food Waste Recycling in the Capital District

PRACTICES AND OPPORTUNITIES FOR MUNICIPALITIES

A report developed for the
CSC Service Strategy for the City of Troy



Background

Food Waste Diversion, also called “organics recycling” is the last frontier in recycling and is rapidly growing in popularity. Municipalities in the Capital District are currently paying \$55-65 / ton to dispose mixed municipal solid waste (MSW). With landfills filling up and with no alternatives on the horizon, communities will become locked into increasing rates as waste will be transported further and further to remote landfills. It is time to consider getting organics out of the MSW stream.

Conventional single stream recycling has been a great success because it allows communities to dispose of material formerly considered MSW for free. As recycling became mainstream, glass, metal, plastics, and paper became enough of an asset to enable recycling companies to take it for free. Although organics recycling is not yet close to that threshold, the same trend is beginning to happen. Today in the Capital District composting sites will take separated organics for 30-50% less than if it is disposed as MSW in a landfill. Large food businesses and grocery stores are already taking advantage of these savings.

For municipalities the main challenge is that the industry and practice are new. Incremental vehicle and technology costs for widespread collections are still high, and there are not enough local composting and anaerobic digestion sites to take material. Residents and businesses will also need to be trained to separate organics effectively. The best approach for municipalities is to begin pilot programs to increase public awareness, and then work together to bring resources and investment to grow the practice within a cluster of communities. As the organics recycling industry begins to mature, regional experience will grow and costs will reduce.

Food waste recycling is not only good for the bottom line, it virtually eliminates GHG emissions associated with landfills and returns nutrients to the soil as compost. Composting that uses anaerobic digestion (AD) can also produce renewable biogas.

Organics Recycling Law is on the Way.

It is time for communities to get prepared. Neighboring states are beginning to require organics recycling and New York will likely follow suit. Here are the latest laws in place:

Vermont: The Universal Recycling Act was passed in 2013 after an extensive study validated that a healthy organics recycling industry will grow to cost effectively serve the law. The law implements food waste diversion on the following schedule:

- July 1, 2014 for generators of more than 104 tons/year;
- July 1, 2015 for generators of more than 52 tons/year;
- July 1, 2016 for generators of more than 26 tons/year;
- July 1, 2017 for generators of more than 18 tons/year; and
- By 2020, all food residuals, including that from households, must be diverted with no provision for distance.

The law is designed to incentive the industry, by requiring recycling only if a suitable facility is available within 20 miles. Therefore investors and developers are incentivized to establish

composting and digestion operations to provide this service.

Connecticut: Requires producers of more than 104 tons of source separated organics to recycle the material as long as it located within 20 miles of at least 2 facilities that can process it.

January 1, 2014

Massachusetts: Requires that any commercial entity that generates more than one ton of organic waste per week recycle it. October 1, 2014

New York: Just formed a committee in 2014 under the New York State Association for Reduction, Reuse and Recycling (NYSAR₃) to develop proposed legislation to be modeled after the Vermont Universal Recycling Act. Contact NYSAR₃ to join and for more information.

Strategies for Municipal Food Waste Diversion

Conventional Composting

Organic waste is mixed with yard waste and placed in open air vessels and/or in managed windrows on the ground, and then allowed to decompose aerobically. When managed properly the process creates no methane and little smell. Microorganisms convert the waste into into a soil product that possesses the qualities of mulch but also has the nutrient value of fertilizer. The advantage of composting is that it can be operated at scale, from a backyard garden turned with shovels to a citywide program managed with front loaders. Therefore communities can start pilot collection and composting, and avoid large upfront infrastructure costs. Watervliet established a small composting site using a grant from Cargill as part of its WOW program.

Compost is an asset. Private curbside haulers usually return compost to households in exchange for the collection fee. Municipalities could be return compost to citizens, sell it to farms, or have the DPW use it for landscaping and fertilizing. For example, the Citi Field in New York now uses food waste compost instead of fertilizer for its grass.

Anaerobic Digestion

Anaerobic Digestion (AD) is a method to treat organic waste in small controlled vessels designed to create renewable biogas and reduce waste volume. MSW is processed in a grinder and fed into the unit where it is heated to rapidly advance fermenting and digestion. Units can be the size of cargo containers, or as small as simple drums. AD is most commonly used with dairy farms to digest cow manure and at waste water treatment plants (WWTPs) to process sewage sludge. The advantages of AD for urban locations is that units are small and can be operated on urban sights tighter than that needed for conventional composting. In addition, because the process is fully enclosed there is less of an issue with managing smell and pests. The digestion process is fast, and waste streams can be processes quickly.

Progress in and Around the Capital District

Watervliet Organic Waste (WOW) Program. This is the first municipally run curbside collection program in the State of New York. The program serves 50-100 families and is open

to all city residents. The city composts material within the city and is planning to test an anaerobic digester operated at its DPW.

Schenectady County Compost. The County's yard waste compost facility now takes limited food waste as part of a pilot program with a number of large institutions. It charges tipping fees in the range of \$25-35 / ton. The site already possesses the yard waste supply that is required to be mixed with food waste. SCC has currently maxed out its weekly food waste capacity and plans to expand operations when it can raise the capital to do so. Overall more compost sites such as this one will be needed in order to serve the Capital District.

Troy Compost and Radix Center (Albany)

The Capital District has a number of active composting groups. The Radix Center in Albany is an urban farm and education center which has a small scale compost site. This center is open for tours and is an excellent resource for municipal staff to see food waste collection and composting in action. Troy Compost is a community group that has been providing education on how to compost at home and answers questions from their booth at the Troy Farmers Market. They have an active list-serv. Recently they've begun to establish partnerships with local farms to accept food waste from group members for composting.

Private Hauling Businesses

Private haulers, like Empire Zero, provide food waste collection for individual, commercial and residential locations throughout the Capital District. Currently Empire Zero moves around 90 tons of material every month to compost facilities in the Capital District, Hudson Valley and Berkshire County. They serve commercial customers that send organics to Schenectady County Compost. Empire Zero reports that there is a dearth of composting sites in the Capital District, and that they are now forced to haul organics much farther than should be necessary.

Grocery Store Composting. Companies like Price Chopper are seeking partnerships with composting sites and farms take food waste as discussed recently in the press.

http://poststar.com/news/local/business-offers-service-to-connect-grocers-with-farms/article_d6917c5a-afdb-11e3-9f9d-0019bb2963f4.html

Cambridge, MA. Beginning in April 2014 the city will be piloting a residential food waste collection program. The program will cover 500 households and will use 13 or 21-gallon bins depending on the size of the residence. The city also supplies compostable liners to go along with the totes. The city will be both sending their own trucks to a local compost site and partnering with a local hauler, Save That Stuff, to take the waste to the compost sites they use throughout the state.

New York City. New York City has runs a residential pilot collection program for all of the boroughs but Manhattan. The NYC strategy is assist community-scale compost sites throughout the city that operate food collection. They want to build capacity of mini-communities within the City that can operate a compost pile and divert their own material into it.

Current Barriers for Cities

Start up costs

Community-scale composting operations can require large equipment estimated at between \$100,000 and \$400,000 to start a turn-key operation. Sites may be possible in urban communities with large tracts available in commercial and industrial zones. Smaller sites can be operated almost anywhere. The advantage of composting is that the site investment can be grown as the operation increases. An anaerobic digester capable of serving a small community requires more startup capital and expertise, requiring anywhere from \$100,000 to \$2,000,000 (or more) depending on the size of the operation.

Smaller scale pilot collections can be done cost effectively with retrofitted pickup trucks possessed by most municipalities. Larger scale collections require up-front investment in a special truck to handle wet organics and liquid food. Food waste cannot be easily be compacted in trucks and is heavier than normal trash.

Lack of disposal sites

Currently there are very few compost facilities within the Capital District. Expanding this number of will be critical as food waste diversion increases throughout the region.

Lack public awareness and comfort with separating organics

It will take time to introduce organic waste recycling and separation. Aside from major food industries, people are not used to separating organics in their businesses and homes. There will be complaints of odors and pests. These can be controlled with more frequent services and sealed containers with lids. It is important to launch municipal pilot programs, and to support of community led public outreach initiatives to redefine the way the public perceives trash. Investment in composting and digestion operations will not work unless households and businesses participate.

Strategies for Moving Forward

Pilot residential pickup

Communities can trial a residential pick up program targeting areas that will have high participation rate. The community will have to either: (1) establish and operate their own compost site, or (2) identify a commercial compost site with a tipping fee, or (3) look for farm partnership to take the material for free or at a reduced rate. After six months a municipality can evaluate costs and savings to determine feasibility of expansion. Communities can read about Watervliet's WOW program for more information.

Establish composting and/or anaerobic digestion operations

Communities may establish composting and digestion operations on unutilized property. Compost facilities are the easiest to set up considering they can be grown over time, but take longer to handle food waste, require more land, are normally seasonal in nature. Anaerobic digesters are turn-key operations that can handle continuous amounts of material but are more costly to start up and operate than compost facilities. Communities may issue RFPs to solicit proposals from digester companies. Digesters also require a stable flow of quality organics, and

so an implementation plan usually includes the operator developing long term contracts with local institutions and restaurants for organics disposal.

Develop farm partnerships

Local farms already compost their own material, and some are willing to take additional organics for free or at a nominal rate. Municipal-farm partnerships offer good economic development opportunity for counties with a mix of urban communities and farms. A municipality may be able to negotiate tipping fees with a farm for community organics. Farms typically compost informally and handle small waste amounts. However those interested in developing relationships with municipalities will need to become NYSDEC permitted as a food waste composting site.

Community outreach

Municipalities can invest in public awareness and support community-driven composting initiatives. Groups like Troy Compost have a very organized website to answer many basic questions and have a public presence at the farmers market. Every ton taken out of the waste stream voluntarily by households reduces costs to the municipality.

Municipalities can reach out to businesses to encourage them to start separation activities and help connect them to local haulers and compost sites. For municipalities developing a compost facility, they can begin to source materials directly from local businesses that had been sending the material to landfills.

Work together: strengthen the IOWI regional collaboration

The Inter-Municipal Organic Waste Initiative (IOWI) is a collaboration between Watervliet, Troy, and Schenectady County designed to seed organic recycling site development, curbside collection programs, and to support the growth of hauling businesses. It came together to source funds to launch digestion in Watervliet, expanded composting in Schenectady County, and to launch curbside collections in Troy. The consortium also plans to approach commercial businesses to develop waste streams for compost and digestion sites.

Collaboration allows communities to share both the startup costs and the benefits of running a regional compost consortium. They can source material together and share outreach responsibility. A consortium could own the equipment for a compost facility and share it among many sites throughout the region. With multiple municipalities working together on a food waste network, they could solve many of the challenges listed above in a standard way throughout the region.

Acknowledgements

This report was prepared by Climate Action Associates LLC with support from the Capital District Regional Planning Commission (CDRPC). CDRPC is the Capital District Coordinator of the Climate Smart Communities Program, a multi-agency program sponsored by New York State. The Authors would like to thank Empire Zero LLC for their thoughtful input. The opinions in this work are those of the authors, and do not reflect the opinions of sponsoring agencies.

