

City of Watervliet

# Curbside Organic Waste Recycling

A Climate Smart Community Anchor Project



Capital District Regional Planning Commission  
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## Municipally Operated Curbside Organic Waste Collection

Many communities today already recycle glass, paper, plastic, and metals at the curbside. Organic waste is the last major component of household waste that is not recycled and forms the majority of waste communities continue to pay to landfill. It is a major untapped renewable resource that can be removed from the waste stream and composted locally, or used to create renewable energy through anaerobic digestion.

The City of Watervliet is a compact urban municipality located six miles north of Albany on the western side of the Hudson River. The city launched the Watervliet Organic Waste (WOW) program and is showing Climate Smart Communities that they can:



- ✓ Cost-effectively implement organic waste collection at the curbside.
- ✓ Successfully site and operate composting on a variety of existing municipal sites.
- ✓ Save money, reduce GHG emissions, and create renewable energy using organic waste.
- ✓ Effectively troubleshoot the program by launching in pilot mode with volunteers.

## Watervliet Climate Action Plan

In 2009, the Watervliet City Council passed a resolution to take the Climate Smart Communities pledge and adopted a Climate Action Plan focusing on actions to save money and reduce GHG emissions. The city provides garbage collection and pays to landfill waste where it creates GHG emissions and other environmental concerns. Much like single stream recycling drastically reduced the need to landfill waste, the city realized that diverting household organics to composting can return organic matter to the soil sustainably without creating GHG emissions. Furthermore, organics can be processed locally in small, modular, anaerobic digesters that create renewable biogas to power city fleet vehicles. This will cut city fuel bills and reduce GHG emissions.

To explore these options the Watervliet Climate Action Plan set three tangible goals:

- Goal 1:** Implement the first curbside organics collection program in the state.
- Goal 2:** Establish composting in the city.
- Goal 3:** Develop an anaerobic digestion pilot program.

In the long term the city hopes to collaborate with other communities throughout the Capital District to mainstream organics recycling. Municipal action will seed the growth of a new green jobs industry that offers organics collection, composting, and anaerobic digestion services throughout the Capital District.

## Learn by Doing

The city secured a small community planning grant for \$12,000 from the Cargill Corporation to design a pilot collection program. In the very first meeting after receiving the grant, however, the City decided to use the funds to immediately implement the WOW pilot program with community volunteers. While it was clear there were many potential barriers, the city felt the best way to address them would be to simply try a program and learn from it.

### Goal 1: Curbside Collection

Separating and collecting organic waste is a new concept for municipalities and residents. The city learned years ago when it was the first to introduce conventional curbside recycling in the region, that recycling should be introduced on a pilot basis to help residents adjust to the program. The city advertised the program through its community engagement listserv and recruited 50 volunteer households. The city then consulted local community organizations to learn how a simple “kitchen-to-curb” separation program can work.

On January 27, 2012, the City held a kickoff meeting to train the initial volunteers and provided each household with a WOW kickoff Kit that included a kitchen catcher, an outside bin, and a box of compostable liners.

#### WOW Kickoff Kit



The process is simple and similar to those that compost in the backyard. Residents line the kitchen catcher with a compostable bag and use it to capture food waste, plate scrapings, and vegetable waste. When the catcher is full, residents remove the compostable liner and place it in the specialized outside bin with a lid that snaps down to prevent access by critters and squirrels. Residents bring the bins to the curbside for collection as they normally do for recycling and garbage collection. The city collects the organic waste bi-weekly during non-summer months and weekly during warm summer months.

The key to this successful “learn-by-doing” pilot was working with volunteers as a team and being upfront that there would be problems to solve. The city responded quickly to individual concerns, and adapted the program as it went including changing liner types and adjusting collection frequency in warm months. In addition, the city fostered cohesion among the group, helping them share strategies on where to keep kitchen bins, how to deal with pets, and how to buy packing that limits plastics comingling. All of this practical experience helps the city improve the program.

**Goal 2: Composting in the City**

The city engaged composting consultant, Rick Handley, of Rick Handley & Associates to design a simple static composting site at the city’s Hudson Shores Park facility. The city operates weekly or bi-weekly collection with one driver, a pickup truck, and a laborer. The organic material is brought to the site where is mixed and prepped with other carbon sources prior to placement for composting. The organic matter is then made available to residents for gardens and other uses.

**1. Separation**



**2. Collection**



**3. Preparation**



**4. Final Compost**

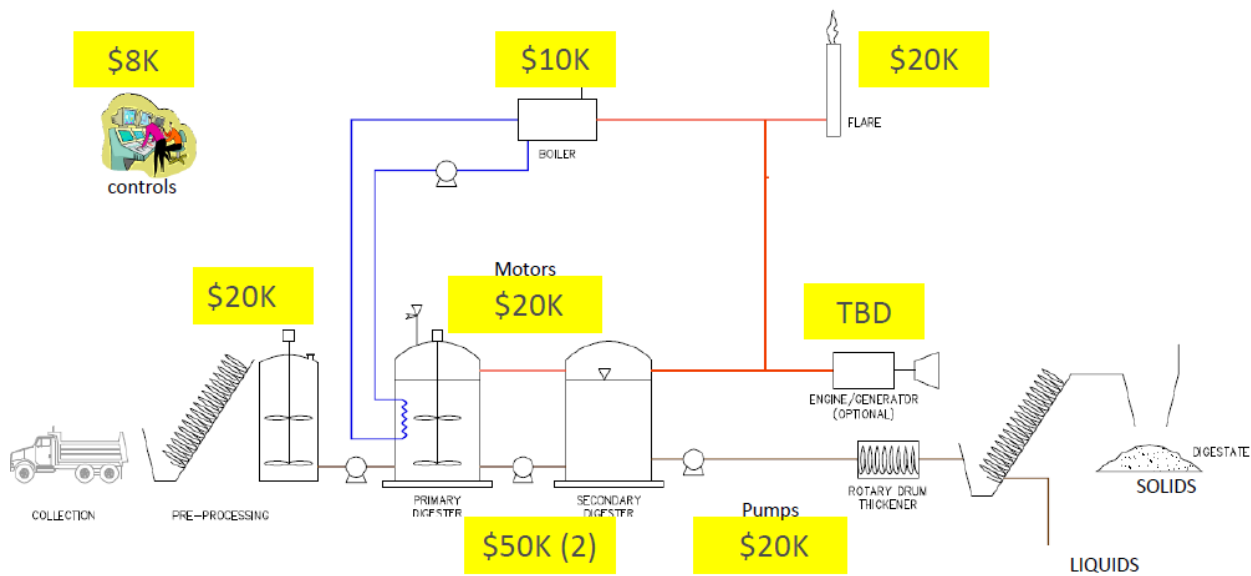


### Goal 3: Anaerobic Digestion Trial

Anaerobic Digestion (AD) is a method to treat organic waste in small controlled vessels specifically to create renewable biogas and reduce waste volume. The digester's physical output (the digestate) is also a form of compost that can be returned to the soil. AD is used widely in Europe, and in the New York it is gaining traction with the support of NYSERDA as a means to create renewable energy from sewage sludge and farm waste.

For the first six months of the WOW program, Watervliet developed an agreement with the Albany County Sewer District to process city organics at a digester being piloted at the District's South Plant. Spectrum Bio-Energy LLC, with support from NYSERDA, tested the ability of an anaerobic digester to process comingled sewage sludge and food waste. The results suggest that municipal organic waste is a potent fuel for digesters. Therefore, the city is currently working with the Village of Minoa to prototype its own digester to be sited in Watervliet, and continues to build partnerships and funding sources for the project.

#### Proposed Watervliet Anaerobic Digester Schematic



Once built, the City hopes to produce compressed natural gas and use it as the backbone of a CNG powered fleet of city vehicles. Therefore the WOW program will help the City of Watervliet meet its goal of being more energy efficient.

## Wow Today and Tomorrow

The WOW program is now a permanent part of the city's refuse/recycling agenda. The city's goal is to introduce curbside organics recycling to 75% of all households. In the near term it plans to recruit 50 additional households each quarter using a combination of advertising and word-of-mouth recommendations from participating residents. The pilot approach has been instrumental in creating a set of experienced community champions that can recruit and support new participants.

Once established the WOW program will reach out to city businesses, the Watervliet School District, and the Federal Army Arsenal to source additional organics. Commercial facilities and restaurants are a good source of organic material. The school district has over 1400 students and currently landfills any food not consumed during breakfast and lunch.

## GHG Reductions and Cost Savings

WOW saves money and GHG emissions. So far the total cost of the program has been limited to the initial \$12,000 planning grant from the Cargill Corporation. The grant provided collection kits to all volunteers and covered the design and construction of the city compost site. Because the city already collects waste as a service, it was able to incorporate organics collection into existing operations at no additional cost to taxpayers beyond fuel for the collection runs.

The city pays about \$51 / ton to dispose waste in landfills. During the first six months of the pilot the city collected 7000 lbs of waste and determined that it can expect to collect about 11.3 lbs per household per week. Implementing WOW at 75% of city households would divert approximately 1000 tons / year from landfills and save the city about **\$50,000/year** in tipping fees.

In terms of GHG emissions, EPA's Warm model<sup>1</sup> suggests that diverting 1 ton of food scraps from a typical landfill to composting also reduces GHG emissions by about 1 ton. Therefore eliminating 1000 tons of food scraps from the waste stream will reduce Watervliet's community-wide GHG emissions by **1000 tons**.

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<sup>1</sup> WARM model available at <http://epa.gov/epawaste/conservation/tools/warm/index.html>