



## NEW YORK

### BIOSOLIDS MANAGEMENT 2018 - STATE SUMMARY

This summary, a dashboard of state statistics, & further data are at [www.biosolidsdata.org](http://www.biosolidsdata.org)

#### ***In New York...***

- *Most wastewater solids generated in New York go to landfill disposal in- and out-of-state – a trend that has been steadily growing for decades. Landfilling is relatively hassle-free and not much more expensive than land application. Incineration still occurs in NY, but three SSIs closed around 2016, increasing reliance on landfill disposal.*
- *Outlets for wastewater solids are in high demand, especially with New York City’s sizable influence on regional flows of treated and untreated wastewater solids, and rising prices for solids management.*
- *Wastewater solids are strictly regulated by the New York State Department of Environmental Conservation (NY DEC). Data presented here are from 2015, from a NY DEC report, but are adjusted and assumed to be representative of 2018.*
- *Notable beneficial reuse programs include anaerobic digestion (AD) and energy recovery at Gloversville-Johnstown; the Casella Organics Grasslands facility in northern NY, producing Class A biosolids through advanced alkaline stabilization; several long-running biosolids composting programs including at Rockland County (operated by WeCare Denali). Separate preparers including Denali Water, Synagro, Casella Organics, and others treat and manage solids from many NY WRRFs, including some in New York City.*

#### **Biosolids Management and Oversight in New York**

Data for this report are from 2015, as compiled by the New York State Department of Environmental Conservation (NY DEC) in a 2018 report

([https://www.dec.ny.gov/docs/materials\\_minerals\\_pdf/bsmgmt2015.pdf](https://www.dec.ny.gov/docs/materials_minerals_pdf/bsmgmt2015.pdf)). NY DEC and NBDP assume these 2015 data are representative of wastewater solids management in New York in 2018, with the following caveats:

- Three sewage sludge incinerators (SSIs) closed in or about 2016: Glens Falls STP in Warren County (1 fluidized bed incinerator (FBI), Saratoga County SD #1 (1 FBI), and Watertown WPCP (1 FBI). To adjust for the closed incinerators and for the data to be more representative of 2018 conditions, NBDP moved ~8000 dry U. S. tons from incineration and allocated them to 2/3 landfill disposal and 1/3 agricultural land application.
- Data for New York City, Rochester, and Saratoga County, discussed below, are from the NBDP project survey and are specifically 2018 data.

NY DEC strictly regulates the management of wastewater solids under NYCRR Part 361, *Materials Recovery Facilities*, in several subparts that address land application, storage facilities, composting and other organics recycling facilities. These regulations became effective in November 2017, replacing the former Part 360 regulations; in that regulation change, there were only minor changes to the biosolids requirements. Management of biosolids is driven by Solid Waste Management law

dating back to 1988, which includes policy that promotes beneficial reuse, energy recovery, and reduction of solid waste generation. Biosolids are one of the organic materials that are to be recycled as much as possible; others include manures, food scraps, fats oils and grease (FOG), yard trimmings, and food-soiled paper. Details: <https://www.dec.ny.gov/chemical/97463.html>

NY DEC notes that landfill disposal has been steadily increasing for decades as the dominant use or disposal option for the state's wastewater solids. This trend is driven by the fact that landfilling is not too much more expensive than land application and is relatively hassle-free.

There are many notable biosolids beneficial use programs in NY, including anaerobic digestion (AD) producing renewable energy. Gloversville-Johnstown is a well-known example, processing abundant whey from area dairies in its anaerobic digesters, producing from the biogas >90% of the WRRF's power needs. Another notable AD operation was the subject of a U.S. EPA life cycle analysis ([https://cfpub.epa.gov/si/si\\_public\\_record\\_Report.cfm?Lab=NRMRL&dirEntryId=338074](https://cfpub.epa.gov/si/si_public_record_Report.cfm?Lab=NRMRL&dirEntryId=338074)).

Several separate preparers operate in NY – facilities that take solids and make Class B or Class A biosolids – and some NY biosolids are sent out of state for use or disposal. One separate preparer is the Casella Organics Grasslands facility in Chateaugay, near the northern edge of the state; this facility creates Class A bulk biosolids through advanced alkaline stabilization, and the biosolids are land applied on area farms, including some in Quebec. Denali Water is another biosolids management company that provides composting and land application services for New York City and other WRRFs. Synagro and several contracted facilities – including in eastern Pennsylvania – provide similar biosolids management services. Heat drying has been increasing as a Class A treatment technology and around 2018 significant amounts of biosolids pellets flowed from New York into Pennsylvania for land application and sometimes landfill disposal. In recent years, some Westchester County (Yonkers, New Rochelle, etc.) WRRF solids have gone to incineration in Connecticut and New Jersey. Outlets for wastewater solids are in high demand, WRRFs are concerned about where their solids will go in the future, and prices are rising as of 2021.

## Major WRRFs and Notable Projects

**New York City's** Department of Environmental Protection (NYC DEP) owns and operates 14 water resource recovery facilities (WRRFs) for treating the ~1,300 MGD of wastewater generated by more than 8 million City residents and associated businesses. Dewatering and further treatment of wastewater solids occurred at 5 of these WRRFs in 2018 (down from 7 prior to ~2010), and the solids from the other 9 were transported, mostly by barge, to the dewatering facilities. In total, NYC reported producing 127,400 dry U.S. tons of wastewater solids in 2018, of which

- 10% was treated by alkaline stabilization and applied to agricultural land in Pennsylvania;
- 2% was Class A EQ product distributed for landscaping and horticulture in urban and suburban environments (treated by contracted separate preparers Natural Soil Products, A&M Composting, and Denali Water Solutions);
- 87% was disposed of in landfills in Pennsylvania and more distant states, including Alabama, where odors caused public upset

(<https://www.washingtonpost.com/news/post-nation/wp/2018/04/20/a-poop-train-from-new-york-befouled-a-small-alabama-town-until-the-town-fought-back/>).

In 2018, NYC paid about \$55 million to contractors for solids management, not including WRRFs' internal costs for treating and transporting some solids to the Passaic Valley WRRF (Newark, NJ) for disposal. The average cost was ~\$110/wet ton. In the past, most of New York City's biosolids were recycled, which included heat drying at a facility in the Bronx and rail transport to land application sites in Texas and Colorado. But after 18 years of operation, the heat drying facility closed in 2010, in part because malodors spawned local opposition and raised environmental justice concerns. Today, much of the infrastructure in NYC's WRRFs is aging, some dating back to the 1940s. The Newtown Creek facility – the largest of NYC DEP WRRFs – has notable new egg-shaped digesters completed in 2010, and NYC DEP is considering more and improved anaerobic digestion, biogas utilization, and beneficial use of biosolids in the future, driven, in part, by City-wide mandates for greenhouse gas emissions reductions.

**Buffalo**, NY's second largest city (~254,000 population), has long incinerated its wastewater solids at the Bird's Island Wastewater Treatment Plant, which is located on the Buffalo waterfront on the Niagara River close by Lake Erie. The facility has three fluidized bed incinerators (FBIs). Southern suburbs of Buffalo are served by the Southtowns Division of Sewerage Management treatment plant, which also has 3 FBI incinerators.

**Rochester**, the 3<sup>rd</sup> largest city in New York (pop. ~204,000), is served by the Frank E. Van Lare WRRF (~90 MGD) and the Northwest Quadrant WRRF (~13 MGD). In 2018, in addition to wastewater, these WRRFs took in and treated 6.84 million gallons (MG) of septage, 26.73 MG of landfill leachate, and 435,400 gallons of FOG. They produced about 25,700 dry U.S. tons of solids in 2018. At Van Lare, solids are gravity thickened and dewatered with centrifuges and hauled to the Mill Seat Landfill in Riga for disposal. Northwest Quadrant solids are also landfilled. The landfill captures and utilizes some of the methane it generates.

**Yonkers**, the state's 4<sup>th</sup> largest city (pop. ~200,000), is in Westchester County, which owns and operates seven WRRFs north of New York City. The Yonkers Joint facility is the largest at ~100 MGD. Its solids are treated with anaerobic digestion, and the resulting biogas is used for power (using engine generators) and heat. The bulk solids go mostly to landfill disposal, as do most of the solids from all the Westchester WRRFs.

**Syracuse** is central New York's largest city (pop. ~141,000 in the city alone), situated on the shore of Lake Onondaga. The Metropolitan Syracuse Wastewater Treatment Plant and four other WRRFs treat ~84 MGD from a regional population of ~270,000 (plus businesses), producing 12,000 U.S. dry tons of anaerobically-digested, centrifuge-dewatered biosolids that average about 30 – 35% solids. In 2018, the biosolids were disposed of in a landfill. In the early 2020s, the anaerobic digesters are being updated, and a new drying system is being installed, which will increase the solids content to 90%, resulting in a lower tonnage of biosolids and lower transportation and disposal costs. Dried biosolids can also be used for land application, providing the WRRF increased flexibility in final biosolids use or disposal.

**Albany**, the capital of New York, with the 6<sup>th</sup> largest population (~95,000), has long relied on incineration for the management of the solids from its North and South WRRFs. However, as the incinerators age and some public opposition has grown in and around the SSI in the Port of Albany,

the County is considering a regional anaerobic digestion facility in collaboration with Saratoga County.

**Saratoga County** Sewer District #1 – serving ~150,000 population, 15 MGD, \$25 million annual budget – is an example of a WRRF upgrading its solids management systems. It long relied on incineration of its sewage sludge, but that was phased out in the late 2010s and, as of 2018, it had new gravity belt thickeners and belt filter presses that produce ~22% cake that is hauled to the Grasslands facility. These biosolids are applied to agricultural land. Of the 4,728 dry U.S. tons of biosolids produced in 2018, 72% went to beneficial use, and the rest was landfilled. Looking forward, the District is installing a \$1.3 million solar array and is planning to build an anaerobic digestion and combined heat and power (CHP) facility, possibly in collaboration with Albany County.

Significant biosolids composting operations:

- **Rockland County** composts all the solids from its WRRFs in an agitated bin system, using wood waste as a bulking material. The compost is used on golf courses (turf management), flower gardens, and landscaping projects. The facility is operated by WeCare Denali.
- **Delaware County** – in Walton, mixing municipal solid waste and biosolids in an in-vessel (Bedminster) system, with the compost used for landscaping, horticulture, and green infrastructure projects like rain gardens for stormwater management.
- **Wappingers Falls** (Tri Municipal Authority) – a biosolids wood chip compost also used in a variety of ways, including for green infrastructure projects like green roofs.
- **Lockport**, just east of Niagara Falls and north of Buffalo, is the longest-running biosolids compost facility in New York – an indoor, active IPS (BDP) system that was built in the 1980s.

**Suffolk County**, which encompasses the eastern end of Long Island, is a mix of rural, suburbia, and villages, with a few WRRFs. Since 2016, some of these facilities' solids have been dried and, as of 2021, WeCare Denali is recycling them in various locations. In addition, the County has been part of a 2017 state program funding 50% of the cost for homeowners to replace failing septic systems. Often, managing onsite septic systems is overlooked, resulting in local impacts on water quality.

**Nassau County** is western Long Island; it has two ~58 MGD WRRFs and operates one other 5.5 MGD plant. Ten other smaller WRRFs operate in the County. A major focus is on reducing nitrogen inputs to Long Island Sound. In the past, solids from this County went to A & M Compost in eastern PA. More recently they have been managed by Casella Organics, with much going to landfills. Notably, in 2012, Hurricane Sandy destroyed one of the County's WRRFs. It has been rebuilt, and as of 2022, it's operated by Veolia North America.

**Binghamton**, in southwest NY, has a joint WRRF with Johnson City, protecting the water quality of the Susquehanna River. After a wall collapsed in 2011 and the plant flooded, it has undergone a \$275 million reconstruction. The solids are treated with anaerobic digestion (AD), and in the 1990s and early 2000s, they were composted.

**Ithaca**, in central NY, treats about 6.5 MGD of wastewater, protecting Cayuga Lake and serving the city and colleges (Cornell and Ithaca). The WRRF has advanced AD and biogas utilization and takes in outside wastes to increase biogas production, producing renewable electricity – enough to cover ~60% of the WRRF's needs.

