

Fort Wayne's Biosolids Handling Facility

Protecting Public Health and the Environment



Biosolids Handling Facility



Fort Wayne's Biosolids Handling Facility (BHF) is a 582-acre Class A facility that distributes an average of 34,090.5 dry tons per year (based on 2020, 2021, and 2022 volumes).

Every day, primary and secondary waste-activated sludge from the city's wastewater treatment plant are stabilized by a process called anaerobic digestion. The process occurs in large digesters. Liquid and solid wastewater residuals are separated to allow sludge more time to break down in the levels of the sludge. Treated sludge is moved from the digesters to approximately 106 acres of drying basins. Biosolids are air-dried for 2+ years and turned with special equipment. The compost is then combined with bulking agents (tree clippings and yard waste) and formed into windrows. Utilizing bulking agents significantly reduces the cost of waste disposal for residents. The product is blended from biosolids and compost, utilizing our bin system. Final testing is done on biosolids products at this time to ensure regulatory compliance. The wastewater residuals are then converted into a stable organic product that can be safely used by the public for all their landscaping and gardening needs.

The BHF works to recycle and reuse natural resources in a variety of ways as described below.

**Biosolids Handling Facility
Leaf Drop-Off Volumes**

Year	Tons of Leaves
2022	10,326.45
2021	10,671.39
2020	13,054.35

The BHF coordinates with the City of Fort Wayne’s Street Department on an ongoing basis to assist with recycling of leaf pickup for all areas of the city. Residents and business owners have the convenience of piling their leaf debris at the curb for pickup twice a year by the Street Department. The leaf debris is then dropped off at BHF. Leaves will be composted and utilized in the production of Class A biosolids.

Yard waste and brush brought in by residents or other city departments are processed into usable compost. As indicated in the table below, we have seen a rise in the amount of yard waste dropped off to the BHF due to increased public education and outreach.

**Biosolids Handling Facility
Yard Waste Drop-Off Volumes**

Year	Tons of Yard Waste
2022	5,722.30
2021	5,187.62
2020	4,554.94





Biosolids Handling Facility Brush Drop-Off Volumes	
Year	Tons of Brush
2022	10,242.91
2021	6,102.47
2020	6,760.87

Biosolids Handling Facility Grit Drop-Off Volumes	
Year	Tons of Grit
2022	9,667.18
2021	12,131.85
2020	11,079.32

Grit is brought in by City staff and contractors that have performed preventative maintenance on the collection system.

Lime is used at the Three Rivers Filtration Plant as a water softening coagulation agent and is pumped via a force main to the BHF where it is dewatered. All dewatering water is returned to the Water Pollution Control Plant for full treatment. This lime is then sold to farmers as a soil amendment product.



The BHF is equipped to reclaim spoils and process into road bed clay for lagoon repair and flood control. Top soil from spoils is used for restoration work.

Biosolids Processing

The treatment of biosolids consisting of anaerobically digested treated sewage sludge from the City's Water Pollution Control plant begins with its conveyance to the BHF where the sludge is placed into the 7-acre lined dewatering lagoons where natural drying occurs. The city also accepts both anaerobic digested treated and non-digested sewage sludge from sources rather than the City's wastewater treatment plant. This dewatering process requires two to three years, after which the biosolids are loaded into dump trucks for depositing into another lagoon for further drying. Natural dewatering occurs in approximately year one, then lagoons are windrowed to assist in dewatering in year two. Biosolids are then turned on a two-week schedule depending on heat units and rainfall in approximately the third year. All dewatering water is returned to the Water Pollution Control Plant for full treatment. Biosolids are turned to increase the percent solids and allow for more even-drying and blending of layers. As the biosolids dry in the final holding area, it is placed into windrows allowing the compost process to begin. Each windrow has at least 20 cores obtained from throughout the entire row. The cores are placed into appropriate mixing pails and thoroughly mixed. A sample of this mix is analyzed for heavy metals, pathogen reduction, vector attraction reduction, PCBs, and volatile solids.

The dry biosolids material is then analyzed for all parameters listed in the permit and 503 regulations. It is also analyzed for volatile solids reduction. The dry biosolids show volatile solids reduction greater than 70 percent after anaerobic digestion and lagoon drying. The dried biosolids are also analyzed for Processed to Further Reduce Pathogens (PFRP) requirements. The BHF PFRP method is Alternative-4, testing for pathogens.

A determination is made, based upon analysis of the dried biosolids, whether the material meets pathogen reduction requirements and heavy metal concentration limits as outlined in 327 IAC 6.1. Treated material that meets requirements is weighed and blended with yard waste, compost, wood chips, or a combination of all three and made available for the public. Material that does not meet requirements is re-blended.

Sampling and analyses for the final biosolids product are conducted as specified in the EPA POTW Sludge Sampling and Analysis Guidance Document, 327 IAC 6.1.

CSO Solids Processing

Furthermore, undigested waste sludge/grit from the CSO ponds and collection system cleanout are also treated and processed at the BHF. When necessary to remove the settled solids from the ponds, the solids are dredged from the ponds and pumped into exceptionally large bio-filter bags for dewatering and thickening, while the decant water flows back into the CSO ponds. A composite sample of CSO waste is taken from each bio-filter bag and analyzed for all the pollutants listed in Table 3 of the 40 CFR 503.13 regulations. Once the solids are dewatered enough, they are hauled via dump trucks to the BHF. At the BHF, the solids are deposited in the 7-acre clay-lined lagoons.

As soon as possible, the solids are sent to the 6-acre compost pad and blended with yard waste and wood mulch to begin the active composting process. The solids from the CSO pond waste are composted at a minimum of 131 F for at least 15 days. During this time, the solids and yard waste mix is turned at least five times with the City's self-propelled windrow turner. Once the compost begins to cool down, the material is placed in a large curing pile to await screening. All runoff from the compost pad is sent to a pond which in turn decants into the North Maumee interceptor and back to the Water Pollution Control Plant facility.

Another composite sample is collected from the finished compost and analyzed for the same pollutants in the same manner as described above with 20 cores from each window. The finished compost is then analyzed for E. Coli, enteric virus, helminth ova, and salmonella, consistent with the sampling requirements for all parameters in the NPDES Permit and 40 CFR 503. It is also analyzed for vector attraction reduction. We do not allow for digested and composted sludge to be mixed as a final product.

Nutrient Analysis Element Lab - Dry Weight Basis (April 2023)	
Total Nitrogen	0.865%
Phosphorous	1.41%
Potassium	0.223%
Plan Available Nitrogen (PAN)	4.5 lbs./dry ton