Fort Wayne's Water Pollution Control Plant
Biosolids Handling Facility

Protecting Public Health and the Environment

SEWER

The City of Fort Wayne Biosolids Handling Facility (BHF) is an approximately 582 acre Large Class A facility that distributes an average of 26,774 dry tons per year (based on 2014, 2015, and 2016 volumes.)

Every day, over 27 dry tons of primary and secondary waste-activated sludge from the City's wastewater treatment plan is stabilized by a process called anaerobic digestion. The process occurs in large tanks or digesters. Liquid and solid wastewater residuals are separated to allow sludge more time to break down in the digesters. This process significantly reduces the amount of time needed for air-drying and reduces pathogen levels in the sludge. Treated sludge is moved from the digesters to approximately 105 acres of drying basins. Biosolids are air-dried for 2 plus years and turned with special equipment. The compost is then combined with bulking agents (tree trimming and yard waste) and formed into windrows. Utilizing bulking agents such as yard waste significantly reduces the cost of waste disposal for Fort Wayne residents. The product is then blended from biosolids and compost utilizing our bin system. Final testing is done on biosolids products at this time to ensure regulatory compliance. At this point, the wastewater residuals have been converted into a stable organic product that can be safely used by the public.

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

The BHF coordinates with the City of Fort Wayne 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.

Biosolids Handling Facility Leaf Drop-off Volumes

Year	Tons of Leaves
2016	7,807.13
2015	11,056.33
2014	9,121.18

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
2016	3,517.09
2015	3,345.09
2014	2,755.95

Biosolids Handling Facility Brush Drop-off Volumes	
Year	Tons of Brush
2016	3,867.41
2015	5,916.59
2014	5,238.06

Yard Waste & Brush that has been processed into usable biosolids

Biosolids Handling Facility Grit Volumes	
Year	Tons of Grit
2016	8,680.27
2015	5,397.31
2014	9,384.99

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 (WPCP) for full treatment. This lime is then sold to farmers as a soil amendment product (see Information Sheet in Criteria 5 as attached).

Processed Lime

Biosolids Handling Facility Lime Disposal Volumes	
Year	Tons of Lime
2016	51,069.42
2015	35,382.35
2014	41,610.60

Lastly, the BHF is also 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. In 2016 alone, the approximate yards of spoils diverted from the landfill were 50,000.

Biosolids Processing

The treatment of biosolids consisting of anaerobic 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 other 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, PCB's 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 is 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.
**See Biosolids process flow diagram on page 9 for details.

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 very 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 hauled 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/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 run off from the compost pad is directed 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 windrow. The finished compost is also 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.

City of Fort Wayne

Biosolids Handling Facility

Information & Product Sales
(260) 749-8040

Business Hours:

April 1 to November 30

Monday thru Saturday
8:00 am – 6:00 pm
Sunday
12:00 pm to 6:00 pm
Ending Load time
5:30 p.m. daily

December 1 to March 30
8:00 am – 2:00 pm
Monday thru Friday
Product Ending Load times
1:30 p.m. daily

Pricing

Biosolids

$12.20/ton+tax

Free to residents that load themselves.

Contact:
Travis Medina
6202 Lake Ave.
Fort Wayne, IN 46815

Biosolids Products: Information

Call (260) 749-8040 Fort Wayne Biosolids Handling Facility for Biosolids Product sales and information on the innovative recycling program of the City of Fort Wayne and the Water Pollution Control Plant.

Benefits of Biosolids
Biosolids provide soils with the nutrients that tend to be deficient in Midwest soils. Biosolids products are used in landscaping and gardening in the following ways:

As a soil amendment: Biosolids products that are available for public use improve the physical characteristic of the soil. Compact and clay-like soils are made lighter and more porous, sandy soils benefit from improved water retention.

As a mulch: The addition of biosolids yard waste blended as a mulch reduces watering requirements, and adds beauty to the landscape.

As a potting medium: When mixed with potting soil, biosolids products provide an ideal medium for potted plants and greenhouse containers. Biosolids blends, makes an excellent substitute for manure composts, peat moss and other components of typical soil mixes.

How It Works

Biosolids used in landscaping and gardening must meet the US EPA "Exceptional Quality" requirements. Treatment processes such as composting, heat treatment or thermophilic digestion help to satisfy the federal standard. Every day, over 27 dry tons of primary and secondary waste-activated sludge from the City's wastewater treatment plan is stabilized by a process call anaerobic digestion. The process occurs in large tanks or digesters. Liquid and solid wastewater residuals are separated to allow sludge more time to break down in the digesters. This process significantly reduces the amount of time needed for air-drying and reduces any pathogen levels in the sludge. Treated sludge is moved from the digesters to 55 acres of drying basins. Biosolids are air-dried for 3+ years and turned with special equipment. The Biosolids are then combined with bulking agents and formed into windrows. Waste products (tree trimming and yard waste), which would ordinarily be disposed of in landfill, are utilized as bulking agents, significantly reducing the cost of waste disposal for Fort Wayne residents. Final testing is done on biosolids products at this time to ensure regulatory compliance. The wastewater residuals are converted into a stable organic product that can be safely used by the public.

Recommendations For Storage

Biosolids shall be stored away from waterways and protected for erosion control during rain and flood events. Biosolids shall not be stored on steep inclines. Storage distances should be maintained from neighboring buildings/structures.

Nutrient Analysis

Element Lab January 2017 (dry weight basis)	
Total Nitrogen	0.638%
Phosphorous	1.14%
Potassium	0.176%
Plant Available Nitrogen (PAN)	
PAN	4.35 lbs./dry ton

Recommended rates	
Crop	lbs. of PAN Per Acre
•Corn	200 lbs
•Soybeans	100 lbs
•Hay, pasture	100 lbs
•Cereal grain	100 lbs
•Set aside/idle	50 lbs

Beneficial Micronutrients *Pounds/Ton*		
Cu		.745
Zn		1.07
Mg	(est)	23.0
Mn	(est)	1.62
Cu	(est)	114
B	(est)	0.0193
S	(est)	9.28

Biosolids Products: Information

Recommended Application Rates: The recommended amounts of Fort Wayne's biosolid products are based on Plant Available Nitrogen (PAN). The calculated PAN and recommended application rates per IDEM 327 I.A.C. land application guide is listed on the left side of this user information sheet.

Vegetable Gardens: **Initial Spring Preparation**: Spread the recommended amount of biosolids product evenly over the surface and till into root zone. Smooth surface, plant seeds or plant and top dress with 1" of material. **During the Summer**: To increase moisture retention top dress with 1" of biosolids material. **Initial Fall Preparation**: Spread recommend amount of biosolids material evenly over the surface and leave untouched until spring. It is recommended that only one of the above mentioned applications be made during the year. *Soil tests need to be done and a pH of 6.5 maintained in the soil when Biosolids Products are applied to land used for food crops.*

As a mulch: The addition of biosolids yard waste blended as a mulch reduces watering requirements, and adds beauty to the landscape.

Tree and Shrubs: To encourage deep rooting, dig 1-2" deeper than the actual rootball. Mix one (1) part biosolids product with one (1) part existing soil to fill the first 1-2" hold, then add an additional 1-2" of soil. Place rootball in the hole, surround and cover it firmly with a mixture of one (1) part biosolids product and two (2) parts soil. After watering and settling, top dress with an additional 2" of biosolids products. In the case of a heavy compacted soil the biosolids should be tilled in to a depth of 12" and shaped in to a mound before planting the tree or shrub.

New Lawns: Spread 1-2" of biosolids products over area, lightly till into soil before seeding.

Established Lawns: Once every year, cut grass to medium height, spread 1/2" of biosolids products over the area, irrigate and rake lightly to incorporate. Application may best be done in early spring but could also be done in July or October. Additional nitrogen applications may be desired if a deep green appearance is required all year long.

Flowers and Berries: Top dress with 2-3" of biosolids products in the spring or early summer.

Potted Plants: Top dress with 1" of biosolids products initially and/or when replanting.

Bulbs and Tubers: Apply a handful of biosolids product when planting each bulb or set and top dress with an additional 1-2".

The City of Fort Wayne is licensed by the Indiana Department of Environmental Management and meets all Federal EPA 40 CFR 503 regulations. This product can be custom designed to create a soil amendment for specific problems, including difficult or unproductive growing locations. ***Biosolids products are to be used only in accordance with the instructions on this information sheet.***