

West Hanover Township

West Hanover Township, a small community which lies only a few miles east of the state's capitol and 15 minutes north of Hershey, bordered by state game lands and harboring loop trails connecting to the Appalachian Trail and Kittatinny Ridge, was a predominantly rural area for well over 200 years.

In the early 1990's, many homes in West Hanover Township were experiencing issues with their on-lot septic systems and sand mounds. These failures had been detrimentally affecting the drinking water and open spaces in many of the township's developed areas. The issue soon came to a head and the Pennsylvania Department of Environmental Services and the Township's Supervisors decided that it was time to begin working towards a public sewer system to serve the residents. In 1996, the West Hanover Water and Sewer Authority was incorporated with the sole purpose of fulfilling this task.



The choice for the location of the core treatment plant was determined by geography as much as it was by population density. The northern section of the township falls in Fishing Creek Valley which is separated from the lower portion of the township by a ridge running east to west and making sewer service across it incredibly difficult. Therefore, the plan was to address the middle and southern areas of the township where the heaviest population density was seen.

Initially, the Authority built the new plant to serve the core residential areas of the community. These areas cover most of the central part of the township along the I-81 and Allentown Boulevard (Route 22) corridors.

As the community grew, so did the wastewater system. Originally designed with two basins, two digesters and 8 pumping stations, it is now comprised of a 3-basin plant, 15 satellite pumping stations and over 50 miles of underground lines. Most of the system is comprised of more than 3,000 residential customers and 115 commercial customers, most of whom are centralized in the original area.



In 2020, the Authority completed its expansion to the remaining residential areas as designated in the Township's 537 plan and has now fulfilled its originally mandated coverage. There are no plans to expand the system further, but there is no shortage of new home development within the existing sewered service area to keep the operators busy.

The treatment plant is comprised of a three basin Aqua Aerobics™ Sequencing Batch Reactor system. Each basin has its own dedicated digester capable of being staged in parallel or sequenced with the others dependent on treatment needs. The plant is staffed by three licensed operators and two operator trainees who are responsible for all operations and maintenance, including the pumping stations and gravity conveyance system. This maintenance includes all preventative repair work to the stations themselves, televising lines and performing all required maintenance duties at the main treatment plant as well. In addition, the staff works closely with the Authority engineer, Herbert Rowland & Grubic Inc., to coordinate outside contractors in order to address I & I issues by lining manholes and pumping stations with OBIC armor and coordinating root control and line repairs as necessary.



Effluent from the plant is discharged to an unnamed tributary to the Manada Creek an average of 13 times per day. The offset from an even number of treatment batches allows the flow to the tanks to rotate daily so that all three tanks see equivalent loadings over time and tend to be more homogeneous. The plant is now rated at a hydraulic capacity of 1.4 MGD with an average design flow of 0.780 MGD. Biologically, the system is designed for 3,527 lbs. of BOD per day.

The Authority has had no issue meeting the requirements of discharge specified in their permit with an annual average ammonia in 2022 of 0.43 mg/l and an average phosphorus of 0.55 mg/l. The plant uses aluminum sulfate to help control phosphorus without affecting the Trojan 3000 Plus ultraviolet disinfection system that treats the effluent, but most of the treatment is directly related to the biological process balance in the basins.

After an attempt to pilot and operate the state's second full-scale Vermiculture biosolids processing facility, the sludge is now sent to a PW Tech ES353 volute filter press and then lime-amended to Class B before being sent to local fields for spreading and tilling. The plant produces, on average, nearly 1,000 wet tons of biosolids per year.

There are no plans to expand the plant at this time, but it is possible that at some point the Authority will add another basin identical to the existing basins as well as another digester to increase both hydraulic and biological capacity to meet changes to PADEP required limits. 💧



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