

**WESTTOWN TOWNSHIP
ACT 537 SEWAGE FACILITIES PLAN**

FEBRUARY 2021

PREPARED FOR:

**WESTTOWN TOWNSHIP
1039 WILMINGTON PIKE, WEST CHESTER, PA 19382**



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SECTION 1.0 - PLAN SUMMARY

This Act 537 Plan is a Township wide evaluation of the sewage disposal needs of Westtown Township. It has been prepared to update sewage facilities planning in accordance with the Department of Environmental Protection's (DEP) letter of June 7, 2013, which approved the September 2012 Act 537 Plan Special Study. The approval of the Special Study included a provision that the Township would complete an updated Act 537 Plan for all existing residences within 5 to 10 years, which would be by July 1, 2023.

Westtown Township has conducted extensive, comprehensive, Township wide Act 537 planning over the past twenty-years. Since 2013, on-lot disposal systems in the Township have been covered by the Township's Sewage Management Program. This Act 537 Plan has determined that the Sewage Management Program is working effectively and on-lot systems are maintained and continue to function properly. Continued use of the Sewage Management Program is the selected sewage disposal alternative for on-lot systems in Westtown Township for the continued maintenance and proper functioning of these systems.

The sewage facilities planning alternatives selected to provide new or improved wastewater disposal facilities include: the continued use of regional wastewater treatment and municipal sewage collection conveyance and treatment facilities for the public sewer service area; and individual sewage disposal systems with the continued use of the Township's existing Sewage Management Program (SMP).

There are no new costs associated with the implementation of selected sewage disposal alternatives. The selected alternatives are currently being implemented by the Township. No new capital expenditures are proposed.

The selected sewage disposal alternatives are currently being implemented by the Township. Therefore, no new municipal commitments are necessary to implement the Act 537 Plan.

A schedule of implementation activities is contained in Section 9.0 of this Act 537 Plan.

SECTION 2.0 - PREVIOUS WASTEWATER PLANNING

Until 1992, Westtown Township utilized the 1970 Chester County Master Sewer Plan as its Act 537 Plan. This plan called for significant areas of the Township to be served by the Westtown Wastewater Treatment Company by 1988. Well into the 1990's, however, only a limited area in the Township's northeast corner was being served by this facility, which was the only treatment facility within Westtown Township.

2.1 1992 Act 537 Plan

The Township undertook a new plan in 1992 to address the possible need for sewage facilities to serve the few remaining vacant tracts in Westtown. A half-dozen areas of concentrated on-site system failures also were of concern, as was the performance of the Westtown Wastewater Treatment Co. plant. The 1992 Plan's selected alternative to address future needs where on-lot systems were not appropriate, was lagoon treatment and land application.

The Township was divided into four drainage areas in the Plan. The Plan recognized the expansion and continued operation of the existing treatment plant as temporary, until such time as necessary land acquisition would make the wastewater reclamation and reuse system feasible. Subsequent to the 1992 Plan, the Township was unable to acquire the necessary land for spray irrigation to accommodate wastewater flows from both potential problem areas and the flows in excess of the treatment capacity of the Westtown Wastewater Treatment Co. Plant.

2.2 1998 Act 537 Plan

An update to the Act 537 Plan was prepared in 1998. The primary purpose of the plan update was to examine the former Westtown Wastewater Treatment Co. plant, ownership of which was transferred to the Township in 1997, and at which time, the facility's name became the Westtown - Chester Creek Wastewater Treatment Plant. Coupled with an inflow/infiltration study and the recommended construction of a equalization tank, the update proposed a re-rating of the plant's permitted capacity from 290,000 gpd to 495,000 gpd to accommodate short-term wastewater treatment needs resulting from increased development in the Township.

2.3 2001 – 2005 Act 537 Plans

The Township prepared a new Act 537 Plan in 2001, which surveyed the soils, Chester County Health Department records, and the age of the various developments to determine the need for public sewer in the yet unsewered areas of the Township. The Plan concluded that actual implementation of public sewer extensions be deferred until more information about existing on-lot systems could be obtained. A 2005 Addendum to the Plan contained the results of a mail survey sent to all properties in the Township not served by public sewer. The results of the survey identified on-lot system issues throughout the Township. Collective mapping of the questionnaire results led the Township to conclude that all unsewered areas are in eventual need of public sewers but planned to focus on the eastern part of the Township where the lots are smaller size and system replacements may not be feasible if needed.

2.4 2012 Act 537 Plan Special Study

The Township entered into a Consent Order and Agreement (CO&A) with the Pennsylvania Department of Environmental Protection (DEP) in 2011, included in Appendix A, which required new planning to address the unimplemented sewer extensions previously planned. The Special Study prepared under direction of the CO&A focused on the eastern portion of the Township which was proposed for public sewer connection in the 2005 Act 537 Plan Addendum. The Special Study concluded that due to the relatively limited incidence of existing sewage disposal needs, the Township should focus on long-term needs of existing residences. Existing lots served by on-lot sewage systems will continue to be so served, with repair or replacement by property owners as needed to abate malfunction. All existing on-lot systems will be subject to an on-lot sewage management program as described in the Study. The Special Study was approved by DEP in their June 2013 letter, included in Appendix B.

2.5 2013 – 2016 West Wynn I Act 537 Plan Special Studies

An Act 537 Plan Special Study of the West Wynn I (WWI) Area of the Township was prepared in 2013, as a requirement of DEP's June 7, 2013 approval letter of the 2012 Special Study. The 2013 WWI Special Study provided for the implementation of several planning activities including updating the status of on-lot disposal systems in West Wynn I under the SMP, and preparation of an update to the West Wynn I Special Study by October 31, 2016.

The 2016 WWI Special Study reported on planning activities identified in the 2013 Special Study and updated the status of OLDS in West Wynn I. The conclusion of the 2016 Special Study was that the SMP sufficiently covers OLDS in West Wynn I, and no additional planning activities are required. This study was approved in the DEP approval letter dated December 2017, included in Appendix B.

2.6 Other Sewage Facilities Planning

In addition to Act 537 Plan updates and Special Studies, other sewage facilities planning has been completed through planning modules or planning exemptions.

SECTION 3.0 - PHYSICAL AND DEMOGRAPHIC CONDITIONS

The general features of Westtown Township are shown in Figure 1. Much of the Township is zoned for low-density housing and agriculture, and the lots in these zoning areas are generally suitable for on-lot disposal systems. Higher density housing and commercial/multi-use zoned areas have been the first to be connected to the public sewer system. Figure 2 shows sewage facilities, Figure 3 shows zoning and land use, and Figure 4 shows open space in the Township.

Westtown Township uses a variety of sewage disposal methods including public sewer collection and conveyance to a municipal owned treatment plant and a regional treatment plant, on-lot disposal systems (OLDS) and small flow treatment systems (SFTS). The Township is covered by two public sewer drainage areas, the Chester Creek drainage area, and the West Goshen drainage area. Wastewater generated in the Chester Creek drainage area is treated at the Westtown-Chester Creek Treatment plant. Wastewater generated in the West Goshen drainage area is treated at the West Goshen Treatment Plant. Unsewered properties are served OLDS and SFTS.

3.1 Sewage Disposal Areas

3.1.1 Chester Creek

- A) Location: This area is bounded by the Pennsylvania Railroad to the west and the Township borders to the north, east and south.
- B) Existing Sewer Service: public sewer service is provided to the northeastern portion of the Township by the Westtown-Chester Creek treatment plant. Wastewater service is currently provided to both detached and attached dwelling communities and to commercial and professional uses along the Route 3 corridor.

- D) Existing Land Use: The majority of this area is comprised of residential land use consisting of single-family detached dwellings. There are pockets of higher density attached dwelling developments in the Route 3 corridor. Few remaining undeveloped tracts exist within Chester Creek drainage area.

3.1.2 West Goshen

- A) Location: This area is bounded by Route 202 to the west, the West Chester Railroad (SEPTA) the east and Township borders to the north and south.
- B) Existing Sewer Service: public sewer service is provided by Township owned collection and conveyance facilities with wastewater treatment provided at the West Goshen Treatment Plant.
- C) Existing Land Use: As with the Chester Creek drainage area, the majority of the drainage area is comprised of single family detached dwellings. Some attached dwelling developments exist in the northern portion of the drainage area and along Route 202 with some commercial and professional uses occurring along the Route 202 corridor.

3.1.3 On-Lot Sewer Systems

Westtown Township has 1624 on-lot disposal systems in use, as of April 2020. These are located throughout the Township.

3.1.4 Small Flow Treatment Systems

There are eight SFTS in Westtown Township. These systems are typically installed because no feasible sewage disposal alternative is available at the location for new construction, or the SFTS replaces an existing on-lot system that cannot be repaired or replaced.

3.2 Topography

The topography, or slope, of the land is another important consideration, which requires analysis to determine site suitability for wastewater disposal. The topography is also a controlling factor when evaluating wastewater collection and conveyance systems to serve a given area.

The degree of slope, measured as the change in elevation over a horizontal distance, provides an indication of site suitability for wastewater systems. Any slope encountered is an important consideration and must be evaluated with regard to the particular wastewater disposal or conveyance application. Areas with slope in excess of 15% present serious constraints to the successful operation of soil absorption systems. DEP requires modified system design on slopes between 15-25%. In areas where the slope exceeds 25%, the use of such systems is unsuitable and is restricted under Chapter 73 of DEP's Rules and Regulations.

In level areas, the standards in Chapter 73 require that there be a minimum of 48" of suitable soil beneath the system to properly dispose of the pollutants, but in areas where slope is encountered, this standard may need to be increased. If slope is encountered, the use of a pressure dosed trench system, or some other form of absorption technology may perform better than the standard trench.

The slope requirements of Chapter 73 are based upon the type of system. As mentioned above, the typical subsurface absorption system cannot be used on slopes of 25% or greater. Spray irrigation systems may be used on slopes in excess of 25%, although application rates would be seriously restricted. Application would also be affected by other site characteristics such as vegetation, soils, and geology.

Recent policy statements by DEP indicated that drip irrigation disposal systems are permitted on slopes up to 25%. On slopes greater than 25%, drip irrigation systems will be considered on a case by case basis.

Westtown Township is characterized by rolling hills and stream valleys associated with the creeks and tributaries which drain through the Township. Topographic elevations within the Township range from 470 feet above sea level southwest of the intersection of Matlack St and Oakbourne Road to 215 feet above sea level at a point along Ridley Run Creek where it erodes into Birmingham Township in the southwest part of the Township.

3.2.1 Township Slope Characteristics

About 82% of the land in Westtown Township falls within the gentle and moderate slope categories (0-15% slope), as shown in Table 3-1. Land having slope within these categories generally impose few environmental limitations on residential, commercial, and industrial development. Potential soil erosion and sedimentation problems, which might occur during periods of ground disturbance, can be minimized when conventional conservation practices are properly employed. Nevertheless, moderate slopes frequently exhibit moderate to severe loss of the topsoil mantle due to erosion, primarily due to historic farming practices.

Table 3-1 Slope Characteristics in Westtown Township	
Slope Characteristic	% of Township
0-3%	14%
3-8%	54%
8-15%	14%
15-25%	17%
>25%	1%

3.3 Soils

Soils are a critical factor affecting the suitability of a site for subsurface disposal systems. Because the majority of Westtown Township residents utilize such systems, analysis of soil suitability and recognition of constraints is an important consideration. Analysis of soils for subsurface disposal is also an important factor when considering community systems in Westtown Township. Soil Classifications in the Township are shown in Figure 5.

3.3.1 Pollution Attenuation

Soils lying above the water table have a natural ability to attenuate pollutants. The effectiveness of a soil in attenuating pollutants depends on its composition, thickness, and degree of saturation with water. There are five separate processes operating in soils that can help to remove contaminants. The sixth, evaporation, can increase the concentration of contaminants.

- 1) Filtration processes depend on the soil acting as a physical filter to trap suspended solids.
- 2) Sorption and adsorption processes involve soil particles physically and chemically capturing dissolved or suspended compounds.
- 3) Oxidation and reduction of contaminants can render them chemically inert or may hasten their precipitation out of solution.
- 4) Biological assimilation processes involve the uptake of contaminants by plant material.
- 5) Dilution and volatilization processes can decrease the concentration of contaminants in soils to acceptable levels.
- 6) Evaporation processes can increase the concentration of contaminants.

The processes can be very effective in attenuating pollutants under the right conditions. Proper operation of on-site sewage disposal systems depends on these processes to treat wastewater properly; if conditions are not suitable, potential pollution problems can result. It is important to note that once contaminants have reached the saturated zone (below the water table) of an aquifer, there are few mechanisms to remove or contain the contaminants.

Floodplains, wet soils, shallow soils, steep slopes, and areas with fractured rock are more susceptible to pollution, because the contaminants can reach the groundwater without sufficient opportunity or time for the above processes to operate. This in turn can contaminate surface water resources. Surface water can also be easily contaminated by system malfunctions in areas adjacent to stream corridors if untreated wastewater is not filtered and allowed to run off.

3.3.2 Subsurface Disposal

According to the 1997 version of the Soil Survey Geographic Database for Chester County, Pennsylvania, there are twelve major soil series in Westtown Township. Using characteristics from the Soil Survey for Chester and Delaware Counties dated May 1963, soils in Westtown Township have been classified into three categories relative to subsurface disposal suitability which are:

Generally Suitable: Soils that, according to the Soil Survey, have no apparent limitations for use with on-lot systems.

Conditionally Suitable: Soils that, according to the Soil Survey, could have a limiting zone within five feet of the surface. Such soils would not be capable of providing four feet of suitable material between the bottom of a trench and the limiting zone as required by DEP Regulations, Title 25, Chapter 73.51.(a)(i).

Generally Unsuitable: Soils that, according to the Soil Survey, exhibit a seasonal high-water table, are located in a floodplain, or are underlain by Limestone geology and are obviously unsuitable for on-lot systems.

It should be noted that land classified as Urban Soil is generally developed land. For the purposes of this study, the suitability class for the Urban Soil Series is based on the former soil series prior to development. Due to wide variations in drainage, slope and development conditions, local evaluations must be made before considering land listed as "urban" for subsurface disposal.

Soils Generally Suited for Subsurface Disposal Systems

Approximately 9% of soils in the Township are considered to be generally suitable for on-lot subsurface disposal. These lands are predominantly located on the Chester and Neshaminy soil series.

Soils Conditionally Suited for Subsurface Disposal Systems

Over 74% of the Township soils are conditionally suitable for subsurface disposal. These lands are predominantly the Glenelg and Manor soils.

Soils Generally Unsuitable for Subsurface Disposal Systems

Approximately 17% of the Township is comprised of soils which are generally considered unsuitable for on-lot subsurface disposal. In Westtown Township the Glenville, Chewacla and Wehadkee soils are associated with floodplains, the Worsham soils are limited by drainage class or water table and the Conowingo is associated with limestone bedrock.

3.4 Wetlands and Drainage Basins

Wetland areas are important local resource areas since they help reduce potential flood damage, act as important stormwater controls, are important vegetation and wildlife habitats, help to protect surface water quality by purifying overland flows of water, and are areas where recharge of the groundwater reservoirs occur. For these reasons, and because the loss of wetlands has become an important environmental concern, these areas are protected by federal and state regulations. Proposed development activity which will impact these areas must be reviewed and approved by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the State Department of Environmental Protection.

In terms of wastewater planning, it is essential that treatment systems in or near wetlands do not contaminate or interfere with the natural functions of these resources. Wetlands should be buffered from potential contamination sources, such as conventional on-site treatment system components. While it is important to protect wetlands from potential wastewater system problems, wetlands have been used as components of some innovative on-site treatment systems. This technology uses the wetland as a final purification component and supplies nutrients and water to support these local resource areas. This type of technology can be quite successful if designed and maintained correctly, thereby achieving retention of local groundwater supplies.

Predominantly in the middle part of the Township approximately 71% of the Township is located within the East Branch of the Chester Creek Watershed. An estimated 19% of the Township, in the southwest part of the Township, is located within the Brandywine Creek Watershed, and 10% is located in the Ridley Creek Watershed to the northeast. Wetlands and drainage basins are shown in Figure 6.

3.5 Geologic Features

Various considerations regarding the underlying geology of an area are additional factors which can affect the suitability of a site for subsurface system operations. The primary consideration of geology regarding wastewater disposal is the potential for contamination of the water supply contained within the various rock formations. The potential for contamination is affected by the types and amount of systems that are utilized and the attenuation characteristics of the overlying soil, in addition to geologic formation characteristics. Westtown Township lies entirely within the Piedmont Province of the Appalachian Highlands, a great band of rolling country that stretches from New York to Georgia. The "fall line", marking the transition from Piedmont to Coastal Plain, is located a few miles to the southeast.

The Felsic Gneiss underlays approximately 71% of the Township. It is as hard as mafic gneiss, but less dense, being metamorphosed from granite. A Precambrian rock, weathering occurs to a similar depth of some eight feet, and water capacity is also low. Characteristics include rolling uplands and steeper slopes by the streams. As in the schists, Glenelg, Chester, Manor and Glenville soils are associated with the gneiss.

The Wissahickon mica schist formation underlays approximately 26% of the Township. The Wissahickon Schist is a Lower Paleozoic metamorphosed clay. It is not as hard as the other noncarbonate formations, thus it is prone to deep weathering because of its great age. The available water capacity in the weathered saprolite or "rotten rock" is high when compared to other metamorphic formations. The parent material is sometimes encountered as far as 100 feet below surface. The surface terrain is generally rolling uplands, with steeper slopes along creeks. Chester, Glenelg, Hollingsworth, Manor and Glenville soils are associated with this formation. Mafic Gneiss underlays approximately 2% of the Township. It is a metamorphic gabbro of probably Precambrian age found in smaller formations interbedded with schists, quartzite, or felsic gneiss. Soils are quite shallow with a scattering of boulders. Available water capacity is low resulting from lack of porosity or weathering. Natural slopes are steep and stable.

3.6 Floodplains

Protection of floodplain areas is essential not only on aesthetic and ecological grounds, but also to protect the community from possible flood damage. Most communities recognize the importance of controlling development in and near floodplains and have incorporated appropriate restrictions into their zoning regulations.

The floodplain areas are mapped by the Federal Emergency Management Agency (FEMA). In addition to the areas mapped by FEMA, there are areas of alluvial or floodplain soils where restrictions are also applicable. Floodplains are shown in Figure 6.

3.7 Existing Water Supply Facilities

Westtown Township lies within the franchise area of Aqua Pennsylvania. Public water is available through much of the Township, but connection is voluntary, and some homeowners continue to use private wells. Existing public water facilities are shown in Figure 7.

SECTION 4.0 – EXISTING SEWAGE FACILITIES

Public wastewater facilities, on-lot disposal systems, and small flow treatment systems are utilized by Westtown Township to meet the sewage disposal needs in the Township. The locations of various sewage facilities are shown in Figure 2. Fifty-seven percent of parcels in the Township use public sewer and 43% use OLDS. Less than 1% of Township parcels use SFTS.

4.1 Municipal/Regional Facilities

Westtown's public sewer system consists of two drainage areas. Wastewater generated in the West Goshen drainage area is conveyed to the West Goshen Treatment Plant for treatment. Wastewater generated in the Chester Creek drainage area is conveyed to the Westtown-Chester Creek Treatment Plant for treatment. The public sewer system and treatment plants are shown in Figure 8.

4.1.1 Chester Creek Drainage Area

The Chester Creek Drainage Area covers the northeastern portion of the Township from Johnny's Way to the East Goshen Township border. Included in the service area are the Bayard Rustin High School, Westtown-Thornbury Elementary School, and the Preserve at Rustin. The Westtown-Chester Creek Treatment Plant is west of the service area on Westtown Road and discharges into the Chester Creek. Wastewater is collected by gravity sewers and conveyed to the plant by two pump stations, Bayard Rustin Pump Station and Kirkwood Pump Station, and a single gravity interceptor.

Westtown Township acquired the Westtown-Chester Creek Treatment Plant in the summer of 1997 from the Westtown Wastewater Treatment Company. In 2002, the Plant was completely reconstructed to increase the capacity to 495,000 GPD. The Plant utilizes an extended aeration process with tertiary filtration to achieve advanced secondary treatment. In 2014, a phosphorus removal system was added to upgrade treatment to tertiary treatment. Current 5-year monthly average flows are 290,000 gallons per day average, as of the 2020 Chapter 94 Report.

4.1.2 West Goshen Drainage Area

The West Goshen drainage area covers the central one-third of Westtown Township generally between the West Chester Railroad to the east and Wilmington Pike (SR 202) to the west. In addition, there is a small portion in the eastern end of the Township bounded by Manley Road, Chester Road (SR 352) and West Chester Pike (SR 3) and known as the Triangle, where wastewater is conveyed through East Goshen Township to West Goshen Township for treatment. Service is also provided to Commons of Thornbury Shopping Center located in Thornbury Township at Wilmington Pike and Street Road (SR 926). There are four pump stations in the West Goshen drainage area, Pleasant Grove, Wildgoose, Cobblefield, and Arborview.

The West Goshen Treatment Plant is owned and operated by the West Goshen Sewer Authority and has a total capacity of 6.0 million gallons per day. Westtown Township has an agreement with the West Goshen Sewer Authority for wastewater treatment. Westtown currently owns 530,000 gpd per the 1998 Sewer Treatment Agreement. The Agreement was last updated in 2019 to address capital cost allocations. The current annual average daily flow from Westtown Township to the plant is 237,880 GPD according to the 2020 Chapter 94 Report.

4.2 Individual On-Lot Disposal Systems

The parcels utilizing OLDS are shown in Figure 9A. In 2013, the Township enacted a sewage management program (SMP) that requires the pumping and inspection of OLDS every 3 years. The program will extend the life of OLDS by identifying and correcting OLDS problems before system function is affected.

Currently, there are 1,624 properties with OLDS. Since the inception of the SMP, all properties with OLDS have undergone a detailed initial inspection, including pumping of the septic tank. Routine SMP inspections are performed every three years. Systems must be pumped every three years, although pumping is not required at the time of an inspection. Some properties have yet to have a follow-up inspection, while other properties that opt for more frequent pumping have had up to 2 routine inspections after the initial inspection. In addition to the SMP inspection reports, the Township receives documentation from the Chester County Health Department when OLDS repair permits are issued. The Health Department also requires that all septic haulers use

the County's self-service online system to enter pumping receipts. Since inception of the SMP, four parcels have connected to public sewer, and two have converted to small treatment flow systems (SFTS), leaving the remaining 1618 OLDS parcels covered by the SMP. These properties are shown in Figure 9A.

As of April 2020, 639 properties have been identified either in the initial inspection or routine inspections as needing repairs at some point since the SMP began. The parcels and the OLDS issues identified in SMP inspection report are contained in Appendix C. Further analysis of the systems identified as needing repairs showed that many problems were structural/mechanical in nature and did not affect the function of the system. Of the 639 systems identified, 27 have outstanding repairs yet to be addressed. These include 20 systems with mechanical issues, including faulty baffles, tanks, tank lids, distribution boxes, and alarm floats; 4 systems with backflow during pumping; and 3 systems with absorption area issues. The flagged absorption area issues include surface water and lush green grass seen at the absorption field. When the rest of the system is functioning normally, these issues are often not a cause for concern and can be mitigated by pumping the tank out more frequently. The systems with outstanding repairs needed as of April 2020 are shown in Figures 9B and 9C.

The remaining 612 systems do not have outstanding repairs, as of their last inspection or proof of repair sent to the Township. Three hundred ninety-three of these properly functioning systems have never had a problem with the system, and were flagged due to clerical errors, recommended system upgrades by the inspector, or exempt from the initial inspection as covered in Section 132-57(4) of the Township's Sewage Management Ordinance. Exemptions include new systems permitted within one year of the date of the Ordinance, or an application for a repair permit was made to the Chester County Health Department but no repair was deemed possible.

Examples of systems incorrectly flagged as having clerical errors include the inspector checking the wrong box on the inspection form to indicate there was an issue such as a defective baffle, when in fact the baffle was intact; or the inspector leaving sections of the inspection form blank. In both instances, a notification letter would have been sent to the property owner indicating an issue with the OLDS, when in fact there was no issue.

In some circumstances, the inspector may have included a recommendation for an upgrade such as raising the septic tank cover to grade. However, the recommended upgrade was not required for proper function of the system.

Of 49 properties originally exempt from the initial inspection, 39 have had repair permits, or new OLDS installed since the start of the SMP. The remaining 10 systems continue to be inspected and no issues have been identified.

A further 190 systems experienced mechanical problems that have since been resolved. These include faulty baffles, tanks, tank lids, alarm floats, and distribution boxes, none of which would have significantly impacted the function of the system. Nine systems experienced backflow during pumping, which has subsequently been corrected. Another 20 systems experienced absorption area issues. Older systems with absorption issues have been placed on more frequent pumping schedules which has resolved the flagged problems.

4.3 Small Flow Treatment Facilities (SFTF)

There are 12 small flow systems in Westtown Township are not part of the SMP. Small flow treatment facilities are typically installed because no feasible sewage disposal alternative is available at the location for new construction, or the SFTS replaces an existing on-lot system that cannot be repaired or replaced. The locations of small flow treatment facilities are shown in Figure 2.

SECTION 5.0 – FUTURE GROWTH AND DEVELOPMENT

Future growth in Westtown Township is guided by the 2019 Comprehensive Plan and Township Zoning Ordinance. Among other topics, the comprehensive plan addresses demographics, future land use, open space, and community services and utilities including sewer service. Existing development and land use patterns show that the Township is almost completely developed, with very few vacant parcels remaining, as shown in Figure 3.

5.1 Comprehensive Plan

The Comprehensive Plan states that there is potential to build approximately 1,000 housing units under current zoning. In the forthcoming 10 to 20 years of planning, it is expected that no more than 500 of these potential housing units will be developed.

5.2 Zoning

The Westtown Township Zoning Ordinance establishes zoning districts in the Township. A review of the zoning districts in Figure 7 shows that the bulk of residential zoning in the Township is either the R-1 or R-2 district. Both zoning districts have minimum lot size requirements of one (1) acre, although the R-2 district permits a lot size of 22,000 SF with public water and sewer facilities. Parcels served by public sewer are largely zoned as R-2, R-3, and commercial use. The rest of the Township is zoned for R-1, R-2, and Agricultural. These low-density zoning parcels outside the of public sewer service area are served by OLDS.

Given the nearly built-out nature of the Township, the impacts of population growth for the next five years and ten years on sewage facilities in the Township are not overly large. As such, the existing combination of public sewer and on-lot management are sufficient for the current growth.

5.3 Future Public Sewer Expansion

There are three land development projects shown in Figure 10 that are proposed in Westtown Township and are in various stages of the approval process. The two smaller projects, the Stokes Estate and Sawmill Court, are in the early planning stages. It is anticipated that the Stokes Estate will produce 68 EDUs, or 17,000 GPD of wastewater in the Chester Creek drainage area and will be connected to the public sewer system with wastewater treated at the at the Westtown-Chester Creek Treatment Plant. A planning module is being reviewed by the Township. Table 5-1 shows the total projected flow and capacity balance for the Westtown-Chester Creek Treatment Plant.

Table 5-1	
Chester Creek Drainage Area Flow Summary	
	GPD
Existing Flow Annual Average Daily Flow*	290,000
Stokes Estate Projected Flow	17,000
Total Projected Flow	307,000
Existing Capacity	495,000
Balance	188,000

*5-year average existing flow calculated from 2020 Chapter 94 data, shown in Appendix D.

Sawmill Court will also be connected to public sewer but will be routed to the West Goshen Treatment Plant. Flows are projected to be 20 EDUs, or 5,000 gpd. Planning for this project is under review by the Township.

The third project is Crebilly Farm, located in the Southwest corner of the Township. Crebilly Farm was identified in the 2001-2005 Act 537 Plan as part of the Route 202 Study area. Under this planning, the Crebilly Farm development would be part of a separate new community sewer system. Crebilly Farm is currently subject to a conditional use hearing which includes having wastewater generated by the project treated at West Goshen Treatment Plant. If future development in the balance of the former community sewer system area includes the provision of public sewers, wastewater would be treated at the West Goshen Treatment Plant as well.

Westtown Township owns 530,000 gpd of capacity at the West Goshen Treatment Plant. In 2020, Westtown conveyed an average daily flow of 237,880 GPD, leaving a balance of capacity of 292,120 GPD. Crebilly Farm is expected to produce 323 EDUs or 80,750 GPD of wastewater. Table 5-2 shows that projected flow at the West Goshen Treatment Plant with the addition of Sawmill Court and Crebilly Farm will be 328,150 GPD, leaving a balance of 206,370 GPD of capacity available.

Separate sewage planning will be prepared as the Crebilly Farm development goes through land development process. Future development in the balance of the former community sewer system area will be addressed by separate sewage planning as needed.

Table 5-2 West Goshen Drainage Area Flow Summary	
	GPD
Existing Flow Annual Average Daily Flow**	237,880
Crebilly Farms Projected Flow	80,750
Sawmill Court Projected Flow	5,000
Total Projected Flow	323,630
Existing Capacity	530,000
Balance	206,370

**Existing flow calculated using 2014-2020 flow data, shown in Appendix D.

Beyond the projects identified above, any other future developments in the Township will be covered by separate individual planning.

5.4 Future On-Lot Sewer Systems

New developments outside the public sewer areas will continue to be served by on-lot systems, and sewage planning will be done on a case-by-case basis.

SECTION 6.0 – ALTERNATIVES FOR NEW OR IMPROVED SEWAGE DISPOSAL FACILITIES

Wastewater disposal alternatives must be identified to address existing sewage disposal needs and future growth and development in Westtown Township. As discussed in Section 5.0, the Township is almost entirely developed and there are currently three projected growth projects in the Township. Crebilly Farm and Sawmill Court will connect to regional (West Goshen drainage area) wastewater treatment systems. The Stokes Estate will connect to municipal (Chester Creek drainage area) wastewater treatment systems. Any other future growth will likely occur through the development of smaller parcels spread throughout the Township, and sewage needs will be addressed on a case-by-case basis, largely dependent on location.

Wastewater disposal alternatives to be evaluated include regional and municipal collection, conveyance, and treatment in the public sewer service area. Outside sewer service areas, alternatives to be evaluated include individual sewage disposal systems, small flow treatment facilities, and sewage management programs. A no-action alternative will also be evaluated.

6.1 Sewage Disposal Alternatives for the Public Sewer Service Area

Sewage disposal alternatives to be evaluated include:

- Regional wastewater treatment
- Extension of municipal or non-municipal sewage facilities
- Continued use of municipal or non-municipal sewage facilities through repair, upgrading reduction of overloads, operation and maintenance improvements or other action to resolve or abate identified problems
- Repair or replacement of existing collection and conveyance system components
- The need for construction of new community sewage systems including sewer systems and/or treatment facilities

6.1.1 Regional Wastewater Treatment

Westtown is currently served by regional wastewater treatment. Wastewater generated in the West Goshen drainage area is treated at the West Goshen Treatment Plant. The Township owns sufficient wastewater treatment capacity to provide public sewer service to properties within the West Goshen Drainage area. Regional wastewater treatment will continue to be the selected alternative for wastewater treatment in the West Goshen drainage area.

6.1.2 Extension of Municipal Sewage Facilities

Wastewater generated in the Chester Creek drainage area is treated at the Westtown-Chester Creek Treatment Plant.

Data generated through Westtown's sewage management program and provided by the Chester County Health Department indicate there are no sewage disposal issues that warrant the extension of sewage facilities to properties currently utilizing OLDS.

Expansion of the sewer system within the public sewer service area has generally been associated with new land development. The Township should evaluate the sewage disposal needs of properties within the public sewer service area in conjunction with proposed new land developments to minimize the capital cost to properties that may require public facilities in the future. Where future sewage disposal needs arise that may require extension of the municipal system, the sewage disposal needs can be address through further planning using "Sewage Facilities Planning Module – Component 3M (Municipal or Authority Sponsored Minor Sewage Collection Report", or an Act 537 Plan Special Study.

6.1.3 Continued use of municipal sewage facilities through repair, upgrading, reduction of overloads, operation and maintenance improvements or other action to resolve or abate identified problems

Westtown Township has a capital improvement program for the maintenance and repair of the public sewers system. Sewer system repairs are completed on an as needed basis There are no current issues in the public sewer system that require upgrades.

There is sufficient capacity in Westtown Township's sewer system to provide sewer service to all properties within the public sewer service area. Continued use of regional sewage facilities and municipal sewage facilities will continue to be the selected alternative for sewer service in the public sewer service area.

6.1.4 Repair or Replacement of Existing Collection and Conveyance System Components

The Chapter 94 Reports indicates that both the Chester Creek and West Goshen Plants are in good working condition. Westtown Township instituted a Capital Improvement Program (CIP) in 2016 to evaluate the conditions of sewer systems, pump stations, and meter pits utilized by the Township. The CIP also established recommend annual sewer capital reserve funding to maintain long term funding for future system repairs.

The sewer system in good condition. Repair or replacement of existing collection, conveyance and treatment system components will be evaluated on a case-by-case basis as need to maintain the sewer system in good working order.

6.1.5 Construction of New Community Sewage Systems

Sewage management program and Chester County Health Department data indicate there are no on-lot system failures in the Township. Furthermore, the SMP Program allows for the identification of OLDS problems before problems become acute and systems cannot be repaired. Currently there is no need for new community sewage systems. However, should sewage disposal needs arise in the future, new community sewage systems may be an alternative evaluated as part of future Act 537 Planning.

6.2 Wastewater Disposal Alternatives for the Areas Outside the Public Sewer Service Area

Wastewater disposal alternatives to be evaluated include:

- Individual sewage disposal systems
- Small flow treatment facilities
- Community land disposal
- Retaining tanks
- Sewage management programs
- Non-Structural comprehensive planning

6.2.1 Individual Sewage Disposal Systems

On-lot sewage disposal systems are used for sewage disposal outside the public sewer service area. Westtown Township does not restrict the types of individual systems in use except to the extent that the system must be permitted by the Chester County Health Department.

Individual sewage disposal systems will continue to be the selected alternative for sewage disposal in areas of the Township outside the public sewer service area.

6.2.2 Small Flow Treatment Facilities

Small flow treatment facilities are typically used for sewage disposal for individual homes where repairs to OLDS are not feasible and public sewer is not a cost-effective solution. There are 12 SFTS in Westtown Township. Six systems were installed prior to enactment of the SMP. Two systems have been installed since the SMP was enacted. The viability of installing or repairing small flow treatment facilities is addressed on a case-by-case basis.

6.2.3 Community Land Disposal

Currently, there are no community land disposal systems in Westtown Township. Community land disposal systems generally require municipal oversight for operation and maintenance. Since OLDS are generally feasible in the Township, use of this alternative is not recommended as a primary means of sewage disposal. Rather proposals for community land disposal systems should be evaluated on an individual basis through the Sewage Facilities Planning Module program.

6.2.4 Retaining Tanks

There are no holding tanks in use in the Township. Use of holding tanks as a sewage disposal alternative other than as a short-term solution until permanent sewage disposal facilities can be installed is not recommended given the level of municipal involvement required; including adoption of a holding tank ordinance; designation of haulers and receiving facilities or disposal sites; and financial guarantees for use of holding tanks as an interim sewage disposal measure.

6.2.5 Sewage Management Programs

In 2013, Westtown Township adopted a sewage management ordinance to ensure the proper maintenance of OLDS. The ordinance requires that septic tanks be pumped a minimum of every 3 years and that after the tank is pumped, it is inspected to confirm the proper operation of the tank baffles and that there are no system defects. Tanks are to be pumped by haulers licensed by the Chester County Health Department, and the hauler is to provide pumping records to Westtown Township along with the inspection report. Copies of the Township's On-lot Sewage System Maintenance Program from the Township web site and the On-Lot Management Program Ordinance are contained in Appendix E.

The Township's SMP addresses the most common problems identified with the operation of OLDS, which is the lack of frequent and consistent septic tank pumping and inspection. Inspections completed in conjunction with system pumping allow for early identification of repair needs. Extended and infrequent pumping of septic tanks results in solids accumulation in the tank which then results in damage to the tank, clogging of dispersal systems, clogging of soil,

and tank overflows both on the ground and in plumbing systems. These conditions will reduce the life of OLDS resulting in costly repairs and/or system replacement. An added concern is that for smaller properties, complete system failures can result in the inability to find suitable ground for a replacement system.

Continued use of the sewage management program is recommend alternative for properties using OLDS.

6.2.6 Non-Structural Comprehensive Planning

As described in Section 2.0, Westtown Township's 2019 Comprehensive plan includes recommendations for sewage facilities planning.

Westtown Township's on-lot management program ordinance requires that OLDS for new land developments be permitted by the Chester County Health Department. The Health Department requires that a replacement system area be designated on the property.

Other non-structural planning includes information mailings covering OLDS maintenance, and periodic OLDS information in Township newsletters and email blasts.

Westtown Township should continue to use the non-structural comprehensive planning alternative to address sewage disposal needs.

6.3 No Action

The no action alternative is not a sewage disposal alternative that should be considered to address the sewage disposal needs of Westtown Township. The Township already proactively addresses the sewage disposal needs both inside and outside the public sewer service area.

Westtown Township has sufficient treatment capacity in West Goshen and Westtown-Chester Creek treatment plants to meet the capacity needs of all properties in the sewer service area. Furthermore, the Township's existing sewer infrastructure is sufficient to meet the sewer service area needs as well.

In areas outside the sewer service area that are to continue to use OLDS for sewage disposal, the Township established low density zoning districts to allow for the use of OLDS. The Township has adopted an on-lot management ordinance to provide for the continued regular maintenance of OLDS, and for new land development proposals, provide for replacement OLDS sites.

SECTION 7.0 – EVALUATION OF ALTERNATIVES

Wastewater disposal alternatives identified to provide new or improved wastewater disposal facilities include regional wastewater treatment and continued use of municipal sewage facilities for the public sewer service area; and individual sewage disposal systems, sewage management programs and non-structural comprehensive planning for areas outside the public sewer service area.

7.1 Consistency Evaluation

Table 7-1 describes how selected alternatives are consistent with the following:

- Plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act
- Municipal wasteload management corrective action plans or annual reports
- Plans developed under Title II of the Clean Water Act or Titles II and VI of the Water Quality Act of 1987
- Comprehensive Plans developed under the Pennsylvania Municipalities Planning Code
- Anti-degradation requirements contained PA Code Tiled 25, Chapters 93, 95 and 102
- State Water Plans
- Pennsylvania Prime Agricultural Policy
- County Stormwater Management Plans
- Wetland Projection
- Protection of rare, endangered, or threatened plant and animal species
- Historical and archaeological resource protection

Table 7-1
Consistency Determination for Selected Alternatives

Section	Policy	Consistent		Comments
		Yes	No	
72.21(a)(5)(i)(A)	Comprehensive Water Quality Management Plans	X		The selected alternatives meets the regional goals of COWAMP/208.
72.21(a)(5)(i)(B)	Municipal Wasteload Management	X		The selected alternatives meets the future capacity needs of the Township.
72.21(a)(5)(i)(C)	Clean Water Act Title II, Water Quality Act Titles II & IV	X		The selected alternatives are already implemented and are consistent with the policy.
72.21(a)(5)(i)(D)	Municipal Comprehensive Plans	X		The selected alternatives conform to the goals of the Township Comprehensive Plan.
72.21(a)(5)(i)(E)	Anti-degradation, Chapters 93, 95 & 102	X		The selected alternatives are already implemented and are consistent with the stream discharge requirements. Erosion and Sedimentation Pollution Control Approval will be handled on a case-by-case basis for future projects.
72.21(a)(5)(i)(F)	State Water Plan	X		The selected alternatives are already implemented and are consistent with the policy.
72.21(a)(5)(i)(G)	Prime Agricultural Lands	X		Prime Agricultural Land is identified in Figure 4. There are three main areas of Prime Agricultural Land in the Westtown found in the southeastern corner, the central area, and the southwestern corner. The eastern section's current use includes a Township park, Township-owned property, and agriculture; the central section is in the Westtown School property; and the southwest section is used for agriculture and includes the location of planned development Crebilly Farms. As discussed in the Act 537 Plan, separate planning will be prepared for Crebilly Farms.
72.21(a)(5)(i)(H)	Stormwater Management Plans	X		The selected alternatives include measures to comply with the stormwater management requirements in Westtown Township's Sub-division and Land Development Ordinance. Future projects will be reviewed on a case-by-case basis to receive Final Land Development Plan approval from Westtown Township.

Table 7-1
Consistency Determination for Selected Alternatives

Section	Policy	Consistent		Comments
		Yes	No	
72.21(a)(5)(i)(I)	Wetland Projection	X		The selected alternatives comply with wetland protection requirements in Westtown Township's Sub-division and Land Development Ordinance. Future projects will be reviewed on a case-by-case basis to receive Final Land Development Plan approval from Westtown Township.
72.21(a)(5)(i)(J)	PNDI	X		The selected alternatives are already implemented. Future projects will be addressed on a case-by-case basis for PNDI reviews.
72.21(a)(5)(i)(K)	Historical & Museums, Cooperation by Public	X		The selected alternatives are consistent. Future projects will be addressed on a case-by-case basis.

The identified sewage disposal alternatives are already being implemented by Westtown Township. Therefore, alternatives are considered to be consistent with the foregoing plans and programs. Should the need arise for more localized future planning through the Sewage Facilities Planning Module program or an Act 537 Plan Special Study, identified alternatives can be reviewed in more detail for consistency with listed plans and programs.

7.2 Resolution of Inconsistencies

There are no inconsistencies between the identified sewage disposal alternatives and the plans and programs in Section 7.1.

7.3 Water Quality Standards, Effluent Limitations, or Legislative or Legal Requirements

The identified sewage disposal alternatives are consistent with water quality standards, effluent limitations, and legislative or legal requirements. Continued use of regional treatment and municipal sewer facilities in the public sewer service area will continue to allow water quality standards and effluent limitations to be met. Comprehensive planning and Township ordinances in conjunction with the Township On-Lot Management Program will allow water quality standards and effluent limitations to be met in areas of the Township outside the public sewer service area.

7.4 Estimated Costs

7.4.1 On-Lot Disposal System Costs

Costs associated with the on-lot management program are borne by the property/homeowner. costs include a quarterly fee of \$24 paid to the Township for the SMP, pumping and inspection services, and any system repairs required.

7.4.2 Public Sewer System Costs

Routine costs associated with public wastewater collection, conveyance, and treatment are charged to customers of the sewer system. The Township has also implemented a capital reserve program for the long-term maintenance of the public sewer system. The capital reserve program includes a condition evaluation of the sewer system to identify areas of the system that require repairs to maintain good operating conditions and eliminate infiltration or inflow of storm water into the sewer system.

No capital expenditures are proposed as part of the identified sewage disposal alternatives.

7.5 Funding Methods

Funding for costs associated with the identified sewage disposal alternatives is through Township's sewer fund revenues, and sewage management program fees.

7.6 Immediate or Phased Implementation

The identified sewage disposal alternatives are currently implemented by Westtown Township.

7.7 Administrative and Legal Authority

Westtown Township is the administrative entity that has the legal authority to implement sewage facilities planning.

SECTION 8.0 – INSTITUTIONAL EVALUATION

As described in Section 7.0, the sewage disposal alternatives identified to provide new or improved wastewater disposal facilities include the continued use of regional wastewater treatment and municipal sewage facilities for the public sewer service area; and individual sewage disposal systems, sewage management programs and non-structural comprehensive planning for areas outside the public sewer service area.

The Board of Supervisors of Westtown Township, their Staff and Consultants has the administrative and legal authority to implement sewage facilities planning in the Township. The identified sewage disposal alternatives are already implemented in the Township. Therefore, the Township has the financial and staffing capabilities to implement the identified alternatives. Furthermore, since the Township is responsible for sewage facilities planning, they have the legal authority to:

- Implement planning recommendations
- System wide operation and maintenance activities
- Set user fees and take purchasing actions
- Take enforcement actions against ordinance violators
- Negotiate agreements
- Raise capital for construction, and operation and maintenance of facilities

Since the identified sewage disposal alternatives are currently implemented in the Township, no new municipal departments or authorities are needed. The existing municipal staff will continue to handle the implementation of the identified alternatives, and to handle future needs as they arise.

No new administrative or legal activities are required to ensure implementation of the identified sewage disposal alternatives.

SECTION 9.0 - IMPLEMENTATION

As described in Section 7.0, the sewage disposal alternatives identified to provide new or improved wastewater disposal facilities include the continued use of regional wastewater treatment and municipal sewage facilities for the public sewer service area; and individual on-lot sewage disposal systems, sewage management programs and non-structural comprehensive planning for areas outside the public sewer service area.

Continued use of regional wastewater treatment will allow the Township to meet existing and future wastewater disposal needs in the West Goshen Drainage Area by utilizing existing capacity at the West Goshen Wastewater Treatment Plant owned by the Township. Continued use of municipal wastewater treatment will allow the Township to meet existing and future wastewater disposal needs in the Westtown Drainage area using the Westtown-Chester Creek Wastewater Treatment Plant.

Continued use of individual sewage disposal systems, sewage management programs and non-structural comprehensive planning for areas outside the public sewer service area will allow the Township to meet existing and future wastewater disposal needs in areas of the Township outside the public sewer service area.

Because these alternatives are already implemented in the Township, they are the most cost-effective alternatives. The Township has in place the management and administrative capabilities, financing capabilities and the ability to address operation and maintenance requirements.

No capital financing is required to implement the selected alternatives.

The selected alternatives are currently implemented by Westtown Township. The following schedule will be used to implement selected alternatives of the Act 537 Plan:

- Westtown Township Review of Draft Act 537 Plan (2/2021)
- Reviewing Agency Review of the Act 537 Plan (3/2021-4/2021)
- Public Notification of the Act 537 Plan (3/2021)
- Westtown Township Adoption of the Act 537 Plan (5/2021)
- Act 537 Plan submitted to the Department of Environmental Protection (5/2021)
- Approval of the Act 537 Plan by the Department of Environmental Protection (6/2021)