

4.1 LAND USE REGULATIONS AND PLANNING

Currently, the Borough of Shinglehouse is approximately 99% built out. The remainder of growth within the Borough will continue to be in accordance with the land use regulations and planning as described in the following sections.

4.1.1 Municipal Land Use Regulations and Planning.

Shinglehouse Borough does not have a Zoning Ordinance, Subdivision and Land Development Ordinance, Floodplain Ordinance, Stormwater Management Ordinance, or Special Protection Areas Ordinance. HRG's Wastewater Treatment Plant Evaluation Study, the Borough's 2017 Chapter 94 Report, and the Borough Code discussed previously and included in this Act 537 Plan shall be used as a basis for sewerage planning within the Borough.

In addition, the protection zones delineated within the Shinglehouse Wellhead Protection Plan (WHPP) shall be observed for the protection of the Borough's water source from contaminants that are difficult and costly to treat through normal means. The WHPP (included in Appendix C) clearly identifies actual and potential sources of contamination to the source and allows communities to effectively educate the public on the importance of their drinking water source. In addition, the WHPP serves as the first step for long-term sustainable planning for the future of the community and provides a comprehensive action plan in case of an emergency.

No additional municipal planning documents or ordinances are currently proposed.

4.1.2 Potter County Comprehensive Plan.

The Potter County Comprehensive Plan (PCCP), adopted in 2005, has classified the Shinglehouse Borough as a Rural Growth Area where compact growth in areas that are served by public water and sewer are promoted. Overall, the current plans for Potter County Sewage Facilities are to sewer all unsewered villages and provide extensions and facilities to support those extensions from the existing public sewer systems into problem areas and potential development areas.

Although private water supplies are unregulated in Pennsylvania, the PCCP provides guidelines for homeowners and contractors on the construction and maintenance of private wells. Within these guidelines it is stated that as a first defense wells should be sited at least 100 feet away from the sources of contamination such as septic system leach fields, roads, fuel tanks and barnyards. Ideally, the well will be uphill from these pollution sources. Combining these isolation distance guidelines with sound construction practices will aide in protecting the groundwater quality and the user's health.

4.1.3 Potter County Subdivision and Land Development Ordinance

The Potter County Subdivision and Land Development Ordinance was originally adopted in 1995. Potter County's most recent Subdivision and Land Development Ordinance was adopted in October of 2016.

In general, the Ordinance states the following:

Public Sewer System – When the subdivision or land development is being provided with a sanitary sewer collection system connected to a municipal sewage system, a statement from the appropriate authority is required outlining that the allocation and reservation of sanitary sewer capacity is available for the development. All sanitary sewers shall be constructed and installed according to the standards of the authority operating the system.

On-Lot Sewage Disposals - Where public sanitary sewers are not feasible, the use of on-lot sewage disposal systems shall be permitted. The use of such systems is governed by regulations of the Pennsylvania Department of Environmental Protection (DEP) and enforced by the municipal Certified Sewage Enforcement Officer. The applicant is responsible for submitting to the Potter County Planning Commission (Commission) one of the following documents prior to final approval.

- 1) A sewage permit (as required by Act 537, as amended) for each lot or parcel: or
- 2) A letter from the DEP or its delegated agency stating one of the following:
 - a. The proposed subdivision is accepted as an amendment to the Official Municipal Sewage Plan in accordance with the provisions of Act 537 and the Rules and Regulations implementing Act 537.
 - b. The subdivision conforms with the Municipal Act 537 Plan and no sewage planning is required.

Land Capability – Certain soil compositions, topographical formations, or ground water conditions may prohibit the development of a safe and healthful subdivision. In other cases, natural characteristics of a tract of land may require large expenditures by the developer in meeting acceptable development standards. Any landowner with the intention of becoming a developer should first determine the ability of his land to support development. He may save himself time and money by consulting with an engineer and the County Planning Commission before drawing up plans and applying for approval of his plan. If there is a reason to question the feasibility of developing his land, the Commission should be consulted at the earliest possible date.

In general, land that is best suited for subdivision or land development should have:

1. Sufficient slope to allow natural drainage, but not so steep as to require extensive cut and fill operations. Low-lying land, areas in a flood plain, or a high water table causing marshy conditions are all detrimental to healthful living.
2. Pervious soil capable of accommodating individual sewage disposal systems in areas where public sewerage facilities are not provided. Hard pan soils, nearsurface rock stratum, or too-rapid percolation rate may make on-lot sewage disposal impossible.
3. An adequate supply of ground water in areas where public water is inaccessible. Groundwater must be free of contamination and pollution if it is to be used.

The County Planning Commission is interested in the creation of safe, sanitary, and amenable residential communities, seasonal developments, and commercial and industrial areas which will be assets to the overall environment within the County. It is also concerned with protecting the interests of developers, property owners, and residents alike. The Commission realizes that the development of marginal or unsatisfactory land can be economically disastrous to builders and a constant problem to future owners and the community. This Ordinance is based on the concept of development within the constraints of environmental sensitivity.

Section 403 of the Ordinance states that if the treatment of sewerage within the subdivision is intended to be accomplished by individual on-lot treatment systems, the plan shall contain the

statement that: the lots and the development thereof are subject to the Pennsylvania Sewerage Facilities Act 537 and the rules and regulations promulgated pursuant thereto." When deemed appropriate, the Commission may request isolation distances from existing or proposed sewage disposal systems and water wells be included on the plan.

Section 501 states the damming, filling, relocating or otherwise interfering with the natural flow of surface water along any surface water drainage channel or natural watercourse shall not be permitted unless there is compliance with all applicable laws and regulations.

Section 505 states that when municipal or community water supply systems are not available, each lot or parcel in a subdivision shall be capable of being provided with a system which is adequate for the foreseeable use of the lot. The applicant shall supply documentation and evidence as to reasonably satisfy the Commission that each lot or parcel has the capacity for a reliable, safe and adequate water supply. The Commission reserves the right to require the applicant to drill a test well for establishment of water quality or water quantity or both for the area of land subdivision or land development in question.

Section 506 of the Ordinance pertains to storm drainage. The section states that storm sewers, culverts, diversion ditches, and related installations shall be provided to permit the unimpeded flow of natural water courses, to insure the drainage of all low points, to intercept storm water run off at intervals reasonably related to the extent and grade of the area defined, and be constructed in such a manner as to avoid and minimize erosion to any applicable roads and streets located within the subdivision or immediately surrounding area.

Section 513 of the Ordinance states that no project shall be considered in compliance with this Ordinance until the public improvements including streets, curbs, storm drainage facilities, sanitary sewer facilities, water supply facilities, fire hydrants, lot line markers, survey monuments and other public improvements have been installed in accordance with this Ordinance, other applicable Municipal ordinances and the rules and regulations of any public utility or Municipal Water and Sewer Authority.

Section 601 of the Ordinance addresses the issue of lot sizes for on-lot treatment. The Section states that the minimum lot size for lots not served by public sewer shall be forty thousand square feet. However, if soil conditions in the area are not suitable to adequately accept sewage disposal effluent as determined by the SEO, the Commission may require a larger lot size to ensure adequate distance between the sewage leach field and the water supply well. The Section states that the Commission reserves the right to grant modifications to these requirements when proposed subdivisions or land development are located within existing villages or boroughs with established lot sizes less than the required minimums outlined within the Ordinance.

Section 901 of the Ordinance states all proposed industrial developments shall provide written statements from the Pennsylvania Department of Environmental Protection approving plans for adequate treatment of any industrial or hazardous wastes generated within the development. In addition, the storage or transportation of any industrial or hazardous wastes generated from or stored within the development shall also require written statements from the Pennsylvania Department of Environmental Protection approving those plans.

In general, the following standards apply to all subdivision and land developments unless noted otherwise.

	LOTS SERVED WITH PUBLIC WATER AND PUBLIC SEWER	LOTS SERVED WITH PUBLIC SEWER	LOTS NOT SERVED WITH PUBLIC SEWER
Minimum Area (SF)	10,000	20,000	40,000(a)
Minimum width (Feet) @ building setback	80	90	100
Minimum Depth (Feet)	100	125	150
Minimum Front Building Setback (Feet)	25	30	40
Minimum Side Building Setback for One Side Yard (Feet)	8	10	15
Minimum Side Building Setback for Both Side Yards Combined (Feet)	16	20	30
Minimum Rear Building Setback (Feet)	30	50	50

NOTE: Mobile home parks, travel trailer parks, wind energy facilities, and campgrounds are not subject to the above lot size requirements.

Articles 7 through 12 of the Ordinance provide additional provisions based on development type for residential, commercial, and industrial developments, mobile home parks, travel trailer parks and campgrounds, and industrial wind energy facilities.

4.1.4 Potter County Act 167 County-Wide Stormwater Management Plan

The Potter County Stormwater Management Plan was undertaken to develop recommendations for improved stormwater management practices, to mitigate potential negative impacts by future land uses, and to improve conditions within impaired waters.

Several municipalities throughout the county, including Shinglehouse Borough, have prepared source water protection plans and wellhead protection plans that delineate wellhead protection areas. Although the potential risk from stormwater-related contamination is identified to be relatively low in these plans, it may be appropriate for certain commercial or industrial establishments that handle toxic and hazardous chemicals to take extra precautions in the design of their stormwater facilities.

To provide technical guidance in the Act 167 planning process, hydrologic models were prepared for specific watersheds identified by the municipalities, the county and DEP. For the Oswayo Creek Watershed, the projected future increases are located mostly near the Towns of Shinglehouse and Oswayo. This development pattern indicates the potential need for peak rate controls more stringent than the traditional 100% release rates.

The variable that most affects the outcome of the modeling effort is the projected change in land use between 2010 and 2020. Figure 4.1 summarizes the existing and proposed land use for the Oswayo Creek Watershed where a slight projected increase in open space and residential land uses with a slight decrease in wooded land use is anticipated. Assuming that no stormwater controls would be implemented from 2010 to 2020, the increase in peak flows for the 2-year storm is shown in Figure 4.2. Although this scenario is highly unlikely given the existing regulations, it does provide a worst case scenario.

Land Use	Existing Land Use (Year 2010)		Proposed Land Use (Year 2020)		Change Future - Existing
	Acres	%	Acres	%	
Brush	3,148.7	2.0	3,175.8	2.1	0.1
Commercial and Business	4.4	0.0	5.5	0.0	0.0
Contoured Row Crops	1,529.9	1.0	1,600.3	1.0	0.0
Meadow	392.6	0.3	393.1	0.3	0.0
Newly graded areas	117.9	0.1	119.5	0.1	0.0
Open space	2,145.1	1.4	2,321.6	1.5	0.1
Pasture	20,964.7	13.6	21,590.4	14.0	0.4
Residential - 1 acre	212.6	0.1	295.2	0.2	0.1
Residential - 1/2 acre	121.8	0.1	135.1	0.1	0.0
Water	322.8	0.2	334.6	0.2	0.0
Woods	125,102.5	81.2	124,092.0	80.5	-0.7
Total	154,063.1	100.0	154,063.1	100.0	n/a

Figure 4.1 Existing and Future Land Use in the Oswayo Creek Watershed

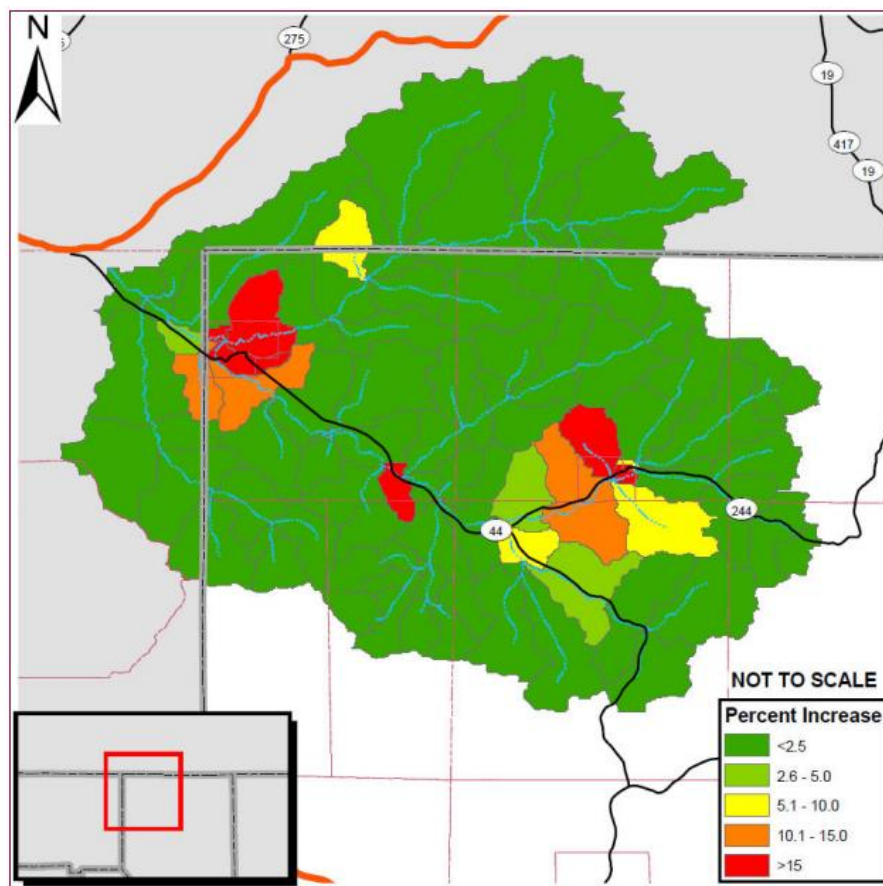


Figure 4.2 Percentage Increase in Peak Flows for the 2-Year Storm Event for the Oswayo Creek Watershed

For the Oswayo Creek Watershed, much of the future development is projected near the towns of Shinglehouse and Oswayo. To prevent the creation of future problem areas, and further complicating the existing problems in these watersheds, release rates ranging between 90% and 100% were designated in various locations.

Urban runoff is one of the primary contributors to water pollution in developed areas. The most effective method for controlling non-point source pollution is through reduction, or elimination, of the sources. In addition, it is preferable to minimize disturbances to floodplains, wetlands, natural slopes over 8%, and existing native vegetation as well as preserving and maintaining trees and woodlands. Recommended best management practices are provided as a secondary strategy for attaining the water quality standards.

Recommendations for river corridor protection (the term river is used loosely here to include all rivers, streams, creeks, etc.), floodplain management, river corridor planning, and riparian zone protection are provided within the stormwater management plan to provide an important spatial context for maintaining and restoring the river processes and dynamic equilibrium associated with high quality aquatic habitats.

Due to the diversity of the benefits provided by wetlands, they are protected through various levels of federal and state regulations. These regulations protect wetlands from development, however, they permit minor wetland encroachments for certain activities. Some wetlands provide specific ecological or stormwater related benefits to an area. The stormwater management plan recommends that wetlands should be identified and further protected through municipal regulations.

4.1.5 Allegheny River Act 167 Stormwater Management Plan

The Allegheny River Act 167 Stormwater Management Plan was developed by the Potter County Planning Commission in 1992. The model stormwater management ordinance developed through the Plan has been adopted by 10 out of the 12 municipalities that lie within the watershed boundaries. The model ordinance addresses only Overbank and Extreme Event through Release Rate and Peak Rate Control in the Standards and Criteria of stormwater runoff. Stormwater management districts were established that have release rates varying between 50 and 100% for the 2-year and the 50-year design storm, with some provisional no-detention districts. These release rates are designed to control the increases in peak rate and volume for the construction of multiple stormwater management facilities. Consistent with the stormwater paradigm of the time in which the plan was developed, there is no emphasis on site level volume control or water quality.

4.2 GROWTH AREAS IDENTIFIED BY PREVIOUS PLANNING

The Potter County Comprehensive Plan, adopted in 2005, identifies the entire Planning Area (Shinglehouse Borough) as a Rural Growth Area. The Plan states that a rural growth area is typically smaller in size than a high growth area, but still includes low to high density residential, smaller scale commercial and industrial uses and services, and generally has good to excellent accessibility to local highways. Rural growth areas serve sub-regions of a larger geographic area, and are served by public water and sewer with limited reserve capacity for future growth. A copy of the Future Land Use Map is presented as Map 12 in Appendix B.

Most of the recent development within the Planning Area has been limited to residential redevelopment and infill of lots within the Borough's public sewer service area. Proposed or Future Subdivisions and Land Developments known to the Borough during the preparation of this Act 537 Plan include residential infill, residential redevelopment, and trailer park expansion as shown in Map 13 included in Appendix B.

Minimal to no future growth is expected to occur outside of the existing public sewer service area. Undeveloped lots are located throughout the Borough and are indicative of areas where development may occur within the next 5-15 years and is consistent with the concepts outlined in the Potter County Comprehensive Plan.

4.3 GROWTH PROJECTIONS

Table 4.3.1 presents population information by census year as documented by the United States Census Bureau. The third row has been added to illustrate the percent change from the previous decade. The average of the percent changes from 1960 to 2010 is approximately -2.69% per ten-year period. According to the projections, Shinglehouse Borough is anticipated to continue a steady decrease in population through 2030.

Table 4.3 Shinglehouse Borough Population History and Projections

Actual Population						Projected Population	
1960	1970	1980	1990	2000	2010	2020	2030
1,298	1,320	1,310	1,243	1,250	1,127	1,097	1,067
	1.69%	(0.75%)	(5.11%)	0.56%	(9.84%)	(2.69%)	(2.69%)

4.4 WASTEWATER FLOW PROJECTIONS

Table 4-4 summarizes the projected EDU values for the 20 year planning period. It is anticipated that the 28 OLDS will remain in use as long as permissible.

Table 4.4 Projected EDU's

Municipality	Existing EDU's	Vacant Lots & Infill Potential	Projected Development	Total EDU's
Shinglehouse	581	12	47	640

Wastewater flow projections were based upon proposed new development and vacant lot infill potential within the Shinglehouse Borough for a 20 year period. Approved subdivisions within the public sewer service area and the remaining number of vacant lots are included the projected development EDU total shown above. These developments would be served by the Borough's WWTP and existing collection and conveyance system. Considering the negative-trending population outlined above, the assumption that all vacant lots will be developed and occupied within this 20 year planning period is quite conservative. No new extensions to the service area are anticipated. Average annual daily flows for existing residential connections, per the Borough's 2017 Chapter 94 Report, are equal to 122.2 gpd. The remaining capacity of the Borough's WWTP --- assuming all projected development is completed and occupied --- was determined by subtracting 640 Projected Total EDUs (or 78,208 gpd) from the Borough WWTP's permitted capacity of 0.160 MGD (160,000 gpd) resulting in a remaining capacity of 81,792 gpd (or 51%).

4.5 SUMMARY OF WASTEWATER PLANNING NEEDS

The WWTP's current annual permitted discharge flow is 0.160 million gallons per day (MGD), with a peak wet weather flow or maximum monthly average flow (MMAF) of 0.160 MGD and a peak hourly flow of 0.250 MGD. As discussed earlier, the service area is not projected to expand in the 20-year planning window and the upgraded WWTP will maintain the current design flows. The primary reasons for upgrade of the WWTP is to replace the aged equipment and 1966 technology with more efficient advanced technology, enhance treatment during the harsh winter months of northern Pennsylvania, and provide strategic process capabilities.