

# Special Study

FOR

## Goshenhoppen Watershed Sewage Facilities Planning

June 13, 2023

Last Revised February 20, 2024

Prepared For:

Lower Frederick Township  
Montgomery County, Pennsylvania

Prepared in collaboration by



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## Plan Summary

### A. Proposed Service Areas and Major Problems Evaluated by the Plan

Lower Frederick Township's current, township-wide Official Sewage Facilities Plan, entitled Lower Frederick Township Act 537 Plan 2013, as published May 2014, was approved by the PA Department of Environmental Protection on October 29, 2014.

This is a Special Study to re-evaluate sewage disposal options, select an alternative, and provide updated sewage planning for the properties that were previously planned to be served by the Goshenhoppen Interceptor and pump station in the 2014 Act 537 Plan.

The needs areas identified within the special study planning area include properties near the intersection of Schwenk Road and Salford Station Road and a cluster of seven (7) existing properties on Zieglerville Road near Goshenhoppen Creek.

### B. Selected Disposal Alternative

#### 1. Selected Alternative for Salford Station at Schwenk Road Area (Option C)

Wastewater needs for properties fronting Salford Station Road between Fulmer Road and Gravel Pike, and for properties on Schwenk Road and Cepp Road near Salford Station Road, are to be served by low-pressure force main. The force main will convey flows to an existing collection system manhole in Zieglerville Road. Each property on Salford Station, Schwenk and Cepp Roads will use a grinder pump to push wastewater into the low pressure main.

#### 2. Selected Alternative for Zieglerville Road Area (Option G)

Wastewater needs for properties fronting Zieglerville Road just east of the Goshenhoppen Creek are to be served by a low-pressure sewer force main. Each property will use a grinder pump to push wastewater into the main, up the hill on Zieglerville Road to the existing collection system manhole west of Goshen Road.

### C. Estimated Costs (in 2023 dollars)

#### 1. Costs for Selected Alternative for Salford Station at Schwenk Road Area

Preliminary estimates of probable costs yield a construction cost of \$2.7 million dollars to install the low-pressure force main proposed. The project will provide public sewer access for 56 properties. Project cost per property is about \$48,000.

Most of the connecting properties will require a grinder pump to connect. Connection costs for those property owners are expected to be about \$24,400 each.

## **2. Costs for Selected Alternative for Zieglerville Road Area**

Estimated costs for this project are \$542,000 dollars to install the low-pressure force main and connection to an existing manhole in Zieglerville Road. The project will provide public sewer access for 16 properties. Project cost per property is about \$34,000. All the connecting properties will require a grinder pump to connect. Connection costs for those property owners are expected to be about \$24,400 each.

## **D. Municipal Commitments to Implement Plan**

Township officials must proceed with the following tasks to implement this plan:

- Incorporate annual set-aside funds for sewer improvements into the capital improvement plan budget.
- Complete survey and design for selected alternatives.
- Obtain permits for selected alternatives.
- Obtain loans, grants, and/or financing for the selected alternatives.
- Adjust quarterly sewer rates and consider establishment of benefit assessment amounts for collection system extensions.
- Develop bid documents and construction specifications and publicly bid the construction projects.
- Oversight of construction.
- Continued operation and maintenance of the Township sewer system.

## E. Schedule of Implementation

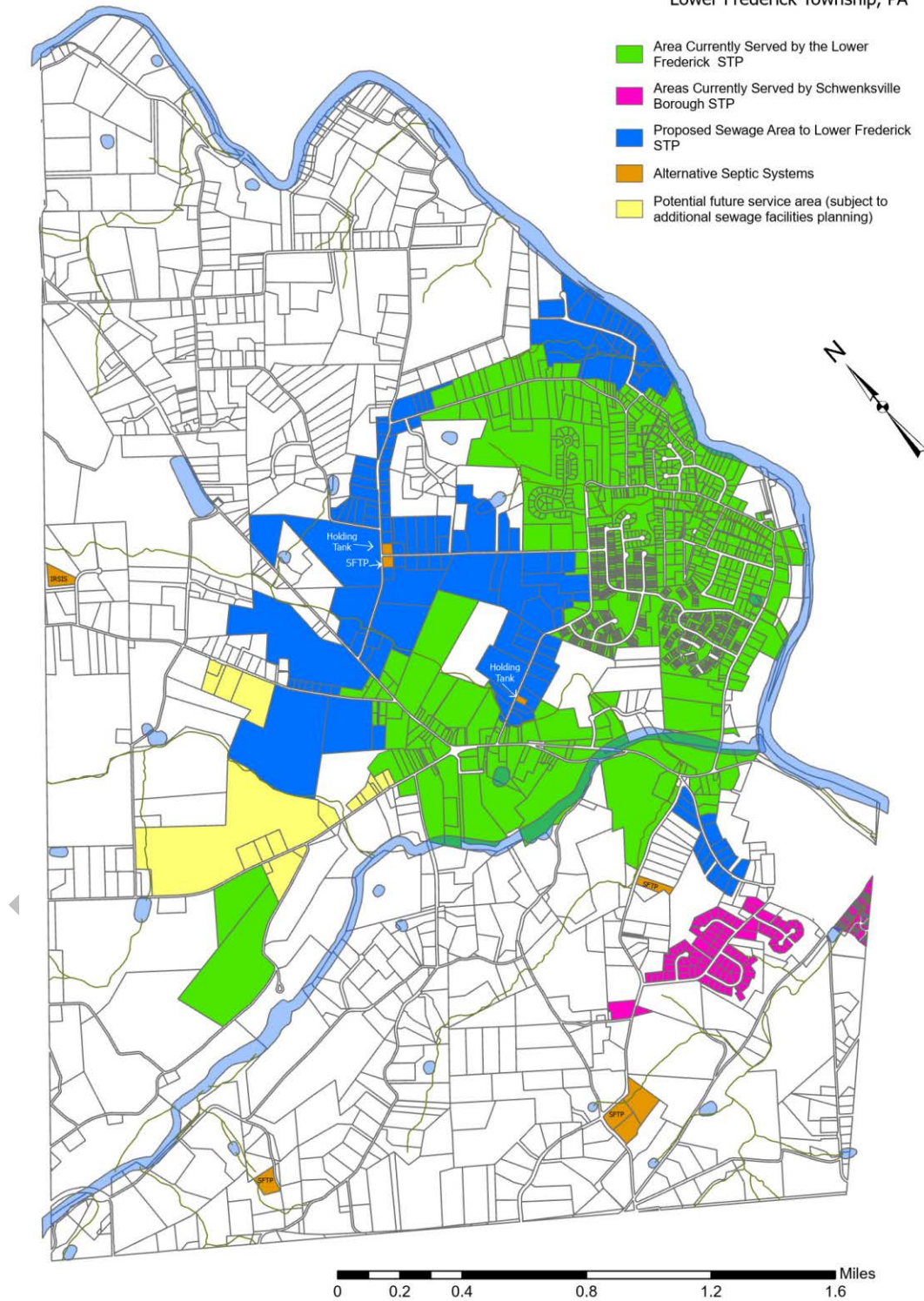
Target Date for Completion*	Major Project Milestones
Year 1	Incorporate annual set-aside funds for sewer improvements into capital improvement plan budget
Years 2-3	Survey, Design and Permitting of Zieglerville Road Area Project
Years 3-8	Pursue any available grant funding for Zieglerville Road Area Project
Year 9-10	Prepare Bid Documents and Specifications and Bid for construction of Zieglerville Road Area Project
Year 10	Construction of Zieglerville Road Area Project
Years 11-12	Survey, Design and Permitting of Salford Station at Schwenk Road Project
Years 13-18	Pursue any available grant funding for Salford Station at Schwenk Road Project
Year 19-20	Prepare Bid Documents and Specifications and Bid for construction of Salford Station at Schwenk Road Project
Year 20	Construction of Salford Station at Schwenk Road Project

\* Following DEP approval of this Special Study

F. **Updated Map of Lower Frederick's Existing and Proposed Sewer Service Area:**

Existing and Proposed Sewer Service Area for 2023 Sewage Facilities Planning

Lower Frederick Township, PA



February 2024





## I. Previous Wastewater Planning

The selected alternative from the previous planning for the Goshenhoppen Watershed planning area was gravity sewer service by a proposed interceptor along the Goshenhoppen Creek. A pump station was planned along Goshenhoppen Creek, upstream of Zieglerville Road.

The interceptor and pump station along the Goshenhoppen Creek was planned to service both existing and proposed residential properties in the watershed. To construct the selected alternative, an easement from the Schwenksville Borough Authority would be necessary to allow construction of a pump station on their land adjacent to the creek. A gravity collection system would connect 6 or 7 homes on Zieglerville Road. A gravity interceptor along the creek could drain a collection system for the properties of concern in the vicinity of Salford Station and Schwenk Roads. The previously planned gravity interceptor would have also served the proposed Melbourne Hill Development.

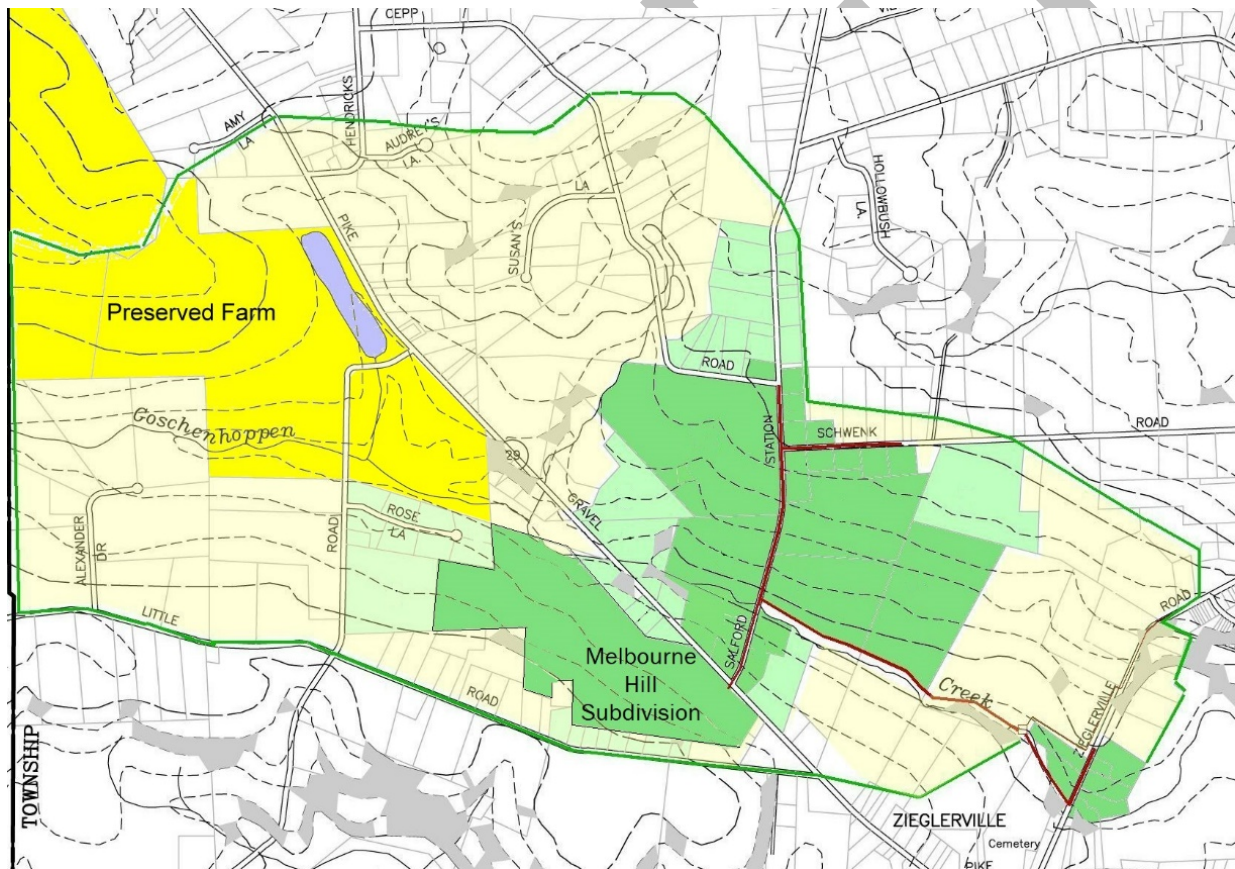


Image from Previous Sewer Planning - the Goshenhoppen Interceptor

The planned interceptor and pump station were intended to serve the existing large tracts in the immediate vicinity (shaded dark green on map above) if they were developed to potential in accordance with current zoning (approximately 116 EDUs). This dark green area is the focus of this Special Study Planning. As planned, further extension of the collection system could

serve another 43 homes in this watershed (shown in lighter green shade). The remaining portions of the Goshenhoppen watershed within the township limits are not expected to experience significant development as they are in the R-1 zoning district and might require construction of a pump station to access the collection system and were therefore not included to be served by the interceptor. The limits of the watershed upstream from a suggested pump station location are indicated below (pale yellow with a green boundary).

Land development did not occur at the rate expected in the original planning; thus, the interceptor and pump station were not constructed in accordance with the previously proposed implementation schedule. No new development has occurred in the Goshenhoppen Planning Area since the approval of the 2014 Act 537 Plan.

The Melbourne Hill development described has recently been provided conditional final approval by the Township. While the 2014 Act 537 Plan called for this development to connect via the Goshenhoppen interceptor, the interceptor has not been constructed. The plan also projected the interceptor would be funded in part by the developer and in part by the Township. However, the Township does not have funding available for such construction. Funds have been borrowed to support construction of the new wastewater treatment plant, installed in recent years, and installation of the Fulmer Road Collection System Extension, which is currently under construction. The Township is unwilling and unable to incur additional debt to construct the Goshenhoppen Interceptor.

The lots within the proposed Melbourne Hill residential subdivision will instead be connected by a combination of low-pressure force main and gravity main to the existing collection lines in Little Road. This changes the equation of numbers of lots that can connect to a gravity line along the Goshenhoppen and requires reevaluation of sewage service to existing lots in the watershed. A settlement agreement has been executed between the developers and Lower Frederick Township in which Lower Frederick Township has agreed to prepare and submit this Special Study.

Melbourne Hill proposes construction of 43 single-family homes to be served by the existing public sewer system. The new homes will be connected through a combination of grinder pumps and gravity laterals to a new, gravity sewer main which will connect to the existing gravity sewer in Little Road. From this point, wastewater will flow by gravity to the existing Delphi Pump Station. An evaluation of the pump station was performed, and it was determined that this station has adequate capacity to serve the Melbourne Hill development.

The previously selected alternative relied on funds from the development of the Melbourne Hill property to construct the interceptor and pump station, and this funding source is no longer viable. This Special Study is to identify and re-evaluate all potential alternatives for sewage disposal in the Special Study Planning Area.

## II. Physical and Demographic Analysis

The physical and demographic analysis remains unchanged from the previously approved 2014 Act 537 Plan. See the previously approved plan for reference.

## III. Existing Sewage Facilities in the Planning Area - Identifying the Existing Needs

### A. Existing Facilities within the Planning Area

The properties within the special study planning area are served by individual, on lot, land-based sewage disposal systems with the exception of two lots which have retaining tanks and a single lot served by a small flow treatment facility. Each is further described below.

Existing septic systems are owned and maintained by individual property owners. All existing onlot sewage disposal systems in the Special Study Planning Area, including holding tanks and small flow treatment facilities, are subject, through ordinance, to the Township's Sewage Management Program. The ordinance requires routine maintenance and reporting for all systems. The ordinance also allows for the Township to abate an imminent health hazard from an onlot septic system if the owner fails to do so when identified and documented by the Montgomery County Health Department. Lower Frederick also has an ordinance specific to holding/retaining tank usage and maintenance. These ordinances are attached in Appendices F thru H.

There are no existing public wastewater facilities within the special study planning area.

### B. Existing Needs Identified within the Planning Area

While the Montgomery County Health Department reports no known active sewage malfunctions that require immediate action, the township identified two needs areas in the special study planning area in the approved 2014 Act 537 Plan. The first area is a cluster of lots at the intersection Salford Station Road and Schwenk Road, where there is an existing small flow treatment facility and property using a holding tank. The second area is a small cluster of seven (7) low-lying lots on Zieglerville Road near the Goshenhoppen Creek where there is a property using a holding tank.

These are further described below:

#### 1. 101 Salford Station Road

Located at the eastern corner of the intersection of Salford Station Road and Schwenk Road. This is a 0.92-acre property, also known as Parcel #380002155003, served by a retaining tank since May 2012 through permit #Z096545 issued by the Montgomery County Health Department.

**2. 210 Schwenk Road**

Located at the southern corner of the intersection of Salford Station Road and Schwenk Road. This is a 0.92-acre property, also known as Parcel #380002365009, served by a small flow treatment facility since May 2012 through permit #PA0057983 issued by the Department of Environmental Protection. This facility discharges treated wastewater to the roadside swale along Salford Station Road which flows by gravity to the Goshenhoppen Creek.

**3. 211 Schwenk Road**

Located on Schwenk Road, approximately 300 feet southeast of its intersection with Salford Station Road. This is a 0.92-acre property, also known as Parcel #380002338009. Montgomery County Health Department reports records of a gray water discharge complaint on this property in 2016 which was since resolved. There are no active health department complaints or investigations on this property.

**4. 11 Zieglerville Road**

Located on Zieglerville Road, approximately 900 feet east of its intersection with Gravel Pike. This is a 0.46-acre property, also known as Parcel #380003034006, served by a retaining tank since December 2003 through permit #R12188 issued by the Montgomery County Health Department. The property was previously served by a cesspool with a malfunctioning seepage trench. The current property owner reports frequent pumping of the retaining tank. The Montgomery County Health Department has not since identified any further malfunctions or hazards at this property.

**C. Lower Frederick Township's Existing Public Wastewater Treatment Facilities**

Various alternatives to serve the identified needs area will include options for connecting the properties to the existing public sewer system. A summary of the existing public sewer system is provided below. A map of the Lower Frederick Township public sewer system is attached in Appendix E for reference.

**1. Treatment Plant**

Lower Frederick's Treatment Plant is located at 133 Spring Mount Road. The plant was upgraded in 2018 through Permit #PA50105 (Clean Streams Law #4697403) to have a 500,000 gpd capacity.

The plant uses sequencing batch reactor (SBR) treatment, with filtration, post-equalization, and ultraviolet light (UV) disinfection. The plant has a single outfall to Perkiomen Creek.

In the 2022 Chapter 94 Wasteload Management Report, the wastewater plant averaged a sewage flow of 137,000 gpd. The plant has no existing or projected hydraulic or organic overloads. The plant is operating in compliance with all



permit requirements. There are no upgrades or expansions currently proposed to the plant.

Sludge generated at the treatment plant is removed by a hauling contractor through an annual contract. The 2022 Chapter 94 Wasteload Management Report reports a monthly average removal of 82,667 gallons of sludge in 2022. The hauled sludge is processed at permitted facilities. In 2022, sludge was processed at the Pottstown Sewage Treatment Plant, Delaware County Regional Authority (DELCORA), and the Naval Air Warfare Center (NAWC) treatment facility.

## **2. Collection & Conveyance System**

The bulk of the existing sanitary sewer system which collects and conveys raw wastewater to the new Lower Frederick Township Sewerage Treatment Plant was constructed in the early 1980s and is predominately 8" PVC. Delphi Pump Station and its tributary collection system was constructed in the late 1990s. There are no areas within the collection and conveyance system where capacity or surcharging is a concern.

The Delphi Pump Station has a design pumping capacity of 175 GPM (run time of 1/3 on and 2/3 off) providing a daily pumping capacity of 84,000 gals/day. At continuous run, the station can pump 252,000 gals/day. In the 2022 Chapter 94 Wasteload Management Report, the pump station has an annual average sewage flow of 13,380 gpd. Farm View Estates, a recently approved planning module under code#1-46933-118-3J, will add an additional average daily flow to the Delphi Pump Station of 14,840 gpd for a total average sewage flow of 28,220 gpd once the land development is constructed. This pump station has the capacity to accept additional sewage flows. As new land developments are proposed, the capacity of the pump station is evaluated through the planning module approval process. At this time, there are no expansions or upgrades proposed to this pump station that would alter station capacity.

As of June 2023, the Township is constructing an extension to the public sewer collection system to serve existing homes along Fulmer Road, B Avenue, and Riverside Avenue. The construction of a new pump station along Riverside Avenue is also underway (Permit #WQG02461609). The new Riverside Pump Station has a design pumping capacity of 188 GPM (run time of 1/3 on and 2/3 off) providing a daily pumping capacity of 90,240 gals/day. At continuous run, the station can pump 270,720 gals/day. The projected average sewage flow of all properties that drain to this pump station through the collection system currently under construction is 22,960 gpd (82 units at 280 gpd/EDU). This pump station has the capacity to accept additional sewage flows.

Lower Frederick has an active Inflow and Infiltration (I&I) Reduction Program to reduce wet weather flows. The program includes manhole inspections, video

inspection of sewer main, smoke testing, manhole lining, and repairs to identified sources of I&I.

## IV. Future Growth and Land Development

Other than the Melbourne Hill land development, there are no proposed subdivisions or land development projects proposed within the Special Study Project Area.

Since the previously approved 2014 Act 537 Plan, Lower Frederick has added Natural Resources Protection Standards to their Zoning Ordinance. The additional resource protections are expected to further protect the environment and reduce the number of lots which could be created within the Special Study Project Area.

### A. Municipal and County Planning Documents

#### 1. Lower Frederick Township Comprehensive Plan February 2022

The comprehensive plan notes that roughly half the homes in the Township are served by public sewer, and half by on-lot systems.

*From the plan, "Private, on-lot systems serve over 700 properties throughout the township. Most of these systems consist of conventional in-ground septic systems or sand mounds. Despite this, much of the soils in Lower Frederick are characterized as having low suitability for these types of systems. Unfavorable soil conditions can reduce the effectiveness of on-lot systems, increase operating costs, and limit their useful lifespan. The Act 537 Plan must account for failing on-lot systems and analyze potential service extensions to provide them with public sewer service."*

This special study analyzes potential service extensions, consistent with the recently updated plan.

#### 2. Central Perkiomen Valley Regional Comprehensive Plan Update Feb. 2014

The regional plan of 2014 proposed to, *"Use public sewer and water systems efficiently by extending these systems only within growth areas, unless otherwise noted in this Plan."*

The lots proposed for service on Zieglerville Road are all within the growth area as designated in the plan. Only a few of the lots on Salford Station Road addressed by this planning are within the growth area. The growth area does not include lots on Cepp Road or Schwenk Road. However, planning for these areas containing small lots with unsuitable soil conditions must be addressed for public health and welfare.

#### 3. MONTCO 2040: A Shared Vision Revised 2021

The County plan states:

*“Generally, sewer and water service areas should;*

- *Serve Designated Growth Areas, as shown in the county’s Future Land Use Map.*
- *Only be extended into Rural Resource Areas because those areas are already served by either public sewer or water, have concentrations of failing on-lot sewage systems, have water supply problems, or contain cluster development with significant open space preservation.”*

As noted above, lots proposed for service on Zieglerville Road are all within the designated growth. A few of the lots on Salford Station Road addressed are within the growth area. However, lots on Cepp Road, Schwenk Road and many of the lots along Salford Station Road are not. However, planning for these areas containing small lots with unsuitable soil conditions is addressed in this plan.

## **B. Land Use and Future Growth**

### **1. Development Plans**

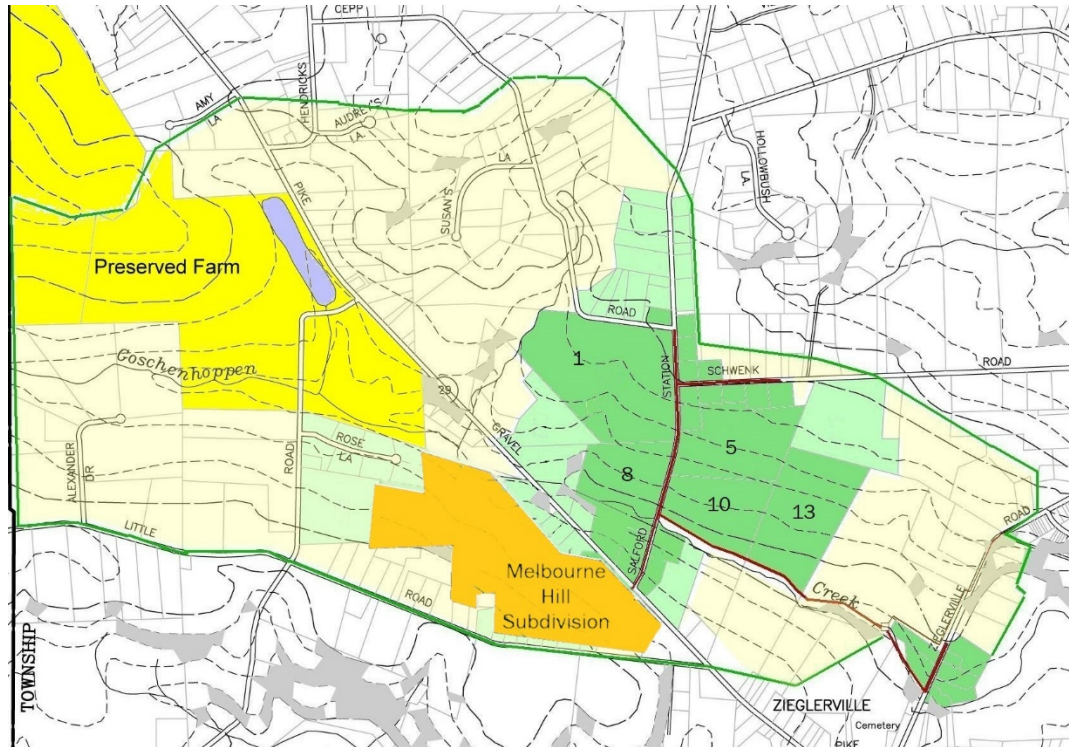
The only current development plan in the study area is the Melbourne Hill Development.

### **2. Land Use Designations**

Land Uses are identified in the Land Uses Map, Appendix B. Primary land uses in the study area are agriculture and single-family homes.

### **3. Future Growth**

No development is currently proposed or anticipated in the study area. Evaluation of maximum potential development under current Zoning for lots over 10 acres in size with access to public sewer yields a maximum build-out under current zoning of 37 additional homes. (See map below.) Sizing of any sewer collection system must consider the potential for future development.



**Future Growth – Potential for Build-out**

#### 4. Zoning Regulations

The properties in the study area are Primarily Zoned R-1 and R-2. Lots over 10 acres in size in the R-1 or R-2 zoning district may be developed under Neighborhood lotting. The maximum development potential computations assume application of neighborhood lotting on these parcels, incorporating the environmental adjustment factors of the Zoning Code. The Township Zoning Map is included as Appendix A.



## V. Identify Alternatives to Provide New or Improved Wastewater Disposal Facilities

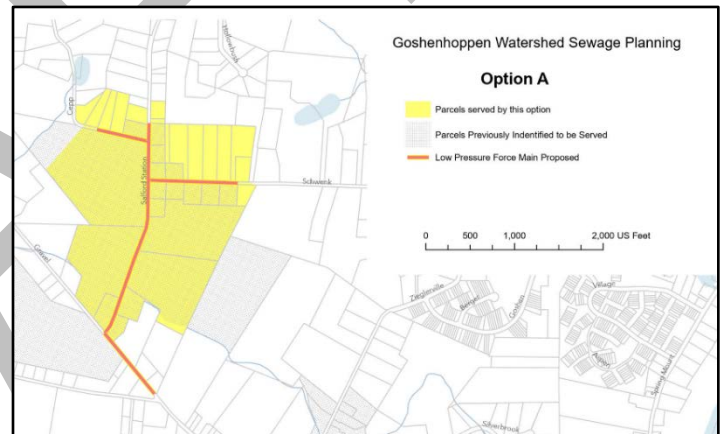
### A. Alternatives Identified for New Wastewater Disposal Facilities

Potential new disposal alternatives were identified to serve the special study planning area which are described below. Options A through E address the Salford Station at Schwenk properties separate from the Zieglerville properties. Option F represents the previously selected alternate, less the Melbourne Hill land development, which includes both the Salford Station at Schwenk Road and the Zieglerville Road properties. Options G through J address only the Zieglerville Road properties. Scaled maps for each alternative are provided in Appendix D.

#### 1. Salford Station Road at Schwenk Road Area

##### a) *Option A- Low Pressure Force Main to Manhole on Gravel Pike*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main to be installed in Cepp Road, Schwenk Road, and Salford Station Road. The force main will continue onto Gravel Pike to an existing manhole #801 near the intersection of Gravel Pike and Little Road. From this point, wastewater will flow by gravity to the Delphi pump station and then pumped to the plant.



Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The low-pressure force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

Low pressure systems can be designed to allow for a minimal amount of expansion to maintain sufficient scour velocity. At the time of detailed design, the low-pressure force main can be sized to allow for capacity for reasonable future development.

Option A requires crossing the Goshenhoppen Creek.

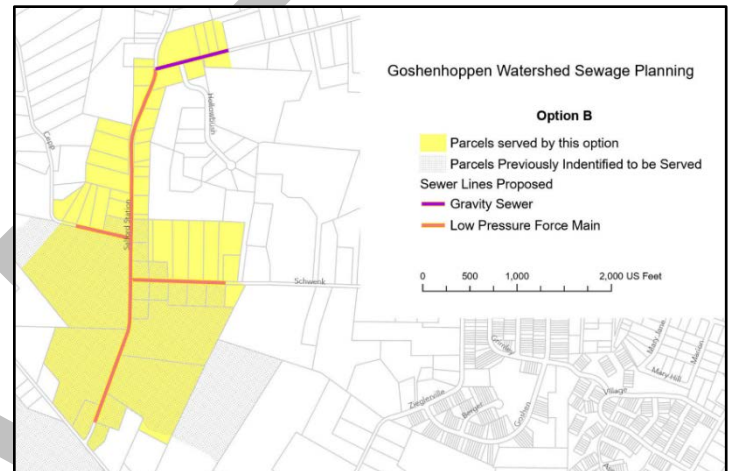
This option requires construction within Salford Station Road and Gravel Pike, which are PennDOT roads.

Properties served: 31

Average Sewage Flow: 8,680 gpd (at 280 gpd/EDU)

*b) Option B - Low Pressure Force Main to Manhole on Fulmer Road*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main installed in Cepp Road, Schwenk Road, and Salford Station Road. At the intersection with Fulmer Road, the force main will discharge into a new manhole that will be installed at the intersection.



A new gravity sewer will be installed on Fulmer Road and connected to the gravity sewer main on Fulmer Road at manhole #938 that is currently under construction. Properties on Fulmer Road may connect through gravity sewer laterals, if grades allow.

From this point, the wastewater will flow by gravity to the pump station currently under construction on Riverside Avenue. There is adequate capacity within this new pump station to support the properties that would be connected.

Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The low-pressure force main within the road right-of-way and new gravity sewer in Fulmer Road will be owned and maintained by Lower Frederick Township.

Low pressure systems can be designed to allow for a minimal amount of expansion to maintain sufficient scour velocity. At the time of detailed design, the force main can be sized to allow for capacity for reasonable future development.

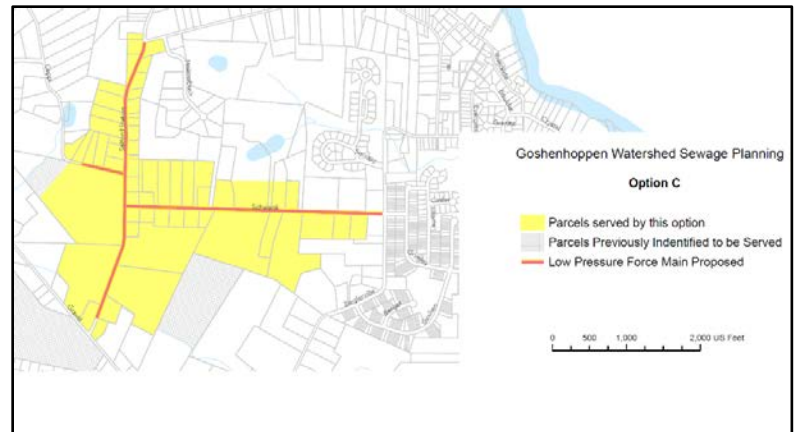
Option B requires crossing the Goshenhoppen Creek.

This option requires construction within Salford Station Road, a PennDOT road.

Properties served: 52  
Average Sewage Flow: 14,560 gpd (at 280 gpd/EDU)

c) *Option C - Low Pressure Force Main to Manhole on Zieglerville Road*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main installed in Cepp Road, Schwenk Road, and Salford Station Road. The force main will discharge into an existing manhole #703 located in Zieglerville Road near the intersection with Schwenk Road.



From this point, the wastewater will flow by gravity to the existing treatment plant.

Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

Low pressure systems can be designed to allow for a minimal amount of expansion to maintain sufficient scour velocity. At the time of detailed design, the low-pressure force main can be sized to allow for capacity for reasonable future development.

This option requires crossing the Goshenhoppen Creek.

This option requires construction within Salford Station Road, a PennDOT road.

Properties served: 56  
Average Sewage Flow: 15,680 gpd (at 280 gpd/EDU)

d) *Option D – Above Options with STEP system*

A Septic Tank Effluent System (STEP) involves the use of individual septic tanks on individual properties to settle solid waste and the use of individual grinder pumps to pump liquid wastes to the public sewer system. This is an option that is sometimes considered for wastewater plants that can accept additional flows, but which have an existing or projected organic overload. The Lower Frederick Township Sewage Treatment Plant does not have any existing or projected overloads.

From the individual grinder pumps, the path of conveyance and properties served will follow options A, B, and C as described above. Please refer to above maps.

Property owner direct costs will include septic tank and grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the septic tank, individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The STEP system alternative requires that homeowners maintain the septic tank portion of the system through routine pumping as well pay for public sewer treatment.

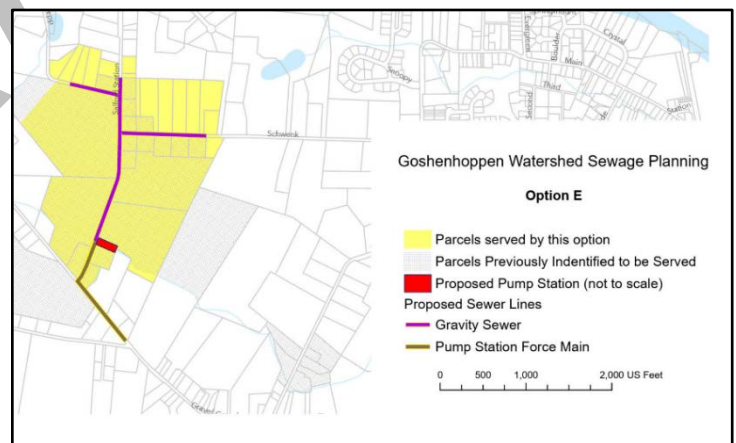
Any low-pressure force main or gravity sewer within the road right-of-way will be owned and maintained by Lower Frederick Township.

e) *Option E - Gravity Flow to Pump Station where Goshenhoppen Crosses Salford Station*

For this alternative, gravity sewer main would be installed on Cepp Road, Schwenk Road, and Salford Station Road on each side of the Goshenhoppen Creek. The gravity sewer will drain toward Goshenhoppen Creek where a pump station will be constructed. From the pump station, a

force main will be installed to the intersection of Salford Station Road and Gravel Pike and will continue onto Gravel Pike to an existing manhole #801 near the intersection of Gravel Pike and Little Road. From this point, wastewater will flow by gravity to the Delphi pump station and then pumped to the plant.

Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual sewer laterals outside of the



public road right-of-way. The gravity main and force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

This option can be sized to accommodate future land development potential.

This option requires crossing the Goshenhoppen Creek.

This option requires construction within Salford Station Road and Gravel Pike, which are PennDOT roads.

This option requires land acquisition for the proposed pump station.

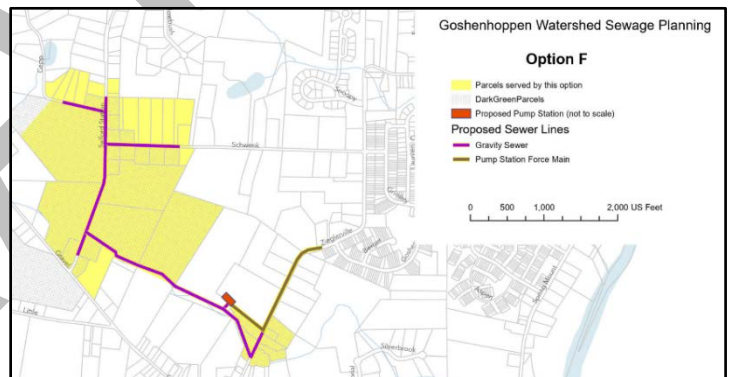
Properties served: 31

Average Sewage Flow: 8,680 gpd (at 280 gpd/EDU)

## 2. Entire Special Study Planning Area (previously selected alternative)

### a) *Option F - Gravity Line along Goshenhoppen Creek (previously selected alternative)*

For this alternative, gravity sewer main would be installed on Cepp Road, Schwenk Road, Salford Station Road, and Zieglerville Road. The gravity sewer will drain toward Goshenhoppen Creek where a pump station will be constructed near the intersection with Zieglerville Road. From the pump station, a force main will be installed in Zieglerville Road. The force main will connect to an existing manhole #600 at the top of the hill on Zieglerville Road approximately 250 feet west of the intersection of Zieglerville and Goshen Roads. From this point, wastewater will flow by gravity to the plant.



Property owner direct costs will include sewer lateral installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual sewer laterals outside of the public road right-of-way. The gravity main and force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

This option can be sized to accommodate future land development potential.

This option requires crossing the Goshenhoppen Creek.



This option requires construction within Salford Station Road and Gravel Pike, which are PennDOT roads.

Option F requires land and/or easement acquisitions.

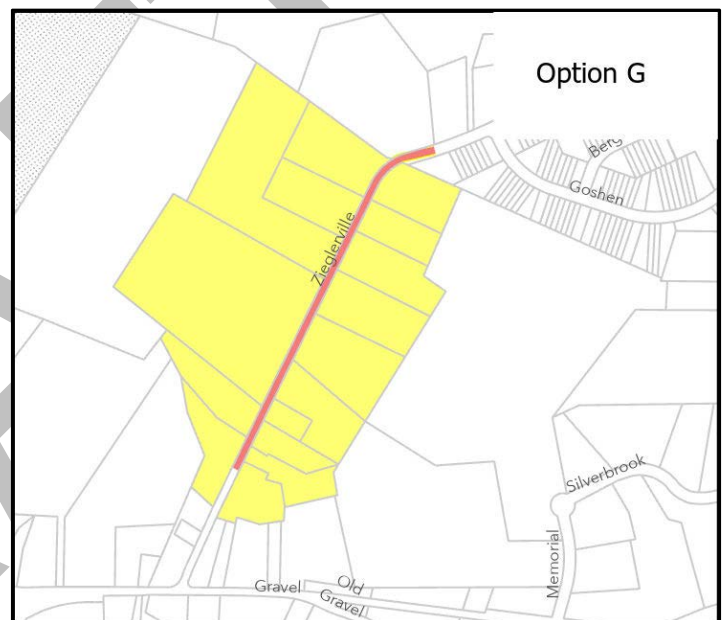
Properties served: 38

Average Sewage Flow: 10,640 gpd (at 280 gpd/EDU)

### 3. Zieglerville Road Area

#### a) *Option G – Low Pressure Force Main to Manhole at top of hill on Zieglerville Road*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main to be installed in Zieglerville Road. The force main will connect to an existing manhole #600 at the top of the hill on Zieglerville Road approximately 250 feet west of the intersection of Zieglerville and Goshen Roads. From this point, wastewater will flow by gravity to the plant.



Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The low-pressure force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

This option can be sized to accommodate future land development potential.

No stream crossing is required.

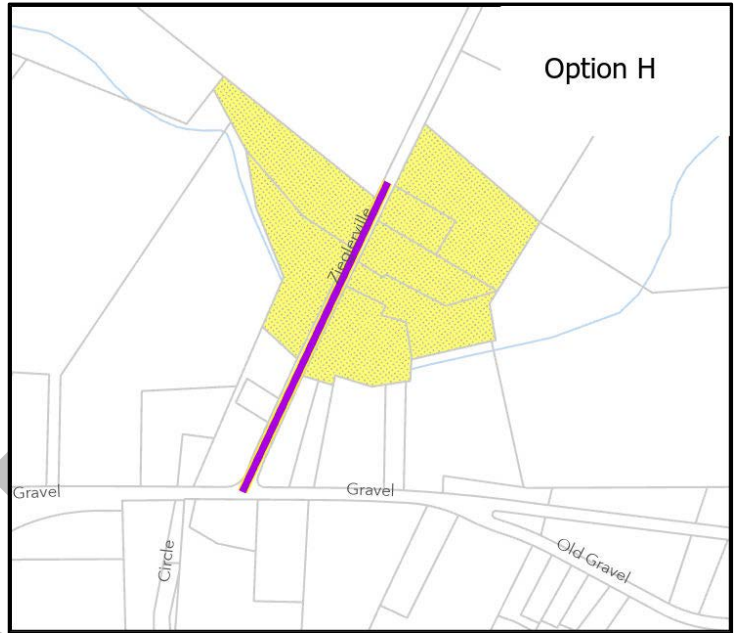
This option does not require construction within any PennDOT roads.

Properties served: 16

Average Sewage Flow: 4,480gpd (at 280 gpd/EDU)

b) *Option H – Low Pressure Force Main to Manhole in Gravel Pike*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main to be installed in Zieglerville Road. The force main will connect to an existing manhole #812 at the intersection of Gravel Pike and Zieglerville Road. From this point, wastewater will flow by gravity to the Delphi pump station and then pumped to the plant.



Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. Property owners will own and maintain the individual grinder pumps and the sewer lateral and force main outside of the public road right-of-way. The force main within the road right-of-way will be owned and maintained by Lower Frederick Township.

Low pressure systems can be designed to allow for a minimal amount of expansion to maintain sufficient scour velocity. At the time of detailed design, the low-pressure force main can be sized to allow for capacity for reasonable future development.

This option requires crossing the Goshenhoppen Creek.

This option requires construction within Gravel Pike, a PennDOT road.

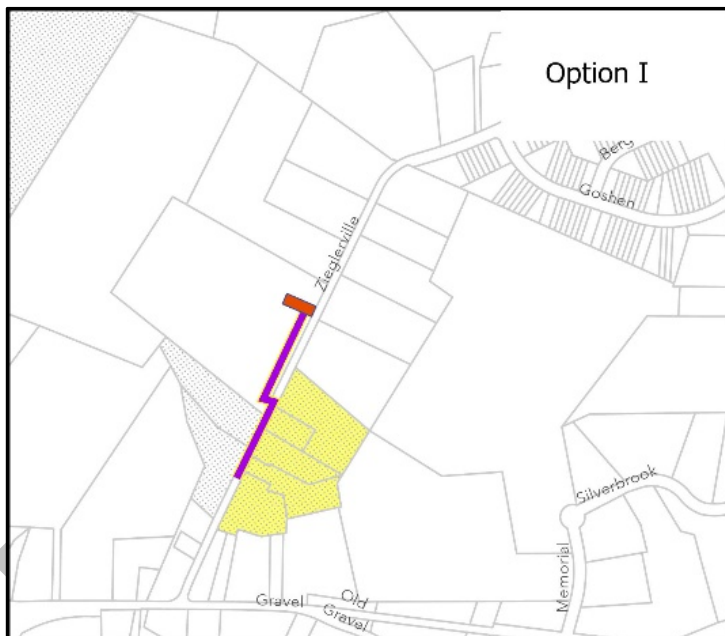
This option requires land or easement acquisition for crossing the Goshenhoppen Creek.

Properties served: 7

Average Sewage Flow: 1,960 gpd (at 280 gpd/EDU)

c) *Option I – Community System on SBA Lands*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main to be installed in Zieglerville Road. The force main will carry the wastewater to the Schwenksville Borough Authority's property on Zieglerville Road where septic tanks and a dosing tank will be located. From the dosing tank, wastewater will be disposed in a community on-lot elevated sand mound system.



Soil testing would be required to verify soil and site conditions meet the requirements for land-based disposal. Designation of a tested sewage disposal replacement area that must be protected from disturbance may be required. Due to the system size, permeability testing may also be required. Given the property's use as a public water supply well and wellhead protection area, hydrogeologic evaluation may be necessary.

Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. The low-pressure force main within the road right-of-way, septic tanks, dosing tank, and disposal area will be owned and maintained by Lower Frederick Township.

This option could not be expanded to serve any potential future developments.

No stream crossing is required.

This option does not require construction within any PennDOT roads.

This option requires land or easement acquisition. An easement would be required on the SBA property.

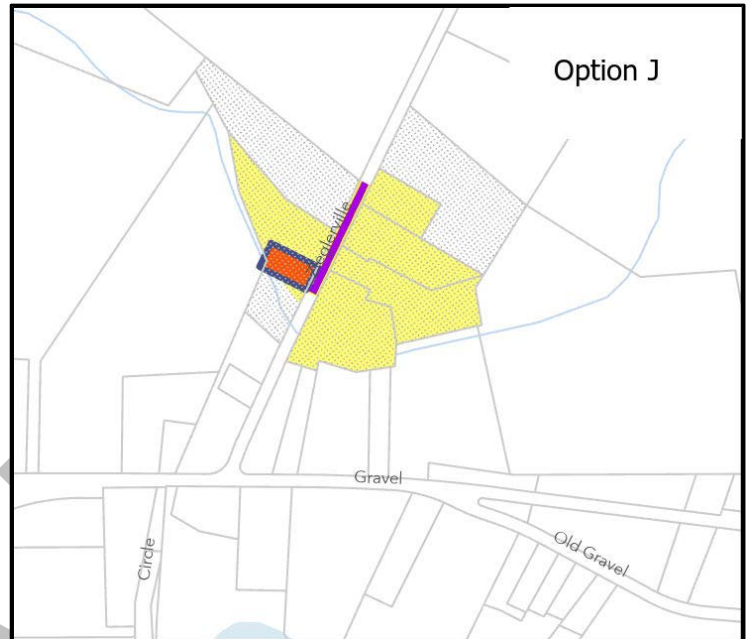
Properties served: 5

Peak Sewage Flow: 2,000 gpd at (400 gpd/property)



d) *Option J - SFTF to serve small number of homes.*

For this alternative, grinder pumps would be installed on each individual property and connected to a new low-pressure force main to be installed in Zieglerville Road. The force main will carry the wastewater to a private property along the Goshenhoppen Creek where a small flow treatment facility will be located. The treatment facility will discharge to the Goshenhoppen creek on the SBA property.



Property owner direct costs will include grinder pump installation, decommissioning existing septic system, and sewer tap in fees. The low-pressure force main within the road right-of-way and treatment facility will be owned and maintained by Lower Frederick Township.

This option does not require construction within any PennDOT roads.

This option could not be expanded to serve any potential future developments.

A stream discharge permit will be required.

This option requires land or easement acquisition. An easement would be required on private property.

Properties served: 5

Average Sewage Flow: 1,400 gpd (at 280 gpd/EDU)

## **B. Retaining Tanks**

Lower Frederick Township does have a holding/retaining tank ordinance that allows for retaining tanks in the following instances:

- Institutional, recreational, or commercial establishments and which have a sewage flow of 800 gallons per day or less; or
- When the SEO has certified that an existing residential system has failed and that the site is unsuitable for any replacement system so that a holding tank is necessary to remedy the existing system failure or abate a nuisance or public health hazard; or
- When the property will be connected to a community sewage system within one year of the installation of the holding tank so that said holding tank will be for a temporary measure only. If connection does not occur within one year, the permit may be extended by the SEO, upon approval by the Board, for an additional one-year period. In no case shall the permit be extended more than three times.

The ordinance specifies maintenance requirements for holding tanks and penalties for violating the ordinance. The ordinance allows the Township to perform any work necessary to abate public nuisance.

While the use of retaining tanks is a good option to abate a public hazard, it is a maintenance intensive system requiring frequent pumping and not a preferred method for long-term sewage disposal, when it can be avoided.

## **C. Sewage Management Plans**

Lower Frederick Township implemented a sewage management ordinance in March of 2011 that is currently in effect.

## **D. No Action Alternative**

Under a no action alternative, public sewers would not be extended to the needs areas identified on Zieglerville Road or Salford Station at Schwenk Road. Failure to proceed with wastewater planning and implementation of selected alternatives would have numerous potential adverse consequences, including:

- Failing on-lot systems are potential sources of pollution to surface and ground waters.
- Homeowners who must pump holding tanks frequently may face economic hardship.
- Real estate values may be impacted, and home sales halted by on-lot systems that are not adequate.
- Growth and development of the proposed regional growth area will be hindered by lack of wastewater solutions.

- Developers may force acceptance of community systems or package plants in the study area to proceed with their projects. This would increase the liabilities and responsibilities of the township.

## VI. Evaluation of Alternatives

Each of the potential alternatives listed above has been evaluated for consistency with applicable planning documents, water quality standards, effluent limitations, and other technical, legislative or legal requirements. A table summary of the consistency evaluations is provided for each alternative.

The total cost for Township construction was estimated for each alternative as well as the direct costs to each property owner. For per property cost estimates, one connection per property was assumed to not underestimate the per property costs as there are no developments currently proposed.

Cost estimating spreadsheets are provided for each option in Appendix C.

# 1. Salford Station Road at Schwenk Road Properties

## a) Option A- Low Pressure Force Main to Manhole on Gravel Pike

OPTION A - LOW PRESSURE FORCE MAIN TO MANHOLE ON GRAVEL PIKE				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Construction involves a stream crossing and may impact wetlands within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		A stream crossing is proposed. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		A stream crossing is proposed. A PHMC submission will be necessary.

Properties served:

31

Average Sewage Flow:

8,680 gpd (at 280 gpd/EDU)

Township Construction Cost:

\$1,567,631.25\*

Township Cost per Property:

\$50,568.75\*

Property Owner Costs: \$24,405.26

Total Cost per Property: \$74,974.01\*

\* Does not include land or easement acquisition costs

The Option A evaluation is summarized as follows:

- Does not have the least expensive cost per property to serve the Salford Station Road at Schwenk Road Area.
- Does not allow for the connection of additional properties near the Salford Station and Fulmer Road intersection not currently served by the public sewer system.
- Will increase the flow at the Delphi pump station.
- Will require a stream crossing and the acquisition of an easement on private property to cross the stream at the Goshenhoppen Creek bridge.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- Involves construction within a PennDOT road.
- An easement on private property may be required for the creek crossing.

Option A was not determined to be the best alternative to address the sewage disposal needs in the Salford Station Road at Schwenk Road Area.

b) *Option B - Low Pressure Force Main to Manhole on Fulmer Road*

OPTION B - LOW PRESSURE FORCE MAIN TO MANHOLE ON FULMER ROAD				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Construction involves a stream crossing and may impact wetlands within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		A stream crossing is proposed. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		A stream crossing is proposed. A PHMC submission will be necessary.

Properties served:

52

Average Sewage Flow:

14,560 gpd (at 280 gpd/EDU)

Township Construction Cost:	\$2,453,544.79*
Township Cost per Property:	\$ 47,183.55*
Property Owner Costs:	\$ 23,059.11
Total Cost per Property:	\$ 70,242.66*

\* Does not include land or easement acquisition costs

The Option B evaluation is summarized as follows:

- Has the least expensive cost per property to serve the Salford Station Road at Schwenk Road Area.
- Allows for the connection of additional properties along Salford Station Road not currently served by the public sewer system which would not be addressed by the other alternatives evaluated to serve the area.
- Does not increase the flow at the Delphi pump station.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- Involves construction within a PennDOT road.
- An easement on private property may be required for the creek crossing.
- Adds flow to a new pump station on Riverside Avenue.

Option B has been determined to be a feasible alternative to address the sewage disposal needs in the Salford Station Road at Schwenk Road Area but was not the selected alternative.

c) *Option C - Low Pressure Force Main to Manhole on Zieglerville Road*

OPTION C - LOW PRESSURE FORCE MAIN TO MANHOLE ON ZIEGLERVILLE ROAD				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Construction involves a stream crossing. No wetland disturbance is proposed.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		A stream crossing is proposed. A PNDI database search was performed and is attached in Appendix I. No potential conflicts were identified.
11	Historic and archaeological resource protection.	✓		A stream crossing is proposed. A PHMC submission was made, and the response is attached in Appendix I. No potential conflicts were identified.

Properties served:

56

Average Sewage Flow:

15,680 gpd (at 280 gpd/EDU)



Township Construction Cost:	\$2,692,172.92*
Township Cost per Property:	\$48,074.52*
Property Owner Costs:	\$24,405.26
Total Cost per Property:	\$72,479.78*

\* Does not include land or easement acquisition costs

The Option C evaluation is summarized as follows:

- Does not have the least expensive cost per property to serve the Salford Station Road at Schwenk Road Area.
- Allows for the connection of additional properties along Schwenk Road not currently served by the public sewer system which would not be addressed by the other alternatives evaluated to serve the area.
- Does not increase the flow at the Delphi pump station.
- Submissions have been made to verify there are no conflicts with protection of rare, endangered or threatened species or historic and archaeological resource protection.
- Involves construction within a PennDOT road.
- An easement on private property may be required for the creek crossing.
- Sends flow to the wastewater treatment plant headworks without utilization of another sewage pump station.

Option C was determined to be a feasible alternative and is the selected alternative to address the sewage disposal needs in the Salford Station Road at Schwenk Road Area.

d) *Option D – Above Options with STEP system*

See consistency evaluations for each option above.

While these options are technically feasible, each of these options add the cost of septic tank installation and maintenance for each property owner with no benefit to the wastewater system from settling the solids in a septic tank.

Costs: Option A + STEP

Township Construction Cost:	\$1,567,631.25
Township Cost per Property:	\$50,568.75
Property Owner Costs:	\$29,405.26
Total Cost per Property:	\$79,974.01

Option B + STEP =

Township Construction Cost:	\$2,453,544.79
Township Cost per Property:	\$ 47,183.55
Property Owner Costs:	\$ 29,071.93
Total Cost per Property:	\$ 76,588.81

Option C + STEP =

Township Construction Cost:	\$2,692,172.92
Township Cost per Property:	\$48,074.52
Property Owner Costs:	\$29,405.26
Total Cost per Property:	\$77,479.78

The Option D evaluation is summarized as follows:

- See the evaluation for Options A, B, and C above.
- STEP systems add additional costs to the property owners for septic installation and maintenance in addition to the costs to connect to the public sewer system and quarterly sewer fees.
- The existing treatment plant does not have a projected overload that would necessitate the use of a STEP system.
- STEP systems only reduce the amount of settled and floatable solids pumped. Low-pressure grinder pumps macerate all solids in the system into a slurry, allowing transport in small-diameter pipes. Pipe sizing is determined by the pressure and velocities required to convey waste within the system, removing solids would not alter the volume of raw wastewater pumped. Therefore, STEP systems would not affect pipe sizing.
- STEP systems require a larger footprint than a traditional low pressure grinder pump station.

Option D was not determined to be the best alternative to address sewage disposal needs in the Salford Station Road at Schwenk Road Area. Considering the additional maintenance, cost, and footprint involved, the STEP System alternative “Option D” would not benefit the Township or its individual residents.

e) *Option E - Gravity Flow to Pump Station where Goshenhoppen Crosses Salford Station*

OPTION E - GRAVITY FLOW TO PUMP STATION WHERE GOSHENHOPPEN CROSSES SALFORD STATION				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Proposed construction along the stream may impact wetlands within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		Construction near a stream will be necessary. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		Construction near a stream will be necessary. A PHMC submission will be necessary.

Properties served:

31

Average Sewage Flow:

8,680 gpd (at 280 gpd/EDU)

Township Construction Cost:	\$2,908,757.50*
Township Cost per Property:	\$93,831.85*
Property Owner Costs:	\$14,405.26
Total Cost per Property:	\$1108,237.11*

\* Does not include land or easement acquisition costs

The Option E evaluation is summarized as follows:

- Does not have the least expensive cost per property to serve the Salford Station Road at Schwenk Road Area.
- Serves fewer properties not currently served by the public sewer system.
- Will increase the flow at the Delphi pump station.
- Will require a stream crossing and the acquisition of an easement on private property to cross the stream at the Goshenhoppen Creek bridge.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- Involves construction within a PennDOT road.
- Easements and/or property acquisitions would be required.

Option E was not determined to be the best alternative to address the sewage disposal needs in the Salford Station Road at Schwenk Road Area.

## 2. Entire Special Study Planning Area (previously selected alternative)

### a) Option F - Gravity Line along Goshenhoppen Creek (previously selected alternative)

OPTION F - GRAVITY LINE ALONG GOSHENHOPPEN CREEK (PREVIOUSLY SELECTED ALTERNATIVE)				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Proposed construction along the stream may impact wetlands within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		Construction near a stream will be necessary. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		Construction near a stream will be necessary. A PHMC submission will be necessary.

Properties served:

38

Average Sewage Flow:

10,640 gpd (at 280 gpd/EDU)

Township Construction Cost:	\$3,809,402.08
Township Cost per Property:	\$100,247.42*
Property Owner Costs:	\$14,405.26
Total Cost per Property:	\$114,652.68*

\* Does not include land or easement acquisition costs

The Option F evaluation is summarized as follows:

- Does not have the least expensive cost per property to serve the special study planning area.
- Serves fewer properties not currently served by the public sewer system.
- Will increase the flow at the Delphi pump station.
- Will require a stream crossing and the acquisition of an easement on private property to cross the stream at the Goshenhoppen Creek bridge.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- Involves construction within a PennDOT road.
- Easements and/or property acquisitions would be required.

Option E was not determined to be the best alternative to address the sewage disposal needs in the Special Study Area.

### 3. Zieglerville Road Properties

#### a) Option G – Low Pressure Force Main to Manhole at top of hill on Zieglerville Road

OPTION G – LOW PRESSURE FORCE MAIN TO MANHOLE AT TOP OF HILL ON ZIEGLERVILLE ROAD				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		No wetlands or streams will be impacted by this alternative
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species			NA – All construction will occur within existing road rights-of-way
11	Historic and archaeological resource protection.			NA – All construction will occur within existing road rights-of-way

Properties served:

16

Average Sewage Flow:

4,480 gpd (at 280 gpd/EDU)



Township Construction Cost:	\$542,153.25
Township Cost per Property:	\$33,884.58
Property Owner Costs:	\$24,405.26
Total Cost per Property:	\$58,289.84

The Option G evaluation is summarized as follows:

- Has the least expensive cost per property to serve the Zieglerville Road Area.
- Allows for the connection of nine (9) additional properties along Zieglerville Road not currently served by the public sewer system which would not be addressed by the other alternatives evaluated to serve the area.
- Does not increase the flow at the Delphi pump station.
- Will not require a stream crossing or acquisition of an easement on private property to cross the stream at the Goshenhoppen Creek bridge.
- Does not involve construction within a PennDOT road.
- All work will be completed within existing road rights-of-way.

Option G has been determined to be the best alternative to address the sewage disposal needs in the Zieglerville Road Area.

b) *Option H – Low Pressure Force Main to Manhole in Gravel Pike*

OPTION H – LOW PRESSURE FORCE MAIN TO MANHOLE IN GRAVEL PIKE				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Capacity is available within the existing sewer system; no overload is projected; alternative complies with Wasteload Management Requirements (Chapter 94 requirements)
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Potential service extension is consistent with the plan dated February 2022.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		Construction involves a stream crossing and may impact wetlands within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		Construction near a stream will be necessary. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		Construction near a stream will be necessary. A PHMC submission will be necessary.

Properties served:

7

Average Sewage Flow:

1,960 gpd (at 280 gpd/EDU)

Township Construction Cost:

\$415,510.42\*

Township Cost per Property:

\$59,358.63\*

Property Owner Costs:

\$24,405.26

Total Cost per Property: \$83,763.89\*

\* Does not include land or easement acquisition costs

The Option H evaluation is summarized as follows:

- Does not have the lowest cost per property to serve the Zieglerville Road Area.
- Does not allow for the connection of additional properties along Zieglerville Road not currently served by the public sewer system.
- Will increase the flow at the Delphi pump station.
- Will require a stream crossing and the acquisition of an easement on private property to cross the stream at the Goshenhoppen Creek bridge.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- Involves construction within a PennDOT road.
- An easement on private property would need to be obtained.

Option H was not determined to be the best alternative to address the sewage disposal needs in the Zieglerville Road Area.

c) *Option I – Community System on SBA Lands*

This option was determined to not be a technically feasible alternative as an easement cannot be obtained onto Schwenksville Borough Authority (SBA) lands. The SBA Board has indicated that the land they own on Zieglerville Road is for their existing and future water supply wells as well as protection of those groundwater sources. The board, after considerable discussion, decided that they would not consider allowing a community or individual on-lot disposal systems on their property.

As this alternative was determined to be not technically feasible, no additional consistency evaluations are warranted.

Properties served:	5
Peak Sewage Flow:	2,000 gpd at (400 gpd/property)
Township Construction Cost:	\$318,418.30*
Township Cost per Property:	\$63,683.66*
Property Owner Costs:	\$17,000.00
Total Cost per Property:	\$80,683.66*

\* Does not include land or easement acquisition costs

The Option I evaluation is summarized as follows:

- Not technically feasible.

Option I was not determined to be the best alternative to address the sewage disposal needs in the Zieglerville Road Area.

d) *Option J - SFTF to serve a small number of homes.*

While this option may be feasible, an easement would be required to construct and maintain the treatment facility on private property. The Township has not approached any property owners along the creek about obtaining an easement. Without an easement, this option is not feasible. In addition, as the existing treatment facility has excess capacity, the Township prefers not to operate and maintain a separate, small, treatment facility.

OPTION J - SFTF TO SERVE SMALL NUMBER OF HOMES				
Consistency Analysis Summary				
	Evaluation Category	Consistency		Comments
		Yes	No	
1	Sections 4 & 5 of the Clean Streams Law/ Section 208 of the Clean Water Act	✓		Alternative is consistent with the objectives and requirements of the Clean Streams Law and Clean Water Act.
2	Wasteload Management	✓		Alternative will comply with any applicable Wasteload Management Requirements.
3	Plans developed under Title II of the Clean Water Act and Titles II & VI of the Water Quality Act.	✓		Design and construction will be consistent with the Clean Water Act and Water Quality Act. Necessary permits will be obtained.
4	The Lower Frederick Comprehensive Plan	✓		Consistent with the directives of the Regional Plan of 2014.
5	Antidegradation Requirements	✓		Implementation of these measures will benefit water quality.
6	State Water Plans	✓		Alternative is no way inconsistent with the state water plan.
7	Prime Agricultural Land Policy	✓		Proposed measures will have no impact on Agricultural Land; All construction will occur within existing road rights-of-way and on property not classified as prime farmland.
8	County Stormwater Management Plan	✓		Alternative is consistent with the Stormwater Management Plan.
9	Wetland Protection.	✓		As the SFTF will discharge to the Goshenhoppen Creek, wetlands may be impacted within the work area. Necessary permits will be obtained following wetlands delineation.
If the alternative includes excavation or construction and that construction would occur outside of existing road rights-of-way, the alternatives will also be evaluated for:				
10	Protection of rare, endangered or threatened species	✓		Construction near a stream will be necessary. A PNDI database search would be performed, and all necessary clearances obtained.
11	Historic and archaeological resource protection.	✓		Construction near a stream will be necessary. A PHMC submission will be necessary.

Properties served:

5

Average Sewage Flow:

1,400 gpd (at 280 gpd/EDU)

Township Construction Cost:	\$451,504.30 *
Township Cost per Property:	\$90,300.86*
Property Owner Costs:	\$17,000.00
Total Cost per Property:	\$107,300.86*

\* Does not include land or easement acquisition costs

The Option J evaluation is summarized as follows:

- Does not have the lowest cost per property to serve the Zieglerville Road Area.
- Does not allow for the connection of additional properties along Zieglerville Road not currently served by the public sewer system.
- Will require a permit to discharge treated effluent to the Goshenhoppen Creek.
- Additional evaluation would be needed to determine if any wetlands or threatened and endangered species will be impacted.
- An easement on private property would need to be obtained.

Option J was not determined to be the best alternative to address the sewage disposal needs in the Zieglerville Road Area.

## VII. Institutional Evaluation

The township collection and treatment systems are owned and operated by Lower Frederick Township. Four township employees perform daily maintenance and plant operations in addition to their other public works duties to maintain roads, parks and other Township facilities. The Township sets users fees, negotiates agreements, and raises capital for construction and maintenance projects. The Township also has an employee that devotes much of her time to sewer billing and collections.

The township employs a consulting firm to assist with plant testing and operations compliance, and the township wastewater engineer prepares the annual Chapter 94 report.

The Township has a history of operating the system in compliance with the permit requirements. Township employees perform routine maintenance. Other operation and maintenance duties such as sludge hauling, manhole lining, etc. are contracted through approved bidding processes.

Income and expenses for the collection, conveyance and wastewater treatment system are tabulated separately in the township budget. Revenue for 2023 is projected at \$1,00,605.00, generated primarily by quarterly sewer rental fees and anticipated connection fees from the collection system extension project currently under construction. Sewer account expenditures in 2023 are budgeted at \$976,210.00 including \$289,000.00 of debt principal and \$218,660.00 of debt interest.

The public portion of the selected alternatives for the Special Study Planning Area will be operated and maintained by the Township as are other portions of their system. The implementation of the selected alternatives will not result in the need for new municipal departments or authorities.

No new ordinances are required to be developed to implement the selected alternatives. Lower Frederick has a grinder pump ordinance that specifies the powers, duties, and responsibilities of the Township and property owners using grinder pumps. The Township also has an ordinance prohibiting the discharge of potentially damaging waste into the sewer system.



## VIII. Implementation Schedule and Justification for Selected Technical & Institutional Alternatives

### A. Selected Wastewater Disposal Alternatives

#### 1. Selected Alternative for Salford Station at Schwenk Road Area

Wastewater needs for properties fronting Salford Station Road between Fulmer Road and Gravel Pike, and for properties on Schwenk Road and Cepp Road near to Salford Station Road, are to be served by low-pressure force main. The force main will convey flows east along Schwenk Road to an existing gravity main in Zieglerville Road. Each property on Salford Station, Schwenk and Cepp Roads will use a grinder pump to push wastewater into the low pressure main.

#### 2. Selected Alternative for Zieglerville Road Area

Wastewater needs for properties fronting Zieglerville Road just east of the Goshenhoppen Creek are to be served by a low-pressure sewer force main. Each property will use a grinder pump to push wastewater into the main, up the hill on Zieglerville Road to the existing manhole wets of Goshen Road.

### B. Selected Capital Financing Plan

Lower Frederick Township will finance design of the selected alternatives through the existing capital improvement plan incorporated within the Township's annual budget. On approval of this study, the Township plans to incorporate annual set-aside funds for sewer improvements into the annual budget. These set-asides can be used to offset anticipated funds needed for survey, design, permitting, grant program matching funds, or to reduce the amount of loans that may be required to implement the proposed projects.

It is anticipated that the Zieglerville Road Area will be the first project funded and constructed followed by the Salford Station at Schwenk Road project.

On completion of the design and permitting of each individual project, grant funding will be pursued. The estimated time allotted for grant funding allows for the possibility of applying to several grant programs or grant program cycles to potentially reduce the amount of Township funds needed for grant matching or to reduce the amount of loans that may be necessary.

### C. Implementation Schedule

There are no identified public health hazards that require immediate abatement. In consideration of the costs of the selective alternatives and available funding, the Township has elected to phase these projects with the Zieglerville Road Area Project being funded and constructed first followed by the Salford Station at Schwenk Road Project.

Target Date for Completion*	Major Project Milestones
Year 1	Incorporate annual set-aside funds for sewer improvements into capital improvement plan budget
Years 2-3	Survey, Design and Permitting of Zieglerville Road Area Project
Years 3-8	Pursue any available grant funding for Zieglerville Road Area Project
Year 9-10	Prepare Bid Documents and Specifications and Bid for construction of Zieglerville Road Area Project
Year 10	Construction of Zieglerville Road Area Project
Years 11-12	Survey, Design and Permitting of Salford Station at Schwenk Road Project
Years 13-18	Pursue any available grant funding for Salford Station at Schwenk Road Project
Year 19-20	Prepare Bid Documents and Specifications and Bid for construction of Salford Station at Schwenk Road Project
Year 20	Construction of Salford Station at Schwenk Road Project

\* Following DEP approval of this Special Study

## Appendix A - Zoning Map

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## Appendix B - Land Use Map

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## Appendix C - Estimate of Probable Costs for Alternatives

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## Appendix D - Alternative Maps

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## Appendix E - Existing Collection System Map

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## Appendix F - Sewage Management Ordinance

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## Appendix G -Holding Tank Ordinance

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## Appendix H - Grinder Pump Ordinance

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**Appendix I – Ordinance 123 - Sewers**

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**Appendix J – Ordinance 2023-03 – Zoning Amendment**

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**Appendix K – PNDI & PHMC Clearances for Option C – Selected Alternative to  
Serve Salford Station Road at Schwenk Road Area**

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## Appendix L – Planning Agency Comments

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This special study was submitted to the Lower Frederick Township Planning Commission, Montgomery County Planning Commission, and Montgomery County Health Department for comments. Comments from each agency are attached.

In response to the Lower Frederick Township Planning Commission's review, revisions were made to the special study making consistent the cost within the Evaluation of Alternatives section of the document and Estimate of Probable Costs for Alternatives summary chart in Appendix #C.

In response to the Montgomery County Planning Commission review, the overall Existing and Proposed Sewer Service Area Plan for the township has been updated and added to the Plan Summary section of this special study.

As the Montgomery County Health Department had no comments, no revisions to the special study were made to address this review.

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## Appendix M – Proof of Public Notice

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INSERT PROOF OF PUBLIC NOTICE HERE

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## Appendix N – Public Comments and Responses

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INSERT PUBLIC COMMENTS RECEIVED AND RESPONSES TO THOSE COMMENTS HERE

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## Appendix O – Municipal Resolution of Adoption

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Insert resolution here

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