

Milford Township
Sewage Facilities Plan
Policy Document



Adopted: September 16, 2003

MILFORD TOWNSHIP SEWAGE FACILITIES PLAN

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Plan Summary

The Milford Township Sewage Facilities Plan establishes township policies regarding proper treatment and disposal of sewage generated within its borders. It redefines an expanded sewer service area and requires on-lot systems elsewhere. Although Milford Township surrounds Trumbauersville Borough (and the municipalities cooperate through the Milford-Trumbauersville Area Sewer Authority), each has adopted separate plans since much of the township's plan is irrelevant to the fully sewerred borough.

As in the 1985 plan the emphasis remains on providing public sewer service within the development district and relying primarily on individual on-lot sewage disposal systems outside the development district. This is consistent with the Bucks County Comprehensive Plan, the Quakertown Area Comprehensive Plan as well as the Milford Township Comprehensive Plan, Zoning Ordinance, and Open Space Plan.

Individual on-lot systems consist of in-ground and sand mound absorption fields, IRSIS (with operation and maintenance agreements) and drip irrigation. Community drip irrigation and spray systems will be evaluated on a case-by-case basis to determine their efficacy. Since the primary goal of on-site disposal is the responsible renovation of effluent for safe aquifer replenishment, all community systems will require operation and maintenance agreements.

About 1,450 properties (approximately 40 percent) in the township rely on on-lot systems. Owners are responsible for the contracting and hauling of their septage. These systems are generally functioning within their design parameters and serving the dual purpose of sewage renovation and aquifer recharge. In 1998 Milford Township adopted an ordinance requiring pumping of septic tanks on a three year cycle.

There are, however, several scattered clusters of homes known to be using marginal or malfunctioning systems. Those problems can be mitigated through options ranging from increased monitoring and inspection, installation of community systems, installation of holding tanks for previously permitted systems, and property buy-outs. It is believed that the requirement to pump tanks will extend the life of systems and identify malfunctions where repairs are possible. For those clusters where that effort fails, the township may institute a management district where tanks are pumped by township-contracted haulers in coordination with regularly scheduled inspections.

The selected alternatives under this plan are 1) the extension of the sewer service north of Route 663 - east of Mill Hill Road and south of Pumping Station Road, 2) the establishment of a Sewer Management District in the Finland area, 3) property buy-outs to remove pollution sources, and, 4) a "no-action" alternative, with maintenance and increased monitoring, elsewhere. Based on the objectives and goals of the Comprehensive Plan, Zoning Ordinance, and this plan, these are the best alternatives for Milford Township.

The complete implementation schedule is shown in Section IX.

Goals & Objectives

Public Health

No reported public health problems resulting from improper wastewater disposal have been documented. Surveys by Bucks County Health Department officials in response to complaints of odors and general nuisance conditions have revealed some septic system failures, which are documented in this plan. It is necessary to address malfunctioning systems and ensure proper operation and maintenance of all systems to protect the public health.

Goal — Ensure the protection of public health from the effects of improper wastewater disposal.

Objectives

- Correct failing septic systems using Best Technical Guidance.
- Require proper maintenance of on-site sewage disposal systems through public education and a mandatory septic system pumping program (Milford Township Ordinance #108).
- Encourage long-term water conservation measures to reduce hydraulic loading of on-site wastewater disposal systems and the centralized wastewater treatment facility.
- Ensure proper operation and maintenance of municipal, non-municipal and industrial wastewater treatment facilities.

Natural Resources

Inadequate wastewater treatment can drastically degrade our environment. Deterioration of surface water quality, groundwater supplies, and land resources can be mitigated through sound management of wastewater and sludge disposal.

Proper operation of wastewater treatment facilities is essential to avoid water pollution incidents. The operating agency must have the interests of the community in mind and be sufficiently supported to operate the facilities properly. Municipal ownership and/or operation of all community wastewater treatment and disposal systems is Milford's policy to ensure system reliability and protect the environment.

Goal— To assure the protection of natural resources from the effects of improper wastewater disposal.

Objectives

- Discourage the use of stream discharge of wastewater effluent except at the existing MTASA plant on the Unami Creek north of Kumry Road.
- Utilize the most environmentally sound and cost-effective technologies to prevent degradation and achieve established stream standards.

- Institute a water conservation education program.
- Encourage groundwater recharge by implementing land application of effluent.
- Rely upon licensed septage haulers to transport septage to approved septage disposal sites.
- Encourage municipal management to ensure long-term reliability of all community wastewater treatment/disposal systems.

Needs

A major goal of the Quakertown Area Comprehensive Plan is to make adequate provision for future housing needs. The type of facilities available can help determine the density of housing units possible where community sewer systems facilitate higher density housing. In unsewered areas, larger lot development with individual on-lot systems is usually the norm.

Goal — To provide adequate wastewater facilities to meet existing and future development needs of the area.

Objectives

- Provide for a variety of wastewater facilities to accommodate different types of development while encouraging non-sewered approaches to wastewater facilities. For example,
 - ◊ Recognize the permit limitations at the existing wastewater treatment plant and allow public sewer service growth only within the development district.
 - ◊ Handle future wastewater needs by individual homeowners.
 - ◊ Where appropriate and allowed by land development regulation, allow clustering of dwellings with municipally operated community systems utilizing land application.
 - ◊ Recycling of wastewater, relying on septic tanks and land application.
- Ensure sufficient capacity in the MTASA wastewater treatment plant to serve the development district.

Appropriate Facilities

The Comprehensive Plan guides development through zoning; however, available wastewater options exert a major influence over the location of development. Thus, land use and zoning should be the primary factors when choosing the most appropriate type of facilities for a specific area. Yet even beyond the will to guide development patterns, our community has an investment in public facilities that are intended to protect our environment and efficiently serve the

growth area. Improper extension of this infrastructure degrades performance and increases operating costs.

Concentrating the majority of future development within the development district has been formulated in the Comprehensive Plan. Through public sewer service, higher density zoning, and its proximity to other services, the development district provides the support for higher density development. At the same time, less dense development and agriculture can continue in the reserve areas.

Since public sewer service is an essential element of the development district concept, the extension of sewers outside of the district creates two problems. First, sewer line extension makes possible larger-scale higher-density development outside of the development district. In turn, such development reduces the calculated capacity available in the treatment facility for the anticipated growth in the development district.

In addition, the capital costs for extensions to public sewerage systems are extremely high. By concentrating development, wastewater collection facilities are less costly to construct. Expansive sewage collection systems also present the increased potential for problems resulting from the infiltration of groundwater into the systems, thereby increasing treatment costs.

Goal— To provide the type of wastewater facilities in each zoning district which compliment the type of land use planned for that district.

Objectives

- Confine the centralized sewer system to the development district in order to guide higher density development to the urbanized area and to ensure efficient use of the public infrastructure.
- Rely upon individual on-site sewage disposal systems outside of the development district.
- Utilize land application outside of the areas served by public sewer.
- Require adequate buffer methods for spray irrigation systems to reduce nuisances to adjoining property owners.
- Allow the use of community sewage systems when owned and operated by the municipality to serve cluster subdivisions outside of the development districts if they use land application technology compatible with land use and soil conditions.
- Limit the capacity of facilities to adequately address problems and do not provide additional capacity to encourage inappropriate growth.
- Prohibit expansion of community sewage system areas beyond their original design service areas.
- Require an analysis of all wastewater facilities alternatives for all revisions to a municipality's official wastewater facilities plan as part of the preliminary subdivision or land development submission.

SECTION I — PREVIOUS WASTEWATER PLANNING

Wastewater Treatment Plant

The Bucks County Planning Commission prepared the Wastewater Facilities Component of the Quakertown Area Comprehensive Plan in August 1985. At that time, the Milford Township sewage treatment plant had a design capacity of 0.4 Million Gallons per Day (MGD) and an average daily flow of 0.13 MGD. Plant effluent consistently met DEP requirements with occasional phosphorous removal and sludge problems.

Evaluation of the treatment system included its design capacity, operation level, and ultimate capacity requirements based on then current zoning regulations and developable land within each zoning district. The 1985 plan assumed one equivalent dwelling unit (EDU) equaled the daily effluent flows of 3.0 persons. Minimum design capacity for laterals was 400 gallons per EDU per day; minimum interceptor capacity was 250 gallons per person per day. The plan evaluated the remaining capacity in each of the system's interceptors. The calculations indicated that the lines had enough capacity for the flows expected from future development in the development district and to provide sewer to some of the more problematic areas. The treatment plant, however, would most likely require upgrading to handle the flows predicted beyond the year 2000.

In 1998, the sewage treatment plant was upgraded to 0.8 MGD. At the end of 2002, with 2,809 EDU's connected, the plant had an annual average of 0.495 MGD. The maximum three-month average was 0.571 MGD (MTASA 2002 Municipal Wasteload Management Report, Table 2). The remaining capacity is adequate for the expected line extensions and new dwelling units in the service area outlined on the Sewage Facilities Plan map.

Problem Areas - Resolved

The 1985 plan identified eight areas of concentrated housing with existing on-site problems. Three of the eight were sewered by MTASA as development between the interceptor and the problem area made line extension cost effective. Following adoption of the 1985 plan three additional areas were identified as having failing systems. Those areas have also been rectified through the extension of public sewer. The on-lot systems were abandoned in place under Bucks County Department of Health guidance.

Through this cooperative effort with the MTASA, 277 borderline and failing systems were corrected. The following is a synopsis of the six areas sewered. The unresolved areas are addressed in Section V.

Identified Areas - Resolved

Hieter Road

Hieter Road is located in the northern portion of Milford Township close to Spinnerstown. The development along Hieter Road and Wallace Way contained no soils suitable for conventional on-site systems. There were 25 existing homes and several vacant parcels (that have subsequently been developed). This area was sewered in 1986 and the failing systems connected.

Gateway and Hillside Drives, and Spinnerstown Road

Gateway and Hillside Drives are located off of Spinnerstown Road with 14 dwelling units (of which the majority had failing systems). In addition, 18 dwelling units along Spinnerstown Road, north of Gateway Drive, had failing systems. This is an area containing soils unsuitable for on-site systems. Sanitary sewer was already located in Spinnerstown Road at the intersection of Gateway Drive. Therefore, the only alternative evaluated was the construction of gravity sewer.

Approximately 4,400 feet of gravity sewer was constructed in Spring 1997. The Gateway/Hillside Drive extension included 1,600 feet of piping with the balance in Spinnerstown Road. All of the failing systems were hooked into this extension and the problem alleviated.

Vassar Drive and Hollins Lane

The upper section of Vassar Drive and Hollins Lane contained no soils suitable for conventional on-site systems and some soils suitable for alternative systems. Adjacent land was suitable for limited spray irrigation of 0-1 inch per acre per week. This development was immediately adjacent to existing sewer lines on Hillcrest Road, Barrel Run Drive and Lower Vassar Drive. There were 25 existing homes and one vacant lot.

The Vassar and Hollins Drive area was sewerred in 1988.

Areas Not Identified in 1985 - Resolved

Oak Drive

Oak Drive is located off of Trumbauersville Road to the south of and abutting Trumbauersville Borough. Seven residences had been plagued with failing individual on-lot disposal systems. The Authority conducted a feasibility study in January 1992 to extend the sanitary sewer system to these residences. The study revealed it was feasible to construct a gravity line and the Authority proceeded with the system design and permitting. Dagostino Company, Inc. completed construction for the sanitary sewer extension in early 1995 for \$87,050.00. See Appendix B.3 for more details

Benner's School Road

Benner's School Road is located in the southeast portion of the Township near the border of Trumbauersville Borough, off of Trumbauersville Road. In May 1992, a feasibility study was conducted in response to DEP concerns. This study concluded that eight (8) properties (seven with failing systems) could be serviced by gravity sewer and an additional two (2) could be serviced if private force mains were installed. This line was constructed in 1998 and is now in service. See Appendix B.4 for additional details

Zion Hill Area

Springfield Township, located at the northern border, was under orders from DEP to correct a number of severe system failures. Springfield requested that MTASA connect a portion of its Zion Hill area into the system. Through the cooperation of Milford Township, Trumbauersville Borough and MTASA, 2,600 LF of 8" gravity line was placed in Old

Bethlehem Pike near the common township border. This 1999 extension added approximately 50 residences to the sewer system. Appendix B.5 has additional details.

Townshipwide Initiative — Implemented

In 1998, Milford Township enacted an On-lot Sewage System Management Ordinance (Ordinance #108). This ordinance requires that property owners with on-lot systems have their tank(s) pumped a minimum of every three years. The owner is then to provide to the township a receipt or other proof of pumping within thirty days. The first pumping deadline was December 15, 2001. At that time, approximately 450 of the 1450 property owners with on-lot systems had not complied. Reminder letters were mailed in late January 2002. As of February 2003, that count was down to just over 100 properties.

Ordinance 108 should not be confused with the Management District alternative outlined in Section V. Ordinance 108 applies township-wide. It is not a selective alternative to other methods of sewer problem mitigation. Properties located in a designated Management District may be subject to system inspections and an increased pumping frequency, as determined.

SECTION II — PHYSICAL AND DEMOGRAPHIC ANALYSIS

Growth and development will continue in Milford Township for a variety of practical, economic, and legal reasons. This makes it increasingly important to use controls that help to preserve natural resources and the quality of the environment. The township comprehensive plan's analysis of natural features serves as a basis for regulating the amount of intrusion that may occur in each natural resource. The plan also establishes development districts that direct growth to certain areas reducing the pressure for higher intensity development over vast areas of the township.

LOCATION AND DESCRIPTION

Milford lies in the northwestern portion of Bucks County bordering Montgomery County to the west, Lehigh County to the North, Richland Township to the east, and West Rockhill Township to the south. Major vehicle arteries are Route 476 (northeast extension of the PA Turnpike), Route 309 and Route 663. The township is about 28.32 square miles.

POPULATION

Table V.1: Population 1970 – 2000

1970	1980	1990	2000
4,812	6,053	7,360	8,810

Source: Bucks County Planning Commission 90:MP-1; U.S. Census Bureau, Census 2000

The data on the population of Milford Township indicates that the number of residents increased by 1450 or 16.5 percent between 1990 and 2000. During that same period the population of the Quakertown Area increased by approximately 10 percent and the overall population of Bucks County by 9 percent.

Table V.2: Population Density -2000

Population	Area (sq. mi.)	Density
8,810	28.06	313.97

Source: U.S. Census Bureau, Census 2000

Table V.3: Household Size - 1990

Persons per Household: 2.98

Source: Bucks County Planning Commission 90:MP-11

Table V.4: Age Characteristics - 1990

Median Age	Percent under 18	Percent 65 +
35.5	26.4	11.1

Source: Bucks County Planning Commission 90:MP-11

Table V.5: Housing Units - 1980 - 1997

1980	1990	1997
2,105	2,525	3,055

Source: Bucks County Planning Commission 90:MH-8 and 97:MH-3B

Table V.6: Population Projections - 2010

Low	Middle	High
10,570	11,090	11,640

Source: Bucks County Planning Commission 90:MP-8P

Table V.7: Housing Projections - 2010

Low	Middle	High
3,850	3,990	4,130

Source: Bucks County Planning Commission 90:MH-8B

NATURAL FEATURES

Stream & Drainage Basin

Stream Quality

Title 25, Chapter 93 of the Pennsylvania Code contains regulations regarding stream classification. The Unami Creek, which bisects the township and is the major waterway, is designated as a High Quality - Trout Stocking Fishery. A small tributary to the Tohickon Creek is located on the eastern border of the township, between Hillcrest and Mill roads. The Tohickon has been designated as a Trout Stocking Fishery.

Drainage Basin

The Unami Creek drainage basin dominates the vast majority of Milford Township. The resulting Unami Creek flows in a southerly direction through the township joining with the Perkiomen Creek in Montgomery County. The southwestern portion of the township in the vicinity of the village of Geryville lies within the Macoby Creek drainage basin. The Macoby Creek joins the Perkiomen in Green Lane, Montgomery County. The Perkiomen, itself, is a tributary to the Schuylkill River. Three small areas of the township along its eastern boundary with Richland Township are in the Tohickon Creek drainage basin, a tributary to the Delaware River.

Much of the drainage area of the Unami Creek is rural in character with extensive amounts of farmland. Throughout the entire watershed, sediment from inadequately protected construction sites, effluent from malfunctioning on-lot septic systems and storm water runoff from unprotected agricultural uses are major non-point pollutants that contribute to the degradation of the quality of the surface water. Riparian buffers along watercourses trap much of the sediment and other potential pollutants. In order to maintain the quality of the water in the Unami Creek, riparian buffers must be maintained where they exist and provided where they do not through zoning and land development

ordinances. The township's existing erosion control and sedimentation regulations are important to protect water quality.

Another important tool that can be used to protect the quality of surface water is a storm water management plan that would provide a strategy for managing storm water based on the physical and hydrologic characteristics of the watershed. Act 164, the state's Stormwater Management Act, provides the authority for preparing a stormwater management plan. Milford adopted strict new guidelines in conformance with Act 164 in the September 2002 amendment to the Subdivision and Land Development Ordinance.

Soils

Overview

Milford is in the Towhee - Neshaminy - Mount Lucas Association, and the Allenwood Association. The Towhee - Neshaminy - Mount Lucas Association is about 12% Mount Lucas soils, 25% Neshaminy soils, 30% Towhee soils and 33% minor soils. The minor soils consist of Doylestown and Lehigh soils on the outer fringes and Hatboro soils on flood plains of the association.

Mount Lucas soils are located at smooth, concave lower elevations between the Towhee and Neshaminy soils. They are moderately well-drained to somewhat poorly drained, and have a firm subsoil which is restricted in permeability. Neshaminy soils are located on hills, side slopes and ridges; these soils are deep and well-drained. Towhee soils are in depressions and concave positions at the base of slopes. These soils are restricted in permeability and poorly drained. These major soils of the Towhee - Neshaminy - Mount Lucas Association are extremely stony.

Among the minor soils of the association, the Doylestown soils are deep, poorly drained and nearly level to gently sloping soils on uplands. They are in depressions, at the base of slopes and in broad upland flats.

The Lehigh soils are located on side slopes and ridges. They consist of deep, moderately well-drained to somewhat poor drained soil with gently sloping to moderately steep soils in uplands.

The Hatboro soils are located on floodplains and mainly along small meandering streams; they are deep, poorly drained and nearly level soils.

The Allenwood Association is about 80% Allenwood soils and 20% minor soils. Well-drained and deep, these consist of many gravel fragments that interfere with tillage and are located on hillsides and hilltops. The minor soils are the Doylestown and Readington series, which are located in drainage ways and at the bases of slopes.

The principal soils in Milford are generally unsuitable for on-site sewage disposal because of slow permeability, seasonally high water tables and rock. Limitations increase for on-site systems in the eastern and southern portions of the township with a majority of the soils being unsuitable for any type of on-site system. In the northern sections of the township, more land is suitable for on-site sewage disposal, although the soils seem to be adequate for alternate systems only.

There are several small villages and areas that are unsewered. They are considered to have “substantial human habitation,” defined by the Environmental Protection Agency as areas where the population density is one household per two acres or 1.7 persons/acre.

Finland (VC-1 Zoning)

Finland lies within soils classified as Mount Lucas and Neshaminy, extremely stony silt loam with small isolated portions of Lehigh channery and Mount Lucas silt loam. The Mount Lucas soils generally have a depth to seasonal high water table of one to two feet, with permeability rates in the range of 0.63 to 2.00 inches per hour. Alternatively, Neshaminy soils generally have a depth to seasonal high water table greater than four feet with permeability ranging from 0.63 to 6.30 inches per hour.

Geryville (VC-1 Zoning)

The soils within this area are primarily of the Reaville Series and characteristically have shallow depths to seasonal high water table of one to two feet and low permeability ranging from 2.00 to 6.30 inches per hour.

Mumbauersville (RA Zoning)

This area contains soils for the Towhee, Doylestown and Lehigh series. Towhee and Doylestown soils typically have a depth to seasonal high water table of zero to one-half foot with permeability rates from 0.2 to 6.30 inches per hour. The Lehigh soils series exhibits seasonal high water tables at a depth of one to two feet and permeability rates in the range of 0.20 to 6.30 inches per hour.

Steinsburg (VC-1 Zoning)

The area appears to have the greater quantity and quality of soils appropriate for on-site systems. Soils from the Lehigh, Doylestown, and Allenwood series exist within the area. Lehigh and Doylestown soils are discussed above. The Allenwood soils have a depth to seasonal high water table of greater than four feet with permeability ranging from 2.0 to 6.30 inches per hour.

Agricultural Soils

Soils in Bucks County are classified as prime farmland (Class I, II and VI, see Appendix F.6), farmland of statewide importance, and 11 categories of other soils, based on the soil's fertility, depth to bedrock or groundwater, texture, erodibility, slope and amount of large stones. Prime farmland includes deep, well-drained, and mildly sloped soils that can support high yields of crops with little management. Farmland of statewide importance includes soils that support cultivation, but require careful crop management. Agricultural use of the 11 other soils is generally limited to pasture and woodlands.

High priority should be given to continuing farming on prime and important farmlands in the township. But it must be noted that these soils are found not only in rural parts of the township, but also close to the boroughs and near other concentrations of development. In fact, most of the remaining developable lands immediately north of Trumbauersville Borough are farmland of statewide importance. Also, the best farmlands have gentle to moderate slopes, which make them easier to develop than other lands.

Although it is inevitable that some farmlands will be developed, strong efforts should be made to continue farming the better quality farmlands in the nondevelopment areas of Milford Township.

Farmers in Bucks County have expressed varying attitudes toward the future of farming in the county. Many have sold, or are ready to sell their farms to developers, while others struggle to retain farming as a viable industry and way of life. Since there are many factors involved in farmland preservation, municipalities alone cannot do the job. Support from the farmers, residents, and the county, through its farmland preservation program, is necessary. The township has formed an agricultural advisory group to explore methods of keeping farming viable in the township and develop a program for these purposes. This is more likely to be successful if it is coordinated with other communities in the region.

Development has occurred on prime and important farmland soils identified in the 1967 soil survey. If these areas are deleted from the agricultural soil map, the extent of prime and important farmland is significantly reduced. If the locations for new development are chosen carefully, the amount of good farmland lost to new development can be minimized, especially in the low-density areas.

Under current zoning regulations, land in the low-density areas of Milford Township can be subdivided into residential lots of two acres or more, which can use up farmlands rapidly. If cluster regulations or another form of flexible development are applied to low density areas proposed under the township's Land Use Plan, then residential subdivision can be done at the same low densities, while saving vast areas that may include good farmlands. Developers should be encouraged to work with the township and local farmers to locate new residential lots away from the better agricultural soils.

Alluvial and Hydric Soils

Alluvial soils were deposited in floodplains, while soils with major hydric components are indicators of potential wetlands. Areas of such soils are shown on the map in appendix F.7. Both soil types are generally among the least suitable soils for development and should be protected from other encroachments.

Other soils have characteristics that limit construction because of their poor drainage, seasonal high water table, and slow rates of permeability. These soils are not suitable for on-lot sewage disposal because of their wet characteristics, but may be otherwise suitable for development if appropriate site engineering and construction practices are used. However, it would be better to avoid development on these soils because of the additional costs and efforts required to develop them and because of the increased potential for environmental degradation if they are developed.

Where the 100-year flood level has not been determined, alluvial soils are a practical indicator of areas that might be subject to flooding. However, where the 100-year flood level has been determined by accepted engineering methods, the alluvial soil limits should not be used to define floodplain. Alluvial soils are unsuitable for development purposes and the 100-year floodplain presents real dangers from flooding. Therefore, alluvial soils and 100-year floodplains should be avoided.

Geology

The influences of bedrock geology are strong and pervasive. Bedrock, along with the hydrologic cycle, is responsible for the changes in elevation, steep slopes, location of watercourses, and orientation. Orientation, in turn, influences vegetative communities, soils, and availability of sunlight. The geology of the Unami Creek's valleys has created a varied landscape that is interesting and visually attractive.

During the Triassic Period, 150 to 180 million years ago, internal geologic forces determined the basic configurations of the earth's surface and bedrock formations in the Unami Valley. External forces since that time have constantly acted to reshape the earth's surface through the erosion and depositional effects of wind, water, gravity and chemical activity, with their effects evident in the following features:

- Aquifers producing variable groundwater supplies.
- Slopes ranging from gentle to very steep.
- A variety of soil types suitable for woodlands, farming or development purposes.
- The variety of plants and plant materials seen in natural conditions and farmlands.
- The visual character and wildlife habitats created among these natural features.

Milford's bedrock also results in different groundwater yields from one formation to another. In general, wells in Bucks County yield from under one gallon per minute (gpm) in the Diabase to over 30 gpm in the Brunswick. The bedrock in the Unami Valley has produced some wells yielding more than 100 gallons per minute.

The red shale Brunswick formation underlies northern Bucks County. Most of the Unami Valley is within this area of red shale and sandstone, with intrusions of Diabase. Adjoining the Diabase are areas of contact metamorphism where the high heat of the igneous intrusions altered the surrounding rock formations. Finally, very dense siltstone or argillite underlie the northwestern corner of the township. Their influences are described below.

Brunswick Shale and Sandstone

Brunswick shale and sandstone, characterized by reddish brown rock, almost completely underlies the township, contributing to Milford's rolling topography. Secondary openings in the bedrock joints and fractures are the key to adequate groundwater flow. These random openings are the cause of considerable variance in well yields across the township.

Diabase

Diabase is igneous bedrock, which was extruded as molten rock into large cracks in the surrounding Brunswick geologic formation. The intrusions of Diabase, called sills and dikes, are generally narrow (less than a half mile wide, and in some cases only several feet in width). Diabase intrusions have had an interesting effect on the topography of western Bucks County. Most notably are the "Rockhills" extending from Haycock Township westward through the southern end of Milford Township with ridges running northwest

along Miller Road and north through Milford Square then along Mill Hill Road. This hard to excavate rock is resistant to erosion, weathering, water infiltration, and groundwater movement. The result is notorious low well yields. Areas of Diabase are often steeply sloped and wooded, with numerous surface rocks and boulders.

Topography

Much of the township consists of gentle to moderate slopes of up to eight percent, which easily accommodates agriculture or development. There are small areas with slopes of eight to 15 percent and greater than 15 percent suitable only for less intensive development or for open space and preservation of natural features. Land with a slope of 15 to 25 percent, depicted on the map in Appendix F.5, is generally considered steeply sloped and are protected by regulations which limit development and clearing of vegetation.

Among the steepest slopes in the township are along the main stem of the Unami Creek with characteristic bedrock outcrops. These slopes, with their dense woodlands, are a benefit to air and water quality and provide extensive habitats for wildlife.

The slope and soils present on steep slopes are in balance with vegetation, underlying geology and precipitation levels. Maintaining this equilibrium reduces the danger to public safety posed by unstable hillsides. Generally speaking, as the slope increases, the depth of topsoil and the ability of the soil to support structures usually decrease. Therefore, development should be limited on steep slopes because the soils are prone to erosion when actively used or where vegetation is removed. When runoff and sedimentation from disturbed slopes increases, public expenditure for flood control and storm water management will also increase. Also, different species of plants and the associated wildlife that depend on these plants may be present only on the slopes in unique habitats.

The township's comprehensive plan explains that it is not unduly restrictive to prohibit farming or residential development on steep slopes in the township because there is sufficient gently sloping land available elsewhere. The zoning ordinance contains regulations that limit the extent of development on steep slopes.

Potable Water Supply

The Brunswick formation is considered to be a reliable source of small to moderate supplies of groundwater. Yields of 100 gallons or more per minute have been reported from wells drilled more than 200 feet deep.

Milford Township has its own water authority and relies on its own wells. However, the Milford water distribution system is interconnected with Trumbauersville and Quakertown boroughs and Richland Township for mutual benefits. Existing sources, new wells, and appropriate expansion of the distribution systems should be capable of supplying the growth areas proposed in the Land Use element of the Milford Township Comprehensive Plan. Outside the growth areas, low densities of development are expected to be compatible with the groundwater supply. Based on the planned land use scheme the groundwater resource should be in balance between withdrawal and recharge. The balance of withdrawal and recharge is helped by the use of on-lot sewage disposal

systems, which naturally filter effluent and return approximately fifty percent of water usage for recharge. Spray irrigation of effluent also returns large quantities of water to the aquifer.

It is vital that the groundwater supply be continually replenished. If the locations of prime aquifer recharge areas are identified, such as faults and seeps in the bedrock, measures can be taken to assure that these sites are preserved in their natural state, or at least developed at the lowest intensities to minimize impervious surface coverage. In many cases, these areas may be heavily wooded, located in areas of soils that are not suitable for development (hydric and/or alluvial, explained later in this chapter), or upon slopes that constrain development potential. The more natural constraints that are located in the recharge areas, the more likely that these areas can be preserved through ordinances or innovative development techniques. Recharge of aquifers is a regional process in which recharge areas in one community often supply groundwater that is extracted in another community. Regional cooperation is needed to ensure maximum protection of recharge areas.

Vegetation and Wildlife

The Morris Arboretum of the University of Pennsylvania prepared the following.

Bucks County Natural Areas Inventory — Milford Township

Milford Township is located in the northwest corner of Bucks County. Towns include Milford Square and Spinnerstown. Major highways which bisect the township include the Northeast Extension of the Pennsylvania Turnpike and Route 663.

Milford Township is almost entirely within the Unami Creek watershed. The northern part of the township (above Rt. 663 roughly) is underlain by Brunswick Formation shales and is almost entirely agricultural. Much of the area below Rt. 663 is part of the diabase belt of upper Bucks and Montgomery Counties. This boulder-strewn region is mostly wooded with low density residential and several large camp properties dominating the land use. Extensive riparian forests, swamp forests, shrub swamps, and floodplain wetlands occur along the Unami and the larger tributaries in the diabase region.

An extensive area of floodplain also extends along the Unami Creek between Allentown Road and the turnpike, part of which is a golf course and part cultivated. More floodplain exists from the mill dam on the Unami Creek at Nursery Road to Upper Ridge Road at Finland.

Major Natural Vegetation Types

The following classifications are based on *Vegetated Natural Communities of Pennsylvania* by Jean Fike, report to DCNR, Bureau of Forestry, Harrisburg, PA, September 1998.

Tuliptree-Beech-Maple Forest - Sugar Maple-Basswood Forest

These two similar upland forest types are found on slopes and other well-drained areas in the diabase region and on north- and east-facing slopes above waterways in the shale region. Dominant species include:

American beech	<i>Fagus grandifolia</i>	Basswood	<i>Tilia americana</i>
Red oak	<i>Quercus rubra</i>	Sugar maple	<i>Acer saccharum</i>
Tuliptree	<i>Liriodendron tulipifera</i>	White ash	<i>Fraxinus americana</i>
White oak	<i>Quercus alba</i>		

Red Oak-Mixed Hardwood Forest

This forest type occurs as scattered wood lots on uplands in the northern half of the township. Dominant species include:

Mockernut hickory	<i>Carya tomentosa</i>	Red oak	<i>Quercus rubra</i>
Shagbark hickory	<i>Carya ovata</i>	Tuliptree	<i>Liriodendron tulipifera</i>
White oak	<i>Quercus alba</i>		

Conifer Plantations

These are planted stands, not a natural forest type.

Norway spruce	<i>Picea abies</i>
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Successional Red Maple Forest

This forest type occurs on low, wet sites, often in riparian zones. Young red maple forests, especially those on diabase, often include red cedar which represents an earlier phase of succession.

Red cedar	<i>Juniperus virginiana</i>	Red maple	<i>Acer rubrum</i>
Tuliptree	<i>Liriodendron tulipifera</i>	White ash	<i>Fraxinus americana</i>

Bottomland Oak-Hardwood Palustrine Forest

This forest type occurs mainly on diabase, in extensive flat areas along some of the smaller tributaries. Dominant species include:

American elm	<i>Ulmus americana</i>	Pin oak	<i>Quercus palustris</i>
Red maple	<i>Acer rubrum</i>	Shagbark hickory	<i>Carya ovata</i>
Swamp white oak	<i>Quercus bicolor</i>		

Silver Maple Flood Plain Forest - Sycamore-River Birch-Box Elder Flood Plain Forest

These flood plain forest types are found in along stream courses throughout the township, the width of the flood plain forest varies with the topography. Dominant species include:

Black walnut	<i>Juglans nigra</i>	Box elder	<i>Acer negundo</i>
Hop hornbeam	<i>Ostrya virginiana</i>	Pin oak	<i>Quercus palustris</i>
River birch	<i>Betula nigra</i>	Shagbark hickory	<i>Carya ovata</i>

Silver maple *Acer saccharinum* Sycamore *Platanus occidentalis*

Buttombush Wetland - Alder-Ninebark Wetland

These shrubby wetlands are common in the Diabase region. Characteristic species include:

Alder	<i>Alnus incana var. serrulata</i>	Arrowwood	<i>Viburnum recognitum/V. dentatum</i>
Buttonbush	<i>Cephalanthus occidentalis</i>	Elderberry	<i>Sambucus canadensis</i>
Red-twigg dogwood	<i>Cornus amomum</i>	Silky dogwood	<i>Cornus racemosa</i>
Spicebush	<i>Lindera benzoin</i>	Swamp rose	<i>Rosa palustris</i>
Willow	<i>Salix spp.</i>	Winter-berry holly	<i>Ilex verticillata</i>

Tussock sedge marsh - Mixed forb marsh

These herbaceous marsh communities often occur in openings within the shrubby wetlands above. Characteristic species include:

Marsh marigold	<i>Caltha palustris</i>	Reed canary grass	<i>Phalaris arundinacea</i>
Sedge	<i>Carex bromoides</i>	Sensitive fern	<i>Onoclea sensibilis</i>
Skunk cabbage	<i>Symplocarpus foetidus</i>	Sweet flag	<i>Acorus calamus</i>
Touch-me-not	<i>Impatiens capensis/I pallid</i>		
Tussock sedge	<i>Carex stricta</i>		

Existing Township-Owned Protected Areas

Along Unami Creek above Allentown Road
Along Molasses Creek just below Rt. 663
Along Butter Creek above the vacated section of Benner School Road

Highest Priority Sites Identified by the Natural Areas Inventory

Unami Creek from Upper Ridge Rd to the Montgomery County line (Kauffman property)

This site consists of forested slopes on diabase with rock outcrops and several small streams and seeps. The Unami Creek flows through the site and is bordered by flood plain forest with a complex of scoured back channels, pools etc. This site is a continuation of the Unami Hills area of Montgomery County, which was identified as a major priority for preservation in the Montgomery County Natural Areas Inventory.

Rare species found in 1997-1998 field surveys include Pineland pimperl (Samolus parviflorus - PE*), a small plant of muddy stream banks, Allegheny River skimmer (Macromia allegheniensis - G4*, rare dragonfly, and eastern floater (Pyganodon cataracta - /S2JS3*) a freshwater mussel.

Butter Creek corridor from the boundary with West Rockhill Township to the confluence with the Unami Creek.

This site contains a mosaic of swamp forest, shrub swamp, herbaceous marsh, successional red maple forest and wooded slopes. It is continuous with the Heritage Conservancy's Manderfield Preserve on the upstream end. No rare species have been identified within this site, however, several bog turtles (*Clemys muhlenbergii* - LE*) have been collected on nearby roads in the past few years.

Second Level Sites

Unami Creek Flood Plain /Riparian Areas Between Upper Ridge Rd and Allentown Rd

This stretch of the Unami includes extensive flood plain, some of it cultivated, some in a golf course and other scoured areas. Wooded slopes with Tuliptree-beech-maple forest occur below Allentown Road. A 1997 survey of fish documented high native fish diversity (15 species) in the Unami Creek in the vicinity of Allentown Road (Criswell, 1998).

Hazelbach Creek corridor

The Hazelbach Creek corridor is typical of diabase streams, with extensive wooded, shrubby and herbaceous wetlands forming a mosaic of habitat which includes amphibian and reptile habitat. A bog turtle found on Old Plains Road in May 1998 may have come from wetlands in the Hazelbach Creek corridor.

Watershed Protection

Well-drained areas of permeable soils, headwaters, small tributaries, riparian strips and buffers are all important to the health of streams. Healthy aquatic ecosystems downstream are dependent on maintaining areas of permeable soils for purpose of ground water recharge. Ground water maintains stream flow year round. Riparian buffers also help to reduce erosion and siltation and protect water quality in streams. When development occurs, impervious surfaces increase runoff causing frequent scouring, erosion, and siltation. Reduced permeability reduces ground water, reduces base flow, and also reduces ground water available for human use. Thus a program of farmland protection and riparian restoration throughout the watershed is a necessary part of preserving natural areas that are based on water resources.

**Status rankings for rare species*

LE - listed as endangered under the Federal Endangered Species Act

PE - listed as endangered in Pennsylvania

G4 - secure globally, but rare in parts of its range

SH - known historically from Pennsylvania but not collected recently

S2 - imperiled in Pennsylvania

S3 - rare or uncommon in Pennsylvania

SECTION III — EXISTING SEWAGE FACILITIES IN THE PLANNING AREA

Wastewater Treatment Facilities

Milford-Trumbauersville Area Sewer Authority (MTASA) operates the wastewater collection, conveyance, and treatment system. This system services the areas in the region including: Spinnerstown, Brick Tavern, Trumbauersville Borough, Milford Square, a small portion of Richland Township and Quakertown Borough, and the Village of Zion Hill in Springfield Township, all in Bucks County. The system was placed in operation on April 22, 1976 under the provisions of Water Quality Management Permit No. 0971408 which was issued by the Pennsylvania Department of Environmental Protection on February 26, 1971. This permit has been revised under Permit No. 0980420, dated July 22, 1980; NPDES Permit No. 0042021, date October 21, 1986; NPDES Permit No. 0042021 (Amendment No. 1), dated December 5, 1989; PaDEP Permit No. 0993405, dated March 29, 1993; and NPDES Permit No. 0042021, dated July 21, 1998. The Wastewater Treatment Plant (WWTP) is currently rated at 0.8 million gallons per day (mgd). The installation of a new tertiary filtration system was placed in operation on December 29, 1997 under the provisions of Water Quality Management Permit No. 0996414, issued by the PaDEP on December 23, 1996. An amendment to the Water Quality Management Part II Permit No. 0996414 A1 was issued on May 25, 2001 for construction and operation of a dechlorination system at the existing sewage treatment plan. an application for renewal of the NPDES Permit was submitted to PaDEP in November 2002.

MTASA operates a sanitary sewer collection system consisting of the following sewers:

Pipe Size (in.)	Quantity (ft.)	Material	Sewer Type
1 1/4, 1 1/2, 2	4,730	SCH. 40 PVC	Pressure
4	272,295*	-----	Building
4	4,456	SDR 26 PVC	Lateral
4	8,700	SDR 26 PVC	Pressure
6	400	SDR 26 PVC	Pressure
6	53,950	ACP & PVC	Lateral
6	13,715	Dr 25 PVC, C-900	Gravity
8	75,393	ACP	Gravity
8	51,048	SDR 26, PVC	Gravity
8	29,709	Dr 25 PVC, C-900	Gravity
10	29,293	ACP	Gravity
12	11,911	ACP	Gravity
18	2,118	ACP	Gravity
*Estimate based on 2,809 total EDUs. Approximately 2,800 EDUs of these are systems currently in use and others are under construction and not yet occupied.			

There are a total of 805 manholes and six pumping stations which convey sewage to the WWTP. Pump Stations No. 1, 2, and 3 were constructed with the original system back in 1975. Pump Station No. 4 serves Commerce Drive and was constructed in 1986. Pump Station #5, Hillcrest Hunt, is located on Freier and Hillcrest roads, and was constructed in 1997, while Pump Station #6, located in Zion Hill, Springfield Township, was constructed in 1999.

The WWTP currently utilizes comminution, aerated equalization lagoon, extended aeration as a secondary treatment process for BOD, suspended solids removal and nitrification, and chemical precipitation with filtration as the tertiary process for phosphorus, solids removal and final polishing. Comminution is utilized through the use of a new 2.0 mgd Muffin Monster channel flow unit which has been approved by the PaDEP under Sewerage Permit No. 0993405, amendment No. 1, dated March 5, 1996. Chlorination is used as the disinfection process. The authority has obtained a permit to use sulfur dioxide for dechlorination. Dechlorination is required by PaDEP and began on August 1, 2001.

The system primarily serves residential users discharging domestic wastewater. In addition, the system serves several non-significant industries that pretreat, recirculate, or otherwise dispose of wastewater. These industries are inspected routinely and each system is periodically checked for any apparent changes in discharge. Industrial/commercial flows represent less than 2% of the annual hydraulic load.

Construction of new extensions and lateral connections to the sewer system is thoroughly inspected and tested prior to acceptance. Any damage to the system is corrected immediately by the WWTP operators or by contract maintenance. An on-going maintenance management system assures continued serviceability of installed equipment and rapid identification of maintenance problems. All new extensions are videotaped to be filed in the MTASA office for future reference. The Sanitary Sewer System Map is also revised on a regular basis.

The overall condition of the conveyance sewers is good. Key manholes in the system are inspected to monitor for problems as part of a preventive maintenance program. All new connections are thoroughly inspected and approved by MTASA personnel. A condition of excessive inflow and moderate infiltration exists. Various attempts to isolate the inflow problems have been explored, with moderate success.

Due to the demand for new service connections, MTASA has initiated a continuous Sanitary Sewage Collection System Management Program. The primary purpose of the program is an attempt to avoid overloading any portion of the collection and conveyance system which may be approaching peak capacity, and to earmark any sections of the system which may have limited residual capacity remaining.

MTASA now evaluates each Sewage Planning Module Exemption Application in close scrutiny with the Sanitary Sewage Collection System Management Program. If circumstances arise where there may be indications that only limited capacity is available in any given portion of the system where a project is proposed, the MTASA requires a special independent study and field observation before issuance of a capacity certification. The independent study must indicate that sufficient residual capacity is available to handle the additional peak hydraulic load before a sewer module exemption certification will be issued by the Authority.

Additional information regarding the treatment system can be found in Appendix C.

On-Site Sewage Disposal Systems

About 40% of the households in Milford are served by on-site systems. Many of these systems were installed prior to formal permitting processes and are installed in soils inadequate for this purpose. There are scattered system malfunctions and several clusters of known failures. Those clusters and the alternatives for amelioration are presented in Section V.

In the Water Quality Reports submitted with well drilling, there are no reports of high coliform or fecal coliform contamination. Therefore, there is no reason to suspect that old, abandoned wells or cesspools are being used for discharge sites.

Pumping of private systems is performed through contracts between the property owner and a licensed hauler. Bucks County Department of Health oversees the licensing program.

Package Treatment Plants

Three properties use package treatment plants for sewage disposal. A description of each is below.

1. Camp Men-O-Lan

1520 Canary Road

Quakertown, PA 18951

Owner: Eastern District Conference Mennonite Church

Contact: Mr. Ray Linberger

Sewerage Permit No.: 09921426, August 11, 1992

Type of Facility: STP; Lagoon System with Spray Irrigation

Project Area: 5.5 acres

Discharge to: Groundwater, drainage basin to Hazelbach Creek

Plans for Construction Include: Pump stations, sewers and appurtenances, stream crossing

Capacity: 10,000 gpd

Minimum level of effluent quality attainable by secondary treatment

Parameter	Monthly Avg.	Weekly Avg.	Monthly Avg.(% Removal)
BOD	30 mg/l	35 mg/l	85%
CBOD	25 mg/l	40 mg/l	85%
Suspended Solids	30 mg/l	45 mg/l	85%
PH shall be maintained within the limits of 6.0 - 9.0 standard units			

Wells 1 through 4 were implemented six months prior to application on the spray field to utilization of the lagoons for groundwater monitoring.

Sewage is collected and pumped through a force main to the treatment plant. Pump station contains two identical grinder pumps (Model SP6F-500, Aura Hydromatic), capable of handling 36 gpm. An emergency pump connection is installed in case of pump or power failure. The treated effluent is pumped into a 320-foot long, 15-inch diameter pipe.

2. M.B. Research Labs

P.O. Box 178, 1765 Wentz Road

Spinnerstown, PA 18968

Owner & Contact: Dr. Oscar Moreno, president

Water Quality Permit No.: 0978410, May 1, 1978

Type of Facility: Single residence sewage treatment plant with spray irrigation

Area served: Single family residence and lab

Discharge to: Groundwater, drainage area to Licking Creek

Treatment Process	No. of Units
Aeration	2
Chlorination	1
Holding Tank	1
Sand Filter	1
Spray Irrigation	1

3. Quakerwoods Campground

2225 Rosedale Road

Quakertown, PA 18951

Sewerage Permit No.: 0981420, January 22, 1982

Type of Facility: Sewage treatment and land application; construction of facilities and stream crossing

Discharge to: Groundwater, drainage area to Unami Creek watershed

There has been some past concern that this system was not being monitored or maintained correctly. However, new ownership of the campground several years ago seems to have abated that problem.

SECTION IV — FUTURE GROWTH AND LAND DEVELOPMENT

ZONING DESIGNATIONS AND CLASSIFICATIONS

Zoning designations for Milford Township are shown below:

<u>Zone</u>	<u>Description</u>	<u>Min. Lot Area (SFD - Cluster)</u>	<u>Max. Density* (DU/AC)</u>
RP	Resource Protection	5 acres - 1 acre	.18 - .21
RA	Rural Agricultural	2 acres - 30,000 sq. ft.	.44 - .50
RD	Rural Development	1 acre - 20,000 sq. ft.	.87 - .90
SRL	Suburban Residential Low	20,000 sq. ft. - varies	1.9 - 2.75
SRM	Suburban Residential Medium	15,000 sq. ft. - varies	1.9 - 3.8
PC	Planned Commercial	1 acre	n/a
PI	Planned Industrial	1 acres	n/a
VC-1	Village Center (Rural Area)	20,000 sq. ft.	.15
VC-2	Village Center (Development Area)	15,000 sq. ft.	.20
*Density varies based on cluster and compliance with performance standards			

These above designations and classifications are defined below:

Reserve Areas—The purposes of the zoning districts of reserve areas are to maintain the rural character of the area for the foreseeable future; to preserve large environmentally sensitive areas; to protect and enhance the character of existing rural villages; and to protect the general scenic quality of the area.

(1) Resource Protection District (RP)—The purpose of this district is to protect areas consisting largely of sensitive natural features such as woodlands, steep slopes, scenic areas, wetlands, floodplains, and lakes and ponds. Intensities are such as to ensure that these resources are permanently protected.

(2) Rural Agricultural District (RA)—The purpose of this district is to provide standards for low-intensity development in rural areas until these areas are both needed for development and provided with utilities. The intensity of use is intended to be such that development which does occur will not require urban services and will not present or create problems for future development.

(3) Village Center-1 District (VC-1)—The purpose of this district is to protect the character of existing villages in rural areas. A variety of residential and small-scale commercial uses are permitted to continue the existing land use pattern. The intensities are intended to allow in-fill development that is compatible with existing conditions in the villages.

Development Areas—These areas are established to accommodate the anticipated growth of the Quakertown Area for a specific period of time. The zoning districts of development areas provide

areas for residential, commercial, industrial and other nonresidential uses. The infrastructure needed to sustain these developed activities must be available within the development areas. The purpose of the development areas is to control and regulate development so as to coordinate the Quakertown Area's growth with the provision of public services and facilities. Within this area, development is encouraged to promote the efficient use of land and a well balanced community.

(1) Rural Development District (RD)—The purpose of this district is to provide for limited, low-density residential development in areas which are not now served with public sewers or for which a need for higher intensity development does not exist. (1) Suburban Residential Conservation District (SRC)—It is the purpose of this district to preserve natural features and resources such as woodlands, steep slopes, wetlands, floodplains and lakes and ponds in areas where such features predominate. Residential uses are permitted on very large lots or where they are clustered with large areas of open space.

(2) Suburban Residential Low District (SRL)—It is the purpose of this district to provide for low-intensity suburban residential development. A variety of housing types are encouraged, as are clustering and the provision of open spaces. The intensities are intended to blend with existing residential uses and protect natural features and resources.

(3) Suburban Residential Medium District (SRM)—It is the purpose of this district to provide for medium-intensity residential development. A variety of residential uses are encouraged, as are clustering and the provision of open spaces. The medium intensities are designed to encourage good residential development near major roads.

(4) Village Center District (VC-2)—The purpose of this district is to protect the character of existing villages in Development Areas. A variety of residential and small-scale commercial uses are permitted to continue the existing land use pattern. The intensities are intended to allow in-fill development that is compatible with existing conditions in the villages.

the purpose of this district to provide for the creation and continuation of commercial development in appropriate areas. Highway-oriented businesses may be required to provide an access road which is intended to lessen traffic congestion and hazards by reducing the number of access points.

(5) Planned Industrial District (PI)—It is the purpose of this district to encourage planned industrial, heavy commercial, office or laboratory uses in appropriate areas. Such development shall be planned as a whole with all uses fronting on an internal street. The intent is to encourage high-quality industrial and commercial development which relates to adjacent residential areas as a good neighbor, with design standards which avoid adverse impacts on neighboring residential developments.

The Zoning Ordinance and Subdivision and Land Development Ordinance control development and use of available land throughout the township. While these ordinances govern lot uses and sizes, they do not set lot areas based on on-lot sewage disposal systems. As stated in the Quakertown Area Comprehensive Plan, "... (N)o lot area will ensure that a septic system will function properly and that negative impacts on neighboring properties will not occur."

The zoning ordinance defines a floodplain as "Areas adjoining streams, ponds, or lakes subject to the 100-year-recurrence-interval-flood; or area identified by the presence of flood plain soils." Article V.B, Flood Plain Performance Standards, of the zoning ordinance

sets standards and provides for permitted and special exception uses within floodplains. Permitted uses are agricultural and pasture, recreational, residential and nonresidential yard areas, and temporary uses such as carnivals, circuses and similar activities. Uses permitted by special exception are utilities such as streets, bridges, and pipe lines; water related activities; storage of materials and equipment; and pervious parking areas.

Stormwater management and erosion control are also of concern to the township. Sections 511 and 512 of the SALDO, amended September 2002, bring the township into complete compliance with state regulations and guidelines. The sections are included in the Appendix for reference.

The ordinances also afford significant protection of steep slopes, wetland areas, wetland margin and surface water areas.

FUTURE GROWTH AND LAND DEVELOPMENT

Listed below are completed and proposed projects that utilize public sewer. The sewer treatment plant has sufficient capacity for these projects.

Major Subdivisions and Land Developments since 1995

Projects Completed			Projects Planned or Under Construction		
Name	Location	EDUs	Name	Location	EDUs
Tollgate Landing	Trumbauersville Road	83	Valley View II	Spinnerstown Road	88
Willow Stream	Trumbauersville Road	221	Miller's Run	Mill Road	12
Milford Square Estates	Milford Square Pike	121	Soliday/Marzano	Allentown Road	4
Quaker Pointe	Route 663	30	Fox Field Estates	Kumry	76
St. John's Church	Sleepy Hollow Road	5	Blackledge Estates	Portzer Road	17
Milford Glen	Creamery Road	54	Canary Group	Milford Square Pike	3
Meadowood	Creamery Road	18	Vorndran	Brinkman Road	3
Valley View I	Spinnerstown Road	78	Emerald Hollow	Allentown Road	40
Modla Tract	Hillcrest Road	34	Schlosser Lot 11	Milford Square Pike	5
Markward/CFC	AM Drive	3	Quakertown Veterinary Clinic	Old Bethlehem Pike	11
D-Electric	Quaker Pointe Drive	2	Markward II	AM Drive	3
Holiday Inn	Route 663	36	Wawa	Route 663	8+
Mill Valley Estates	Milford Square Pike	19	St. Isodore's Church	Portzer Road	2
Hampton Inn	Route 663	38	St. Isodore's School	Portzer Road	10
Spinnerstown Crossing	Spinnerstown Road	84			
Cedarfield	Mill Road	15			
Valentine Miller	Hillcrest Road	4			
Cole	Hieter Road	4			
Pennsylvania Turnpike	Route 663	5			
Kresge	Gateway Drive	4			
Quakertown Presbyterian	Krammes Road	3			
Schlosser Lot 10	Milford Square Pike				
M.P. Filtri	Quaker Pointe Drive	2			

FUTURE GROWTH AREAS

Residential

It is Milford Township's policy to direct growth toward *Development Areas* where available infrastructure can accommodate the demand. As currently sized, the *Development Areas* provide adequate room for the projected 2020 population with significant additional capacity in the *Reserve Areas*. This additional capacity would not encroach on the low density *Resource Protection Areas* that support preservation of open space and natural resources in the non-growth areas, while performance zoning and clustering provide a method to retain open space throughout the township.

Based on regional population growth projections by BCPC, Milford's population could grow from 8,810 persons in 2000, to between 12,300 and 15,450 persons by 2020, an increase of up to 6,640 residents. With a projected average household size of 2.75 in 2020, those additional residents would require 2,414 new dwelling units.

The township has designated the Spinnerstown and Milford Square areas for the greatest density and north of Trumbauersville for moderate density residential growth on its Land Use Plan. The opportunity to build a variety of reasonably priced housing in these areas will retain an overall balance of housing types. Clustering and open space provisions are encouraged in both the low and medium density areas.

Although most dwelling units needed for the 2020 population will be built in the growth areas, it is reasonable to expect growth in the low density *Resource Protection Areas*. An important element in the Township's planning program is the requirement to perform site capacity calculations that delineate and exclude from development sensitive natural resources. By clustering dwellings on smaller lots contiguous open space can be preserved. Yet this presents a considerable challenge to ensure responsible operation and maintenance of community sewage systems that may serve this type of development.

Nonresidential

The Land Use Plan also provides sufficient areas for nonresidential growth. Bucks County Planning Commission projections and data from the Quakertown Area Comprehensive Plan of 1992 were used to compare the needs projected for 2020 and the capacity provided under the Land Use Plan. The resulting calculations show that there is sufficient land to accommodate nonresidential growth through the next 20 years.

Two areas along Route 663 have been delineated in the Land Use Plan for commercial, office or industrial purposes. There are approximately 300 developable acres remaining. Exactly how much of that land can or will be developed is based on the proposed use and natural resources on the property. Based on regional employment projections by the Bucks County Planning Commission, Milford should have sufficient land available to accommodate nonresidential growth through 2020.

Since there are no legislative or court-determined "fair share" standards for nonresidential uses, the methods used to project future demand for employment may not be as reliable as those used for projecting residential growth. But the fact that the demand projected by BCPC is essentially the same as provided under the Land Use Plan is considered a confirmation of the suitability of the area provided on the Land Use Plan.

SECTION V — IDENTIFICATION OF ALTERNATIVES

GENERAL ALTERNATIVES CONSIDERED

The following alternatives were evaluated. They are described here to avoid redundancy. Details are in the analysis of each area as appropriate.

Sewer System Extension

The identified problem areas are generally small clusters of dwellings on small lots located at the far reaches of the township. The placement of a sanitary sewer through these undeveloped areas to reach the homes is in direct conflict with the land use planning policies of Milford Township and Bucks County. This alternative would divert public investment in plant capacity to support inefficient and inappropriate land use patterns (sprawl) and would unnecessarily create development pressures outside of the development district. The costs are significant and, if imposed on the property owners, could have the effect of a taking.

Individual Residential Spray Irrigation System

The majority of the properties within the problem areas are small lots, many of them less than one acre. Therefore, an IRSIS is not an option in many cases. Milford's policy is land application of effluent and approvals of an IRSIS will be on a case-by-case basis.

Package Treatment Plant

As described above, a package treatment plant in these undeveloped areas directly conflicts with the land use planning policies of Milford Township and Bucks County. Treatment plants may also conflict with the High Quality stream protection standards of Pennsylvania. This alternative would divert public investment in plant capacity to support inefficient and inappropriate land use patterns (sprawl) and would unnecessarily create development pressures outside of the development district. The costs are significant and, if imposed on the property owners, could have the effect of a taking.

Community On-Lot Disposal Systems and Land Application

The use of community on-lot disposal systems was evaluated based upon the On-Site Soil Suitability Map as prepared by the Bucks County Planning Commission. This map (Map, appendix F8 & F.9) is a guidance document only. All land application proposals must be evaluated on an individual site specific basis in accordance with Pennsylvania Code, Title 25, Chapter 73.

Since the township's objective is to encourage groundwater recharge through land application of effluent, disposal methods such as spray and drip irrigation and other alternate or experimental technologies that contribute to groundwater recharge will be encouraged based upon approval of those technologies by DEP.

Holding Tanks

The use of holding tanks requires proper management and oversight by property owners. Holding tanks are also costly on a long-term basis since all wastewater must be

pumped and hauled. Therefore, this alternative is not utilized unless immediate health risks are confirmed and all other options exhausted. A significant problem with holding tanks is failure of the property owner to pump them with regular frequency. The Bucks County Department of Health has issued several pump-and-haul orders for holding tanks that were not being maintained. The department has continued to oversee those orders. Milford Township's holding tank ordinances (#22 & #28) are in the process of being updated to consolidate and bring them into conformance with current DEP regulations. A draft is included in Appendix B.10.

The policy of Milford Township is that the use of holding tanks is limited to the correction of failing permitted on-lot sewage disposal systems only after all other reasonable corrective measures have been taken as outlined in Pennsylvania Code Title 25, Chapter 73.3.(b), Policy.

Community Holding Tank

While community holding tanks may be a possible short-term solution, the added operational benefits of having the MTASA ensure pumping do not justify the capital costs and social disruption created by mandated participation. The creation of an area serviced by community sewers would increase the probability for installation of a package treatment plant or the inappropriate extension of sewers, both of which are unacceptable alternatives. If holding tanks are the only alternative, they should be implemented on an individual basis.

On-Site System Management District

An On-Site System Management District is a designated area where routine pumping of septic and holding tanks is performed by the municipality and billed to the homeowner. A certified Sewage Enforcement Officer performs inspections in conjunction with this pumping to determine the condition of the system and need for repair. This is an appropriate approach to ensure proper sewage disposal and to specifically evaluate individual systems in a specified area. A draft On-site System Management Ordinance is located in Appendix C.11

Property Buyouts

This alternative will be pursued on an area-by-area and property-by-property basis. Full implementation will only be possible if county, state and/or federal funding is made available. In addition, a willing seller is required. This alternative most closely conforms to the land use plans of Bucks County and Milford Township in that the failing systems are eliminated, sprawl is eliminated, all without the inappropriate extension of public sewers or the construction of package sewer treatment plants.

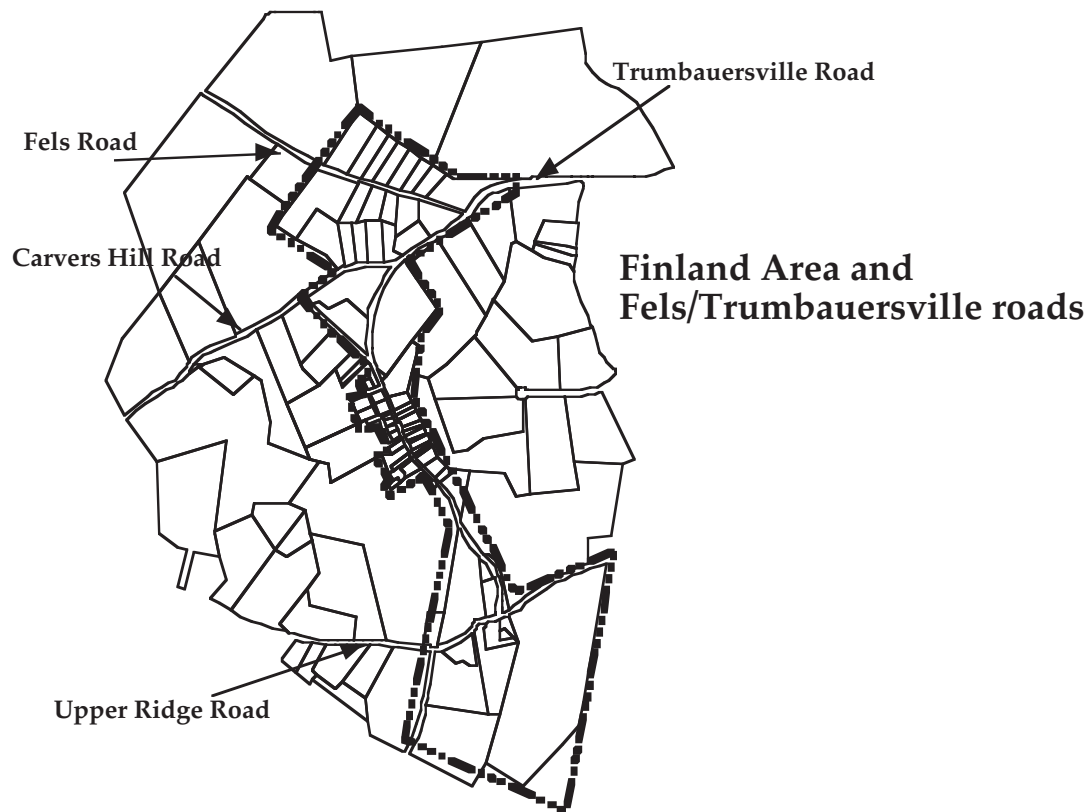
Continued Use of Existing On-Lot Systems

This alternative is the most viable when used in conjunction with the On-lot Sewage System Management Ordinance (Ordinance #108) and implementation of Sewage Management Districts where required.

1985 IDENTIFIED PROBLEM AREAS — BEING RECTIFIED

Finland Area and Fels / Trumbauersville Road

The Finland area is located in the vicinity of the intersection of Upper Ridge and Trumbauersville Roads. Due to the proximity of the Fels and Trumbauersville road area, the two have been combined for discussion purposes. Approximately 50 homes are located within the area and utilize septic systems on soils unsuitable for their use. System failures have been reported. Several homes use holding tanks. Many of the cottages on Trumbauersville Road, along the Unami Creek, are located in the floodplain (map, overleaf).



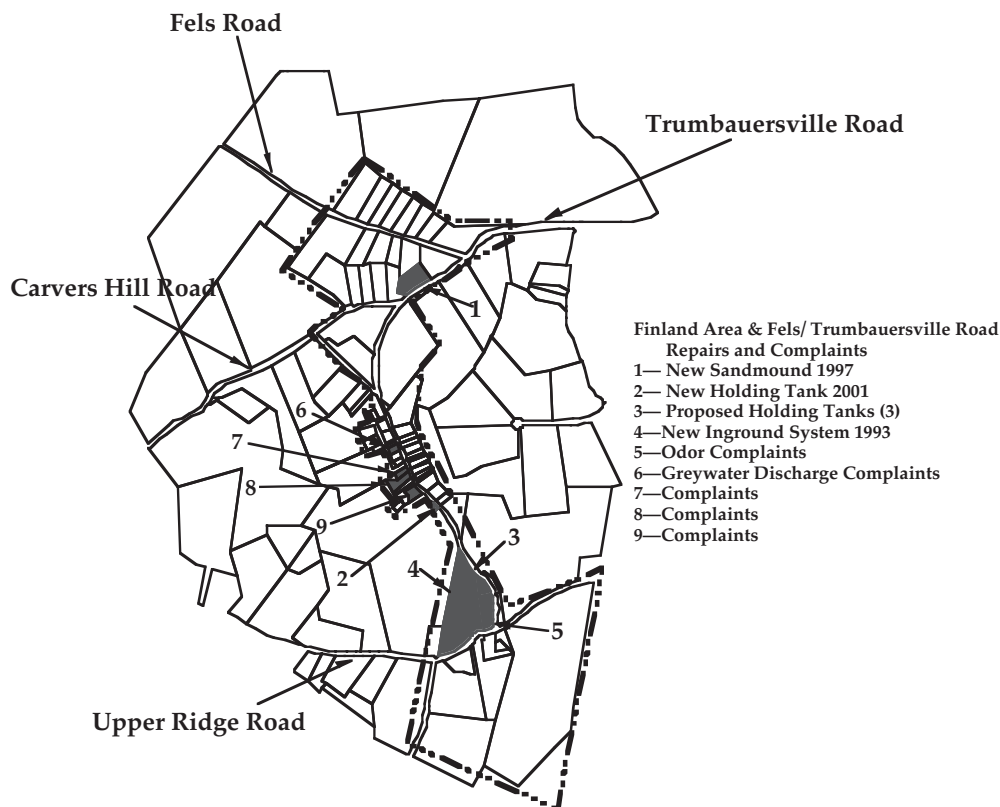
Bucks County Department of Health records indicate several system failures have occurred mainly due to lack of pumping and maintenance. This situation is exacerbated in Finland by the use of unpermitted systems on small lots (lot sizes are generally between 5,000 to 10,000 square-feet). Groundwater sampling has not been conducted within this area. However, water sampling of the Unami Creek (see map, details of the testing are in Appendix B.8) revealed high levels of coliform in and downstream of Finland. In November 2000, the Bucks County Department of Health tested ditchwater in front of a selected property. The result was 1,700,000/100ml of fecal coliform. It should be noted that in August 1997, the Pennsylvania Department of Environmental Protection upgraded the water quality designation of the Unami Creek of this segment from "Trout Stocking Fish (TSF)" to "High Quality / Trout Stocking (HQ/TSF)."

Sewer System Extension

Extension of the system to collect and convey flows generated in the Finland and Fels area requires the construction of approximately 9,200 LF (1.74 miles) of gravity sewer and 13,800 LF (2.61 miles) of force main with a pump station located near the Ridge Valley Road crossing of the Unami Creek. Construction cost estimates and feasibilities are shown in Appendix B.1, Table B.1, and Appendix B.6. The proposed sewer path is shown in Appendix B.1, Figure A. This is not a viable alternative for the area.

IRSIS

Only a handful of properties in this area are large enough for an IRSIS. This alternative is not viable for the Finland/Fels Area.



Package Treatment Plant

A package treatment plant could be constructed at the same location as the pump station as described in the sewer extension alternative. From the package treatment plant, the sewage can either be pumped to an on-lot disposal site or it could travel by gravity to the stream and be discharged. If stream discharge were used, the sewage would travel from the package treatment through a sand filter and man-made wetlands area before discharging. Current development levels are low, with approximately 60 units in the drainage area. A 24,500 gpd package plant would service the current development levels.

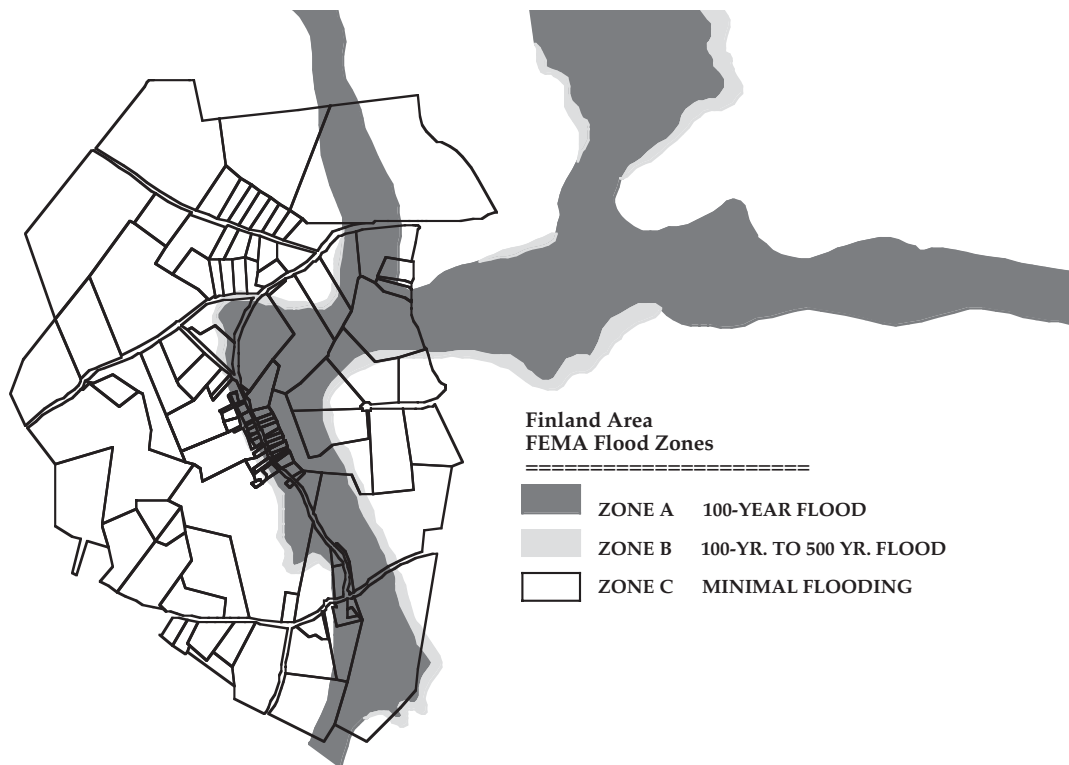
Appendix B.1, Table B.2 gives construction cost estimates. Appendix B.1, Figure A shows the sewer path. This alternative is not viable for the area.

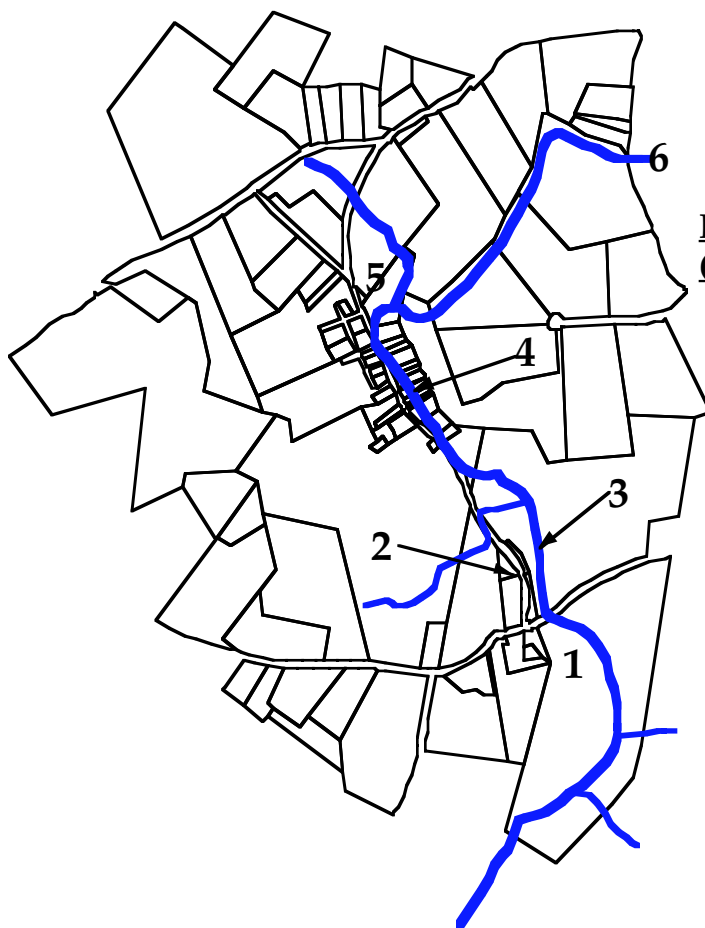
Community On-Lot Disposal Systems and Land Application

Soils suitable for limited spray irrigation (0-1 inch per acre per week) do exist in the general area. Should development be proposed on those lands, the adjacent problem area must be evaluated for inclusion in the sewage system design. Milford Township encourages evaluating all department approved methods of land application, including on-lot disposal systems, spray irrigation, drip irrigation, and other new or alternate technologies that contribute to groundwater recharge, upon the approval of those technologies by DEP.

Holding Tanks

There are three holding tanks still in use within the Finland study area. Continued use of existing holding tanks that are in conformance with the township holding tank ordinance is an appropriate alternative within the context of an On-Site System Management District.





RESULTS OF COLIFORM SAMPLING (NOV. 29, 2000)

Site	Total Coliform	Fecal Coliform
1	24,000	24,000
2	240,000	<240
3	24,000	2,400
4	240,000	2,400
5	240	240
6	24,000	240

Community Holding Tank

A 126,000 gallon community holding tank, servicing 60 units, could be installed in approximately the same location as a package treatment plant. The MTASA could have an annual contract with a hauling company to transport the effluent to a treatment plant for disposal. Appendix B.1, Table B.3 gives construction cost and operation estimates.

On-Site System Management District

This area is appropriate for designation as an On-Site System Management District. The combination of older development with suspect sewage facilities and environmental sensitivity warrants focused attention for proper wastewater disposal. Finland needs oversight and management to ensure proper sewage disposal and to specifically evaluate individual systems. As discussed previously, there are evident problems that have direct impact on the Unami Creek. Therefore, the Finland area has the highest priority of Milford Township to implement a Management District. The success of this effort in Finland will determine if this approach is applied to other problem areas.

Property Buy-Outs

Many of the lots in the Unami stretch of the area are small and located in the floodway and floodplain. These structures, originally used as seasonal cabins, generally were converted to year-round use without regard for proper sewage disposal. Alternatives for correcting the sewage disposal problems are expensive. Therefore Milford has begun to acquire properties and removing the structures on them. Priority is given to those properties on the eastern side of Trumbauersville Road, immediately abutting the Unami and located in the floodway.

Finland Area Property Matrix				
Buyout Priority	Tax Map #	Owner	Occupancy	Problems
---	23-8-12 & 13	Milford Twp.	V	---
---	23-8-14	Milford Twp.	V	---
---	23-8-16	Milford Twp.	V	---
---	23-8-20	Milford Twp.	V	---
---	23-8-21	Milford Twp.	V	---
---	23-8-24	Milford Twp.	V	---
---	23-8-31	Milford Twp.	V	---
---	23-8-25 & 26	Milford Twp.	O,V	N
1	23-8-9 & 22	Hein	V	---
1	23-8-17 & 17.1	Hallman	O,V	Y
1	23-8-23	Goettner	V	---
1	23-8-27, 29 & 30	Raudenbush	O,V,V	N
1	23-8-28	Goettner	V	---
1	23-20-6 & 6.1	Shultz	O,V	N
1	23-20-13 & 13.1	Goettner	V,V	---
1	23-20-7 & 7.1	Rotondi	O/V	Y
2	23-8-10	Linden	O	N
2	23-8-15	Raudenbush	O	Y
2	23-8-18 & 18.1	Kingcade	O,V	---
3	23-8-4 & 7	Russell	V,O	---
3	23-8-6 & 8	Moyer	O,V	---
3	23-8-19	Christman	V	---
3	23-20-9	Leckey	O	N
3	23-20-8 & 8.1	Kern	O	Y
3	23-20-30 & 32.1	Bernie Ent.	V	---
3	23-20-30-1	Kaufman	V	---
3	23-20-32 & 33	Kern	O	---

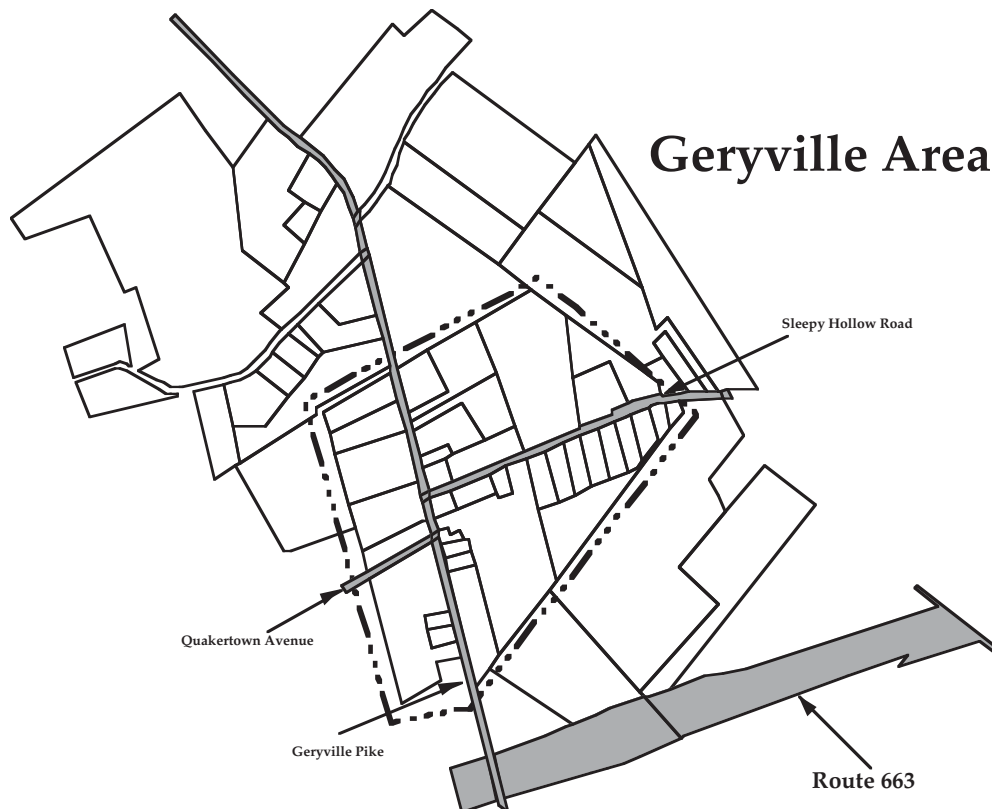
This alternative will continue to be pursued. Expedient implementation will only be possible if county, state and/or federal funding is made available. This alternative most closely conforms to the land use plans of Bucks County and Milford Township, particularly the Open Space Plans that identify the Unami Stream corridor as a priority for open space preservation and environmental protection. This also conforms to the Milford Township Park and Recreation Plan that describes a waterfront park in the Finland Area.

Continued Use of On-Lot Systems

Continued use of on-lot systems is anticipated while property buyouts are pursued and other alternatives are evaluated as a result of field work done under an On-Site System Management District. System evaluation and repair/retrofit on an individual basis will reduce the severity of the problem, allowing for future resolution of the long-term needs.

1985 IDENTIFIED PROBLEM AREAS — NOT RECTIFIED

GERYVILLE AREA



Geryville is located near the intersection of Geryville Pike and Sleepy Hollow Road. There are approximately 30 residences on soils generally unsuited for conventional on-site systems. In fact, very few of the 30 dwelling units are located on soils suitable for

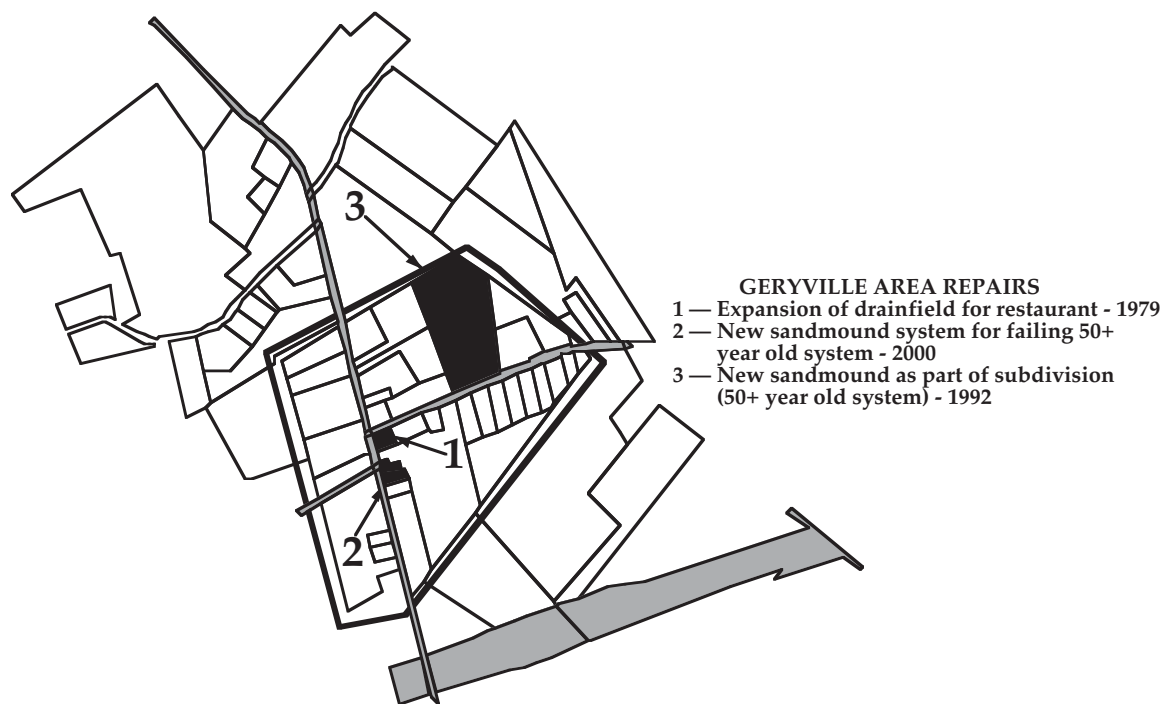
alternative systems. The area is located within the Rural Agricultural (RA) and Village Center 1 (VC-1) zoning districts which require relatively low-density development.

Sewer System Extension

A sanitary sewer collection system of 16,400 feet (3.11 miles) could be installed to collect flow from the Geryville and Mumbauersville areas and convey it to a low point on Stony Run Creek. The waste could then be pumped 12,800 feet (2.43 miles) down Route 663 to connect into the existing system at its Route 663 crossing near the Pennsylvania Turnpike. Construction could be contained within the right-of-way, with the exception of the pump station. Appendix B.1, Table B.4 shows estimated costs. Appendix B.1, Figure B illustrates the system routing. This alternative is not viable for the area.

IRSIS

There are several properties in Geryville that may be large enough and have adequate soils to support an IRSIS. This alternative may best be investigated for a community on-lot land application system to alleviate problems on small or inadequate lots.



Package Treatment Plant

A package treatment plant could be constructed further upstream from the pump station location. The plant would eliminate 12,800 feet of force main, a pumping station and 16,400 feet of gravity line. A dual system would be utilized with the package treatment

plant. Spray irrigation would be used during the majority of the year, while stream discharge would be used during the winter months. With the stream discharge method, the sewage would travel from the package treatment plant through a sand filter to a man-made wetland area and finally to the stream.

The present level of development is approximately 30 units which would require connection to the package treatment plant. At 350 gpd/EDU, a plant to treat 14,000 gpd, would service the area. Appendix B.1, Table B.5 itemizes the construction costs. Conveyance routes are shown in Appendix B.1, Figure B. This is not a viable alternative for this area due to the cost.

Community On-Lot Disposal Systems and Land Application

There is land adjacent to the area upon which community spray irrigation may be feasible. Should development be proposed on these lands, the adjacent problem area must be evaluated for inclusion in the sewage system design. Milford Township encourages evaluating all department approved methods of land application, including on-lot disposal systems, spray irrigation, drip irrigation, and other new or alternate technologies that contribute to groundwater recharge, upon the approval of those technologies by DEP.

Holding Tanks

Use of holding tanks in the Geryville area may be an acceptable option, although the cost and frequency of pumping is cost prohibitive on a long-term basis. This alternative should only be pursued if an existing permitted system is failing, no viable on-site alternatives exist and financial security to ensure necessary pumping is in place.

Community Holding Tank

A 63,000 gallon community holding tank, servicing 30 units, could be installed in the Geryville area. The tank could be installed in approximately the same location as a package treatment plant. The MTASA could have an annual contract with a hauling company to transport the effluent to a treatment plant for disposal. Appendix B.1, Table B.6 gives construction cost estimates and the operation and maintenance costs/EDU/year.

While this may be a short-term solution, the added operational benefits of having the MTASA ensure pumping do not justify the capital costs and social disruption created by mandated participation. The creation of an area serviced by community sewers would increase the probability for installation of a package treatment plant or the inappropriate extension of sewers, both of which are unacceptable alternatives. If holding tanks are the only alternative, they should be implemented on an individual basis.

On-Site System Management District

This area may be appropriate for designation as an On-Site System Management District as there is a combination of denser development with suspect sewage facilities, questionable soils, and environmental sensitivity. Designation as an OSMD will be in consultation with the Bucks County Department of Health.

Property Buyouts

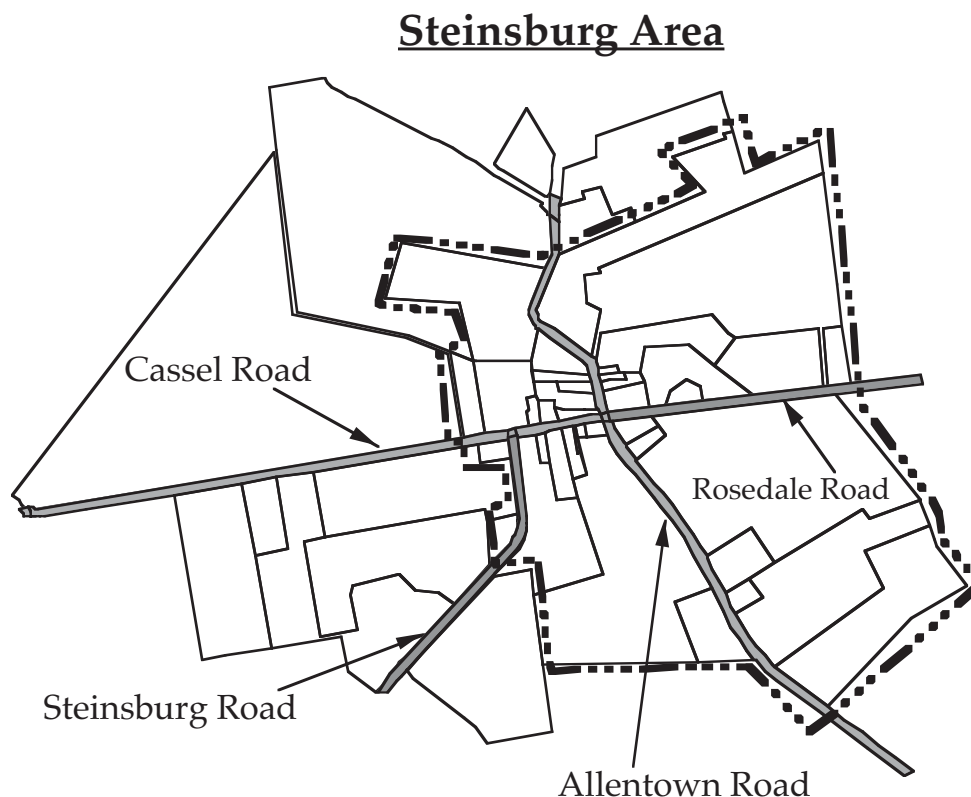
Enforcement of Ordinance #108 and an SMD should alleviate and control sewage problems in the Geryville area. Other alternates must also be explored prior to considering this option.

Continued Use of On-Lot Systems

Continued use of on-lot systems is anticipated until other alternatives become viable as a result of field work done under an On-Site System Management District. Health Department records indicate several system failures have occurred. Groundwater sampling has not been conducted within this area. System evaluation and repair/retrofit on an individual basis will reduce the severity of the problem, allowing for future resolution of the long-term service needs.

STEINSBURG AREA

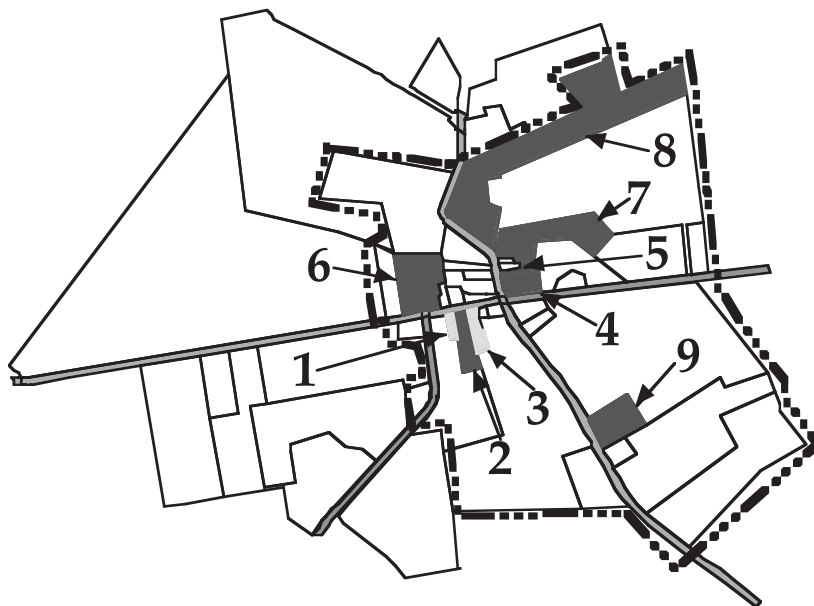
This area is located near the intersection of Allentown and Steinsburg roads. The area contains approximately 35 homes, most clustered near the intersection, and several vacant parcels. Several homes within the area have experienced septic system failures. Nine repair permits have been issued since 1979 with the majority issued to replace old and deteriorated metal tanks. None have been issued since 1995. Most of the existing dwellings are situated on marginal soils which may be suitable for elevated sand mounds or alternate/experimental systems.



Sewer System Extension

The existing sanitary sewer can be extended to service the Steinsburg Area, with several routes available. A gravity line could be installed from the Steinsburg area down Allentown Road to tie into the existing system near Bleam Road. Alternatively, a gravity line could be installed along the Unami Creek Tributary paralleling Allentown Road tying into the system at Mill Pond Road. Lastly, a force main could be constructed along Rosedale Road to tie into the existing system at Old Bethlehem Pike. The alternates and costs are shown in Appendix B.1, Table B.7. Routing is shown in Appendix B.1, Figure C. This is not a viable alternative for the Steinsburg Area at this time.

Generally, it is more expedient to construct within existing rights-of-way to avoid acquisition costs, negotiations and condemnations. For this reason, utilizing Rosedale Road would be a more desirable route. Gravity lines allow for direct connection of adjacent properties, are self-cleaning, low maintenance and have no operational expenses associated with their use. Forced systems have electrical costs, mechanical components requiring maintenance, possible chemical addition requirements, and the number of connections is restricted. This makes them more expensive to operate, and limits the addition of customers which tempers the cost per EDU. This alternative is also not viable for the area.



STEINSBURG AREA REPAIRS

- 1 — Replace 500 gallon with 1,000 gallon tank - 1995
- 2 — New sandmound system - 1988
- 3 — Replace two 250 gallon with one 1,500 gallon tank - 1995
- 4 — Replace clogged drain pipe - 1991
- 5 — New 1,000 gallon tank - 1979
- 6 — New 1,000 gallon tank - 1995
- 7 — Trench additions (BTG) - 1975 & 1980
- 8 — New sandmound system - 1994
- 9 — New 1,500 gallon tank - 1998

IRSIS

Many of the properties in the Steinsburg area are too small to allow a permitted IRSIS. If an IRSIS is proposed on any of the larger lots, the efficacy of a community on-lot land disposal system should be explored.

Package Treatment Plant

This alternative contemplated the installation of a 10,000 gpd dual-system package treatment plant on Rosedale Road near where a Unami Creek tributary bisects the road. Gravity lines would feed the plant. Wintertime discharge would be to the unnamed tributary of the Unami Creek as shown in Appendix, B.1, Figure C. Spray irrigation would be used during the warmer months. With the stream discharge method, the sewage would travel from the package treatment plant through a sand filter, to a man-made wetland area and finally to the stream. Future plant expansion could be accomplished through the purchase and connection of additional package plant components should the need arise, or if warranted, connection to the existing plant by removal of the package plant and replacement with a pump station.

As indicated in Appendix B.1, Table B.8, utilizing a package treatment plant in Steinsburg would be very expensive. The plan also proposes point discharge to a Unami Creek tributary - a protected creek with downstream segments designated as High Quality and Trout Stocking Fishery. In addition, a package treatment plant in this undeveloped area directly conflicts with the land use planning policies of Milford Township and Bucks County. This alternative would unnecessarily create development pressures outside of the development district and would divert public investment to support inefficient and inappropriate land use patterns (sprawl). The costs are significant and, if imposed on the property owners, could have the effect of a taking. For these reasons, a package treatment plant is considered an unacceptable alternative.

Small Flow Treatment System

The use of small flow treatment systems was evaluated for this area. The cost of a small system for the treatment of 2,000 gpd is approximately \$42,000 and can service four EDU's. Construction costs per EDU are approximately \$10,500. This does not include costs for operation, maintenance and permit compliance (i.e. discharge monitoring). This alternative is not feasible in Steinsburg since only four EDU's would be serviced.

Community On-Lot Disposal Systems and Land Application

Lot sizes in Steinsburg proper are in general too small for consideration for on-site spray irrigation systems. On-lot spray irrigation systems generally require a minimum of two acres for the spray field alone. Considering setbacks from property lines, wells, recreation areas, and structures, individual spray irrigation systems are not viable for the lots in the Steinsburg area.

There is, however, adjacent land that may be suitable for spray irrigation at rates of one to two inches per acre per week. An area to the north and northwest of Steinsburg is shown on the Bucks and Philadelphia Counties Soil Survey as Allenwood gravelly silt loam, 3 to 8 percent slopes (AdB). This type of soil is considered to have

generally few limitations for use for sewage effluent disposal. The Allenwood soils are upslope and would require pumping up to the treatment and spray area.

There is also an area of Allenwood soils to the east of Steinsburg near the intersection of Rosedale and Dahl roads. Pumping would also be required to lift the effluent to this treatment/spray area. Further study would be required to verify on-site soils, evaluate spray irrigation versus subsurface disposal, and determine sizing requirements for such systems. However, should development be proposed on the lands near the intersection, the Steinsburg area should be considered for inclusion in the sewage system design.

Milford Township encourages evaluating all department approved methods of land application, including on-lot disposal systems, spray irrigation, drip irrigation, and other new or alternate technologies that contribute to groundwater recharge, upon the approval of those technologies by DEP.

Holding Tanks

There are no known holding tanks. New holding tanks should be allowed only as a repair for a previously permitted, but failed septic system and only if no viable on-site alternatives exist and financial security to ensure necessary pumping is in place.

Community Holding Tank

An 84,000 gallon community holding tank, servicing 40 units, could be installed in approximately the same location as a package treatment plant. The MTASA could have an annual contract with a hauling company to transport the effluent to a treatment plant for disposal. Appendix B.1, Table B.9 gives construction cost estimates and the operation and maintenance costs/EDU/year.

While this may be a possible short-term solution, the added operational benefits of having the MTASA ensure pumping do not justify the capital costs and social disruption created by mandated participation. The creation of an area serviced by community sewers would increase the probability for installation of a package treatment plant or the inappropriate extension of sewers, both of which are unacceptable alternatives. If holding tanks are the only alternative, they should be implemented on an individual basis.

On-Site System Management District

This area may be appropriate for designation as an On-Site System Management District as there is a combination of denser development with suspect sewage facilities, questionable soils, and environmental sensitivity. Designation as an OSMD will be in consultation with the Bucks County Department of Health.

Property Buyouts

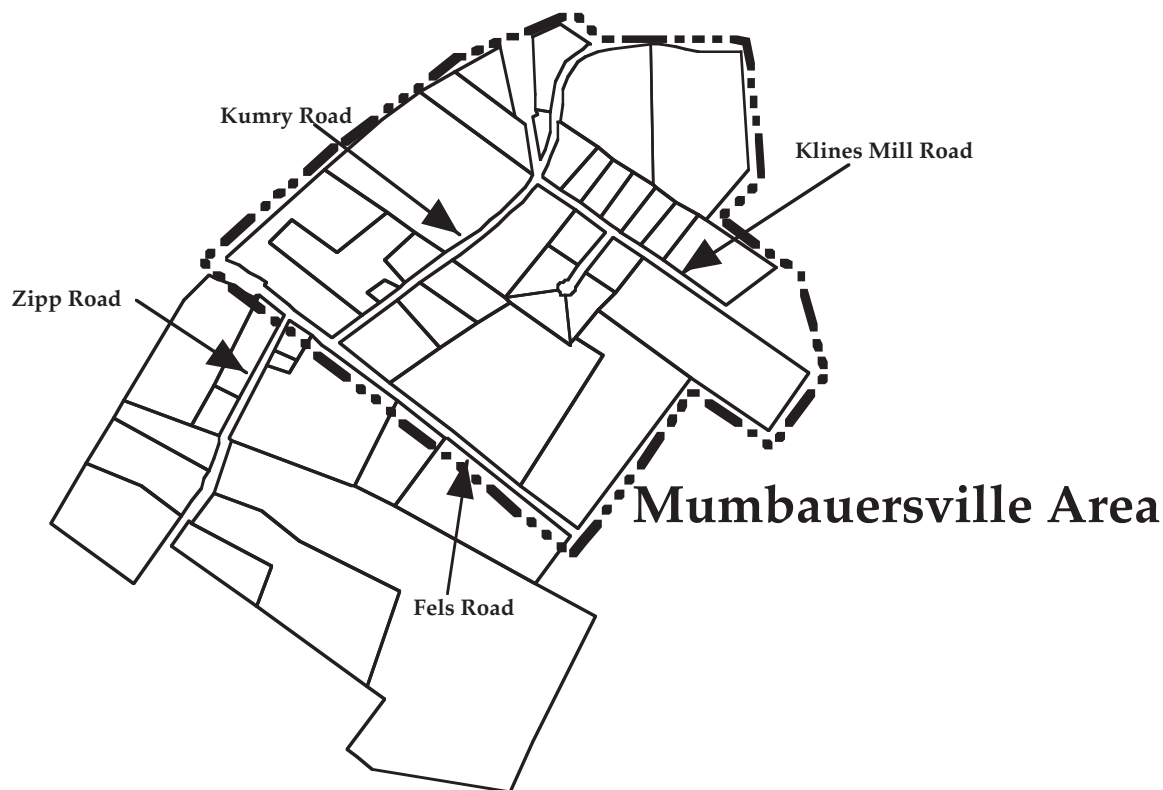
This alternative will only be considered if all other alternatives fail in resolving on-lot sewage problems.

Continued Use of On-Lot Systems

Continued use of on-lot systems is anticipated. System evaluation and repair / retrofit on an individual basis will continue to reduce and contain the severity of the problem.

MUMBAUERSVILLE AREA

This area encompasses 30 homes surrounding the intersection of Kumry and Klines Mill roads. Although identified in the 1985 plan as a problem area, there have been no significant system failures or problems reported during the last 18 years.



Sewer System Extension

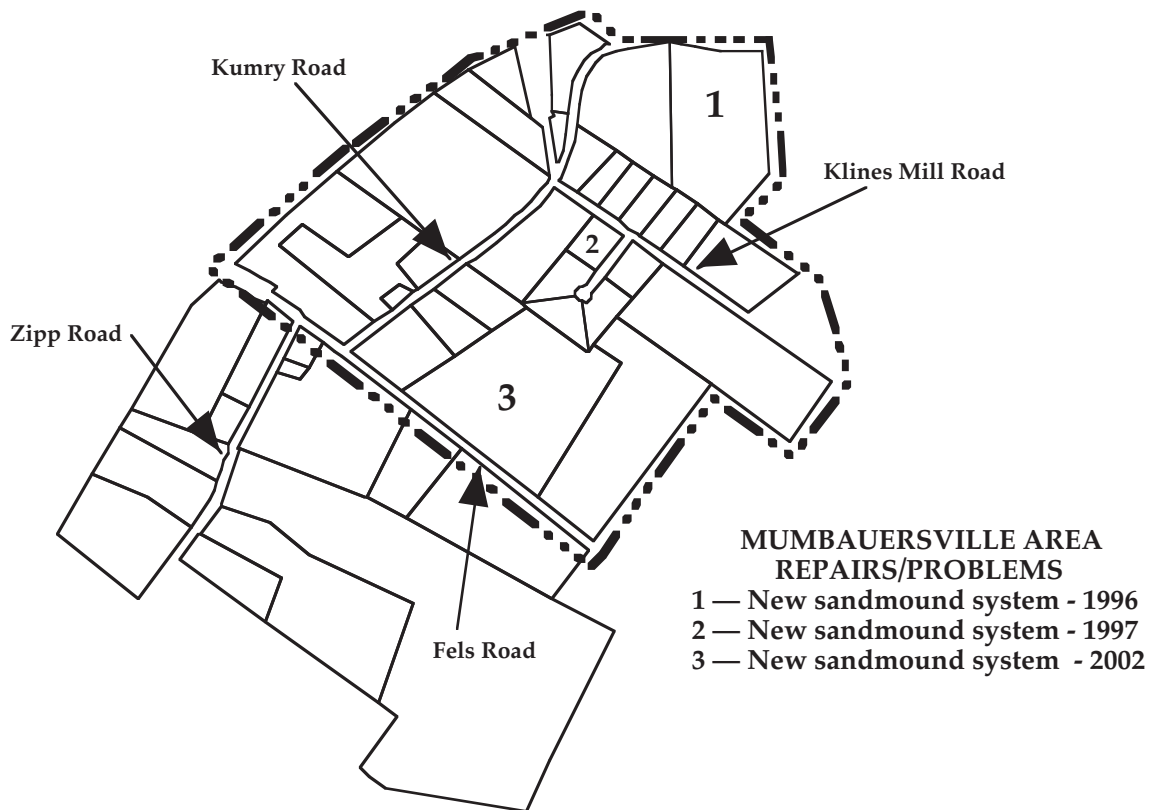
See description for same under Geryville and Appendix B.1, Figure B.

IRSIS

About one-half of the properties in this area are too small for an IRSIS. Should one of the larger lots be considered for an IRSIS, a community system should be evaluated to relieve other problem systems or for an alternate site should additional problems on the small lots arise.

Package Treatment Plant

See description for same under Geryville and Appendix B.1, Figure B.



Community On-Lot Disposal Systems and Land Application

See description for same under Geryville

Holding Tank

See description for same under Geryville

Community Holding Tank

See description for same under Geryville

On-Site System Management District

This area may be appropriate for designation as an On-Site System Management District as there is a combination of denser development with suspect sewage facilities, questionable soils, and environmental sensitivity. Designation as an OSMD will be in consultation with the Bucks County Department of Health.

Property Buyouts

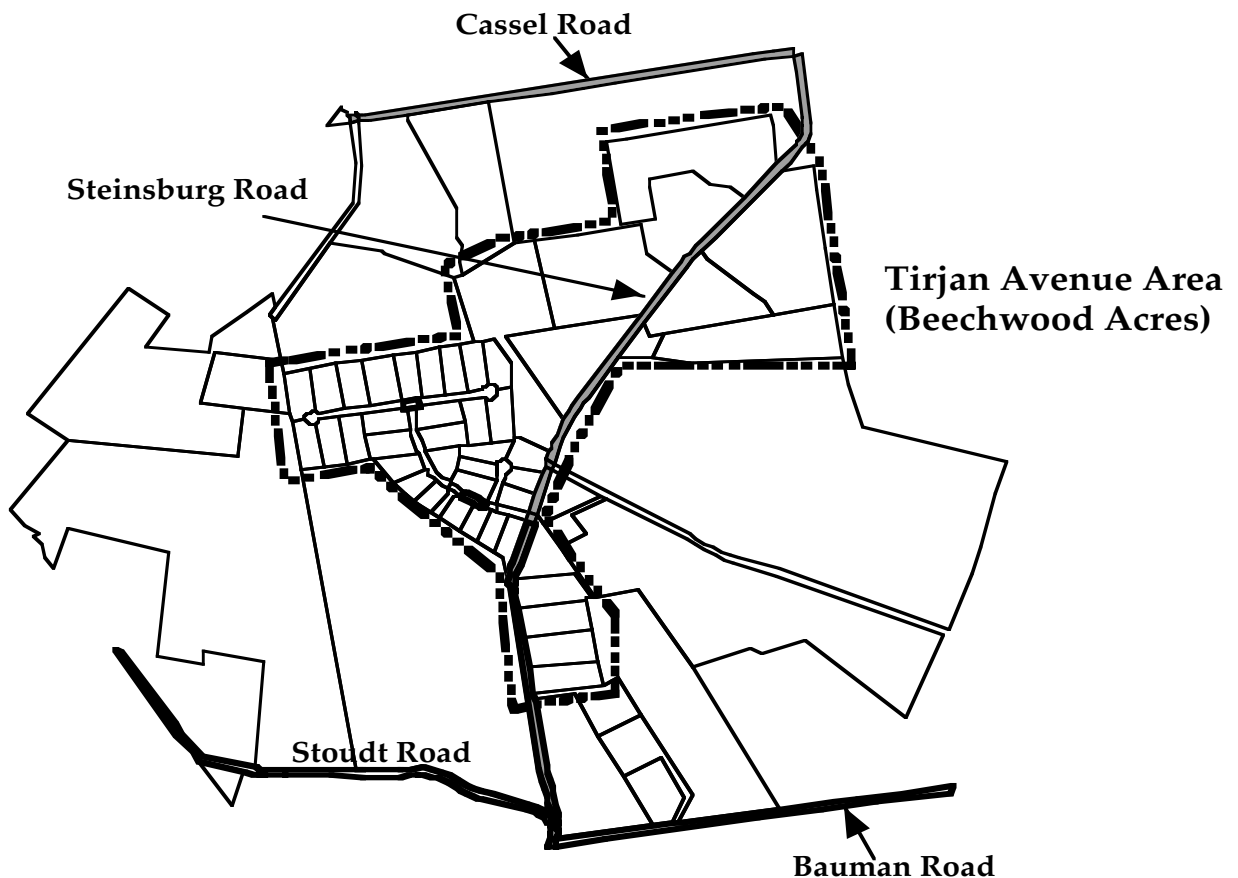
This alternative will only be considered if all other alternatives fail in resolving on-lot sewage problems.

Continued Use of On-Lot Systems

Continued use of on-lot systems is anticipated to be the disposal method of choice for the near term. With only three repair permits issued in the last 18 years, this area merits watching, but a significant influx of infrastructure is not yet justified. System evaluation and repair/retrofit on an individual basis should continue to contain any problems. However, should a rash of complaints or failures erupt, the area may require designation as an On-Site System Management District.

TIRJAN AVENUE (BEECHWOOD ACRES AREA)

This area encompasses 45 homes and contains poor soils for conventional systems. Although identified in the 1985 plan as a problem area, there have been no significant problems reported during the last 18 years. BCDH issued two repair permits since 1985 — one in 1988 for a minor repair of a baffle and D-box, the second, issued in 1993, for a new drainfield.



Sewer System Extension

Although less than two miles from existing sewers in the Spinnerstown area, the system would require at least two lift pumps and conservatively cost approximately \$15,000 per EDU. An alternative is to extend sewer lines north to Steinsburg to tie in with an extension there. Cost estimates are shown in Appendix B.1, Table B.10. Appendix B.1, Figure D shows the route. The high cost per EDU, the diversion of public investment in plant capacity, the inappropriate land use, and the creation of unnecessary development pressure through an undeveloped area make this an unacceptable alternative.

IRSIS

The majority of the properties are too small to support a permitted IRSIS. If an IRSIS is proposed on any of the larger lots, the efficacy of a community on-lot land application system should be explored

Package Treatment Plant

A package treatment plant could be constructed with spray irrigation sites to the north, east and west of the neighborhood or stream discharge to the Licking Creek to the west.

Such a plant, in this undeveloped area directly conflicts with the land use planning policies of Milford Township and Bucks County. It may also conflict with the stream protection standards of the Commonwealth of Pennsylvania. This alternative would divert public investment in plant capacity to support inefficient and inappropriate land use patterns (sprawl) and would unnecessarily create development pressures outside of the development district. The costs are significant as shown in Appendix B.1, Table B.11. These costs, if imposed on the property owners, could have the effect of a taking. For these reasons, a package treatment plant is considered an unacceptable alternative.

Community On-Lot Disposal Systems and Land Application

There are several large lots to the north and south of the Beechwood Acres development. These properties have the potential to a community land application disposal system. The alternative should be explored if others fail.

Holding Tank

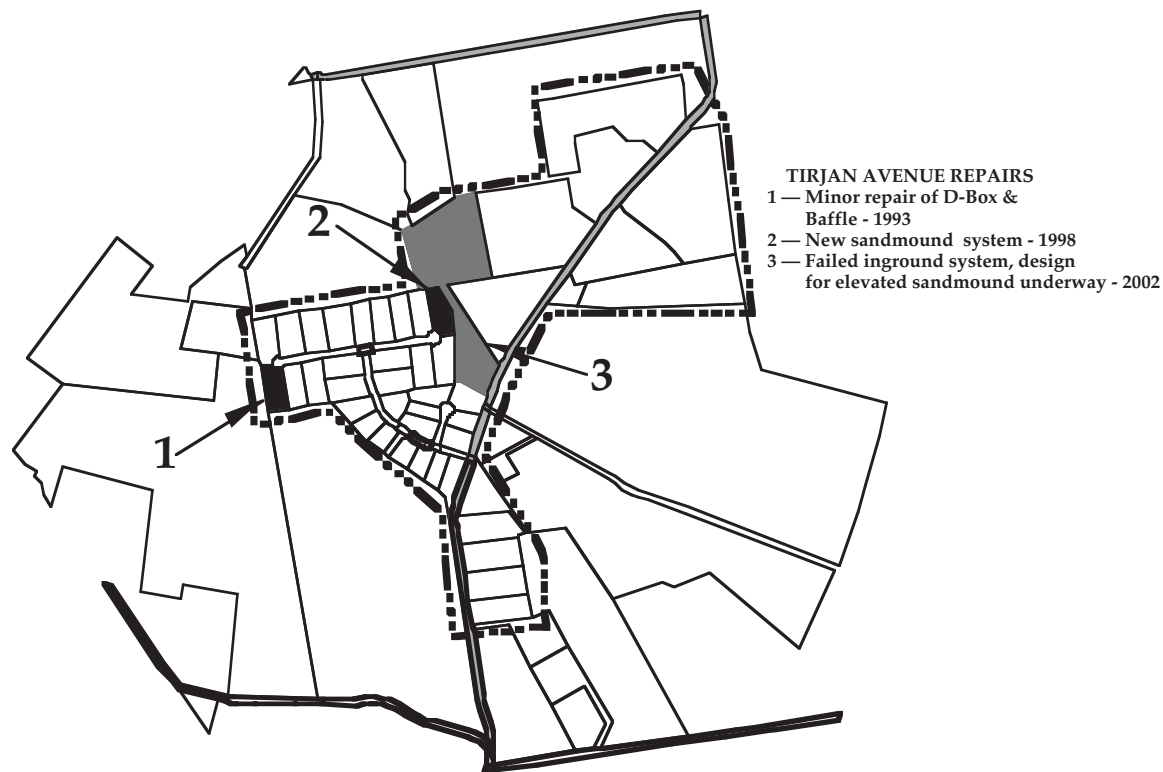
There are no known holding tanks. New holding tanks should be allowed only as a repair for a previously permitted, but failed septic system and only if no viable on-site alternatives exist and financial security to ensure necessary pumping is in place.

Community Holding Tank

A community holding tank, servicing 45 units, is a viable alternative. However such a solution, with its continual cost of pumping and hauling makes this prohibitive over the long-term. This alternative should only be considered as a short-term last ditch effort. Appendix B.1, Table B.12 gives construction cost estimates and the operation and maintenance costs/EDU/year.

On-Site System Management District

This area may be appropriate for designation as an On-Site System Management District as there is a combination of denser development with suspect sewage facilities, questionable soils, and environmental sensitivity. Designation as an OSMD will be in consultation with the Bucks County Department of Health.



Property Buyouts

This alternative will only be considered if all other alternatives fail in resolving on-lot sewage problems.

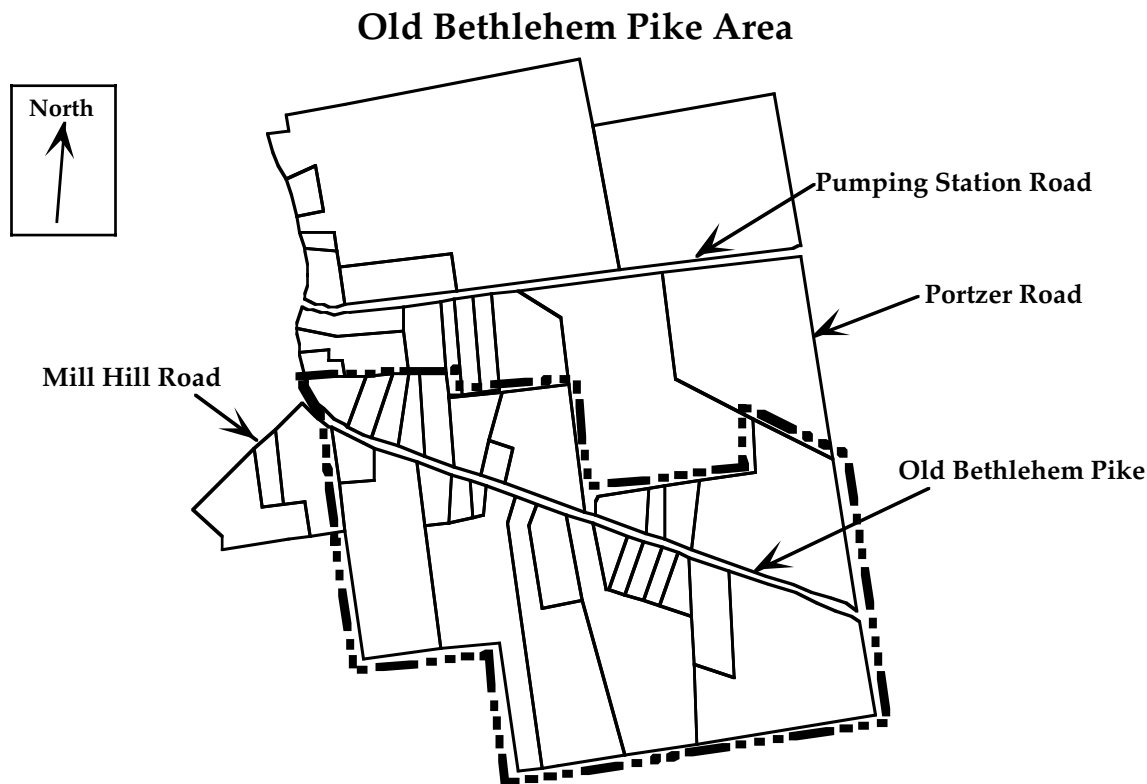
Continued Use of On-Lot Systems

Continued use of on-lot systems is anticipated to be the disposal method of choice for the near term. With only two repair permits issued in 20 years, this area appears to not merit significant influx of infrastructure. System evaluation and repair/retrofit on an individual basis should continue to contain any problems. However, should a rash of complaints or failures erupt, the area may require designation as an On-Site System Management District.

IDENTIFIED PROBLEM AREAS — NEW

OLD BETHLEHEM PIKE AREA

This area encompasses 27 parcels along Old Bethlehem Pike, of which two are currently vacant. The westernmost parcel is approximately 400 LF from where the Bucks County Water and Sewer Authority service line ends. The Bucks County Department of Health has received several complaints of odor, ponding, etc. since 1995. Two repair permits have been issued; one in 1993 for a tank replacement, the second in 1995 also for a tank replacement. The three alternatives evaluated are: construction of gravity sewer, installation of in-line dual use holding/septic tank systems, and installation of a community holding tank. The preferred alternative is extension of the sewer system. This will occur when several large parcels along or near the line route are developed.



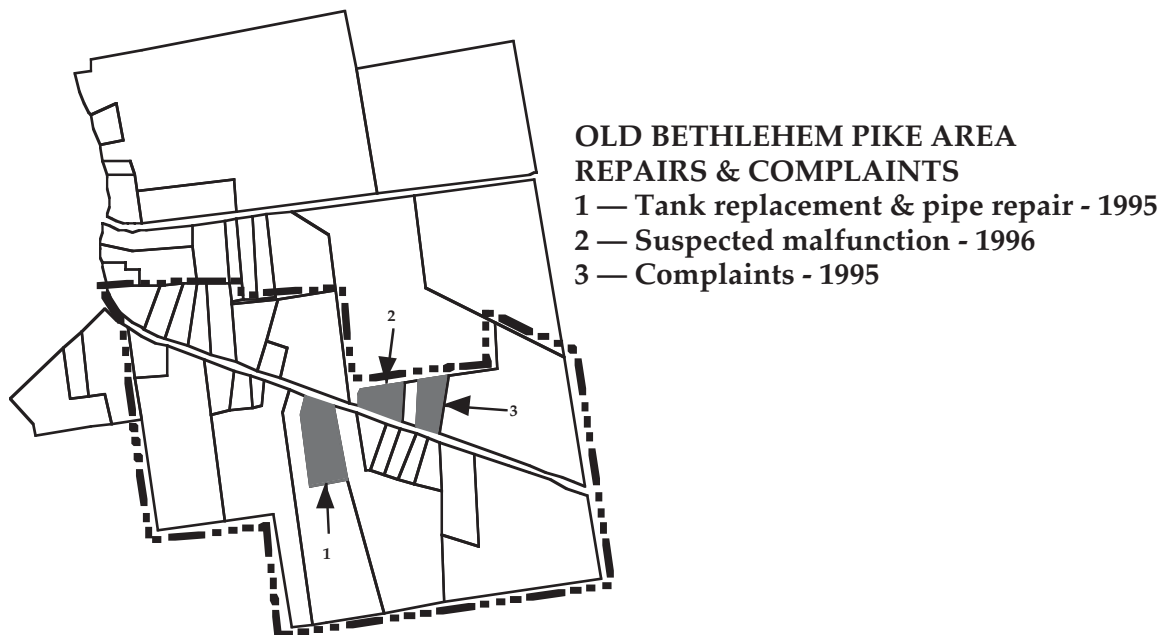
Sewer System Extension

This area is now included in the MTASA Sewer Service Area. Gravity sewer will be constructed to service Portzer Road north of Route 663, and Old Bethlehem Pike west to Mill Hill Road. Approximately 4375 LF of gravity sewer would be required to connect to the existing system in Portzer Road. Estimated construction costs are itemized in Appendix B.1, Table B.13. The proposed sewer path is shown in Appendix B.1, Figure D. New plans and cost estimates are being prepared.

Community Holding Tank

A 40,000 gallon community holding tank could be installed on Portzer Road just north of Route 663 to service approximately 19 homes. Therefore, homes on both Old Bethlehem Pike and Portzer Road could connect to the holding tank. MTASA could have an annual contract with a hauling company to transport the pumpage to the treatment plant for disposal. Appendix B.1, Table B.14 itemizes both the anticipated construction cost and the operation and maintenance costs /EDU/ year.

While this may be a possible short-term solution, the added operational benefits of having the MTASA ensure pumping do not justify the capital costs and social disruption created by mandated participation. The creation of an area serviced by community sewers would increase the probability for installation of a package treatment plant or the inappropriate extension of sewers, both of which are unacceptable alternatives. If holding tanks are the only alternative, they should be implemented on an individual basis.



Continued Use of On-Lot Systems

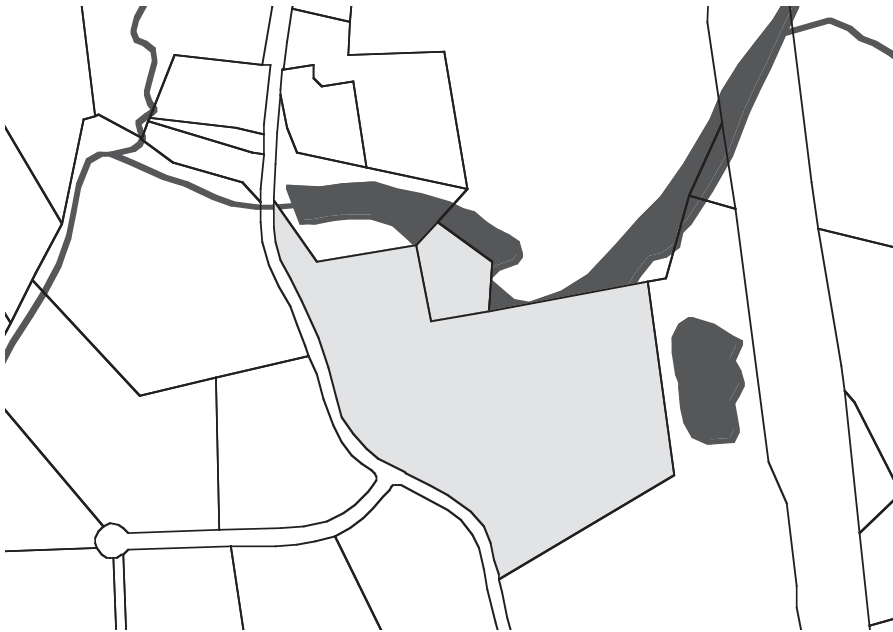
Continued use of on-lot systems is anticipated to be the disposal method of choice until extension of sewer lines as described earlier.

CABIN DEVELOPMENTS (Cedar Hill, Cozy Nook, Wonsidler's Grove, Camp Oaks Assoc.)

There are four cabin developments in the township. Cedar Hill has legal permanent occupancy in several of the cabins. The others are seasonal use only. Milford suspects that several of the cabins are occupied on a continual basis or at a minimum, for several continuous months at a time, weather permitting.

Camp Oaks Association

Camp Oaks consists of two parcels totaling nearly 19 acres. There is a fulltime occupancy duplex near Nursery Road which shares an unpermitted cesspool sewer system. The 27 cabins are located along the main stem of the Unami Creek. The cabins utilize unknown sewer systems.



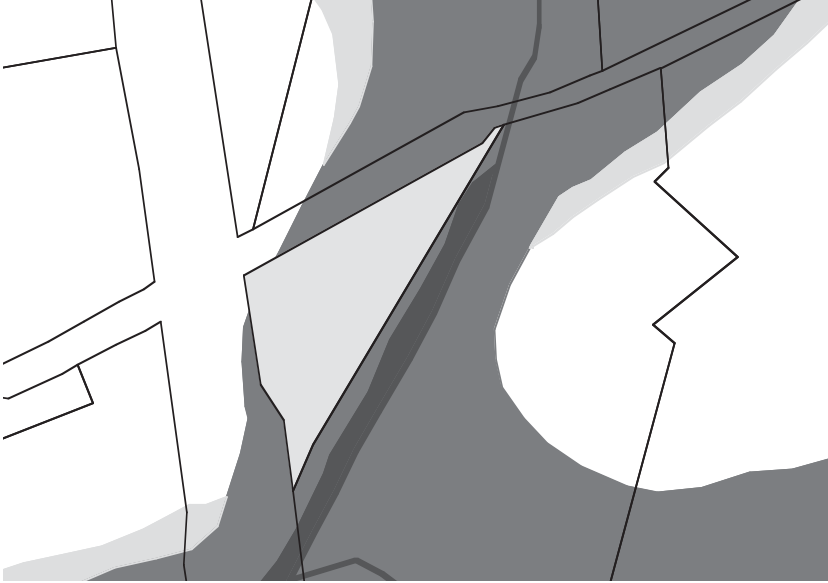
Cozy Nook

There are seven cabins located on Cozy Nook. This development is located on the south side of Umbright Road on a 17.7 acre parcel. The Unami and Barrel Run creeks intersect on the property. None of the cabins have permitted systems. Nearly the entire property is under FEMA delineated floodplain as shown on the map on the next page.



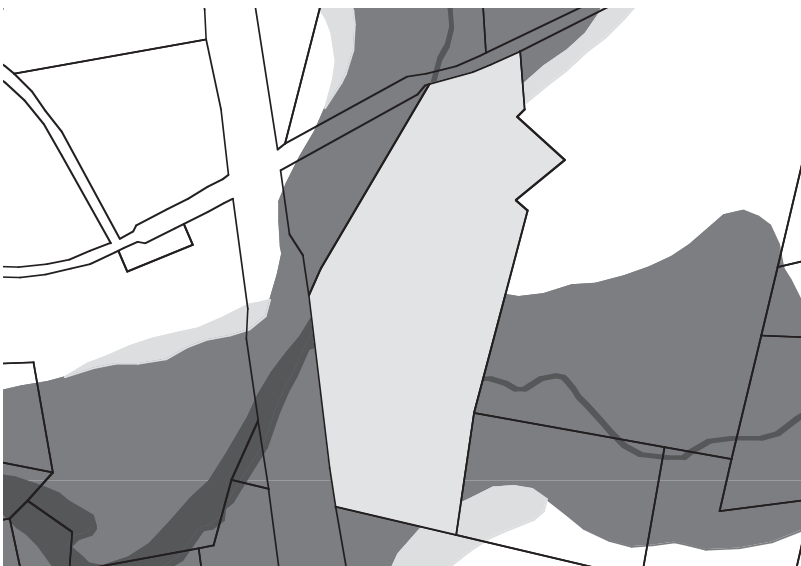
Wonsidler's Grove

This 3.67 acres parcel consists of approximately seven cabins, occupancy unknown. The parcel is located along the main stem of the Unami Creek just north of Camp Cedar Hill. Nearly the entire parcel is located in floodplain.



Camp Cedar Hill

This cabin community consists of 20 cabin dwellings and a main house. There are seasonal and permanent residences maintained on the 25 acre property. The cabins use a variety of sewage disposal systems, the majority of which are unpermitted. The following table describes the residency and sewer systems. Nearly the entire property, and all of the cabins, is located within the floodplain of the Unami and Butter creeks.



<u>Cedar Hill</u>							
Unit	Residency	System Type	Last Pump	Unit	Residency	System Type	Last Pump
1	Permanent (Main House)	Inground	May 23, 2001	12	Seasonal	Unknown	
2	Seasonal	Unknown		13	Permanent	Unknown	Jan. 2, 2002
3	Permanent	Unknown	Oct. 25, 2001	14	Seasonal	Unknown	May 11, 2001
4	Seasonal	Unknown		15	Permanent	Unknown	
5	Permanent	Unknown		16	Permanent	Unknown	Nov. 15, 2001
6	Permanent	Unknown	Aug. 7, 2000	17	Seasonal	Unknown	
7	Seasonal	Unknown		18	Permanent	Unknown	Nov. 13, 1999
8	Seasonal	Unknown	June 11, 2001	19	Permanent	Unknown	Dec, 16, 2002
9	Seasonal	Unknown		20	Permanent	Unknown	Nov. 11, 2001
10	Permanent	Inground	June 21, 2001	21	Seasonal	Unknown	
11	Permanent	Unknown	July 3, 2001				

Although all four of these cabin developments were built prior to the adoption of a municipal zoning ordinance, they are now classified as a Use C17 — Recreational Cabin/ Cottage Development. Two alternatives were evaluated: Continued use of property with strict zoning ordinance compliance and system inspection and documentation, and property buyouts. The preferred alternative is a combination of both as described below.

Continued Use

Each property/ cabin would continue to use its existing system, but each property would be inspected and structures and uses documented to ensure compliance with the zoning ordinance. Each cabin will be inspected to determine the type of sewage disposal system used. Problems would be addresses through repair, retrofit or installation of a permitted system per Title 25, Chapter 73.

Property Buyouts

Individual cabins or entire properties (depending on ownership) will be appraised and funding sought. This alternative most closely conforms to the land use plans of Bucks County and Milford Township, particularly the Open Space Plans that identify the Unami Stream corridor as a priority for open space preservation and environmental protection. This option also removes the problem of occupied structures being located in the floodplain of the Unami Creek.

SECTION VI — EVALUATION OF ALTERNATIVES

Of the alternatives considered in Section V, the following are retained as the most practical in view of the intent of the township's comprehensive plan, economics, and implementation. Options 1 and 2 are the most viable. These have been selected in relation to consistency with state, county and municipal policies and objectives. Options 3 and 4 remain most viable in those areas where appropriate.

1. Continued use of individual on-lot subsurface sewage disposal or existing system repair/upgrade with the Sewage Management Program (Ordinance 108) being enforced. The exception being sewer line extension for Old Bethlehem Pike area.
2. Institution of On-site System Management Districts as appropriate to previously identified clusters of failing/marginal systems.
3. Property Buyouts where appropriate.
4. Continued use of existing holding tanks.
5. Installation of Community On-lot Land Application disposal system.
6. Installation of community holding tanks in problem areas as outlined in Section V. The township/MTASA could either purchase its own hauling truck or contract with a hauling company.

CONSISTENCY

1. Applicable Plans under Sections 4 and 5 of the Clean Streams Law and Section 208 of the Clean Water Act.

Retained Alternatives 1, 2, 3, 4, 5 and 6

These alternatives, if properly undertaken, will be in compliance with the Clean Streams Law and Clean Water Act.

2. Municipal Wasteload Management Report — Chapter 94

Retained Alternatives 1, 2, 3, 4, 5 and 6

The pumpage from the septic tanks, holding tanks, and community holding tanks could be disposed of at the MTASA WWTP with no problems anticipated. The capacity of the treatment plant well exceeds the amount of pumpage anticipated.

3. Plans Developed Under Title II of the Clean Water Act or Title II & VI of the Water Quality Act

Retained Alternatives 1, 2, 3, 4, 5 and 6

Properly done, these alternatives are viewed to be consistent with the above stated acts.

4. Comprehensive plan

Retained Alternatives 1, 2, 3, 4, 5 and 6

These alternatives are viewed to be consistent with the Comprehensive Plan.

5. Antidegradation Requirements Contained in PA Code, Title 25, Chapters 93, 95, and 102

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable.

6. State Water Plans Developed under the Water Resources Planning Act.

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable.

7. Pennsylvania Prime Agricultural Land Policy

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable

8. County Stormwater Management Plans

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable

9. Wetland Protection

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable

10. Protection of Rare, Endangered or Threatened Plant and Animal Species

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable

11. Historical and Archaeological Resource Protection

Retained Alternatives 1, 2, 3, 4, 5 and 6

Not Applicable

RESOLUTION OF INCONSISTENCIES

The proposed alternatives do not present any foreseeable inconsistencies with the policies, acts and laws referenced in Section A above.

WATER QUALITY STANDARDS, EFFLUENT LIMITATIONS, OR OTHER TECHNICAL, LEGISLATIVE OR LEGAL REQUIREMENTS

To date, the MTASA is unaware of any PaDEP citations or fines resulting from poor quality effluent at the MTASA WWTP. The facility is in good operational condition. The retained alternatives will not violate any of the above requirements.

COST ESTIMATES

The construction cost estimates for the various alternatives have been presented in Section V and Appendix B of this report. These estimates are based on construction costs only. Costs for permitting have not been included. Estimated cost per EDU or connection is based on one connection per existing lot.

AVAILABLE FUNDING METHODS

Continued use of individual on-lot subsurface sewage disposal and holding tanks are financed exclusively by the homeowners. If the MTASA would consider disposing of the pumpage from these on-lot systems, the owner would then pay the authority for their services. No cost to the township is anticipated. The township has the responsibility of enforcing it's sewage management program.

ABILITY TO IMPLEMENT

Currently there are no pending critical health hazards in the township. There are reports from the Bucks County Department of Health of malfunctioning or possible malfunctioning on-site systems. Generally, these malfunctions are isolated instances that have been corrected on an as-needed basis without causing substantial health hazards or an adverse impact to the environment. For the retained alternatives, immediate or phased implementation is not necessary

The implementation of retained alternatives will not affect existing development in the township within the planning horizon of this report.

ADMINISTRATIVE ORGANIZATIONS & LEGAL AUTHORITY FOR PLAN IMPLEMENTATION

The Milford Township Board of Supervisors and MTASA have the staffing and authority to implement their portions of the retained alternatives.

SECTION VII — INSTITUTIONAL EVALUATION

ANALYSIS OF EXISTING WASTEWATER TREATMENT AUTHORITIES

1. Financial and Debt Status

At the end of fiscal year ending December 2001, MTASA had total assets of \$13,080,695 with current cash and account receivable assets of \$1,745, 719. Total liabilities were \$2,919,246. See Appendix C.4 for full report.

2. Available staff and administrative resources

MTASA employees an authority manager, plant manager and adequate operators and support staff.

3. Existing legal authority

MTASA was established and incorporated on November 5, 1969, under township ordinance #15. The authority was formed under the Act of May 2, 1945, P.L. 382, as amended. MTASA has the legal authority to install, operate, maintain and enforce regulations within the sanitary sewer system service area approved by the Board of Supervisors.

ANALYSIS AND DESCRIPTION OF INSTITUTIONAL ALTERNATIVES NECESSARY TO IMPLEMENT.

1. Need for new municipal departments or municipal authorities

No Change, Township SEO will be utilized for management districts.

2. Functions of existing and proposed organizations

No Change

3. Cost of administration, implementability, and the capability of the authority to react to future needs.

No Change

NECESSARY ADMINISTRATIVE AND LEGAL ACTIVITIES TO BE COMPLETED AND ADOPTED TO ENSURE THE IMPLEMENTATION OF THE RECOMMENDED ALTERNATIVE

1. Incorporation of authorities or agencies

Not Required

2. Development of all required ordinances, regulations, and standards and inter municipal agreements.

Not Required

3. Description of activities to provide rights-of way, easements and land transfers.

MTASA has the legal authority for these activities

4. Adoption of other municipal sewage facilities plans

Not Required

5. Any other legal documents

Not Required

6. Dates or timeframes for items 1-5 above

Extension of Portzer Road / Old Bethlehem Pike sewer line is expected to begin within 12 months

PROPOSED INSTITUTIONAL ALTERNATIVE JUSTIFICATION

As discussed earlier in this plan, the MTASA has adequate plant capacity and funding sources to implement the Portzer Road / Old Bethlehem Pike sewer line extension retained alternative.

SECTION VIII — IMPLEMENTATION SCHEDULE & JUSTIFICATION FOR SELECTED TECHNICAL & INSTITUTIONAL ALTERNATIVES

As stated in Section VI, Evaluation of Alternatives, the retained alternatives are:

1. Continued use of individual on-lot subsurface sewage disposal with the Sewage Management Program (Ordinance 108) being enforced. The exception being sewer line extension for Old Bethlehem Pike area.
2. Institution of On-site System Management Districts as appropriate to previously identified clusters of failing/marginal systems. Areas under consideration are shown on the Sewage Facilities Plan Map.
3. Property Buyouts where appropriate.
4. Continued use of existing holding tanks.
5. Installation of Community On-lot Land Application disposal system.
6. Installation of community holding tanks in problem areas as outlined in Section V. The township/MTASA could either purchase its own hauling truck or contract with a hauling company.

The Sewage Management Program (Item 1 above) consists of the following two steps:

1. Preventive Maintenance under Ordinance 108
2. Individual repairs

Homeowners shall continue to maintain their system under Ordinance 108, even if an on-site sewage system repair is required. The Bucks County Department of Health shall oversee the permitting of all system repairs under Title 25.

Both technically and environmentally, the establishment of the Sewage Management Program (Ordinance 108) has been very beneficial to the township, county, and homeowner. The Bucks County Department of Health continues to respond to problems and complaints regarding on-lot systems.

Administratively, the alternatives require some amount of work on the part of the township. If community holding tanks were installed in problem areas, the MTASA would also become involved.

Under retained alternatives 1, 2, 3 and 4, the financial burden is borne by the homeowner. Retained alternatives 5 & 6 shares that burden amongst the several affected property owners.

SECTION IX — IMPLEMENTATION SCHEDULE & SELECTED ALTERNATIVES

Priority of Alternatives							
OPTION	AREA						
	Finland/ Fels Area	Geryville Area	Steinsburg Area	Mumbauersville Area	Tirjan Avenue Area	Old Bethlehem Pike Area	Cabin Developments
Continued Use of Existing Systems	1	1/2	1	1	1	1	1
SMD	1	1	2	3	1/2	3	1
IRSIS	3	2	3	3	3	3	3
Property Buyout	1	3	3	3	3	3	2
Ind.Holding Tank	2	3	3	3	2	3	3
Community Land App.	3	3	3	3	2	3	3
Comm. Holding Tank	3	3	3	3	3	3	3
Package Treatment	3	3	3	3	3	3	3
Sanitary Sewer Ext.	3	3	3	3	3	1	3
Priority: 1- High; 2 - Medium; 3 - Low							

BEST ALTERNATIVES

In general, the major thrust of this plan is continued use of on-lot systems with permitted repair and upgrades as needed, and enforcement of the Sewage Management Program. Creation of On-site System Management Districts may be implemented where appropriate. Those alternatives should continue to serve the wastewater disposal needs of the identified areas for a 5 to 10 year timeframe as a minimum. Other retained alternatives, such as installation of community treatment systems, are retained only as a last resort effort to resolve a significant danger to the community and environment. For example, the installation of community holding tanks required that several factors be reviewed before this was considered as an alternative. The factors were the costs and possible delays of required pumping due to bad weather or the breakdown of the hauling truck. The cost for the installation of a community holding tank is slightly less than the installation of a package treatment plant (dual system). With the concerns of bad weather or other pumping delays, a three-day holding capacity is required. There is no doubt that there would be some resistance from affected homeowners. A community holding tank also has some benefits such as if a package treatment plant is installed or sewer lines extended, building sewers and laterals are already in place. Other alternatives were thoroughly investigated and evaluated based upon soils, topography, cost effectiveness, expected growth in the specific areas and the opinion of township officials. The retained alternatives were chosen and prioritized based on environmental soundness and conformance with regional and local planning policies.

In addition to the retained alternatives, Milford Township commits the following to implement this plan:

1. Continued enforcement of the Sewage Management Program.

2. Continue to provide educational materials to residents on the proper use and maintenance of on-lot systems.
3. Continue to work with officials from the state, county and surrounding municipalities to implement a county-wide regionalization plan.
4. Continue to review plans for all proposed sewage facilities in new developments to ensure consistency with this plan.
5. Approve and oversee the construction of all new sewage facilities within the township.

CAPITAL FINANCING

For retained alternatives which require capital expenditures, the costs will be borne by the property owners through either shared implementation costs and/or user fees.

IMPLEMENTATION SCHEDULE

Milford Township recognizes a responsibility for protecting the public health and ensuring sound land development patterns. To meet these responsibilities, the Milford Township Sewage Facilities Plan will be implemented in the following way.

Immediate and Continuing Action

- ☐ Follow the principles, goals and objectives as defined in this plan, the Comprehensive Plan, Zoning Ordinance and Open Space Plan.
- ☐ Enforce the On-Lot Sewage System Management Ordinance (#108) and educate residents concerning proper operation and maintenance of their systems.
- ☐ Pursue property buy-outs as funding becomes available.
- ☐ Require operation and maintenance agreements for all IRSIS and alternative systems.
- ☐ Engage the services of a certified SEO for system evaluations.

Within One Year

- ☐ Finish design and begin installation of Portzer Road / Old Bethlehem Pike extension.

Within Two Years

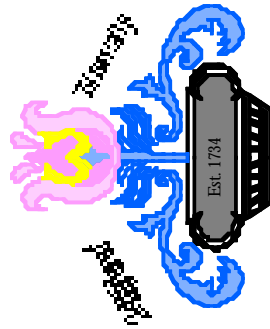
- ☐ Ensure all on-lot system tanks have been pumped within the previous three years.
- ☐ Establish an On-Site System Management District within the Finland Area and for cabin developments.
- ☐ Begin routine pumping and system evaluations in the On-Site System Management District.
- ☐ Begin routine inspections of IRSIS ' in cooperation with MTASA.

Within Five Years









- ☐ Evaluate the effectiveness of the On-Site System Management District and implement in Tirjan Avenue and Geryville areas.
- ☐ Evaluate the need for community systems in the problem areas.

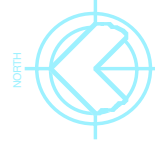
Every Five Years

- ☐ Review and, as appropriate, revise this plan to ensure that township-wide sewage disposal needs are met in compliance with regulations and policies and other plans of the township, county and state.



Milford Township Sewage Facilities Plan

-  Existing Public Sewer
-  2003-2008 Public Sewer
-  2008-2018 Public Sewer
-  On-Site Sewage
-  Spray Irrigation Systems
-  Community Systems
-  Potential SMDs
-  Trumbauersville Borough (100% Public Sewer)



MILFORD TOWNSHIP

BUCKS COUNTY, PENNSYLVANIA

08/19/03