Chapter 3

ALTERNATIVE EVALUATION

V. IDENTIFY ALTERNATIVES TO PROVIDE NEW OR IMPROVED WASTEWATER DISPOSAL FACILITIES

A. Conventional Collection, Conveyance, Treatment, and Discharge Alternatives.

The existing Northeastern York County Sewer Authority's wastewater treatment plant (WWTP) located north of Mount Wolf serves both Mount Wolf and Manchester Boroughs plus large portions of East Manchester Township and York Industries in Manchester Township. The potential for this plant to expand to cover additional areas of either East Manchester or Newberry Townships is severely restricted by the lack of available adjacent land. The WWTP serving the Asbury Point Subdivision is intended for that development only and was not designed to accept wastewater flows from other parts of the Township.

As previously mentioned, the existing Northeastern York County Sewer Authority' WWTP is not experiencing any hydraulic or organic overloading and is in fact operating at approximately 45% of its rated capacity of 1.7 mgd. The organic loading to the plant is at approximately 55% of its rated capacity. The need to reduce the hydraulic or organic loading to the plant is not necessary, and the WWTP's ability to handle anticipated flows is not in question for the foreseeable future.

The Authority is currently increasing the capacity of the main interceptor lines serving the industrial, commercial and residential zones in the southwestern portion of the Township along North George Street Extended to handle continued growth in the area.

B. The use of individual sewage disposal systems, including individual residential spray irrigation systems.

Chapter 2, Background Information, discussed the known and potential malfunctioning on-lot sewage disposal systems, OLDS, within East Manchester Township. Areas of concern include:

- **Area 1** - the Village of Saginaw;
- **Area 2** - the area in the northwestern corner of the Township which includes Griffith Lane, Canal Road, Park Street and Conewago Creek Road and Old School Lane;
- **Area 3** - the streets collectively referred to as The Oaks, (Oak, Acorn and Brook Drives);
- **Area 4** - the area around Don Rene Road and Bonita Drive which includes Morning Star Heights; and
- **Area 5** – the development which includes Big Conewago Creek Road and Creek Bottom Road and portions of Canal Road.

These areas were identified as need areas by examining SEO files (1992-1999), the results of well sampling/testing, and the responses received from the property owners during the door-to-door survey conducted for this report. Refer to Exhibit V, Building Constraints Map, Exhibit VIII, Water Sample Results: Coliforms, and Exhibit IX Water Sample Results: Nitrates/Nitrogen.

In general, most of the malfunctions identified were due to the system's location in soils with severe building and OLDS constraints. Potential malfunctions may be occurring throughout the Township based on unpermitted systems, small lot sizes, steep slopes, age of the system and soil type. Concentrations of malfunctions may occur in:

- **Area 1** - the Village of Saginaw - age of system and lot size **(immediate need area),**
- **Area 2** - along Griffith Lane, Canal Road, Park Street, Old School Lane and Conewago Creek Road - age of system, steep slope and soil type **(immediate need area),**
- **Area 3** - the Oaks – age of system and soil type **(immediate need area),**

- **Area 4** - the area around Don Rene Road and Bonita Drive (Morning Star Heights) – soil type and age of system, and
- **Area 5** – the development along Big Conewago Creek Road and Creek Bottom Road - age of system and slope,

Concentrated areas of immediate need will be provided with public sewers within the 0 to 5-year period. The collection system layout for extending sewers to the various need areas is depicted on Exhibit XIII, Proposed Sewage Facilities Plan.

To alleviate problems in other need areas, a proactive approach is recommended, including a management program and a community education process.

REPAIR, REPLACEMENT OR UPGRADING OF EXISITING MALFUNCTIONING SYSTEMS IN AREAS SUITABLE FOR ON-LOT DISPOSAL

The Township SEO continues to monitor the repair, replacement and upgrade of reported malfunctioning systems. From 1992-1999, the SEO reported 48 failures and repaired systems. These systems were repaired in accordance with Chapter 73, Standards for Sewage Disposal Facilities and the best technical guidance possible. The SEO indicates the primary reason for malfunctioning systems is the age of the systems and the maintenance practices of the homeowners. The system repairs reported by the homeowners during the door to door survey were primarily accomplished on older OLDS within the Township and typically consisted of drainfield repairs and repairs to the distribution lines. Most of these repairs were accomplished in the 1980s. Appropriately selected OLDS will continue to be the standard method for sewage disposal throughout the Township where it is physically or fiscally impossible to provide public collection and conveyance sewer systems.

The proposed on-lot management program outlined under sewage management program alternatives will identify areas of malfunctioning systems and determine the best method of addressing these problems utilizing Chapter 73 guidelines. To assure that OLDS do

not become hydraulically overloaded and cause malfunctions, property owners will be encouraged to practice basic water conservation. This measure would be presented in conjunction with an education program, described in the sewage management program alternatives.

Water conservation measures may be suggested in the education program including:

- Reduce volume of commode flushing through low water use commode or displacement of volume of water in existing commode.
- Discharge water not involving waste material to other than septic system – i.e., rainwater downspouts or basement sumps.
- Limit number of wash loads per day.

Water conservation devices that may be utilized by residents include:

- Low water use commode,
- Water saving shower head,
- Front load washer, and
- Flow regulating faucet aerator.

C. The use of small flow sewage treatment facilities or package facilities to serve individual homes or clusters of homes.

It is proposed to construct a 50,000 gpd package WWTP to serve need area 1, the Village of Saginaw. Preliminary effluent criteria for the proposed plant were obtained from PADEP on 12/4/00, see Appendix H. The limits indicate that secondary level treatment will be required. It is proposed to use an extended aeration package WWTP. The extended aeration process in commonly used to serve small communities. The system utilizes an equalization basin to maintain a constant flow through the system. The flow proceeds to an aeration basin that allows the bacteria to mix with the sewage and oxygen. The detention time in this phase is the longest of any activated-sludge process. The flow then enters a secondary clarifier to settle out the remaining solids. The clarifier overflow enters a disinfection unit and is discharged to the stream. If chlorine is used for the disinfection, dechlorination will also be required. The solids in the clarifier are

pumped to an aerobic digester. Supernatant is recycled back to the head of the plant. Periodically, the solids are removed from the digester. The primary reason to use this technology is the minimal operational and capital costs in package type plants. The Township is currently reviewing possible treatment plant sites in the Saginaw area, most likely north of Saginaw, that would allow direct access to the Susquehanna River for discharge. The WWTP would be owned and operated by the Northeastern York County Sewer Authority. The proposed WWTP site is depicted in Exhibit XIII, Proposed Sewage Facilities Plan.

The Township presently has one privately owned small flow treatment facility. This facility serves the Asbury Point residential development located in the southeastern corner of the Township. The Northeastern York County Sewer Authority has indicated it would most likely evaluate either taking over this facility or removing it and pumping the wastewater from the development to the proposed treatment plant for the Village of Saginaw. The collection system would continue to be privately owned. This action would only be accomplished if problems become apparent at the WWTP.

A package treatment facility serving the Morning Heights Subdivision is an option however, it is anticipated that the problems in this area can be more cost effectively addressed through an on-lot management program.

In the future, any proposed mobile home park will be required to connect to the public sewer system or have public sewer service through a package treatment plant.

D. The use of community land disposal alternatives.

The use of community land disposal alternatives is not recommended. The unsewered areas of the Township are generally occupied by widely dispersed single family homes. Those few areas where clusters of homes do exist are generally within the sewered area of the Township, are proposed for public service or are to be included in an on-lot management program.

E. The use of retaining tank alternatives.

Based upon the needs analysis (i.e. steep slopes and unsuitability of soils), it is likely that the Township will have a continued need for retaining tanks in areas with small lot sizes and prior to implementation of public sewer service. Retaining tanks will be utilized where the existing system has reached the end of its usable life without suitable area on the lot to remedy the problem and where the lot cannot connect to a public sewage collection system. The Township adopted a retaining tank ordinance on November 10, 1997. The Township should consider updating and amending this ordinance to meet the requirements of the Department's Title 25, Chapter 71.63, to include:

- administrative entity and function to receive, review and retain pumping receipts (amend to include);
- annual inspections of retaining tanks and a written inspection report to the Township, (amend to include); and
- procedures and penalties for correction of malfunctions or public health hazards for retaining tanks (evaluate and update).

The use of retaining tanks is viewed as a short-term solution in areas to be eventually served by public sewers.

F. Sewage Management Programs to assure future operation and maintenance of existing and proposed sewage facilities.

Key to implementation of the on-lot management program is an ordinance governing municipal management of on-lot subsurface sewage disposal facilities. All unsewered portions of the Township will be included in the on-lot management plan. A copy of the draft On-Lot Management Ordinance is included in Appendix C of this report. The on-lot management program will divide the total number of residences within the Township which utilize on-lot sewage disposal facilities into 4 (four) equal sized parts. After the completion of the facilities proposed within this plan there will be approximately 600 residences using on-lot systems in the Township. The first year of the program will require that the approximately 150 homes in the first years homeowners list have their

septic tanks pumped out and their system inspected. During years two, three and four of the program the remaining homeowners will be required to have their septic tanks pumped out and their systems inspected. As new homes are built within the Township utilizing on-lot systems, they will be added to program. It is anticipated that the cycle will repeat every 4 years. Based on the results of the initial inspections, the frequency of ongoing pump outs and inspections may be accelerated, however, the sample ordinance currently identifies a four-year cycle. Refer to Appendix C for more detail on this program.

The purpose of the initial inspection program includes the identification of the type and functional status of each sewage disposal system in the sewage management district. A system found to be inadequate will have to be corrected by the property owner within a specified period of time. If an area of numerous OLDS malfunctions is discovered, a resolution of area wide problems may necessitate detailed evaluation and a municipality sponsored revision to the Act 537 Plan. These initial inspections/certifications will be performed by the Township's SEO or a through a contracted SEO. A postcard notifying the homeowner of pending inspection will request the septic tank be emptied and an inspection date scheduled. When the tank is emptied, the hauler will record the volume of waste removed. A database of the SEO's inspections will then be generated to specifically identify and monitor additional areas of concern. The cost to have the septic tank emptied and inspected will be financed by the homeowner.

Based on the findings of the inspection program, a decision would be made to determine if all or a percentage of the OLDS should be reinspected on a four year cycle. A postcard system is recommended for implementing the reinspection program. Again, each resident would receive a postcard directing them to have their septic tank emptied and system inspected by one of the Township's pre-approved septic haulers. Following inspection, the owner would return the postcard with required information to the Township. The ordinance will include provisions for violation and penalties.
The Township would have the authority to perform the inspection and invoice the property owner in case of non-compliance. If problems are identified, the property

owner will coordinate with the Township SEO to determine appropriate action for resolution. Resolution of the problem will be the responsibility of the owner.

Any effort required to remedy an identified malfunction, including testing will be at the homeowner's expense. If an OLDS has to be replaced, the homeowner can estimate that the cost would be approximately $4,000 - $6,000 for a conventional system and $8,000 - $12,000 for an elevated sand mound system.

Beyond the first four years, the monitoring of the On-Lot Management Ordinance will be strictly administrative unless enforcement action is required. Again, the administrative activities could be handled by the Township's SEO or administered by contract.

EDUCATION PROGRAM

Prior to adoption of the On-Lot Management Ordinance, a public hearing will be held to collect public input. The value of the program in protecting water quality and the health, safety and welfare of the community would be presented at that time.

In addition to the regulatory program, an educational program would serve to further explain the operation and maintenance of a functioning OLDS. The educational program should be initially targeted for District I within the On-Lot Management Program. It is anticipated that readily available brochures would be obtained for distribution at the time of sewer system inspection and/or permitting of new systems. The brochure(s) would include a description of various septic systems, maintenance of the systems and recommendations to keep the system functioning, including the use of water conservation devices. A separate handout would also be prepared to explain the regulatory process of the on-lot management program.

G. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs.

Background information regarding Pennsylvania Municipalities Planning Code activities was described in Chapter II. This section analyzes the nonstructural alternatives that will assist the Township in meeting the existing and future sewage disposal needs. Alternatives typically include modifications to comprehensive plans, zoning, and subdivision ordinances. East Manchester Township's Ordinances have been designed to maximize the compatibility of planning activities. The Act 537 Plan, Comprehensive Plan and Zoning and Subdivision Ordinances working together should provide for sound planning for growth and development within the Township.

The following Ordinances should be adopted or amended:

1) Zoning Ordinance – amended.
2) Retaining Tank Ordinance – amended.
3) Subdivision and Land Development Ordinance – amended.
4) Water Well Ordinance – adopted.
5) On-Lot Management Plan Ordinance – adopted.

Recommended changes to the zoning ordinance include:

1) increase the lot size for residential properties without public sewer or water service to 1 acre,
2) clarify that the Apartment District is only viable where public sewer collection and water distribution facilities are available,
3) clarify that Mobile Home Parks must connect to public sewer collection facilities or a package WWTP, and
4) clarify that the Industrial District located south of Starview Road and west of Sherman Oaks must connect to public sewer collection facilities or to a package WWTP.

Recommended changes to the Subdivision and Land Development Ordinance include:

1) Require preliminary hydrogeologic studies as discussed below.

REQUIREMENT FOR HYDROGEOLOGIC EVALUATION

Exhibit IX, Water Sample Results: Nitrates/Nitrogen, delineates areas in the Township that are within ¼ mile of a documented water sample with nitrate/nitrogen

concentrations > 5 mg/l. Any developments that are proposed within any portion of the delineated areas trigger the need for a preliminary hydrogeologic study unless the area is designated for public sewer service. Chapter 71.62 of the PADEP rules and regulations for administration of sewage facilities stipulates a preliminary hydrogeologic evaluation is required for (1) large volume OLDS, and (2) subdivisions with more than 50 EDUs and a density of more than 1 lot per acre. It is also recommended that any subdivision of land development of ten (10) lots or more that propose the use of OLDS and has lot sizes less than or equal to one acre, regardless of location be required to perform a preliminary hydrogeologic study. Whenever a preliminary hydrogeologic study is necessary for a land development project, an exemption to sewage planning and the use of Component 1, Minor Subdivision for sewage planning will not be allowed.

ADOPTION OF A WATER WELL ORDINANCE

The purpose of the water well ordinance is to ensure and protect the quality and suitability of domestic water supply and to secure and maintain the minimum required isolation distances between water supplies and sewage disposal systems or other sources of contamination. The ordinance applies to all new wells and to reconstruction, major repair, and other changes subject to the opinion of the Township's designated inspection officer. The ordinance would require the property owner to apply for a well permit prior to drilling. The requirements of the application would include an accurate scale map of the property showing the location of the well, setback line for the wells, and the sewage disposal drainfields and septic tanks, etc. Upon completion of the well, the designated inspection officer would inspect the well to determine compliance or non-compliance with the permit. The ordinance also would include clauses for waivers, violations, severability, liability and repealer. A model well water ordinance is provided in Appendix D.

H. A no-action alternative which includes the discussion of both short-term and long-term impacts.

The no action alternative would allow the following short-term conditions to persist and cause the following long-term impacts:

- *Water quality and public health* – The hydrogeologic sampling showed widespread problems with groundwater contamination in certain communities. The groundwater contamination could become a risk to the health and welfare of the Township residents. The aforementioned alternatives would resolve problems that may be associated with malfunctioning septic systems. The on-lot management, retaining tank and water well ordinances will help to further assure adequate water quality. These alternatives are described in the sewage management program and under the non-structural comprehensive planning sections of this report. Without these measures, problems will continue to persist.
- *Growth potential* – The existing system capacity and configuration would not allow growth to continue in the southeastern residential sections of the Township.
- *Community economic conditions* – The Township needs sound planning in order to be eligible for funding from public sources. This type of funding would not be available given the current status of sewage facility planning in the Township.
- *Recreational Opportunities* – The no action alternative would have little impact on recreational opportunities.

VI. EVALUATION OF ALTERNATIVES

Various alternatives were evaluated to provide sewerage facilities for the citizens of East Manchester Township. Factors used to determine the type and location for the proposed sewerage facilities included:

1) well water analysis conducted on wells which supply water to households within the Township not served by a public water or sewerage system,
2) records of On-Lot Sewage Disposal System (OLDS) malfunctions,
3) survey of properties within the Township utilizing OLDS,
4) analysis of soils and their suitability for OLDS, and

5) location of wetlands within the Township.

These alternatives are listed below and evaluated in the subsequent paragraphs.

1) Public Sewer System for **Area 1** - the Village of Saginaw including gravity sewers, satellite WWTP, pumping station and force main.

2) Public Sewer System for **Area 2** - the Griffith Lane, Conewago Creek Road, Old School Lane and Park Street Area including gravity sewers, pumping station and force main.

3) Public Sewer System for **Area 3** - the Oak Drive, Acorn Drive and Brook Drive Area including gravity sewers.

4) On-Lot Management Program and Ordinance for need **Areas 4 and 5** and all unsewered portions of the Township.

5) Education Program.

6) Requirement for Preliminary Hydrogeologic Studies.

7) Adoption of Water Well Ordinance.

8) Revisions to the Zoning Ordinance.

A. Evaluate technically feasible alternatives identified in Section V of this report for consistency with respect to the following:

1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act – Consistent.

According to the COWAMP evaluation, East Manchester Township was not specifically identified as one of the areas in the County that should experience major future growth, although significant growth was expected in the Township between York Haven and Mt. Wolf. The remainder of the Township was included in Planning Area YO-15 (Manchester – Mt. Wolf) and Subareas **a** (Manchester – Mt. Wolf), **c**

(Sherman St.) and **f** (Village of Saginaw). The area was identified as needing expanded wastewater treatment facilities by the year 1980.

Adequately sized wastewater treatment facilities exist for the growth corridor identified in the COWAMP. The identified area consisting of Griffith Lane, Conewago Creek Road, Old School Lane and Park Street Area is proposed for public sewer service under this Act 537 plan.

2. Municipal wasteload management plans developed under PA Code, Title 25, Chapter 94 – inconsistent.

The alternatives developed herein will modify the flow projections that have been developed in the 1999 Annual Wasteload Management Report. It is anticipated that the 2000 Report will be appropriately modified to incorporate these changes including:

- The addition of wastewater flows from need Areas 2 and 3.
- The addition of wastewater flows from the Conewago Heights need area in Newberry Township
- The addition of wastewater flows from the proposed Chestnut Valley Subdivision

Both the current Chapter 94 Report and the flow projections presented herein do not project a hydraulic or organic overload at the existing Northeastern York County Sewer Authority WWTP.

3. Plans developed under Title II of the Clean Water Act or Titles II and VI of the Water Quality Act of 1987 – consistent.

Only a small portion of the Township, located along Codorus Creek and adjacent to Springettsbury and Manchester Townships (Sherman Oaks) was included in the area committed to the 201 Facilities Planning Study area. This area is currently provided with public sewage collection facilities.

4. Comprehensive Plans developed under the Pennsylvania Municipalities Planning Code – consistent.

The East Manchester Township Comprehensive Plan includes 8 major land use categories. The Township currently provides public sewer service along the growth corridors created by the Future Land Use Plan, (North George Street Extended and North Sherman Street Extended). The alternatives developed herein do not impact or cause the need to change any of the land use categories.

5. Antidegredation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102 and the Clean Water Act - consistent.

The current WWTP discharges to the Susquehanna River under NPDES Permit No. PA 0023744. No changes to this permit are anticipated in that the current WWTP has adequate capacity for the alternatives identified herein.

The proposed Saginaw WWTP would also discharge effluent to the Susquehanna River. As indicated by the preliminary effluent criteria established by PADEP in their 12/4/00 correspondence, secondary treatment will be required, see Appendix H. A Part I permit defining the discharge criteria for this facility will be obtained during the design phase. Additionally, a proper Erosion and Sedimentation control plan will be developed for construction of the WWTP, pumping stations and collector sewers proposed herein. The plan will be submitted to the York County Conservation District for review and approval during the design phase of the project. As is typical with any sewer construction project, it is possible that the sewers may need to be constructed in a floodplain or through wetlands. Any damaged areas will be restored as a part of the construction project. The appropriate PADEP permits will be obtained prior to commencing any construction in the affected area. It is anticipated that the proposed treatment plant site will not encroach on any wetlands or encroach on the floodplain, however, the outfall sewer may cause an impact. Again the appropriate permits will be obtained prior to construction.

6. State Water Plans – consistent.

The State Water Plan is very favorable towards the construction of proper wastewater treatment facilities along the Susquehanna River to reduce the direct

discharges. The proposed plan to provide public sewer service for the Saginaw area supports the State Water Plan.

7. Pennsylvania Prime Agricultural Land Policy – consistent.

None of the alternatives identified herein will affect the areas designated as Prime Farmland. Public sewer service is only being extended to need areas and not to open farmland that would encourage unwanted growth.

8. County Stormwater Management Plans approved by the Department under the Stormwater Management Act – consistent.

The proposed projects herein will not impact and anticipated storm water management planning. A stormwater system design will be required for the proposed wastewater treatment plant.

9. Discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of and proposed wastewater facilities – consistent.

As is typical with any sewer construction project, it is possible that the sewers may need to be constructed in a floodplain or through wetlands. Any damaged areas will be restored as a part of the construction project. The appropriate PADEP permits will be obtained prior to commencing any construction in the affected area. It is anticipated that the proposed treatment plant site will not encroach on any wetlands or encroach on the floodplain, however, the outfall sewer may cause an impact. Again the appropriate permits will be obtained prior to construction.

10. Protection of rare, endangered, or threatened plant and animal species listed on the Pennsylvania Natural Diversity Inventory – consistent.

A PNDI request was made to the Department of Protection, Soils and Waterways Office on October 31, 2000 for the three (3) areas within the Township where the construction of sewerage facilities are proposed. These areas include: 1) the Village of Saginaw, 2) the Griffith Lane, Canal Road, Park Street, Old School Lane and Conewago Creek Road area, and 3) the Oak Drive and Acorn Drive area. PNDI records indicated the following potential conflict in the Village of Saginaw area:

Protonotaria Citrea – Porthonotary Warbler. Both the Pennsylvania Game Commission, Bureau of Land Management, Division of Environmental Planning and Habitat Protection and the Endangered Species Biologist, U.S. Fish and Wildlife Service were contacted for consultation and recommendations. Both agencies reported that no endangered or threatened species were known to occur within the proposed project area. The Pennsylvania Fish and Boat Commission, Bureau of Fisheries and Engineering was contacted for potential conflicts within the Griffith Lane, Canal Road, Park Street, Old School Lane and Conewago Creek Road area. This agency reported that due to the nature of the propsed project, no adverse impacts were expected. All correspondence related to this issue is provided in Appendix E.

11. Historical and archaeological resource protection under P.C.S. Title 37, Section 507 – consistent.

The PA Historic and Museum Commission was contacted on February 10, 1998 to determine whether any of the Saginaw includes archaeological or historical features which would require consideration during a construction project. On March 11, 1998, the Commission responded indicating that there may be resources eligible for the National Register of Historic Places in the project area, but that, in their opinion, there would be no effect on those properties. Additionally, the Commission indicated that no archaeological investigations are necessary in the project area. A follow up request was made on October 31, 2000 due to the inclusion of additional areas to be sewered since the 2/10/98 request. The Commission's latest response dated April 19, 2001 indicates that there is a high probability that prehistoric and historic archaeological resources, as well as historic structures eligible for the National Register of Historic Places are located in the project area. However, due to the nature of the project, it is their opinion that the project would have no effect on prehistoric and historic archaeological resources or historic places. The pertinent correspondence is included in Appendix F.

B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A of this report.

The only inconsistency identified herein is associated with the flow projections in the Chapter 94 Report. This report will be updated with the year 2000 submission.

C. Evaluate alternatives identified in Section V with respect to applicable water quality standards, effluent limitations, etc.

PADEP has specific guidelines for the quality of treated wastewater effluent. These parameters for the proposed Saginaw WWTP will be established during the first phase of the permitting process. As indicated in the preliminary effluent criteria furnished by PADEP on 12/4/00, Appendix H, secondary level treatment will be required. The costs identified herein are adequate for this level of treatment. Requesting a Part I NPDES permit to establish effluent parameters is included in the implementation schedule for this plan.

D. Provide cost estimates using present worth analysis.

Public Sewer System to Serve the Village of Saginaw – **Area 1**

The Village of Saginaw consists of approximately 115 EDU's with little or no projection for significant future growth. Saginaw is served by public water, but sewage disposal is accomplished by On-Lot Sewage Disposal Systems (OLDS). Various alternatives have been investigated in the past to provide sewer service to Saginaw. Three alternatives to provide this service are described below:

1) Construct collection system, sewage pumping station and force main. Force main to lift sewage to existing gravity lines near the Northeastern York County Sewer Authority Wastewater Treatment Plant located just north of Mount Wolf Borough. Projected costs to construct this alternative are shown in Table No. 3-1 Below:

TABLE NO. 3-1
COST ESTIMATE – AREA 1 (Alternate No. 1)

Item	Description	Est. Qty.	Unit	Unit Cost	Total Cost

1	8" Dia. Gravity Sewer	8,000	LF	$40	$ 320,000
2	4" Dia. Force Main	11,600	LF	$30	$ 348,000
3	4" Dia. Laterals	2,300	LF	$30	$ 69,000
4	Sanitary Sewer Manholes	45	EA	$1,500	$ 67,500
5	Pavement Restoration	6,000	SY	$35	$ 210,000
6	Sanitary Sewer P.S.	LS	LS	$100,000	$ 100,000
7	Upgrade Mt. Wolf Sewers	2,000	LF	$100	$ 200,000
			Subtotal		**$1,314,500**
	Construction Contingency (10%)				$ 131,450
	Associated Costs (Engr., Legal, Etc.) (25%)				$ 361,500
			Total Estimated Cost		**$1,807,450**
	Operation and Maintenance				$ 3,000

PRESENT WORTH **$1,876,800**

* Based on a 40 year term with an average annual inflation rate of 3.0 %

2) Construct collection system and interceptor along Riverview Road to existing wastewater treatment plant serving the Asbury Point residential development. Construct added capacity (approx. 50,000 gpd) to plant. Projected costs to construct this alternative are shown in Table No. 3-2 below:

TABLE NO. 3-2
COST ESTIMATE – AREA 1 (Alternate No. 2)

Item	Description	Est. Qty.	Unit	Unit Cost	Total Cost
1	8" Dia. Gravity Sewer	8,000	LF	$40	$ 320,000
2	8" Dia. Sewer Interceptor	7,000	LF	$40	$ 280,000
3	4" Dia. Laterals	2,300	LF	$30	$ 69,000
4	Sanitary Sewer Manholes	60	EA	$1,500	$ 90,000
5	Pavement Restoration	5,500	SY	$35	$ 192,500
6	Additional Capacity at Asbury Point WWTP	LS	LS	$550,000	$ 550,000

(Plus Plant Purchase)

	Subtotal	**$1,501,500**
Construction Contingency (10%)		$ 150,000
Associated Costs (Engr., Legal, Etc.) (25%)		$ 413,000
	Total Estimated Cost	**$2,064,500**
Operation and Maintenance		$ 20,000

PRESENT WORTH **$2,527,000**

- Based on a 40 year term with an average annual inflation rate of 3.0 %
-

3) Construct collection system and wastewater treatment plant in the Saginaw area. Outfall to the Susquehanna River. Projected costs to construct this alternative are shown in Table No. 3-3 below:

TABLE NO. 3-3
COST ESTIMATE – AREA 1 (Alternate No. 3)

Item	Description	Est. Qty.	Unit	Unit Cost	Total Cost
1	8" Dia. Gravity Sewer	8,000	LF	$40	$320,000
2	12" Dia. Outfall	800	LF	$45	$ 36,000
3	Pump Station	1	EA		$ 75,000
4	4" Dia. Force Main	1,200	LF	$30	$ 36,000
5	4" Dia. Laterals	2,300	LF	$30	$ 69,000
6	Sanitary Sewer Manholes	45	EA	$1,500	$ 67,500
7	Pavement Restoration	6,000	SY	$35	$ 210,000
8	WWTP (50,000 gpd)	LS	LS	$400,000	$ 400,000
			Subtotal		**$1,213,500**

Construction Contingency (10%)		$ 121,300
Associated Costs (Engr., Legal, Etc.) (25%)		$ 303,000
	Total Estimated Cost	**$1,638,000**
Operation and Maintenance		$ 20,000
PRESENT WORTH		**$2,100,000**

- Based on a 40 year term with an average annual inflation rate of 3.0 %

Discussions between the Northeastern York County Sewer Authority's Engineer and the owner of a 305-acre tract of land north of Saginaw for the purpose of obtaining a portion of the property for a wastewater treatment facility site have occurred over the last few years. The property owner, Mr. Craig Dallmeyer has expressed his interest in subdividing off a portion of this tract, not to exceed five (5) acres, and providing it to the Authority for the purpose of building the plant. He is willing to take this action if in the event that he develops the 305 acre tract, or other properties he owns in the area, the Authority would be willing to accept and treat wastewater from the developments at the proposed treatment plant. A Copy of a "Memorandum of Intent" concerning this matter is included as Appendix L.

Discussions with engineering and real estate personnel at Norfolk-Southern Railroad concerning a "license for crossing" for the proposed plant's outfall line to the Susquehanna River have also occurred. Mr. Mark Sawyer in the Norfolk-Southern engineering office has indicated that to his knowledge no application for such a "license" has ever been denied. Further discussions with Mr. Karl Autenreith in the Norfolk-Southern real estate division indicated that it would take several months to process and approve the application for the "license for crossing". Engineering and surveying for this utility crossing, plus preparation of the Norfolk-Southern application, is estimated at

$6,000 to $8,000. It is anticipated that the utility crossing for the outfall line will be accomplished by boring a steel casing pipe beneath the railroad tracks, and placing the carrier pipe (plant outfall line) within this casing pipe. The annular space between the carrier and casing pipes would be filled with either a grout mix or stone aggregate per the requirements of Norfolk-Southern. The preparation of the Norfolk-Southern application, including the engineering and surveying required, is a time consuming and expensive process. The application preparation, plus the time and negotiations required to obtain the necessary land for the treatment plant, would be included in the design process for the selected alternative to serve the Village of Saginaw area.

Public Sewer System for the Griffith Lane, Conewago Creek Road, Old School Lane and Park Street Area –**Area 2**

Area to be served by the construction of a gravity sewage collection system, a small duplex pumping station and force main. Sewage will be pumped to the existing Musser Run Pumping Station which repumps the sewage into the Northeastern York County Sewer Authority Wastewater Treatment Plant. The initial number of EDU's to be served by this alternative would be 193, with additional growth in this number in the future. Projected costs to construct this alternative are shown in Table No. 3-4 below:

TABLE NO. 3-4
COST ESTIMATE – AREA 2
Griffith Lane, Conewago Creek Road, Old School Lane and Park Street Area

Item	Description	Est. Qty.	Unit	Unit Cost	Total Cost
1	8" Dia. Gravity Sewer	18,500	LF	$40	$740,000
2	4" Dia. Force Main	5,300	LF	$30	$159,000

3	2" Dia. Low Press. F.M.	300	LF	$25	$ 7,500
4	4" Dia. Laterals	4,825	LF	$30	$144,750
5	Pavement Restoration	7,000	SY	$35	$245,000
6	Sanitary Sewer Manholes	61	LS	$1,500	$ 91,500
7	Sanitary Sewer P.S.	LS	LS	$200,000	$200,000
8	Grinder P.S.	5	EA	$2,000	$ 10,000
			Subtotal		**$1,600,000**
	Construction Contingency (10%)				$160,000
	Associated Costs (Engr., Legal, Etc.) (25%)				$440,000
			Total Estimated Cost		**$2,200,000**
	Operation and Maintenance				$ 3,000
PRESENT WORTH					**$2,270,000**

* Based on a 40 year term with an average annual inflation rate of 3.0 %

Public Sewer System for the Oak Drive, Acorn Drive and Brook Drive Area – **Area 3**

Area to be served by the construction of a gravity sewage collection system which will be connected to the existing collection system serving the Sherman Oaks development. The proposed system will add 25 EDU's to the flow into the Sherman Oaks Pump Station. Projected costs to construct this alternative are shown in Table No. 3-5 below:

TABLE NO. 3-5
COST ESTIMATE – AREA 3
Oak Drive, Acorn Drive and Brook Drive Area (The Oaks)

Item	Description	Est. Qty.	Unit	Unit Cost	Total Cost
1	8" Dia. Gravity Sewer	3,560	LF	$40	$142,400
2	4" Dia. Laterals	1,100	LF	$30	$ 33,000

3	Pavement Restoration	1,500	SY	$35	$ 52,500
4	Sanitary Sewer Manholes	14	LS	$1,500	$ 21,000
			Subtotal		**$248,900**
	Construction Contingency (10%)				$ 25,000
	Associated Costs (Engr., Legal, Etc.) (25%)				$ 69,000
			Total Estimated Cost		**$ 343,000**
Operation and Maintenance					$ 500
PRESENT WORTH					**$355,000**

* Based on a 40 year term with an average annual inflation rate of 3.0 %

On-Lot Sewage Disposal System (OLDS) Management Program and Ordinance

The continued and future use of individual On-Lot Sewage Disposal Systems (OLDS) is an essential and integral part of East Manchester Township. The purpose of the ordinance is to establish a sewage management district within the Township to regulate the installation, construction, maintenance, operation, rehabilitation, and replacement of all existing and any future on-lot systems or alternative systems, including the right and power to fix, alter, charge and collect rates and assessments and other charges for such services. All septic tanks of subsurface waste disposal systems in the management district would be pumped out within two (2) years of the effective date of the ordinance and every four (4) years thereafter. The entire on-lot service area would be regulated by the ordinance. It is anticipated that the homeowner will be required to finance the costs associated with the initial pump-out and inspection. Additionally, as previously noted, any required repairs will also be borne by the homeowner. An administrative cost will also be incurred to initiate and maintain the program. It is estimated that the annual cost for this service would be $30,000.This cost would be financed out of the Township's general fund. If the financial cost would become a burden to the Township, the creation

of the On-Lot Management District provides the authority to create a billing structure to cover these costs.

E. Provide an analysis of the funding methods available to finance each of the proposed alternatives evaluated. Provide documentation to demonstrate which alternative and financing scheme combination is the most cost effective.

Project financing for treatment and collection facilities is available from a number of various sources. Selection of a specific source or combination of sources depends on the financing strategy, available resources and goals of the township. Strategy involves not only identifying sources of funding, but also selection and evaluation of the most appropriate mix of funding, the timing for issuing debt and the magnitude and timing of rate increases.

Potential sources of funding for construction of sewage facilities include a number of public and private sources:

- contributions form developers for new developments;
- bank loans;
- system development charges (tapping fees);
- loans and/or grants from government agencies such as PENNVEST, Rural Development 's Rural Utility Service (RUS), and Community Development Block Grants;
- user fees; and
- available cash reserve funds.

A discussion of the funding sources for sewer construction projects follows:

PUBLIC SOURCES

Pennsylvania Infrastructure Investment Authority (PENNVEST)

[1] Types of Assistance:

Low interest loans and supplemental grants for drinking water, stormwater and wastewater projects including industrial wastewater systems.

PENNVEST is able to finance up to 100% of eligible project costs, subject to the following limits. There is an overall project cap of $11 million per project. This cap is increased to $20 million if more than one municipality is served and can be exceeded with Authority approval if four or more communities are served. The Authority may require the applicant to participate in financing a project when it determines that the applicant has the financial capability to do so and that such participation is desirable.

PENNVEST financial assistance primarily consists of low interest loans; some supplemental grant funds are available to defray extremely high user cost. Interest rates vary, based in part on the cost of funds to the Commonwealth. Once a PENNVEST loan is approved, interest is fixed for the term of the loan. Most of the loans have a term of 20 years and carry interest rates ranging from 1% - 6%. Loan applicants are eligible for an expedited rate review process established by the PUC to facilitate debt service repayment.

[1] Who is Eligible:

Municipalities, authorities, and some private entities are eligible for drinking water and wastewater project funding. Municipalities and other governmental units implementing stormwater ordinances and counties with Act 167 plans in place are eligible for stormwater project funding.

Where to Apply:

Pennsylvania Infrastructure Investment Authority
22 South Third Street
Harrisburg, PA 17101

General:

Application for construction funding is typically not considered for approval by the PENNVEST Board until:

- Act 537 Plan approved;

- Design complete;
- DEP permits (NPDES and Water Quality Management) issued; and
- Technical evaluation and priority rating of application by DEP concluded. (The Intended Use Plan prioritizes projects for the State Revolving Fund.)

Local or Project Counsel is required to render enforceability and rate opinions and to obtain Department of Community Affairs (DCA) approval for municipal guaranty.
Construction may not commence until funding is approved and written consent to proceed has been received from PENNVEST.
Value engineering may be required for the project.

Pros:

1. Offers the lowest interest rates available.
2. The projects are rated by the agency reviewing and approving the ACT 537 Sewage Facilities Plan.
3. PENNVEST may accept subordinate or party lien position (accommodate outstanding debt.)
4. Low issuance costs
5. No negative arbitrage
6. Funding is available for design and preconstruction costs.
7. A trustee is not required.

Cons:

1. The application process is long since the Board only meets three or four times a year. Also, with uncertain approval, it may be difficult to coordinate the project and financing timetables.
2. There is a risk in proceeding with design financing without the commitment for the construction financing.
3. There is much competition for the funding.
4. There is a possibility of only partial financing requiring the applicant to also pursue alternate financing.
5. Interim financing may be necessary to expedite the project.

6. Loss of Act 339 grant eligibility.

[1] *Information from Water, Sewer and Stormwater Utility's Guide to Financial and Technical Assistance Programs, PENNVEST, 1997*

Rural Utilities (formerly Farmer's Home Administration) Water and Waste Loan/Grant Program

[1] Types of Assistance:

Direct loans and grants for water and waste disposal facilities in rural area and towns of 10,000 or fewer people.

Rural Development's Rural Utility Service (RUS) is primarily a loan agency with supplemental grant money used ant the discretion of the RUS to maintain the water and sewer rates charged to the system users at reasonable levels. Interest rates are determined by the median income of the community and are classified as poverty, intermediate and market rates.

[1] Who is Eligible:

Public entities such as: municipalities, counties, not-profit organizations and community action agencies. Population restriction is 10,000 people per community. Priority is given to rural communities with populations of 2,500 or fewer people.

Where to Apply:

Rural Development Mission Area
Lehigh Area Office
2211 Mack Boulevard
Allentown, PA 18103-5623

General:

RUS provides long term (40 years) fixed rate financing for qualified municipal utility projects; eligibility based on median household income (MHI) of residents of the municipality. Grant funding is also available if the municipality is qualified and the grant is necessary to make the project affordable. Interest rates for the January 1, 2000 – March 31, 2000 program have been established and are presented in Table No. 3-6.

TABLE NO. 3-6
INTERSEST RATES FOR RUS FINANCING

	Interest Rate	Maximum Grant
Poverty MHI < $25,198	4.500%	75%
Intermediate $25,198<MHI < $31,498	5.125%	45%
Market MHI > $31,498	5.750%	None

[1] *Information from Water, Sewer and Stormwater Utility's Guide to Financial and Technical Assistance Programs, PENNVEST, 1997*

According to the correspondence dated 11/30/00, the Rural Development Mission Area, (Appendix G), East Manchester Township is eligible for a 5.50% interest rate loan from RUS. This eligibility was based on a MHI of $ 34,338.

Pros:

1. Low interest rates for low-income municipalities.
2. Longest fixed rate term available.
3. Rates calculated on median household income and affordability analysis.
4. RUS provides commitment for permanent financing prior to authorizing design.

Cons:

1. RUS must approve the project scope, design, specifications and cost, possibly limiting design alternatives.
2. Interim construction financing is generally required.
3. RUS will need to approve additional borrowing. This could be a problem with a 40-year loan.
4. Rate adjustments are subject to RUS approval.

Community Development Block Grants/Small Municipalities Entitlement and Competitive Grant Program

York County and thus, East Manchester Township is ineligible for Department of Community and Economic Development (DECD) money.

PRIVATE SOURCES

Tax-Exempt Bank Loan

General:

1. May be used for pre-construction, interim or permanent financing.
2. Fixed rates are usually limited to three years or less. Long term financing with an adjustable rate may cause budgeting problems.
3. Securities:
   - pledge of revenues (long-term financing)
   - pledge of grants receivable
   - commitment letter from RUS or PENNVEST (interim financing)
   - pledge of local funds receivable such as tapping fees and assessments.
   - guaranty of municipality.
4. Solicitor and Bond Counsel negotiate terms of financing.

Pros:

1. Maximum flexibility
2. Banks do not generally review the design
3. Reasonable rates in a low interest rate environment.
4. Reserve fund usually not required.
5. Requires least amount of time to accomplish financing for tight construction schedules.

Cons:

1. The interest rate is adjustable in long term financing.

2. Municipal Guaranty usually required.
3. Limitations on future borrowing may be imposed.
4. Funds held by lender.

Public Bond Issue:

General:

1. Traditional method of long-term financing of municipal utility projects in Pennsylvania.
2. An underwriter or financial advisor is selected to structure and sell bond issue.
3. Security – same as Bank Loan.
4. Bank or Trust Company appointed to serve as Trustee. All rates and charges are deposited in a trust account under Trust Indenture. The Trustee monitors investments and collections. The Trustee sends interest checks to the bondholders and redeems the bonds.

Pros:

1. Long term fixed interest rate.
2. Municipal bonds tend to be in demand.
3. Offers local investment opportunity.
4. Assistance is available from the underwriter or financial advisor.
5. Establishes municipal credit.
6. The design is usually not reviewed.
7. Offers flexibility in future financing.
8. More definite timetable to implement financing (versus PENNVEST of RUS).

Cons:

1. Market interest rates may be higher than offered by other alternatives.
2. Municipal guaranty is usually required.
3. Reserve fund generally required
4. There are Trustee fees and expenses.

5. The issuance costs are higher.

Bond Pools

General:

1. Consists of bonds issued by other authorities in Pennsylvania with the proceeds made available to relend to qualified buyers.
2. Application process may vary (pools may require a municipal guaranty or purchase of credit enhancement or minimum credit rating).
3. Portion of bonds are remarketed for borrower to determine the current rate.
4. Local Counsel and Bond Counsel negotiate loan document with Pool Counsel.

Pros:

1. Low interest rates.
2. The design is usually not reviewed.
3. Shorter period of time to implement financing (compared to public sources).

Cons:

1. Short-term pool loan requires subsequent financing.
2. Availability may depend on satisfactory rating or bond insurer approval.
3. Long term rates may be higher than Public Bond Issue.
4. There are additional issuance costs due to the involvement of additional parties (pool counsel).

F. Analyze the need for immediate or phased implementation.

There are currently no documented health hazards associated with any of the need areas identified herein however the Village of Saginaw, **Area 1**, is certainly of an area of concern. It is planned to address the needs of Saginaw first. While the design of this area is proceeding, the on-lot management program will be implemented for the districts described herein. Should costs prohibit proceeding with the provision of public sewers in the Griffith Lane, Conewago Creek Road, Old School Lane and Park Street area, **Area 2**, it will be incorporated into the on-lot management program in an alternate year.

G. Evaluate Administrative Organizations and Legal Authority Necessary for Plan Implementation

Both the Northeastern York County Sewer Authority and East Manchester Township have the legal authority to perform all of the sewer alternatives proposed for the Township.

VII. INSTITUTIONAL EVALUATION

A. Analysis of Existing Wastewater Treatment Authorities

The Northeastern York County Sewer Authority was established in 1987. Its area of jurisdiction includes the Boroughs of Mount Wolf and Manchester, all of East Manchester Township, plus an industrial park site in northern Manchester Township. The Authority is made up of six members. It has existing legal authority to implement wastewater planning recommendations, implement system-wide operation and maintenance activities, set user fees and take purchasing actions, take enforcement actions against ordinance violators, negotiate agreements with other parties, and raise capital for construction, operation and maintenance of sewage facilities. Currently, the Authority is paying off a bond issue, which originally amounted to $ 9,630,000. The current balance is $ 8,645,000. The term of the bond is 25 years.

B. Analysis and Description of Institutional Alternatives

No new municipal authorities or agencies are required to implement the alternatives included in this plan. The existing Northeastern York County Sewer Authority has the legal authority to implement the proposed sewer system extensions and construct the proposed satellite WWTP north of Saginaw. The Township will administer the On-Lot Management Program through its Sewage Enforcement Officer or by contract. The cost of the On-Lot Management Program is estimated at $ 30,000 per year.

C. Administrative and Legal Activities

The Northeastern York County Sewer Authority is already in position to carry out the recommended sewer alternatives in this plan. The adoption of the On-Lot Management Ordinance will be accomplished prior to the commencement of the management program. A Well Water Ordinance is also to be adopted. Rights-of Way, easements, and any necessary land transfers required for the construction of sewage facilities will be obtained early in the design process for the facilities. The implementation schedule for the various proposed alternatives is included in Chapter 1.

D. Selected Institutional Alternative

The proposed sewage facilities will be constructed within a 5-year time frame. The existing Authority will implement the selected technical alternatives, and the Township will be responsible to adopt and manage the necessary ordinances required under the Plan.

VIII. JUSTIFICATION FOR SELECTED TECHNICAL AND INSTITUTIONAL ALTERNATIVES

A. Identification of Selected Technical Wastewater Disposal Alternatives

Five major need areas have been identified. Three of these areas were considered immediate need areas, requiring the provision of public sewer service. Public sewer service to **Areas 1 & 3** will be designed and implemented concurrently. Alternative 3, the construction of a satellite WWTP is the selected alternative for **Area 1**. Though this alternative to provide sewage treatment for the Saginaw area is not necessarily the least expensive of those listed, it is the Authority's and Township's chosen alternative. This alternative eliminates the need to upgrade sewers through Mt. Wolf and will allow for additional treatment capacity to support anticipated industrial growth along North George Street, Zion View Road and Board Road. The provision of public sewers for **Area 2** will follow the completion of the combined project for **Areas 1 & 3.** All of the proposed

sewage facilities will be constructed within a 5-year time frame. **Areas 4 & 5** will be addressed through the implementation of an On-Lot Management Program.

The proposed technical and institutional alternatives are compatible with current preservation programs and conservation of natural resources.

B. Capital Financing Plan

Funding alternatives, with pros and cons are discussed in Chapter 3. The chosen financing plan for the wastewater alternatives is through the Rural Utilities Service (RUS). East Manchester Township is currently eligible for a 40-year loan at a 5.5% interest rate from the RUS. Back up financing would be by public bond issue.

APPENDICES

APPENDIX A

Survey Results and Questionnaire

Interview Results - Wells

Number	No. of Residents	Water System	Drilled or Dug	Depth	Casing	Dist. To Drainfield	Water Treatment	Water Test	Contaminated?
1	2	Well	Drilled	99'	yes	40-50'	UV	1991	yes
2	4	Well	Drilled	200'	yes	70'	None	Yes	no
3	4	Well	Drilled	220'	yes	110'	None	None	
4	4	Well	Drilled	371'	yes	150-200'	None	None	
5	1	Well	Drilled	150'	yes	80'	Softener	1993	no
6	3	Well	Drilled	?	yes	100'	Softener	None	
7	2	Well	Drilled	120'	yes	100'	None	None	
8	4	Well	Drilled	127'	yes	70'	None	None	
9	2	Well	Drilled	?	yes	100'	Softener	1993	no
10	5	Well	Drilled	500'	yes	120'	Softener	1995	no
11	4	Well	Drilled	75'	yes	100'	None	1995	Nitrates
12	3	Well	Drilled	325'	yes	100'	None	1995	no
13	2	Well	Drilled	135'	yes	100'	Chlorine	1994	no
14	3	Well	Drilled	?	yes	70'	None	None	
15	3	Well	Drilled	110'	yes	100'	None	1973	no
16	2	Well	Drilled	100'	yes	80'	Chlorine	Yes	no
17	3	Well	Drilled	?	yes	70'	Softener	Yes	yes
18	5	Well	Drilled	?	yes	?	None	Yes	no
19	2	Well	Drilled	140'	yes	100'	neutralizer	Yes	no
20	2	Well	Drilled	200'	yes	150'	neutralizer	1994	no
21	5	Well	Drilled	?	yes	100'	None	1994	no
22	2	Well	Drilled	200'	yes	100'	Softner	1997	no
23	2	Well	Drilled	230'	yes	100'	UV	1986	Bact. E-Coli
24	4	Well	Drilled	90'	yes	100'	None	1994	yes
25	2	Well	Drilled	320'	yes	100'	Neutralizer	1991	no
26	4	Well	Drilled	?	yes	100'	None	None	
27	4	Well	Drilled	200'	yes	100'	None	1995	Bacteria
28	1	Well	Drilled	100'	yes	60'	None	1996	yes?
29	4	Well	Drilled	160'	yes	120'	Softner	2000	no
30	2	Well	Drilled	100'	yes	100'	Softner/Ion Exch	1996	Pesticides
31	2	Well	Drilled	350'	yes	400'	Softener	1995	no
32	1	Spring				?	None	None	
33	2	Well	Drilled	26'	?	50'	None	Yes	no
34	2	Well	Drilled	200'	yes	100'	Filter	1981	Total Coliforms
35	2	Well	Drilled	300'	yes	100'	None	1986	no
36	4	Well	Drilled	?	yes	200'	None	1992	no
37	5	Well	Drilled	?	yes	100'	Softener + Filter	1990	no
38	2	Well	Drilled	200'	yes	100'	Filter + Chlorine	1995	no
39	5	Well	Drilled	260'	yes	100'	None	1992	no
40	4	Well	Drilled	?	yes	100'	Softener	Yes	no
41	6	Well	Drilled	300'	yes	100'	None	None	
42	2	Well	Drilled	80'	yes	100'	None	1976	minerals
43	2	Well	Drilled	130'	yes	100'	None	None	
44	4	Well	Drilled	150'	yes	200'	Softener	1994	no
45	3	Well	Drilled	?	yes	100'	None	1978	no
46	2	Well	Drilled	?	yes	100'	Softener	None	
47	4	Well	Drilled	75'	yes	100'	None	1981	minerals
48	3	Well	Drilled	385'	yes	100'	None	1994	no
49	4	Well	Drilled	460'	yes	70'	None	None	
50	3	Well	Drilled	285'	yes	100'	None	2000	no

Number	No. of Residents	Water System	Drilled or Dug	Depth	Casing	Dist. To Drainfield	Water Treatment	Water Test	Contaminated?
51	3	Well	Drilled	200'	yes	100'	None	1995	no
52	5	Well	Drilled	260'	yes	100'	None	1997	no
53	3	Well	Drilled	265'	yes	100'	UV/Ion exchange	1994	no
54	3	Well	Drilled	?	yes	100'	None	1993	no
55	5	Well	Drilled	?	yes	?	None	None	
56	2	Well	Drilled	100'	yes	150'	None	1996	no
57	3	Well	Drilled	145'	yes	100'	None	None	
58	4	Well	Drilled	162'	yes	100'	None	None	
59	3	Well	Drilled	?	yes	100'	?	2000	no
60	1	Spring	n/a	n/a	n/a	50'	None	None	
61	2	Well	Drilled	318'	yes	100'	Softner	None	
62	2	Well	Drilled	140'	yes	100'	None	1995	no
63	1	Well	Drilled	?	yes	100'	None	1998	no
64	3	Well	Drilled	400'	yes	?	None	None	
65	4	Well	Drilled	?	yes	150'	Softener	1995	no
66	2	Well	?	?	?	80'	none	1990	no
67	3	Well	Drilled	290'	yes	150'	None	None	
68	5	Well	Drilled	?	yes	100'	None	1995	no
69	2	Well	Drilled	90'	yes	50'	None	1950	no
70	5	Well	Drilled	?	yes	100'	None	1995	no
71	5	Well	Drilled	100'	yes	100'	None	None	
72	2	Well	Drilled	?	yes	100'	None	None	
73	3	Well	Drilled	?	yes	100'	None	None	
74	2	Well	Drilled	400'	yes	150'	None	None	
75	1	Well	Drilled	300'	yes	100'	None	1996	no
76	2	Well	Drilled	99'	yes	100'	UV	1992	Surface Water Co.
77	6	Well	Drilled	460'	yes	50'	UV	1995	no
78	6	Well	Drilled	?	yes	100'	None	None	
79	4	Well	Drilled	70'	yes	70'	None	1995	no
80	5	Well	Drilled	250'	yes	150'	UV/Softener	1990	Bacteria
81	3	Well	Drilled	?	yes	70'	None	1990	no
82	3	Well	Drilled	?	yes	70'	None	None	
83	2	Well	Drilled	?	yes	?	None	?	no
84	1	Well	Drilled	?	yes	50'	None	?	no
85	2	Well	Drilled	257'	yes	100'	Softener	1995	no
86	2	Well	Drilled	220'	yes	100'	Softener	1993	no
87	2	Well	Drilled	115'	yes	50'	None	None	
88	2	Well	Drilled	65'	yes	n/a	None	Yes	no
89	2	Well	Drilled	?	yes	100'	None	1998	no
90	5	Well	Drilled	125'	yes	100'	None	1993	no
91	3	Well	Drilled	?	yes	100'	None	None	
92	5	Well	Drilled	200'	yes	70'	None	Yes	no
93	2	Well	Drilled	200'	yes	100'	Softener	1986	no
94	4	Well	Drilled	60'	yes	200'	None	None	
95	1	Well	Drilled	300'	yes	100'	None	None	
96	1	Well	Drilled	165'	yes	50'	None	1969	no
97	2	Well	Drilled	180'	yes	100'	None	1995	no
98	3	Well	Drilled	200'	yes	100'	None	None	
99	2	Well	Drilled	170'	yes	70'	None	1996	no
100	4	Well	Drilled	?	yes	100'	None	1994	no

Number	No. of Residents	Water System	Drilled or Dug	Depth	Casing	Dist. To Drainfield	Water Treatment	Water Test	Contaminated?
101	5	Well	Drilled	?	yes	100'	None	None	
102	4	Well	Drilled	115'	yes	100'	None	1996	no
103	2	Well	Drilled	75'	yes	80'	None	1966	yes
104	4	Well	Drilled	?	yes	100'	None	1988	no
105	2	Well	Drilled	165'	yes	80'	Softner	1991	no
106	2	Well	Drilled	?	yes	50'	Softener	1990	no
107	5	Well	Drilled	50'	yes	100'	None	None	
108	4	Well	Drilled	180'	yes	100'	Softener	None	
109	4	Well	Drilled	175'	yes	100'	None	1994	Nitrogen
110	3	Well	Drilled	175'	yes	100'	None	1994	no
111	4	Well	Drilled	200'	yes	100'	None	1993	no
112	4	Well	Drilled	450'	yes	100'	None	None	
113	2	Well	Drilled	150'	yes	100'	None	1985	no
114	2	Well	Drilled	160'	yes	100'	None	None	
115	5	Well	Drilled	150'	yes	100'	None	None	
116	4	Well	Drilled	?	yes	100'	None	1992	no
117	4	Well	Drilled	300'	yes	100'	None	None	
118	4	Well	Drilled	175'	yes	100'	None	None	
119	2	Well	Drilled	275'	yes	100'	Softener	1980	no
120	4	Well	Drilled	200'	yes	100'	Softener	1990	no
121	4	Well	Drilled	?	yes	100'	None	1995	no
122	2	Well	Drilled	250'	yes	100'	None	1996	no
123	4	Well	Drilled	?	yes	100'	?	1996	no
124	4	Well	Drilled	300'	yes	100'	UV	1995	Hard Water
125	4	Well	Drilled	250'	yes	100'	None	None	
126	4	Well	Drilled	300'	yes	100'	None	1992	no
127	4	Well	Drilled	?	yes	100'	None	1993	no
128	3	Well	Drilled	250'	yes	100'	None	1994	no
129	1	Well	Drilled	?	yes	50'	None	None	
130	3	Well	Drilled	?	yes	40'	None	None	
131	2	Well	Drilled	?	yes	50'	None	1995	no
132	1	Well	Drilled	90'	yes	70'	None	1987	no
133	3	Well	Drilled	?	yes	100'	None	1989	no
134	3	Well	Drilled	200'	yes	100'	None	1993	no
135	4	Well	Drilled	150'	yes	100'	Softener	1993	no
136	2	Well	Drilled	180'	yes	100'	None	1996	no
137	5	Well	Drilled	?	yes	400'	None	None	
138	2	Well	Drilled	210'	yes	230'	None	1990	no
139	1	Well	Drilled	70'	yes	50'	None	none	
140	4	Well	Drilled	?	yes	50'	UV	None	
141	4	Well	Drilled	?	yes	50'	Softener	1996	Hard Water
142	2	Well	Drilled	?	yes	100'	None	None	
143	3	Well	Drilled	?	yes	?	UV	None	
144	1	Well	Drilled	110'	yes	70'	Filter	1994	no
145	3	Well	Drilled	?	yes	100'	None	None	
146	1	Well	Drilled	?	yes	50'	None	None	
147	3	Well	Drilled	?	yes	100'	Purifier	1995	Nitrogen
148	4	Well	Drilled	70'	yes	100'	UV	1993	Fecal Coliform
149	5	Well	Drilled	?	yes	100'	None	None	
150	3	Well	Drilled	?	yes	50'	None	Yes	no

Number	No. of Residents	Water System	Drilled or Dug	Depth	Casing	Dist. To Drainfield	Water Treatment	Water Test	Contaminated?
151	4	Well	Drilled	200'	yes	100'	None	1994	no
152	2	Well	Drilled	90'	yes	70'	None	None	
153	4	Well	Drilled	?	yes	?	None	None	
154	2	Well	Drilled	103'	yes	100'	None	None	
155	7	Well	Dug	45'		200'	None	Annually	no
156	3	Well	Drilled	56'	yes	50'	None	None	
157	2	Well	Drilled	?	yes	100'	None	1992	no
158	5	Well	Drilled	?	yes	70'	None	None	
159	3	Well	Drilled	?	yes	50'	None	1994	no
160	2	Well	Drilled	331'	yes	70'	None	None	
161	2	Well	Drilled	66'	yes	100'	None	1998	no
162	2	Well	Drilled	85'	yes	100'	None	None	
163	2	Well	Drilled	69'	yes	?	UV	2000	no
164	1	Well	Drilled	180'	yes	50'	None	None	
165	5	Well	Drilled	?	yes	100'	None	1993	?
166	3	Well	Drilled	?	yes	?	None	None	
167	2	Well	Drilled	100'	yes	?	None	1991	no
168	1	Well	Drilled	310'	yes	120'	None	2000	yes ?
169	2	Well	Drilled	?	yes	75'	Chlorine	None	
170	1	Well	Drilled	80'	yes	50'	None	1972	no
171	4	Well	Drilled	35'	yes	75'	None	1996	no
172	4	Well	Drilled	200'	yes	100'	None	None	
173	NOT USED								
174	5	Well	Drilled	200'	yes	100'	None	1991	no
175	1	Well	Drilled	460'	yes	150'	UV /Softner	2000	no
176	2	Spring	n/a	n/a	n/a	100'	None	2000	yes?
177	2	Well	Drilled	160'	yes	100'	None	2000	no
178	3	Well	Drilled	?	yes	150'	None	1998	no
179	4	Spring	n/a	n/a	n/a	100'	Softner	1998	no
180	3	Well	Drilled	100'	yes	100'	None	1995	no
181	2	Well	Drilled	100'	yes	100'	None	1990	no
182	4	Well	Drilled	100'	yes	100'	None	1996	no
183	5	Well	Drilled	?	yes	100'	None	1995	no
184	1	Well	Drilled	100'	yes	100'	Yes ?	1996	no
185	5	Well	Drilled	?	yes	100'	None	1995	no
186	4	Well	Drilled	?	yes	100'	None	None	
187	3	Well	Drilled	100'	yes	100'	None	1990	Nitrates
188	2	Well	Drilled	220'	yes	160'	None	1998	no
189	1	Well	Drilled	?	yes	100'	None	1990	no
190	2	Well	Drilled	240'	yes	100'	Softner	1990	no
191	4	Well	Drilled	300'	yes	100'	None	Yes?	no
192	3	Well	Drilled	?	yes	100'	None	1998	no
193	4	Well	Drilled	?	yes	100'	None	1990	no
194	5	Well	Drilled	?	yes	100'	None	1998	no

INTERVIEW RESULTS - OLDS

Number	Lot Size	Type of olds		Laundry Water	Age of System	Date permitted	Noted Problems	Seasonal or year round	Neighbor-hood problems	* pump outs	Frequency	Repairs	Type of Repairs	Type of Malfunction
1	.3 acres	Septic Tank	Inground Bed/Trench	backyard	19	1981	A	Year round	yes	1994	every 2 years	1981	?	Suspected
2	1 acre	Septic Tank	Inground Trench	?	27	1973	none	n/a	no	none	n/a	none		Potential
3	1.5 acres	Septic Tank	Elevated Sand Mound	surface	19	1981	A,E	Seasonal	yes - odors	1991	?	none		Suspected
4	1.5 acres	Septic Tank	Inground Bed	street drain	21	1979	none	n/a	yes	1995	every 4 years	none		
5	.9 acres	Septic Tank	Inground Bed/Trench	OLDS	20	1980	none	n/a	no	1995	every other yr	none		
6	1 acre	Septic Tank	Inground Bed	OLDS	15	1985	none		no	none		none		
7	1 acre	Septic Tank	Inground Trench	OLDS	22	1978	none		yes	none		none		
8	.75acres	Septic Tank	Inground Bed	OLDS	30	1970	A,D,E,G	Seasonal	no	1988	every 10 years	none		Confirmed
9	1 acre	Septic Tank	Inground Bed	OLDS	9	1991	none		no	none		none		Confirmed
10	3.3 acres	Septic Tank	Inground Trench	OLDS	25	1975	A,D	Year round	no	1995	every 2 years	none		Confirmed
11	.75 acres	Septic Tank	Inground Bed	OLDS	9	1991	G		no	?		?		Confirmed
12	1 acre	Septic Tank	Elevated Sand Mound	OLDS	6	1994	none		no	?		?		
13	.5 acres	Septic Tank	Inground Trench	OLDS	28	?	none		yes	1994	every 2 years	none		Potential
14	.5 acres	Septic Tank	Inground Trench	surface	27	?	A, D, G	Seasonal	yes	1996	every 2 years	yes	replaced drainfield	Confirmed
15	.6 acres	Septic Tank	Inground Bed/Trench	OLDS	28	1972	none		yes	1992	?	none		Potential
16	.6 acres	Septic Tank	Inground Bed	surface	26	1964	A	Seasonal	yes	1993	every 7 years	1990	repaired lines	Suspected
17	.9 acres	Septic Tank	Inground Bed/Trench	surface	33	1967	none		no	none		1995	repaired drainfield	Potential
18	.75 acres	Septic Tank	Inground Bed/Trench	?	34	no	none		no	1995	every year	none		Potential
19	.4 acres	Septic Tank	Inground Trench	surface	19	1981	none		no	1993	every 4 years	1981	repaired drainfield	Potential
20	1 acre	Septic Tank	Inground Trench	surface	34	1966	none		no	1996	every 2 years	1984	repaired drainfield	Potential
21	2.5 acres	Holding Tank		surface	?		none		no	1996	every month	none		Confirmed
22	1 acre	Septic Tank	Inground Bed	OLDS	29	?	D	Seasonal	no	2000	every 2 years	none		Confirmed
23	1 acre	Septic Tank	Inground Bed	OLDS	15	1986	none		no	none		none		
24	.85 acres	Septic Tank	Inground Bed	OLDS	10	1990	none		no	none		none		
25	1 acre	Septic Tank	Inground Bed	OLDS	28	1972	A	Seasonal	no	1992	every 4 years	1980	repaired drainfield	Suspected
26	2 acres	Septic Tank	Inground Trench	?	24	1976	D	Seasonal	no	yes	?	none		Confirmed
27	.8 acres	Septic Tank	Inground Bed	OLDS	6	1994	none		no	none		none		
28	16 acres	Septic Tank	Inground Bed	OLDS	+ 40	no	none		no	1997	every 3 years	none		Potential
29	.25 acres	Septic Tank	Inground Bed	OLDS	12	?	none		no	2000	every 2 years	none		
30	1.5 acres	Septic Tank	Inground Bed	OLDS	25	1975	none		no	1996	every 4 years	none		Potential
31	1.75 acres	Septic Tank	Inground Bed	OLDS	18	1982	none		yes - odors	none		none		
32	?	Septic Tank	Inground Trench	OLDS	54	no	A,C	Year round	no	1976	every 20 years	none		Confirmed
33	.5 acres	Septic Tank	Inground Bed	alternate	19	1981	none		no	1995	every 2 years	1981	repaired drainfield	Confirmed
34	1 acre	Septic Tank	Inground Bed	OLDS	31	1969	none		no	1986	every 10 years	none		Confirmed
35	1.5 acres	Septic Tank	Inground Bed	OLDS	24	1976	none		no	1996	every 20 years	none		
36	1.75 acres	Septic Tank	Elevated Sand Mound	OLDS	5	1995	none		yes	none		none		
37	1 acre	Septic Tank	Inground Bed	OLDS	40	1960	D,G	Seasonal	yes	1996	biannually	none		Confirmed
38	1.2 acres	Septic Tank	Inground Trench	OLDS	12	1988	none		no	1988	?	1988	repaired drainfield	Potential
39	1.5 acres	Septic Tank	Inground Trench	OLDS	17	1983	none		no	1995	one time	none		
40	1 acre	Septic Tank	Inground Bed	OLDS	22	1978	none		no	none		none		
41	1.75 acres	Septic Tank	Inground Bed	OLDS	29	1971	none		no	none		none		Confirmed
42	1.5 acres	Septic Tank	Inground Bed	surface	40	1960	none		no	none		none		Confirmed
43	1.5 acres	Septic Tank	Inground Bed	OLDS	28	1972	A	Seasonal	no	1994	every 2 years	none		Confirmed
44	2 acres	Septic Tank	Inground Bed	OLDS	29	1971	none		no	1996	every 2 years	none		Potential
45	.9 acres	Septic Tank	Inground Bed	OLDS	22	1978	none		no	none		none		
46	1.2 acres	Septic Tank	Inground Bed	OLDS	31	1969	none		no	1981	one time	1976	repaired drainfield	Potential
47	1 acre	Septic Tank	Inground Bed	OLDS	14	1986	none		no	1992	every 3 years	1986	replaced drainfield	Potential
48	.5 acres	Septic Tank	Inground Bed	OLDS	15	1985	none		no	none		none		
49	1.1 acres	Septic Tank	Inground Trench	OLDS	13	1987	none		yes	1990	one time	none		
50	.25 acres	Septic Tank	Inground Trench	OLDS	23	1977	none		no	2000	every 5 years	yes	repaired tank	Potential

Number	Lot Size	Type of olds		Laundry Water	Age of System	Date permitted	Noted Problems	Seasonal or year round	Neighbor-hood problems	* pump outs	Frequency	Repairs	Type of Repairs	Type of Malfunction
51	1 acre	Septic Tank	Inground Bed	OLDS	20	?	none		no	yes	?	none		
52	1.5 acres	Septic Tank	Inground Bed	OLDS	16	1984	none		no	1996	every 4 years	none		
53	1 acre	Septic Tank	Inground Bed	OLDS	17	1983	none		no	1995	every 5 years	none		
54	1.25 acres	Septic Tank	Inground Bed	OLDS	+ 30	?	C	Seasonal	no	2000	?	none		Suspected
55	3 acres	Septic Tank	Inground Bed	OLDS	28	1972	none		no	1999	every 2 years	none		
56	1.5 acres	Septic Tank	Inground Trench	OLDS	4	1996	none		no	none		none		
57	.5 acres	Septic Tank	Inground Trench	OLDS	26	1974	none		no	1997	?	none		Potential
58	2 acres	Septic Tank	Inground Trench	OLDS	16	1984	A	Seasonal	no	1996	every 4 years	none		Suspected
59	1 acre	Septic Tank	Inground Trench	OLDS	15	1985	none		no	1996	?	none		
60	190 acres	Septic Tank	Inground Bed	Culvert	?	yes	A	Seasonal	no	none		?		Suspected
61	1 acre	Septic Tank	Inground Trench	OLDS	22	1978	none		no	1996	?	none		
62	1 acre	Septic Tank	Inground Bed	OLDS	9	1991	none		no	none		none		Potential
63	.5 acres	Septic Tank	Inground Trench	OLDS	30	1970	none		no	1998	every 2 years	none		
64	.75 acers	Septic Tank	Inground Bed	OLDS	10	1990	none		no	1994	one time	none		Potential
65	1.5 acres	Septic Tank	Inground Trench	OLDS	5	1995	none		no	none		none		
66	18 acres	Septic Tank	Inground Bed	OLDS	60	1940	none		no	2000	every 4 years	yes	drainfield	Potential
67	3 acres	Septic Tank	Inground Trench	OLDS	10	1990	none		no	1996	every 6 years	none		Potential
68	.5 acres	Septic Tank	Inground Bed	OLDS	25	no	A,D	Seasonal	no	1999	every 2 years	none		Privy
69	.34 acres	Privy	n/a	surface	1	2000	none		no	?	?	?	?	Confirmed
70	.5 acres	Septic Tank	Inground Bed	OLDS	27	?	A,C,D,F	Seasonal	yes	2000	every 2 years	none		Confirmed
71	.62 acres	Septic Tank	Inground Bed	OLDS	30	1969	D	Year round	no	1998	every 2 years	none		Potential
72	2.4 acres	Septic Tank	Inground Bed	OLDS	27	1973	none		yes	1994	one time	none		
73	1.3 acres	Septic Tank	Inground Bed	OLDS	24	1976	none		no	1990	one time	none		
74	.5 acres	Septic Tank	Inground Bed	OLDS	10	1990	none		no	none		none		
75	1.32 acres	Septic Tank	Inground Trench	OLDS	4	1996	none		no	none		none		
76	2 acres	Septic Tank	Inground Bed	surface	24	1976	none		no	1995	every 2 years	none		
77	10 acres	Septic Tank	Inground Bed	?	?	?	none		no	none		none		
78	.1 acres	?	?	?	?	?	none		no	?		?		
79	.5 acres	Septic Tank	Inground Bed	OLDS	?	?	none		no	1996	every 2 years	none		Confirmed
80	1 acre	Septic Tank	Inground Bed	OLDS	45	no	A,D		no				putting in a new system	Confirmed
81	1 acre	Septic Tank	Inground Bed	OLDS	28	1972	none		no	1995	every 2 years	none		Potential
82	.25 acres	Septic Tank	Inground Bed	surface	30	1970	C		no	1996	one time	none		Suspected
83	1 acre	Septic Tank	Inground Bed	OLDS	19	1981	none		no	none		none		
84	15 acres	Septic Tank	Inground Bed	OLDS	11	1989	none		no	none				
85	2 acres	Septic Tank	Inground Bed	OLDS	16	1984	none		no	none		none		
86	1 acre	Septic Tank	Inground Bed	OLDS	10	1990	none		no	yes	every other year	none		
87	2 acres	Septic Tank	Inground Trench	surface	?	?	none		no	?		?		
88	1.5 acres	Septic Tank	Inground Bed	OLDS	10	1990	none		no	none		none		
89	3.5 acres	Septic Tank	Inground Trench	surface	39	no	none		no	none		1972	replaced drainfield	Potential
90	10 acres	Septic Tank	Inground Bed	OLDS	20	1980	D		no	1996	every 2 years	none		Confirmed
91	2 acres	Septic Tank	Inground Bed/Trench	surface	16	1984	none		no	none		none		
92	10 acres	Septic Tank	Inground Bed/Trench	OLDS	19	1981	none		no	none		none		
93	1 acre	Septic Tank	Inground Bed/Trench	surface	29	1971	none		no	1995	every 4 years	1981	repaired drainfield & lines	Potential
94	13 acres	Septic Tank	Inground Bed	OLDS	16	1984	none		no	1996	every 3 years	none		
95	1 acre	Septic Tank	Inground Bed	OLDS	27	31	none		no	none		none		Potential
96	.75 acres	Septic Tank	Inground Bed	dry well	27	31	none		no	1992	every 3 years	none		Potential
97	1 acre	Septic Tank	Inground Bed	OLDS	4	18	none	seasonal	yes	none		1992	replaced drainfield	Potential
98	1 acre	Septic Tank	Inground Bed	dry well	23	27	E	seasonal	yes	1994	every 5 years	1975	repaired drainfield	Suspected
99	.5 acres	Septic Tank	Inground Bed/Trench	OLDS	39	43	none		no	1986	one time	none		Potential
100	2 acres	Septic Tank	Inground Bed	OLDS	15	9	none		no	1993	every 3 years	none		

Number	Lot Size	Type of olds		Laundry Water	Age of System	Date permitted	Noted Problems	Seasonal or year round	Neighbor-hood problems	pump outs	Frequency	Repairs	Type of Repairs	Type of Malfunction
101	.5 acres	Septic Tank	Inground Bed	OLDS	30	1970	none		yes - odors	1994	every 2 years	none		Potential
102	.75 acres	Septic Tank	Elevated Sand Mound	OLDS	19	1981	none		no	1990	one time	none		
103	.5 acres	Septic Tank	Inground Bed	OLDS	9	1991	none		no	none		1991	replaced drainfield	Potential
104	1 acre	Septic Tank	Inground Bed	OLDS	19	1981	D,E,F,G		yes	1995	one time	1996	replaced drainfield	Confirmed
105	1.5 acres	Septic Tank	Inground Bed	OLDS	12	1988	none		yes	none		none		
106	1.75 acres	Septic Tank	Inground Trench	OLDS	?	?	none		no	1985	one time	none		
107	.8 acres	Septic Tank	Inground Bed	french drain	28	1972	D	seasonal	yes	1994	every 2 years	none		Confirmed
108	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	14	1986	none		no	1994	every 3 years	none		
109	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	8	1992	none		yes	1996	one time	none		
110	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	18	1982	none		yes	none		none		
111	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	18	1982	none		no	none		none		
112	.5 acres	Septic Tank	Inground Bed	OLDS	18	1982	none		no	1996	every 3 years	none		
113	.5 acres	Septic Tank	Inground Bed	OLDS	20	1980	none		no	1995	every 3 years	none		
114	.5 acres	Septic Tank	Inground Bed	OLDS	19	1981	none		no	1991	one time	none		
115	.5 acres	Septic Tank	Inground Bed	OLDS	14	1986	none		no	none		none		
116	.75 acres	Septic Tank	Inground Bed	OLDS	16	1984	none		no	none		none		
117	.75 acres	Septic Tank	Elevated Sand Mound	OLDS	4	1996	none		no	none		none		
118	.5 acres	Septic Tank	Inground Bed	OLDS	24	1976	D	seasonal	no	1995	every 2 years	none		Confirmed
119	1.75 acres	Septic Tank	Inground Bed	OLDS	20	1980	none		yes	none		none		
120	.75 acres	Septic Tank	Elevated Sand Mound	OLDS	13	1987	none		no	1994	one time	1994	repaired lines	Potential
121	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	9	1991	D,G		yes	1995	every 3 years	1995	repaired lines	Confirmed
122	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	11	1989	A		yes-odors	1995	one time	none		Suspected
123	1 acre	Septic Tank	Elevated Sand Mound	OLDS	12	1988	none		no	1996	every 3 years	none		
124	1.5 acres	Septic Tank	Elevated Sand Mound	OLDS	11	1989	none		no	1994	every 3 years	none		
125	1.4 acres	Septic Tank	Inground Bed	OLDS	12	1988	D,G	seasonal	no	1994	every 5 years	1993	repaired drainfield	Confirmed
126	.75 acres	Septic Tank	Inground Bed	OLDS	14	1986	A	seasonal	yes	1995	every 3 years	none		Suspected
127	1 acre	Septic Tank	Inground Bed	OLDS	17	1983	none		yes	1996	every 3 years	none		
128	1 acre	Septic Tank	Inground Bed	OLDS	25	1975	none		no	none		none		Potential
129	.25 acres	Septic Tank	Inground Bed	surface	54	no	none		no	1992	every 4 years	none		Potential
130	.1 acres	Septic Tank	Inground Bed	OLDS	?	?	A		yes	1993	one time	1990	repaired drainfield	Suspected
131	.1 acres	Septic Tank	Inground Bed	creek	?	?	none		yes	none		none		
132	1 acre	Septic Tank	Cesspool	OLDS	47	no	none		no	1995	every 3 years	none		Potential
133	.75 acres	Septic Tank	Inground Bed	OLDS	17	1983	none		no	1990	every 3 years	none		
134	1 acre	Septic Tank	Inground Bed	OLDS	23	?	none		no	1993	every 4 years	none		
135	1.75 acres	Septic Tank	Inground Trench	OLDS	12	1988	none		no	none		none		Confirmed
136	.67 acres	Septic Tank	Inground Bed	OLDS	15	1985	none		yes	1995	every 3 years	none		Confirmed
137	1 acre	Septic Tank	Inground Bed	OLDS	24	1976	none		no	1992	every 4 years	none		Confirmed
138	1.5 acres	Septic Tank	Inground Bed	OLDS	11	1989	none		yes	none		none		Confirmed
139	.5 acres	Septic Tank	Inground Bed	OLDS	34	no	none		yes	none		none		Confirmed
140	1 acre	Septic Tank	Elevated Sand Mound	creek	4	1996	none		no	none		none		Confirmed
141	2 acres	Septic Tank	Inground Bed	OLDS	34	no	none		no	none		none		Confirmed
142	.75 acres	Septic Tank	Inground Bed	OLDS	24	1976	none		no	1993	every 3 years	none		Confirmed
143	.5 acres	Septic Tank	Inground Bed	surface	?	?	none		no	none		none		Confirmed
144	.75 acres	Septic Tank	Inground Bed	OLDS	?	?	none		no	1994	one time	none		
145	1 acre	Septic Tank	Inground Bed	OLDS	10	1990	none		no	none		none		
146	1 acre	Septic Tank	Inground Bed	OLDS	8	1992	none		no	none		none		
147	1 acre	Septic Tank	Inground Bed	OLDS	26	1974	F		yes	1996	every 4 years	1996	repaired lines	Suspected
148	3 acres	Septic Tank	Inground Bed	OLDS	?	?	A		no	1993	one time	?	replaced drainfield	Suspected
149	.5 acres	Septic Tank	Inground Bed	surface	34	?	none		no	1996	every 2 years	?	repaired drainfield	Potential
150	.5 acres	Septic Tank	Inground Bed	dry well	29	?	none		no	1995	every yerar	?	repaired drainfield	Potential

Number	Lot Size	Type of olds		Laundry Water	Age of System	Date permitted	Noted Problems	Seasonal or year round	Neighbor-hood problems	* pump outs	Frequency	Repairs	Type of Repairs	Type of Malfunction
151	.25 acres	Septic Tank	Inground Bed	surface	?	?	A,B,C	Seasonal	yes	1995	annually	None		Confirmed
152	.15 acres	Septic Tank	Inground Bed/Dry well	field	44	?	none		no	1976	one time	None		Potential
153	.5 acres	Septic Tank	Inground Bed	surface	?	?	none		no	?	?	?		
154	.25 acres	Septic Tank	Dry well	surface	40	?	none		yes-odors	1992	every 4 years	yes	repaired lines	Potential
155	.25 acres	Septic Tank	Inground Bed	surface	?	?	none		yes	1994	every 3 years	None		
156	.1 acres	Septic Tank	Dry well	dry well	?	?	A	year round	yes-odors	1996	every 2 years	none		
157	1.5 acres	Septic Tank	Inground Bed	OLDS	9	1991	none		no	1994	every 2 years	yes	repaired drainfield	Potential
158	.1 acres	Septic Tank	Inground Bed	?	?	?	none		no	?		?		Confirmed
159	.75 acres	Septic Tank	Inground Bed	field	?	?	none		no	None		yes	enlarged tank	Confirmed
160	.25 acres	Septic Tank	Dry well	dry well	44	no	none		no	None		none		Potential
161	2.67 acres	Septic Tank	Inground Bed	OLDS	44	?	D	Seasonal	no	1991	every 10 years	none		Potential
162	4.7 acres	Septic Tank	Inground Bed	OLDS	?	?	none		no	none		none		Confirmed
163	.33 acres	Septic Tank	Cesspool	OLDS	50	no	none		yes	none		yes	repaired lines	Potential
164	.33 acres	Septic Tank	Cesspool	surface	+ 30	?	none		no	none		none		Potential
165	.5 acres	Septic Tank	Cesspool	OLDS	+ 40	?	A	Seasonal	no	1996	every 5 years	none		Suspected
166	3 acres	?	?	?	?	?	?		?	?		?		Confirmed
167	1 acre	Septic Tank	Inground Bed	dry well	14	?	none		no	none		none		Confirmed
168	1.5 acres	Septic Tank	Inground Bed	dry well	34	1966	none		no	2000	every 2 years	none		Potential
169	.25 acres	Septic Tank	Inground Bed	OLDS	?	?	none		no	1996	annually	none		Confirmed
170	.13 acres	Septic Tank	dry well	dry well	54	no	none		no	1996	every 10 years	none		Potential
171	1.7 acres	Septic Tank	Inground Bed	surface	14	?	none		yes	1996	biannually	none		Confirmed
172	.5 acres	Septic Tank	Inground Bed	OLDS	21	1979	none		yes	1995	annually	1987	repaired drainfield	Potential
173	NOT USED													
174	.75 acres	Septic Tank	Inground Bed	OLDS	24	1976	A,D,E		yes	1995	annually	1984	replaced drainfield	Confirmed
175	1.5 acres	Septic Tank	Inground Trench	OLDS	15	1985	none		no	2000	every 2 years	none		
176	129 acres	Septic Tank	Inground Trench	dry well	54	?	none		no	2000	every 2 years	none		Confirmed
177	1 acre	Septic Tank	Inground Bed	OLDS	28	1972	none		no	1999	every 2 years	none		Potential
178	85 acres	Septic Tank	Inground Bed	OLDS	30	?	none		no	none		none		Confirmed
179	50 acres	Septic Tank	Inground Bed	OLDS	10	1990	none		no	1995	every 5 years	none		
180	1.5 acres	Septic Tank	Inground Bed	OLDS	30	1970	none		no	2000	every 2-3 years	none		Potential
181	1.5 acres	Septic Tank	Inground Bed	OLDS	20	?	none		no	1995	every 5 years	yes	replaced drainfield	Potential
182	1.6 acres	Septic Tank	Inground Bed	surface	+ 25	?	none		no	1997	every 3 years	none		Potential
183	.75 acres	Septic Tank	Inground Bed	OLDS	20	?	none		yes	1998	every 2 years	none		
184	.75 acres	Septic Tank	Inground Bed	OLDS	48	no	none		yes	1998	every year	yes	repaired drainfield	Potential
185	.5 acres	Septic Tank	Elevated Sand Mound	OLDS	18	1981	D	year round	no	1998	every 3 years	none		Confirmed
186	.63 acres	Septic Tank	Elevated Sand Mound	OLDS	20	1980	none		no	1997	every 7 years	none		
187	1 acre	Septic Tank	Inground Bed	OLDS	13	1987	none		no	2000	every 2-3 years	none		
188	.75 acres	Septic Tank	Elevated Sand Mound	OLDS	12	1988	none		no	1998	every 2-3 years	none		
189	4 acres	Septic Tank	Inground Bed	OLDS	24	1976	none		no	1997	every 3 years	none		
190	2.2 acres	Septic Tank	Inground Bed	OLDS	14	1986	none		no	2000	every year	none		
191	.75 acres	Septic Tank	Elevated Sand Mound	OLDS	2	1998	none		no	none		none		
192	1.1 acres	Septic Tank	Inground Bed	OLDS	12	1988	none		no	1997	every 3 years	yes	repaired drainfield	Potential
193	.9 acres	Septic Tank	Inground Bed	OLDS	11	1989	none		no	2000	every 2 years	none		
194	.83 acres	Septic Tank	Inground Bed	OLDS	2	1997	none		no	2000	every 2 years	yes	replaced drainfield	Potential

LEGEND

A GREEN LUSH GRASS
B SYSTEM OVERFLOW
C SLUGGISH DRAINS
D WETNESS OR SPONGY AREAS
E WATER PONDING OR SURFACING
F WASTEWATER BACKING INTO HOME
G ODORS

* PUMP-OUT BASED ON DATE OF INTERVIEW

BASIS FOR TYPE OF MALFUNCTION IDENTIFIED

Confirmed Presence of Fecal Coliforms, Active repair permit or noted problems B, D or G
Suspected Cesspools/Dry wells in high density area, pit, or noted problems A, C, E or G
Potential System > 25 years old, previously permitted repair, on slope > 25%

WELL SAMPLE NUMBER _____ DATE _____

MUNICIPALITY: East Manchester Township COUNTY: York STUDY AREA: East Manchester Township

A survey is being conducted to determine if there are any sewage problems in this area. This is a general survey and the results are intended to be used in evaluating the need for community wide solutions.

NAME _____ PHONE _____
ADDRESS _____
_____

OWN OR RENT ? _____ NO. OF RESIDENTS _____

1. What kind of water system do you have? WELL/SPRING/CISTERN/PUBLIC/OTHER
   Well Data: DUG/DRILLED? How Deep? _____ft. Cased YES/NO How far is the well or spring from the drainfield? _____ Is well UP/DOWN of sepatge system?
   Do you treat your water? YES/NO How? CL/UV/SOFTENER/ION EXCHANGE
   OTHER _____. Was the water ever tested? YES/NO When? _____
   Any contamination? YES/NO What TC/FC/N etc. _____
2. How large is your lot? _____ No. of dwelling units? _____
   One or more sewage systems? _____ COMMERCIAL/RESIDENTIAL
3. What kind of sewage system do you have? (Circle all that apply)

SEPTIC TANK	INGROUND BED	COMMUNITY SEWER
CESSPOOL	INGROUND TRENCH	STORM SEWER
OLD WELL	ELEVATED SAND MOUND	PIPE TO DITCH
HOLDING TANK	SEEPAGE PIT	PIPE TO STREAM
PRIVY	BORE HOLE	PIPE TO SURFACE

   OTHER _____
4. Where does your laundry and/or sink water go? _____
   _____
5. How old is your system? _____ Was it permitted? YES/NO When? _____
6. Have you ever noticed any of the following near your septic system?

GREEN LUSH GRASS	WETNESS OR SPONGY AREAS	ODORS
SYSTEM OVERFLOW	WATER PONDING OR SURFACING	
SLUGGISH DRAINS	WASTEWATER BACKING INTO THE HOME	

   OTHER _____
   If you have noticed any of the above, are they SEASONAL/YEAR ROUND
   Have you noticed the above in the neighborhood? YES/NO
7. Have you ever had your system pumped out? YES/NO How often? _____
   Last time? _____ If it was pumped, was it inspected for cracks or broken baffles? YES/NO Has the system ever been repaired? YES/NO
   When? _____ By permit? YES/NO What Part? TANK:REPAIRED/REPLACED
   LINES:REPAIRED/REPLACED DRAINFIELD:REPAIRED/REPLACED Comments _____
   _____
8. Do we have you permission to confirm this information by looking around?
9. Owner wants results? YES/NO

APPENDIX B

Well Analysis Results

APPENDIX B
EAST MANCHESTER TOWNSHIP
WELL ANALYSIS RESULTS

Grid Coordinates	Sample Number	Nitrogen/ Nitrate Level	Fecal Coliform	Total Coliform
F9	1	< 1.0	0	0
F9	2	< 1.0	0	0
D9	3	< 1.0	0	9
D9	4	< 1.0	0	0
D9	5	< 1.0	0	12
D9	6	1.9	0	0
D9	7	< 1.0	0	0
D9	8	< 1.0	0	5
G7	9	1.4	1.0	3
G9	10	< 1.0	0	0
E9	11	8.3	0	0
B8	12	1.2	0	0
D10	13	2.7	0	2
D10	14	1.7	0	0
D10	15	2.1	0	18
D10	16	3.0	0	0
F3	17	7.7	0	17
D10	18	4.1	0	0
D10	19	3.9	0	0
D10	20	4.6	0	0
D9	21	7.4	0	0
G9	22	ND	ND	25
F10	23	1.3	ND	0
E9	24	5.2	0	0
B8	25	< 1.0	0	0
B8	26	< 1.0	0	0
E9	27	7.9	0	5
F10	28	8.0	ND	1
F10	29	8.6	ND	0
F10	30	3.0	ND	0
E9	31	< 1.0	0	1
F11	32	6.8	15	Confluent
F11	33	1.7	5	26
G11	34	2.7	148	Confluent
G11	34A	2.4	> 2000	Confluent
G11	35	1.0	0	1
G11	36	2.3	0	1
G11	37	1.4	3	23
G11	38	3.3	0	20
F12	39	< 1.0	0	28
G11	40	5.2	0	0
G11	41	4.4	5	Confluent
G9	42	< 1.0	22	Confluent
G9	43	< 1.0	124	Confluent
G9	44	< 1.0	0	1
F10	45	1.3	0	0
F11	46	4.0	0	0
F11	47	4.3	0	0
G9	48	1.6	ND	0
H9	49	2.4	0	0
G11	50	9.5	ND	0

Grid Coordinates	Sample Number	Nitrogen/ Nitrate Level	Fecal Coliform	Total Coliform
G11	51	2.5	ND	1
G11	52	ND	ND	0
G11	53	ND	ND	0
G11	54	ND	ND	4
G11	55	7.7	ND	3
D9	56	5.8	ND	0
D9	57	5.7	ND	0
D9	58	3.9	ND	0
D9	59	3.4	ND	0
E9	60	6.7	ND	10
E9	61	ND	ND	0
G7	62	5.8	0	2
D7	63	6.8	ND	6
G7	64	< 1.0	0	0
G7	65	1.9	0	0*
D7	66	1.5	ND	56
H8	67	4.5	0	2
B8	68	8.2	ND	1
E10	69	1.2	ND	0
D10	70	4.2	ND	10
D10	71	ND	ND	0
G9	72	2.3	0	0
G9	73	< 1.0	0	1*
G7	74	ND	ND	0
H8	75	1.1	0	0*
G9	76	1.4	0	13
G9	77	7.8	0	0
G9	78	3.9	0	Confl. w/green sheen
H10	79	4.9	2	Confl. w/green sheen
H10	80	< 1.0	0	4
H10	81	< 1.0	0	TNTC**
H10	82	2.1	0	4
I10	83	< 1.0	0	0*
G11	84	4.8	0	0
H11	85	< 1.0	0	7
H4	86	6.2	0	1
I4	87	10.4	0	79
H7	88	4.8	ND	TNTC**
H5	89	3.0	0	TNTC**
J4	90	1.7	0	33
B3	91	1.3	0	0
C3	92	5.9	0	0*
C4	93	5.4	0	12
B4	94	2.3	0	0*
B3	95	2.1	0	1
C3	96	7.7	0	0
D3	97	< 1.0	0	0
D3	98	2.6	0	0
D3	99	3.9	0	0
D3	100	2.4	0	0

Grid Coordinates	Sample Number	Nitrogen/ Nitrate Level	Fecal Coliform	Total Coliform
D3	101	9.0	0	0
E4	102	2.3	0	7
E4	103	14.2	0	4
G3	104	4.6	0	0
G3	105	< 1.0	0	0
G3	106	6.0	0	0
F3	107	8.5	0	0
E3	108	1.1	0	2
E3	109	3.8	0	0
E3	110	1.1	0	17
E3	111	2.1	0	6
E3	112	4.2	0	9
	113			
F3	114	3.5	0	0
E3	115	1.6	0	0
E3	116	5.2	0	Confluent
F3	117	4.1	0	0*
F3	118	2.6	0	2
F3	119	< 1.0	0	5
E3	120	< 1.0	0	6
F3	121	< 1.0	0	0
E3	122	4.4	0	0
F2	123	< 1.0	0	0
G2	124	1.8	0	0
F2	125	2.0	0	0*
F2	126	< 1.0	0	0
F2	127	2.0	0	0
F2	128	2.9	0	0*
F2	129	4.5	0	Confluent
F2	130	5.7	0	Confluent
F2	131	< 1.0	0	Confluent
F2	132	4.4	0	29
F2	133	1.7	0	0
F2	134	2.9	0	0
G3	135	3.2	2	2
G2	136	3.7	2	0*
G2	137	< 1.0	2	1
G2	138	1.2	2	0
G2	139	<1.0	2	1
G2	140	6.3	2	0
G2	141	< 1.0	2	3
G3	142	1.6	2	0*
G3	143	5.9	5	40
G3	144	3.7	0	0
G3	145	3.7	0	0
F3	146	8.5	0	0
F3	147	9.9	0	0
G3	148	5.1	0	3
I8	149	4.3	0	0
I8	150	7.4	0	0

Grid Coordinates	Sample Number	Nitrogen/ Nitrate Level	Fecal Coliform	Total Coliform
I8	151	3.8	0	Confl. w/green sheen
I8	152	4.2	0	0
I9	153	2.7	0	1
I9	154	2.7	0	0
J8	155	6.1	2	14
J9	156	3.7	0	1
I8	157	6.6	0	18
J8	158	10.1	> 2000	Confl. w/green sheen
I8	159	5.4	6	69
I8	159A	5.7	1	22
I8	160	< 1.0	0	Confl. w/green sheen
G3	161	4.8	ND	0
F4	162	7.1	152	TNTC**
G3	163	8.5	ND	0
G3	164	2.4	ND	2
FH3	165	ND	29	132
G3	166	4.8	26	16
G3	167	8.3	10	169
I3	168	3.8	ND	0
G3	169	3.2	1	7
G3	170	3.4	0	3
F3	171	2.3	1	1
F3	172	4.2	0	0*
	173	NOT USED		
F3	174	5.6	0	3
I3	175	7.4	ND	0
I3	176	5.5	1	58
H4	177	6.7	ND	0
I6	178	8.9	1	53
H6	179	1.0	ND	0
C4	180	6.0	ND	0
C4	181	2.0	ND	18
D3	182	2.5	ND	0
D3	183	6.4	ND	0
E4	184	6.0	ND	0
E3	185	1.4	ND	0
E3	186	3.7	ND	0
E3	187	5.8	ND	0
E3	188	3.8	ND	0
E3	189	2.9	ND	0
F3	190	1.0	ND	0
F2	191	1.0	ND	0
F2	192	0.5	ND	0
F2	193	5.5	ND	1
F3	194	0.4	ND	48

* Bacteria background present

** Too numerous to count

EAST MANCHESTER TOWNSHIP

5080 N. SHERMAN ST. EXT.
MT. WOLF, PA 17347
(717) 266-4279
Fax (717) 266-0429

October 24, 1996

RE: Sewage Facilities Plan

Dear Township Resident:

During the last few months, samples of well water were taken from your residence by employees of the engineering firm of Gordon L. Brown and Associates, Inc. as part of their contract to update the East Manchester Township's Official Sewage Facilities Plan. The well samples were taken from a point between your well and any filtering/treatment equipment which might be installed on your water system. The samples were analyzed for the presence of Total Coliform (Bacteria), Fecal Coliform (Bacteria), and Nitrate-Nitrogen contamination. The results of the analyses conducted on your well water are shown below, as well as the minimal acceptable limits as established by the Pennsylvania Department of Environmental Protection (DEP) for these contaminants.

CONTAMINANT	LABORATORY ANALYSIS	ACCEPTABLE LIMITS
Nitrogen-Nitrate	mg/liter	10 mg/liter
Fecal Coliform (Bacteria)	colonies/100ml	1 colony/100ml
Total Coliform (Bacteria)	colonies/100ml	0 colonies/100ml

If you have concerns regarding the results of the water testing conducted for your residence, it is recommended that you contact an environmental laboratory to have the above results reconfirmed prior to proceeding with the installation of any filtering or treatment equipment on your water system.

Thank you for your cooperation.
EAST MANCHESTER TOWNSHIP

Henry B. Sprenkle
Manager

APPENDIX C

On-Lot Management Ordinance

"§79-17. **Penalties.**

"Any person violating the provisions of this Article shall be subject to a fine of not less than five hundred dollars ($500.00) and costs, and not more than one thousand dollars ($1,000.00) and costs. Proceedings for the violation of this Article and for the collection of fines and penalties imposed thereby may be commenced by warrant, or by summons, at the discretion of the District Justice before whom the proceedings is begun. Upon judgment against any person by summary conviction, or by proceedings by summons on default of the payment of the fine or penalty imposed and the costs, the defendant may be sentenced and committed to the York County Jail for a period not exceeding five days. Each day of noncompliance shall be considered a separate offense."

SECTION 24. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-18 as follows:

"§79-18. **Pre-emption.**

"The provisions of the Act and any regulations adopted by the DEP pursuant to the Act shall pre-empt the provisions of the Article to the extent that the provisions of this Article are less restrictive. In all other cases, the provisions of this Article shall prevail."

SECTION 25. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-19 as follows:

"§79-19. **Repealer.**

"If any section or clause of this Article shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions, which shall be deemed severable therefrom."

SECTION 26: This Ordinance shall be effective five (5) days after its enactment.

ORDAINED AND ENACTED by the Board of Supervisors of East Manchester Township, York County, Pennsylvania, on the _____ day of _____, 2002.

ATTEST:

EAST MANCHESTER TOWNSHIP
BOARD OF SUPERVISORS

_____
Secretary

By: _____
John G. Brown, III, Chairman

By: _____
Steven H. Gross, Jr., Supervisor

By: _____
Terry R. Gingerich, Supervisor

(SEAL)

EAST MANCHESTER TOWNSHIP

ORDINANCE NO. 2002-

AN ORDINANCE AMENDING THE CODE OF EAST MANCHESTER TOWNSHIP, YORK COUNTY, PENNSYLVANIA BY ADDING PROVISIONS GOVERNING MUNICIPAL MANAGEMENT OF ON-LOT SUBSURFACE SEWAGE DISPOSAL FACILITIES IN EAST MANCHESTER TOWNSHIP

WHEREAS, East Manchester Township (Township) is a second class township governed by the Second Class Township Code, and is subject to the statutes of the Commonwealth of Pennsylvania relating to municipal duties and obligations; and

WHEREAS, the Board of Supervisors East Manchester Township has deemed it necessary to enact an ordinance governing management of on-lot subsurface sewage disposal facilities in East Manchester Township; and

WHEREAS, as required by state law, the Township has from time to time adopted and amended a sewage facilities plan (Act 537 Plan); and

WHEREAS, the Township has amended its Act 537 Plan on or about November 13, 2001; and

WHEREAS, as part of their Act 537 Plan as approved by DEP, the Township is obligated to institute a sewage management program for the Township; AND

WHEREAS, the Township has adopted the Code of the Township of East Manchester (Code); and

WHEREAS, the Township desires to amend Chapter 79 of that Code:

NOW, THEREFORE, be it ordained and enacted and it is hereby ordained and enacted as follows:

SECTION 1: Article I of Chapter 79 of the Code shall be amended by deleting therefrom the entire Article, including the title of the Article, in its entirety.

SECTION 2: The sections in Article II of Chapter 79 shall be renumbered from §79-5 through §79-10 to §79-30 through §79-34, respectively.

SECTION 3: The reservation in Article III of Chapter 79 shall be changed from §§79-11 through 79-22 to §§79-40 through 79-49.

SECTION 4: The section numbers in Article IV of Chapter 79 shall be renumbered from §79-23 through §79-28 to §79-50 through §79-55, respectively.

SECTION 5: The section numbers in Article V of Chapter 79 shall be amended from §79-21 through §79-38 to §79-60 through §79-69.

SECTION 6: Article I of Chapter 79 of the Code shall be amended by placing the title for that Article below the Article number, as follows: "**On-Lot Sewage Management Ordinance**".

SECTION 7: Article I of Chapter 79 of the Code is amended by adding thereto a new §79-1 as follows:

"**§79-1. Authority.**

"The legislative authority for this Article is the Pennsylvania Sewage Facilities Act, Act of January 24, 1966, P.L. (1965) 1535, No. 537 (35 P.S. 750.1 et seq.)."

SECTION 8: Article I of Chapter 79 of the Code is amended by adding thereto a new §79-2 as follows:

"**§79-2. Purpose.**

"The purpose of this Article is to protect the public health by preventing the discharge or untreated or inadequately treated sewage into the soil or waters of the Commonwealth from on-lot individual or community sewage systems by regulating the design, construction, alteration, repair, rehabilitation and replacement of such systems through a permitting, maintenance, inspection and enforcement process. This Article is intended to implement the provisions and requirements of the Pennsylvania Sewage Facilities Act and the regulations promulgated by the Department of Environmental Protection pursuant to that Act."

SECTION 9: Article I of Chapter 79 of the Code is amended by adding thereto a new §79-3 as follows:

"**§79-3. Definitions.**

"A. General Terms. In the interpretation of the Article, the singular shall include the plural and the masculine shall include the feminine and the neuter.

"B. Specific Terms. For the purposes of this Article and unless the context clearly indicates otherwise, the following words and terms shall have the following meanings.

"(1) AUTHORIZED AGENT – A licensed sewage enforcement officer, professional engineer or sanitarian, plumbing inspector, soils scientist, or any other qualified or licensed person who is delegated to function

within specified limits as the agent of the Board of Supervisors of East Manchester Township to carry out the provisions of this and other Ordinances of the Township.

"(2) BOARD – The Board of Supervisors of the Township of East Manchester, York County, Pennsylvania.

"(3) DEP – The Department of Environmental Protection of the Commonwealth of Pennsylvania or any successor agency.

"(4) IMPROVED PROPERTY – Any property within the Township upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals and from which structure sewage shall or may be discharged.

"(5) LAND DEVELOPMENT – A land development as defined in either the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended, 53 P.S. Section 10101 et seq, or the East Manchester Township Subdivision and Land Development Ordinance.

"(6) MALFUNCTION – The condition which occurs when an on-lot sewage disposal system causes pollution to the ground or surface waters, contamination of private or public drinking water supplies, nuisance problems or hazard to public health. Indications of malfunctioning systems include, but are not limited to, foul odors, lush grass growing over the system, backup of wastewater in the attached buildings, soggy ground over the system, surfacing sewage effluent flowing over the ground and occurring at any time of the year.

"(7) MANAGEMENT PROGRAM – The program established by this Article which shall encompass all areas of the Township serviced by on-lot sewage facilities or any alternative system which discharges into the soils of the Township.

"(8) OWNER – Any person holding legal or equitable title to lands within the Township.

"(9) PLANNING MODULE FOR LAND DEVELOPMENT – A revision to, or exception to the revision of, the Township Official Plan submitted in connection with the request for approval of a subdivision or land development in accordance with DEP regulations.

"(10) PUMPER/HAULER – Any person, company, partnership or corporation which engages in cleaning community or individual sewage systems and transporting the septage removed from such systems.

"(11) REHABILITATIVE/REHABILITATION – Work done to modify, alter, repair, enlarge or replace an existing on-lot sewage disposal system.

"(12) REPLACEMENT AREA – An area designated as the future location of an individual on-lot sewage system that shall be installed should the initial individual on-lot systems installed or to be installed fail or otherwise become inoperable and which shall meet all the regulations

of the DEP and all applicable Township ordinances for an individual on-lot sewage system, and shall be protected from encroachment by an easement noted on the Final Plan as recorded in the Office of the Recorder of Deeds of York County.

"(13) SEWAGE ENFORCEMENT OFFICER – The Township's certified Sewage Enforcement Officer or alternate Sewage Enforcement Officer, as designated by the Board to act on its behalf under this Article. The Sewage Enforcement Officer will be referred to hereinafter as SEO.

"(14) SEPTAGE – The residual scum and sludge pumped from an on-lot sewage disposal system.

"(15) SINGLE AND SEPARATE OWNERSHIP – The ownership of a lot by one or more persons which ownership is separate and distinct from that of any abutting or adjoining lot.

"(16) TOWNSHIP – East Manchester Township, York County, Pennsylvania."

SECTION 10. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-4 as follows:

"§79-4. Applicability.

"A. The provisions of this Article shall apply to all persons owning real property serviced by an individual on-lot sewage disposal system or community sewage system, and to all persons constructing, installing, altering, repairing, rehabilitating or replacing such systems. This Article shall be implemented by the Township or its authorized agent creating a list by property owners of all lots in the Township on which an on-lot sewage disposal system or community sewage system exists. The SEO will then divide that list into four essentially equal parts, which, for purposes of this Article shall be referred to as Part 1, Part 2, Part 3, and Part 4. The SEO shall implement the requirements of this Article, including the inspection requirements in §79-8, according to the schedules set forth in this Article. Once placed on the appropriate Part, each lot shall remain in that Part, regardless of change of ownership, unless moved by the SEO or the Township.

"B. Any on-lot systems that are constructed or rehabilitated after the effective date of this Article shall be placed on the Part list which falls four years after the construction, installation, or rehabilitation, regardless of what Part list that property would otherwise fall in. Additionally, the Township or SEO reserve the right to initially or at any time apply a maintenance schedule irrespective of the Part list for any property to the extent it deems necessary, provided that no property shall be required to undergo routine inspection or maintenance more frequently than every four (4) years. But see §79-12."

SECTION 11. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-5 as follows:

"§79-5. Sewage Permit Requirements.

"A. No person shall install, construct or request bid proposals for construction, rehabilitate an individual sewage system or community sewage system, construct or request bid proposals for construction or install or occupy any building or structure for which an individual sewage system or community sewage system is to be installed without first obtaining a permit indicating that the site and the plans and specifications of such systems are in compliance with the provisions of the Act, the regulations adopted pursuant to the Act and the provisions of this Article.

"B. No building permit shall be issued by the Township or its permitting officer for a new building which will contain sewage generating facilities until a valid sewage permit has been obtained from the Township's SEO.

"C. No building permit shall be issued and no work shall begin on any alteration or conversion of any existing structure, if said alteration or conversion will result in the increase or potential increase in sewage flows from the structure, until the Township permitting officer and the structure's owner receive from the Township's SEO either a permit for alteration or replacement of the existing sewage disposal system or written notification that such a permit will not be required. In accordance with Chapter 73 regulations, the certified SEO shall determine whether the proposed alteration or conversion of the structure will result in increased sewage flows.

"D. Sewage permits may be issued only by a certified SEO employed by the Township for that express purpose. The DEP shall be notified by the Township as to the identity of its currently employed certified SEO.

"E. No sewage permit may be issued unless proof is provided that the owner of record has owned the lot since November 9, 1981, or that planning in accordance with the Act for that lot has been provided by the Township.

"F. No final approval of a subdivision or land development plan may be granted until planning in accordance with the Act is approved by the Township.

"G. A Permit Exemption Declaration must be filed with the Township's SEO a minimum of forty-eight (48) hours prior to any soil fracturing or use of the terralift procedure to an on-lot disposal system."

SECTION 12. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-6 as follows:

"§79-6. Treatment Tank Access.

"A. Access to each tank or compartment of the tank shall be provided by a manhole of at least twenty (20) inches square or in diameter, with a removable cover. The top of the tank containing the manhole or the top of the manhole extension shall not be more than twelve (12) inches below grade level. If access is extended to grade, the access cover shall be airtight. Grade level access covers shall be secured by bolts or locking mechanism, or have sufficient weight to prevent access by children.

"B. The ground shall slope away from any access extended to grade level.

"C. Inspection Port. A maximum four-inch (4") diameter inspection port with sealed cover shall be installed to grade level above the inlet tee."

SECTION 13. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-7 as follows:

"§79-7. Replacement Area.

"A. Requirements.

"(1) After the effective date of this Article, a replacement area for an individual on-lot sewage system shall be required for all lots to be created which are not serviced, or to be serviced, by a community sewerage system and did not previously have a permit issued for installation of an on-lot sewage system. Lots existing prior to the effective date of this Article shall be exempt from the requirements of this Section.

"(2) The replacement area provided shall comply with the regulations issued by the Department as incorporated into this Article concerning individual on-lot sewage systems, including isolation distances, and with the provisions of this Article and any other applicable Township ordinances.

"(3) Allowance of open land for the Replacement Area without testing performed or observed by the SEO shall not constitute compliance with the requirements of this Section.

"B. Identification of Replacement Areas.

"(1) The location of the initial individual on-lot sewage system and the replacement area as confirmed by the SEO shall be identified on the plot plans and diagrams submitted as part of the permit application.

"(2) If the application has been submitted as a part of an application for subdivision or land development approval or as part of a request that the municipality approve a Planning Module or amend its Official Plan, or a request for an exemption to the revision of the Official Plan, the location of each initial on-lot sewage system and each replacement area shall be noted upon the plans. A permanent easement shall be added to the plans stating that no improvements shall be constructed upon the replacement area, and the deed to be recorded for each lot created as part of the subdivision or land development shall contain language reflecting this limitation.

"(3) Any revisions to a permit or plan affecting a replacement area which has been approved pursuant to the provisions of this Article shall be reviewed for approval by the Board or its authorized representative.

"C. Construction Restrictions.

"(1) The easement for the replacement area noted upon the Plan and recorded with the County Recorder of Deeds shall state that no

permanent or temporary improvements of any character other than shallow-rooted plant matter, shall be installed or constructed on the replacement area.

"(2) This provision shall be enforced by the Township unless the person who desires to construct such improvements shall demonstrate to the satisfaction of the SEO that an alternate replacement area which complies with all other applicable municipal ordinances, exists upon the lot. If such an alternate replacement area shall be identified, the alternate replacement area may be considered to be the replacement area by this Article and shall be designated as the replacement area. The newly designed replacement area shall thereafter be considered the replacement areas for the purpose of this Article."

SECTION 14. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-8 as follows:

"**§79-8. Inspections.**

"A. Any on-lot sewage disposal system may be inspected by the Township's authorized agent at any reasonable time after the effective date of this Article providing one or more of the following applies:

"(1) sufficient evidence of a potential health or safety risk has been obtained from a reliable informant;

"(2) a signed complaint has been submitted by a resident of the Township;

"(3) if directed to do so by the Board; or

"(4) if directed to do so by DEP.

"B. The inspection may include a physical tour of the property, the taking of samples from surface water, wells, or other ground water sources, the sampling of the contents of the sewage disposal system itself and/or the introduction of traceable substances into the interior plumbing of the structure served (providing a responsible resident or owner, over the age of eighteen (18) is present) to ascertain the path and ultimate destination of the wastewater generated in the structure.

"C. The Township's authorized agent shall have the right to enter upon land for the purpose of inspections described above. Any person who shall deny or in any way impede Township's inspections shall be subject to the penalties prescribed in §79-17 of this Article.

"D. Initial inspections by the Township pursuant to this Article shall be conducted as follows (subject to alteration and variation pursuant to §79-4):

"(1) Part 1 during the calendar year 2003;

"(2) Part 2 during the calendar year 2004;

"(3) Part 3 during the calendar year 2005; and

"(4) Part 4 during the calendar year 2006.

"Any property scheduled for inspection in a given year which shall remain uninspected at the end of the calendar shall be inspected as soon as practicable during the following year.

"E. A schedule of routine inspections shall be established by the Township, following the list created and maintained pursuant to §79-4, to assure the proper function of the systems in the Township.

"F. A copy of the inspection report shall be furnished to the owner which shall include the following information: date of inspection; name and address of the system owner; and the status of the septic system – either functioning or malfunctioning."

SECTION 15. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-9 as follows:

"§79-9. Operation.

"A. No person shall operate and maintain an on-lot sewage disposal system in such a manner that it malfunctions. All liquid wastes, including kitchen and laundry wastes and water softener backwash, shall be discharged to a treatment tank. No sewage system shall discharge untreated or partially treated sewage to the surface of the ground or into the waters of the Commonwealth of Pennsylvania unless a permit to discharge has been obtained from DEP and verified by the Township.

"B. Only normal domestic wastes shall be discharged into any on-lot sewage system. The following shall not be discharged into the system:

"(1) Industrial wastes.

"(2) Automobile oil and other non-domestic oil.

"(3) Toxic or hazardous substances or chemicals, including but not limited to: pesticides; disinfectants; acids; paints; paint thinners; herbicides; gasoline and other solvents.

"(4) Clean surface or ground water, including water from roof or cellar drains, springs, basement sump pumps and French drains."

SECTION 16. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-10 as follows:

"§79-10. Maintenance.

"A. Any person owning a building served by an on-lot sewage disposal system shall have the septic tank pumped by a licensed Pumper/Hauler after the effective date of this Article based upon the following schedule, unless altered by the Township or the SEO pursuant to §79-4:

"(1) Properties located in Part 1 by the end of 2003;

"(2) Properties located in Part 2 by the end of 2004;

"(3) Properties located in Part 3 by the end of 2005; and

"(4) Properties located in Part 4 by the end of 2006.

"B. Notwithstanding the provisions of this subsection A. of this Section, if any person owning such building shall produce satisfactory documentary evidence to the Township that the septic tank has been pumped with a two (2) year period prior to the effective date of this Article, such pumping shall not be required until on or before the fourth anniversary of such prior pumping.

"C. After the initial pumping of the septic tank as required by subsection A. of this Section, the removal of septage or other solids from septic tanks shall be performed once every four (4) years, or whenever an inspection program reveals that the treatment tank or tanks are filled with solids in excess of one-third (1/3) the liquid depth of the tank or filled with scum in excess of one-third (1/3) the liquid dept.

"D. The Township may allow septic tanks to be pumped out at less frequent intervals when the owner can demonstrate to the Township that the system can operate properly without the need of pumping for a period longer than four (4) years, but in no case shall such period extend beyond six (6) years. Such a request may be made at any time, and must be in writing, with all supporting documents attached. The Board, in making its determination, shall take into account the information submitted by the applicant, the sewage permit issued by the Township SEO upon installation or rehabilitation of the system, and supporting documentation, reports of inspection and maintenance of the system, and other relevant information, and may conduct an on-site inspection. The applicant shall bear the cost of any inspection, surface or subsurface, and soil or wastes sampling conducted for the purpose of evaluating the request. The applicant shall receive a decision within ninety (90) days of request.

"E. The required pumping frequency may increase at the discretion of the Township if the septic tank is undersized, if solids buildup in the tank is above average, if the hydraulic load on the system increases significantly above average, if a garbage grinder is used in the building, if the system malfunctions or for other good cause shown (as determined by the SEO and approved by the Board).

"F. Any person owning a building served by an on-lot disposal system containing an aerobic treatment tank shall follow the operation and maintenance recommendations of the equipment manufacturer. In no case may the service or pumping interval for aerobic treatment tanks exceed that required for septic tanks.

"G. The Township may require additional maintenance activity as needed including, but not necessarily limited to: cleaning and unclogging of piping; servicing and repair of mechanical equipment; leveling of distribution boxes, tanks and lines; removal of obstructing roots or trees; and the diversion of surface water away from the disposal area. Repair permits issued by the certified SEO must be secured for these services."

SECTION 17. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-11 as follows:

"**§79-11. Proof of Compliance with Required Sewage Pump-out.**

"A. Each time a septic tank or other subsurface waste disposal system tank is pumped out as required by §79-10 of this Article, the owner shall submit to the Township a signed copy of Proof of Compliance with Required Sewage Pump-Out form. The form shall be supplied by the Township.

"B. In addition to the Proof of Compliance form, the owner shall also submit a copy of the York County Solid Waste and Refuse Authority Sludge/Septage Manifest supplied by the Pumper/Hauler."

SECTION 18. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-12 as follows:

"**§79-12. Rehabilitation.**

"Notwithstanding any other provisions of this Article, or the provisions relating to routine inspection and maintenance, any on-lot sewage disposal system or component thereof found to be malfunctioning shall be rehabilitated pursuant to direction of the Township or the SEO to correct the conditions causing the malfunction. Rehabilitation shall be performed in accordance with "Chapter 73, Standards for Sewage Disposal Facilities" of Title 25, Rules and Regulations, Department of Environmental Protection. The Township SEO shall inspect the rehabilitated on-lot sewage disposal system and certify its compliance with local and state standards."

SECTION 19. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-13 as follows:

"**§79-13. Liens.**

"The Township, upon written notice from the SEO that an imminent health hazard exists due to failure to construct, rehabilitate, or maintain an on-lot sewage disposal system as provided under the terms of this Article, shall have the authority to perform or contract to have performed, the work required by the SEO. The Owner shall be charged for the work performed and, if necessary, a lien shall be entered therefore in accordance with law."

SECTION 20. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-14 as follows:

"**§79-14. Disposal of Septage.**

"All septage originating within the Township shall be disposed of at the Northeastern York County Regional Sewer Authority wastewater treatment facility and/or any other permitted disposal site."

SECTION 21. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-15 as follows:

"§79-15. Administration.

"A. The Township shall fully utilize those powers it possesses through enabling statutes and ordinances to effect the purposes of this Article.

"B. The Township shall employ qualified individuals to carry out the provisions of this Article in accordance with the regulations contained in Chapter 72 of the Pennsylvania Code, Section 42. Those employees shall include a certified SEO, a secretary, an administrator or other persons as required. The Township may also contract with private qualified persons or firms as necessary to carry out the provisions of this Article.

"C. All permits, records, files and other written material relating to the installation, operation and maintenance and malfunction of on-lot sewage disposal systems shall become the property of the Township. Existing and future records shall be available for public inspection during normal business hours at the official Township office. All records pertaining to sewage, permits, building permits, occupancy permits and all other aspects of the Township's On-Lot Sewage Management Program shall be made available, upon request, for inspection by a representative of the Department.

"D. The Board shall establish all administrative procedures necessary to properly carry out the provisions of this Article.

"E. The Board shall establish or amend a fee schedule by Resolution, and subsequently collect fees, to cover the cost to the Township of administering this program."

SECTION 22. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-16 as follows:

"§79-16. Appeals.

"A. Appeals from decisions of the Township authorized agents under this Article shall be made to the Board in writing within thirty (30) days from the date of notification of the decision in question. All appeals shall be heard in accordance with Chapter 72, Sections 26, 27 and 28 of Title 25 of the Pennsylvania Code.

"B. The appellant shall be entitled to a hearing before the Board at its next regularly scheduled Board meeting. If the appeal is received within fourteen (14) days of the next regularly scheduled meeting, the appeal shall be heard at the next subsequent regularly scheduled meeting. The Township shall thereafter affirm, modify or reverse the aforesaid decision. The hearing may be postponed for good cause shown by the appellant or the Township.

"C. A decision shall be rendered in writing within forty-five (45) days of the date of the hearing. If a decision is not rendered within forty-five (45) days, the relief sought by the appellant shall be deemed denied."

SECTION 23. Article I of Chapter 79 of the Code is amended by adding thereto a new §79-17 as follows: