

CHAPTER IX

SELECTED ALTERNATIVES

For each of the Study Areas identified in Chapter III, a wastewater disposal alternative has been selected which best meets the needs of the Township and its property owners. Earlier Chapters of this Plan provided information on soils and the extent of on-lot system replacement and repair permits issued by the Chester County Health Department to justify the use of central treatment and disposal. Section E of this Chapter supplements that information to justify a phasing and implementation schedule. As will be discussed below, the selected alternatives include the use of the Westtown-Chester Creek Treatment Plant (“WCC”) or the West Goshen Treatment Plant. The implementation of the selected alternatives will not occur until the Township has gathered additional data on the status of the on-lot systems within the Township. (For the purposes of Act 537 planning approval by DEP, the wastewater needs for each study area are described in this Chapter). Also prior to implementation of the selected alternatives, the Township will conduct a Special Study to determine the most appropriate method of collecting and conveying the sewage to the above-mentioned treatment plants. The Township commits to conducting a series of public meetings with various communities to present the results of on-lot system data gathering efforts as well as the results of the collection and conveyance Special Study.

A. CHESTER CREEK STUDY AREA

The selected alternative for the Chester Creek Study Area is use of either a grinder pump and/or gravity collection and conveyance system with treatment occurring at the WCC. The methodology and process to determine an acceptable collection and conveyance system is discussed in Section G of this Chapter.

Under either collection and conveyance alternative, the WCC would be upgraded to accommodate the ultimate needs of the Westtown-Chester Creek Study Area. Since the initiation of this Act 537 Plan, the upgrades to the WCC, as described in Chapter VI, are well under construction, as of April 2002. The improvements described in Chapter VI are being constructed for 495,000 gpd of capacity per NPDES Permit #PA0031771. In order to meet the wastewater needs described later in this Chapter, the WCC would be re-rated to accommodate 900,000 gpd.

Under any collection and conveyance alternative, the existing Westtown School treatment plant would be discontinued with flows from the school being diverted to the WCC.

1. Cost Effectiveness

The cost effectiveness of the eventual collection and conveyance system will be further evaluated as described in the Section G of this Chapter.

2. Operation and Maintenance

The operation and maintenance consideration of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

3. Management and Administration

The management and administrative considerations of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

4. Financing Methods

Under either collection and conveyance scenario, the primary funding source will be self-liquidating bonds. A combination of tapping fees and annual user fees will be used to retire the debt service. The approximate tap fees and user fees will be estimated as described in Section G of this Chapter.

5. Environmental Soundness

The primary focus of this Act 537 Plan is to identify and evaluate alternatives for the continued use of on-lot systems throughout the majority of the Township. As shown in Chapter IV of this plan, many existing on-lot systems have exhibited problems as evidenced by the number of replacement and repair permits issued by the Chester County Health Department. This problem will only continue to worsen as the systems age. Additional information on the age of the on-lot systems is provided in this Chapter.

The environmental soundness of the eventual collection and conveyance system will be evaluated as discussed in Section G of this Chapter.

The selected alternative for the Chester Creek Study Area includes upgrades to the WCC to accommodate 900,000 gpd. These upgrades include, among other things, flow equalization, grit removal and filtration of the effluent prior to disinfection. The upgrades will be designed to accommodate the effluent limitations in effect at the time of said upgrades.

B. WEST GOSHEN STUDY AREA

The selected alternative for the West Goshen Study Area is use of a grinder pump and/or gravity collection and conveyance system with treatment occurring at the West Goshen Treatment Plant.

Service to portions of the West Goshen Study Area is currently provided by a combination gravity and force main system, which utilizes the Wild Goose, Cobblefield and Pleasant Grove pump stations.

1. Cost Effectiveness

The cost effectiveness of the eventual collection and conveyance system will be further evaluated as described in Section G of this Chapter.

2. Operation and Maintenance

The operation and maintenance considerations of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

3. Management and Administration

The management and administrative considerations of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

The existing inter-municipal agreement between the West Goshen Municipal Authority and Westtown Township provides for the treatment portion of the implementation of the selected alternative. The agreement can be found in Appendix B.

4. Financing Methods

Under either collection and conveyance scenario, the primary funding source will be self-liquidating bonds. A combination of tapping fees and annual user fees will be used to retire the debt service. The approximate tap fees and user fees will be estimated as described in Section G of this Chapter.

5. Environmental Soundness

The primary focus of this Act 537 Plan is to identify and evaluate alternatives to the continued use of on-lot systems throughout the majority of the Township. As shown in Chapter IV of this plan, many existing on-lot systems have exhibited problems as evidenced by the number of replacement and repair permits issued by the Chester County Health Department. This problem will only continue to worsen as the systems age. Additional information on the age of the on-lot systems is provided in this Chapter.

The environmental soundness of the eventual collection and conveyance system will be evaluated as discussed in Section G of this Chapter.

C. ROUTE 202 STUDY AREA

The selected alternative for the northern portion of the Route 202 Study Area is use of a grinder pump and/or gravity collection and conveyance system with treatment occurring at the West Goshen Treatment Plant.

The selected alternative for the southern portion of the Route 202 Study Area is use of the Community System Selection Strategy as described in Chapter VI. Under this

scenario, new land development on the Crebilly Farm along with the existing development of Serpentine Acres, would be served by a new community system. The community system would be constructed by a developer when a development is proposed on the Crebilly Farm. If the on-lot system data-gathering effort, described later in this Chapter, determines that Serpentine Acres is in need of immediate service, the Township may undertake the planning necessary to investigate tying into the Thornbury Township WWTP.

1. Cost Effectiveness

The cost effectiveness of the eventual collection and conveyance system will be further evaluated as described in Section G of this Chapter.

2. Operation and Maintenance

The operation and maintenance considerations of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

The Township will require dedication of any new community facility constructed on the Crebilly Farm.

3. Management and Administration

The management and administrative considerations of the collection and conveyance system will be further evaluated as described in Section G of this Chapter.

The existing inter-municipal agreement between West Goshen and Westtown Township provides for the treatment portion of the implementation of the selected alternative. The agreement can be found in Appendix B.

4. Financing Methods

Under either collection and conveyance scenario, the primary funding source will be self-liquidating bonds. A combination of tapping fees and annual user fees will be used to retire the debt service. The approximate tap fees and user fees will be estimated as described in Section G of this Chapter.

The developer of the Crebilly Farm will be responsible for the construction of the community system to serve the new development and the Serpentine Acres development.

5. Environmental Soundness

The primary focus of this Act 537 Plan is to identify and evaluate alternatives for the continued use of on-lot systems throughout the majority of the Township. As shown in Chapter IV of this plan, many existing on-lot systems have exhibited problems as evidenced by the number of replacement and repair permits issued by the Chester County Health Department. This problem will only continue to worsen as the systems age. Additional information on the age of the on-lot systems is provided in this chapter.

The use of the Community System Selection Strategy for a new facility on the Crebilly Farm requires that a lagoon treatment and spray irrigation system be considered before other types of facilities. A lagoon treatment and spray irrigation system compliments the land use objectives of the Township in regard to the Crebilly Farm, as well as providing important environmental benefits such as groundwater recharge and vegetative uptake of nutrients.

D. INVENTORY/MANAGEMENT

1. On-Lot Systems

The level to which individual on-lot systems are currently functioning properly, or will continue to function properly, will determine the implementation schedule and phasing plan for the selected alternative. In order to gauge the effectiveness of continuing to rely on individual on-lot systems in the unsewered areas of the Township, the Township will implement a two-pronged approach.

The first task is to conduct a Township-wide inventory of existing on-lot systems. The inventory will involve a survey mailer coupled with statistically significant random inspections. The survey, which will be modeled after DEP's Sample Survey contained in the March 1996 publication entitled, *Sewage Disposal Needs Identification Guidance*, will ask the homeowners to respond to questions regarding the type of system, type of water system, water usage, frequency of pumping and signs of failure.

The second task, which could run concurrently with the inventory, involves the adoption of an on-lot management ordinance (as specified in Chapter VI) for those areas that will continue to rely on such systems. Information from the certification component of the ordinance could also be used to refine the phasing schedule described below.

2. Community Systems Management

The management of community systems is only applicable in the southern portion of the Route 202 Study Area. The Township will require that any new community system constructed on the Crebilly Farm be dedicated to the Township.

E. PHASING/IMPLEMENTATION

Information regarding soils, on-lot system repair and replacement permits, and the availability of public sewers provides the framework for evaluating the methods to provide public sewer to the entire Township. Implementation of the selected alternative will only occur when the information received from the Township-wide inventory indicates a need.

The information on phasing provided below is included for Act 537 planning purposes only. That is, by providing this information, the Township is requesting planning approval of the 0-5 year and 5-10 year wastewater needs from DEP. Again, planning approval does not abrogate the Township from its commitment to conduct the above-described inventory and to implement an on-lot management program.

1. 0-5 Year Service Area

This area corresponds to developments that were constructed prior to 1969 based on Township records. According to the Chester County Health Department, prior to 1969, the types of on-lot systems that were constructed generally consisted of either cesspools or seepage pits. Over time, these types of systems are likely to fail from clogging of the soils surrounding the walls of the cesspool or seepage pit. Due to the depth of these systems, a failure may not express itself on the surface but by polluting the groundwater. It is anticipated that public sewer service will be provided to these areas within the next 5 years in accordance with the selected alternative.

In addition, approximately 65% of the parcels in the 0-5 year service area are less than one acre in size. Smaller lots make it difficult to find a suitable replacement area in the event of a system failure. Also, the increase in density of on-lot systems will increase the probability of groundwater pollution. The lots less than one acre in size are shown on Map IX-1.

Map IV-2 shows the location of 354 Health Department permits that were issued between 1982 and September 1999 for the repair or replacement of on-lot systems. Of the 354 permits, approximately 55% occur in the 0-5 year service area. This is also an indicator of the need to provide public sewer.

The 0-5 year service area also includes areas of non-development and the proposed West Chester Regional High School.

2. 6-10 Year Service Area

It is anticipated that public sewer service will be provided to these areas beginning in year 6 and extending over the next 5 years thereafter, in accordance with the alternative to be selected. This area corresponds to developments constructed between 1970 and 1980. According to the Health Department, during this time period cesspools and seepage pits were generally not being constructed. However, during this time period seepage beds were sometimes used. This type of system consisted of a septic tank followed by a bed of stone approximately 5 to 7 feet wide, 7 feet deep and 50 to 60 feet long. Although this type of system is

similar to today's technology, it also has the potential to introduce pollutants into the groundwater due to its depth.

Approximately 22% of the parcels in the 6-10 year service area are less than one acre in size. Also, the increase in density of on-lot systems will increase the probability of groundwater pollution.

Of the 354 Health Department permits mentioned above, approximately 20% occur within the 6-10 year service area.

Any areas not currently served by central sewers and not defined as one of the above phasing areas are relatively new developments with on-lot systems constructed consistent with today's standards. Unless the data gathering described below finds otherwise, it is not anticipated that these areas will be served with central sewers within 10 years.

Map IX-1, depicts the above-described phasing plan.

Map IX-1 (return to the Act 537 Plan page of the website to view this map)

F. FUTURE WASTEWATER NEEDS

Table IX-1 below summarizes the future wastewater needs by Study Area:

TABLE IX-1

FUTURE WASTEWATER NEEDS

Chester Creek Study Area	
Existing Flow ¹	460,000 gpd
0-5 Year Flow (additional)	317,000 gpd
5-10 Year Flow (additional)	69,000 gpd
20% Contingency ²	77,000 gpd
Total	923,000 gpd

West Goshen and Route 202 Study Areas	
Existing Flow ¹	355,000 gpd
West Goshen Study Area	
0-5 Year Flow (additional)	3,000 gpd
5-10 Year Flow (additional)	2,500 gpd
Sub-Total	360,500 gpd
Route 202 Study Area	
0-5 Year Flow (additional)	84,000 gpd
5-10 Year Flow (additional)	50,000 gpd
Sub-Total	134,000 gpd
20% Contingency ²	27,000 gpd
Total	521,500 gpd

¹2000 maximum 3 month average

²Based on new flows only

Table IX-2, along with Map IX-2, provides a detail of the future wastewater needs.

TABLE IX-2

DETAILED FUTURE WASTEWATER NEEDS

CHESTER CREEK STUDY AREA				
Development Name*	Construction Date	EDUs	Wastewater Flow**	Designation
Phase 1: 0 - 5 Year				
W. Lynn Area	1960	70	17,500	AA
West Wynn I	1955-60	59	14,750	BB
Westover Farms	1969	28	7,000	CC
Grandview Acres	1952	140	35,000	D
Hummingbird Farm	1960	41	10,250	E
Westtown Farms	1945-60	71	17,750	EE
Hunt Dr.	1962	21	5,250	F
Regional School		200	50,000	GG
ND Little Shiloh Rd	----	19	4,750	J
ND Manley Rd	----	9	2,250	K
ND S Concord Rd	----	7	1,750	KK
ND Oakbourne Rd 6 (East)	----	6	1,500	L
ND Street Rd	----	33	8,250	LL
ND Rt926/Rt352	----	102	25,500	M
ND Westbourne Rd	----	76	19,000	MM
ND Shilo Rd 51.5 Acres	----	40	10,000	N
ND Westbourne Rd	----	11	2,750	NN
ND Shilo Rd 65.8 Acres	----	65	16,250	O
Pleasant Grove	1980	14	3,500	OO
Butternut Lane	1969	17	4,250	P
Westcroft Place	1965	12	3,000	PP
ND Pennwood	----	17	4,250	Q
Westtown Country Estates	1965	29	7,250	QQ
Pennwood ES	----	16	4,000	R
Westtown Hillside	1950-60	50	12,500	RR
ND Pennwood ES	----	8	2,000	S
Carolyn Dr.	1963	60	15,000	V
Tyson Dr.	1960	46	11,500	Z
Sub-Total		1,267	316,750	
Phase 2: 5 - 10 Year				
Edgewood Chase	1974	65	16,250	C
Chateau Dr.	1973	13	3,250	FF
Crestwyn	1976	17	4,250	HH
Land Grant Farm	1980	66	16,500	I
Pennwood South	1970-75	87	21,750	T
Shallow Hills	1984	18	4,500	W
Station Way	1977	10	2,500	X
Sub-Total		276	69,000	
Total		1,543	385,750	

* "ND" designations correspond to "non-development" for parcels greater than 5 acres

** At 250 gpd/EDU

TABLE IX-2 (cont'd)

DETAILED FUTURE WASTEWATER NEEDS

WEST GOSHEN STUDY AREA				
Development Name*	Construction Date	EDUs	Wastewater Flow**	Designation
Phase 1: 0 - 5 Year				
Jeroma Lane	1960	11	2,750	B
Sub-Total		11	2,750	
Phase 2: 5 - 10 Year				
Gages Lane	1973	10	2,500	A
Sub-Total		10	2,500	
Total		21	5,250	

* "ND" designations correspond to "non-development" for parcels greater than 5 acres

** At 250 gpd/EDU

ROUTE 202 STUDY AREA				
Development Name*	Construction Date	EDUs	Wastewater Flow**	Designation
Phase 1: 0 - 5 Year				
South Hills Park	1962 & 1986	83	20,750	E
Westview Acres	1960	52	13,000	F
Additional 200 Apts. Proposed	----	200	50,000	G
Sub-Total		335	83,750	
Phase 2: 5 - 10 Year				
Osbourne Hill	1971-73	78	19,500	B
Shenandoah	1975	21	5,250	C
Snowdrop Hill	1975-78	98	24,500	D
Sub-Total		197	49,250	
Total		532	133,000	

Map IX-2 (return to the Act 537 Plan page of the website to view this map)

G. COLLECTION AND CONVEYANCE EVALUATION

As mentioned throughout this Chapter, the selected collection and conveyance alternative is either a grinder pump system and/or a gravity system. The implications of either system will be considered by the Township through additional planning via a Special Planning Study. Additional information is necessary regarding topography, depth of rock, environmental constraints, reliability, etc., before the Township can conclude its planning on the selected collection and conveyance alternative. Additional information on the above issues will assist in the Township's ability to further refine the cost estimates for the collection and conveyance alternatives. Operation and maintenance costs and management and administrative considerations will also be evaluated in the Special Planning Study.

Due to the interconnectivity of the collection and conveyance systems, the Special Planning Study will evaluate the grinder and/or gravity alternatives on a system-by-system basis. Chapter VI evaluated collection and conveyance alternatives for the following systems:

- Route 202 System
- Oakbourne Road System
- South Concord Road System
- Shilo Road System
- Route 926 System
- Main Trunk System

These collection and conveyance systems operate independently of one another in that they flow separately into an existing gravity collection system, into a pump station, or directly into a treatment plant. The Special Planning Study will also evaluate the grinder and/or gravity collection and conveyance systems based on these distinct areas. These areas are shown on Map IX-3.

It is anticipated that, as part of the Special Planning Study, the Township would be required to advertise a thirty (30) day public comment period per typical Act 537 planning requirements. The Township also commits to hold separate public meetings with the residents impacted by the individual systems described on Map IX-3. These meetings will present the results of the Special Planning Study for a particular system area and seek public comment on the same. The Township's commitment to this type of public involvement is made evident by the numerous public meetings held to date as indicated in the Implementation Schedule.

Map IX-3 (return to the Act 537 Plan page of the website to view this map)