

CHAPTER VII{PRIVATE }

WASTEWATER ALTERNATIVES EVALUATION

Proposed alternatives for wastewater facilities must provide adequate future facilities to serve anticipated growth in the Township. When a specific alternative is being considered, both the advantages and disadvantages must be evaluated. The capital expenditure and the on-going operation and maintenance costs must be compared. Differences in administrative and operational requirements must be examined as well. The impacts to environmental and natural resource laws and policies of the Commonwealth must be taken into consideration when stating the goals and objectives. Each alternative evaluated by this plan must be weighed against these goals and objectives, and if an otherwise acceptable alternative is determined to conflict with or is inconsistent with these goals and objectives, the conflicts and inconsistencies must be resolved before the Township may pursue the approval of that alternative.

As discussed in Chapter VI, this Plan will evaluate alternatives that utilize either the West Goshen treatment plant or the Westtown-Chester Creek treatment plant. The sewage will be conveyed by either a conventional gravity/pump station system and/or a grinder pump/force main system. A portion of the Route 202 Study Area may also be suitable for a new community system to serve new development. The following sections will discuss the consistency or inconsistency of these alternatives with the appropriate laws and policies.

A. CONSISTENCY WITH LOCAL, COMMONWEALTH AND FEDERAL POLICIES

1. COWAMP/208 Water Quality Management Plan

Comprehensive Water Quality Plans (COWAMP) have been developed under Sections 4 and 5 of the Clean Streams Law and 208 of the Clean Water Act. For purposes of identification with the COWAMP/208 Water Quality Management Plan for southeastern Pennsylvania prepared in 1978, Westtown Township falls within the Brandywine Sub-basin and the Delaware County Sub-basin.

The COWAMP identifies Chester Creek as being a problem area due to high nutrient levels throughout the length of the stream. Satisfactory levels of organic content are generally noted along the Main Branch of Chester Creek. The West Goshen treatment plant and the Westtown-Chester Creek treatment plant both discharge into the West and East Branches of the Chester Creek, respectively. Westtown Township is in the process of receiving a Part II permit to upgrade the Westtown-Chester Creek treatment plant from 290,000 gpd to 495,000 gpd. The plant upgrades are intended to address basic structural concerns as well as to relieve the current hydraulic overload. Except for one proposed development, the majority of the capacity in the currently contemplated plant upgrade will provide treatment capacity for existing lots with on-lot systems. Any future upgrades to address the wastewater needs as defined in this Plan will also predominantly serve areas with existing on-lot systems. In addition, new flows to the West Goshen treatment plant will also be derived from existing lots.

2. Chapter 94 Municipal Wasteload Management Plan

The Township recently (March 2001) completed the year 2000 Chapter 94 Report for the Westtown-Chester Creek treatment plant. As noted earlier in this Plan, the treatment plant is currently experiencing a hydraulic overload – the existing permitted flow is 290,000 gpd and the actual year 2000 maximum three month average is 460,800 gpd. The Township has received the Part II permit to upgrade the treatment plant from 295,000 gpd to 495,000 gpd.

The Township has purchased additional flow from the West Goshen treatment plant, which has recently upgraded their capacity from 4.5 mgd to 6.0 mgd. In accordance with the Inter-Municipal Agreement between Westtown and West Goshen Townships, Westtown can discharge up to 530,000 gpd into the West Goshen system.

The following table illustrates the most recent hydraulic loadings.

TABLE VII-1

HYDRAULIC LOADING SUMMARY
WEST GOSHEN TREATMENT PLANT

1998			1999		
Hydraulic Loadings MGD			Hydraulic Loadings MGD		
Permit	Annual Average	Max. 3 Month Average	Permit	Annual Average	Max. 3 Month Average
4.5	3.99	4.68	6.0	3.88	4.51

According to the 1999 Chapter 94 Report, there are no five (5) year projected overloads at the West Goshen treatment plant.

3. Title II and VI of the Water Quality Act of 1987

The Water Pollution Control Revolving Fund Component of the PennVest Program provides for capitalization under the Federal Water Quality Act of 1987. PennVest funding will not be utilized for this alternative (see Chapter VIII).

4. Comprehensive Plans

As noted in Chapter I, the Comprehensive Plan calls for the necessity of a central wastewater treatment in cluster development. This promotes environmental conservation as well as development opportunities. The plan recognizes the trend of on-lot systems continuing usage; furthermore, it suggests an evaluation of providing sewer to serve the many problem areas within the Township be conducted.

TABLE VII-2

NPDES EFFLUENT LIMITATIONS
WESTTOWN-CHESTER CREEK TREATMENT PLANT

Discharge Parameter	MASS UNITS (LBS/DAY)				CONCENTRATIONS (MG/L)			
	Average Monthly	Average Weekly	Max. Daily	Inst. Min.	Average Monthly	Average Weekly	Max. Daily	Inst. Max.
Flow (MGD)	Monitor/ Report							
CBOD ₅ (5-1 to 10-31)	62				15			30
CBOD ₅ (11-1 to 4-30)	103				25			50
Total Suspended Solids	124				30			60
Ammonia as N (5-1 to 10-31)	10				2.5			5.0
Ammonia as N (11-1 to 4-30)	31				7.5			15.0
Fecal Coliform					200/100 ml			
Dissolved Oxygen				3.0				
pH				6.0 STD				9.0
Total Residual Chlorine (0-2 years)					1.2			2.0
Total Residual Chlorine (3-5 years)					.2			.53
Copper (0-3 years)					Monitor/ Report			Monitor/ Report
Copper (4-5 years)	.09				.022			.044
Dichlorobromo- methane (0-3 years)					Monitor/ Report			Monitor/ Report
Dichlorobromo- Methane					.004			.008

5. Antidegradation Requirements of Chapters 93, 95 and 102

The water quality designations (Chapter 93 Criteria) for the East Branch of the Chester Creek and Radley Run are Water Use Protected–Trout Stocking Fishes (TSF) and Warm Water Fishes (WWF) for the Chester Creek, and Migratory Fishes (MF) for Radley Run. The TSF specific criteria are a minimum daily average dissolved oxygen (DO) of 5.0 mg/l and a minimum instantaneous DO of 4.0 mg/l. The WWF specific criteria are a minimum daily average DO of 5.0 mg/l and a minimum instantaneous DO of 4.0 mg/l. The NPDES permit for the upgrade to the Westtown-Chester Creek treatment plant requires a minimum of 3.0 mg/l of DO at all times. The NPDES permit can be found in Appendix F.

6. State Water Plan

The State Water Plan was adopted in July 1983. The applicable sections of the report are contained in the “Sub-basin 3” section. Page six of the plan notes Chester Creek is “affected by inadequately treated waste discharges and malfunctioning septic tanks.” It calls for the upgrading and regionalization of area treatment plants to improve water quality. This is consistent with the objectives of this Act 537 plan.

7. Pennsylvania Prime Agricultural Land Policy

It is the policy of the Commonwealth to conserve and protect and to encourage the development and improvement of its agricultural lands for the production of food and other agricultural products. It is also the policy of the Commonwealth to protect and conserve agricultural lands as valued natural and ecological resources, which provide needed open spaces for clean air as well as for aesthetic purposes.

8. County Stormwater Management Plan

Chester County currently does not have a stormwater management plan, so no conflict exists.

9. Wetland Protection

Certain components of the various alternatives may have impacts to wetlands. All disturbances to wetlands will be identified and the applicable permits will be received prior to implementation of any of the alternatives.

10. Pennsylvania Natural Diversity Inventory

Potential impacts on the natural resources contained in this database will be identified prior to approval by DEP.

11. Pennsylvania Historic Preservation Act

Potential impacts on historic resources from the proposed alternatives will be identified prior to approval by DEP.

B. INCONSISTENCY RESOLUTION

It does not appear that any of the proposed alternatives are inconsistent with the previously discussed plans or programs.

C. WATER QUALITY STANDARDS

The NPDES permit for the upgrade of the Westtown-Chester Creek treatment plant to 495,000 gpd can be found in Appendix F. The effluent limitations are summarized in Table VII-2.

D. COST

Cost estimates for the collection and conveyance system as well as for the Westtown-Chester Creek treatment plant upgrades to 495,000 gpd can be found in Table VII-3. Detailed cost summary sheets for each alternative can be found in Appendix G. (The opinion of costs contained in Appendix G includes on-lot costs such as grinder pump installation and force main installation or gravity lateral installation. Except for the cost of purchasing a grinder pump, Table VII-3 does not include these on-lot costs.) The opinion of costs does consider the additional costs associated with trench excavation, backfill and excavation in State Highway rights-of-way. Also, capital and operating costs have been combined as present worth costs. The present worth can be defined as the amount of money put in an “account” today to draw upon to purchase and operate a facility for a set period of time. We have used a 20-year time period with an interest rate of 4.00%.

TABLE VII-3

COST ESTIMATES

Item	Alternative #1		Alternative #2		Alternative #3	
	Mostly Gravity		Grinder Pump		All Gravity	
	Capital Cost ²	Present Worth Cost	Capital Cost ²	Present Worth Cost	Capital Cost ²	Present Worth Cost
Collection and Conveyance	\$20,221,000 ¹	\$26,750,000	\$14,565,000 ¹	\$22,170,000	\$30,458,000	\$36,723,000
Westtown-Chester Creek WWTP Upgrades	\$3,440,000	\$4,000,000	\$3,440,000	\$4,000,000	\$3,440,000	\$4,000,000
Total	\$23,661,000	\$30,750,000	\$18,005,000	\$26,170,000	\$33,898,000	\$40,723,000

¹Includes grinder pump purchase

²Does not include any rock excavation

E. FINANCING OPTIONS

1. General Fund Sources

Because large federal grants are no longer available for the construction of wastewater treatment facilities, the capital cost of such facilities are generally paid by bond issues with the costs of amortization being added into user fees. However, there are several programs which may be available to the Township to assist in the financing of needed facilities within the Township.

a. Community Development Block Grants

Community Development Block Grants are federal funds distributed by counties to provide for housing rehabilitation, infrastructure improvements, and economic development.

In order to be eligible for funding, 50% of the households in the project area must meet income guidelines.

b. PENNVEST

The Pennsylvania Infrastructure Investment Authority Act, known as PENNVEST, was adopted on February 24, 1988. The Act provides for low interest loans and a limited number of grants for sewer and water facilities in the Commonwealth. The Pennsylvania Infrastructure Investment Authority, a 13-member board, is to have the power to prioritize projects and set interest rates. Interest rates on loans are to be set on a project-by-project basis.

PennVest has also been authorized to allocate grants under the Growing Greener Grant Program. These funds will be disbursed under the normal funding process and using PennVest's current criteria.

c. Delaware Valley Regional Finance Authority

The Delaware Valley Regional Finance Authority (DVRFA) was formed in 1985 by Bucks, Chester, Delaware and Montgomery Counties in order to provide financing to local governments within the four county region. The Authority is governed by a five-member board appointed by the commission of each of the counties.

At present, the Authority is able to finance all eligible projects, although it may soon begin to prioritize projects due to the large number of requests for funding.

d. Farmer's Home Administration Loans

The Farmer’s Home Administration (FmHA) is an agency of the United States Department of Agriculture, which is authorized to provide financial assistance for public infrastructure project in rural areas.

e. Privatization

A potential financing mechanism for implementing needed wastewater facilities projects is known as “privatization”. Privatization generally involves a contractual arrangement between a private sector entrepreneur or group and a public sector entity such as a municipality. The following table illustrates the various privatization options which are available.

TABLE VII-4

PRIVATIZATION OPTIONS

OWNERSHIP OF INFRASTRUCTURE FACILITIES	OPERATION OF INFRASTRUCTURE FACILITIES	TRANSACTION TYPE
Public Sector	Private Sector	Operations and Maintenance (O&M) Contract
Private Sector	Public Sector	Lease Contract
Private Sector	Private Sector	Service Contract

Private sector ownership and/or operation of infrastructure facilities via privatization will usually result in a reduction in the annual cost of providing wastewater facility services. Reduced user fees can be realized because of two main reasons. First, private sector ownership enables a private profit-making entity to generate certain tax benefits through depreciation and allowable deductions. Second, private sector operation may enable a private, profit-motivated entity to utilize certain labor and cost savings practices. Furthermore, private sector firms may take advantage of the following methods to keep user fees to a minimum:

- “Fast-Track” Construction - reduces the cost of interest during construction;
- Creative Financing - (e.g. variable rate instruments which can minimize interest cost of the long term; and
- Minimize Administrative and Support Costs - by spreading such costs over a number of facilities.

Combining the above factors can often result in user fees, which are 5 to 15 percent less than those realized under traditional public financing methods.

In recent years, there has been reluctance on the part of both municipalities and private investors to pursue privatization. The main reason for this reluctance appears to be the Federal Tax Reform Act of 1986, which may significantly affect the economics of privatization, depending upon the specific situation.

f. Phasing

1. See Chapter IX regarding the discussion of phasing.

g. Administration

At present, the alternatives being evaluated in this plan can be implemented under the current administrative organization of, and legal authority vested in, the Township.