

## **CHAPTER III**

### **COLLECTION AND CONVEYANCE**

#### **A. BASE PLAN**

The Base Plan concluded that a special study was necessary to evaluate the grinder pump system versus the gravity system. Due to long term operational and maintenance concerns, the Township has decided not to pursue further evaluation of the grinder pump alternative. As such, a special study will not be conducted.

#### **B. PLAN ADDENDUM**

This Plan Addendum provides for a predominantly gravity system including 13 pump stations and 25 grinder pumps to provide service to the Westtown-Chester Creek Study Area. The proposed collection and conveyance system also utilizes the existing Kirkwood pump station as well as the proposed pump station for the proposed Bayard Rustin High School. The Township has required the High School's pump station to be oversized in anticipation of future contributing flows (See High School Planning Module PA DEP Code No. 1-15972-192-3IJ). In addition, any necessary upgrades to the Kirkwood pump station will be addressed in the Part II Permit for the collection and conveyance system. To provide flexibility in the consideration of phasing, the gravity system has been divided into smaller subareas of the larger system areas. The planned collection and conveyance system can be found as Map III-1.

Due to the predominant reliance on gravity, some of the conveyance lines are located outside of public right-of-ways. The Township commits to the implementation of this system by obtaining easements through negotiation or condemnation.

A summary of the cost of the collection and conveyance system can be found in Table III-1. A more detailed opinion of costs can be found in Appendix B.

#### **C. PHASING**

This Plan Addendum provides for a phasing plan that seeks to provide initial service to the older communities, while maximizing use of the current permitted capacity of the Westtown-Chester WWTP Creek (see Map III-2 for Phasing Plan). As can be seen in Map III-2, the 0-5 year service area includes the oldest communities in the Study Area such as Grandview, West Wynn and Westtown Farms (see Map IX-1 from Base Plan for age of developments). In addition, the 0-5 year service area also includes areas of miscellaneous infill lots adjacent to or within close proximity of existing sewer lines. This 0-5 year service area also corresponds to the remaining capacity at the Westtown-Chester Creek WWTP (see Tables III-2 and III-3). The Westtown-Chester Creek WWTP will be re-rated in year 2 to assure that adequate capacity is available for the 5-10 year service area.

## **D. LAND APPLICATION**

As can be seen in Table III-3, the total flow to the Westtown-Chester Creek WWTP from the 0-5 and 5-10 year service areas is 629,250 gpd. This represents an increase of 135,000 gpd over the treatment plant's current permitted flow of 495,000 gpd. Using 5000 gpd/acre, this flow would require approximately 27 wetted acres for spray irrigation. The required buffers and storage lagoon would add another approximately 15 acres for a total of 42 acres needed to implement spray irrigation for the increase over the permitted flow. Except for the Westtown School parcel and the Bayard Rustin High School parcel there are only 2 other parcels of adequate size in the Study Area (See Map III-3). Parcel 1, just west of the Westtown School is constrained by the Chester Creek and steep slopes (see map III-4 of Base Plan) and would not be suitable for spray irrigation. Parcel number 2, located in the eastern portion of the Study Area, is located approximately 3 miles (using public streets) from the Westtown-Chester Creek WWTP. Construction of a storage lagoon and effluent force main would be cost prohibitive. Regarding Westtown School, School Officials have notified the Township that the school is not interested in participating in a spray irrigation system. As such, the Township has determined that spray irrigation is not an implementable alternative.

In addition, future planning for the West Goshen Study Area may indicate additional flows to the Westtown-Chester Creek WWTP. This would only increase the amount of land necessary for spray irrigation.