

## EXECUTIVE SUMMARY

This Act 537 Update was prepared at the request of the Board of Supervisors of Newtown Township (Township) in order to address current and future planning needs, as well as concerns raised by the Pennsylvania Department of Environmental Protection (PA DEP) as more recently noted in the Department's letter dated November 29, 2010 as well as concerns raised by the general public. The intent of the Study contained herein is to supplement the service area previously identified in the Newtown Township 2002 Act 537 Plan and be in substantial compliance with Act 537 entitled *The Pennsylvania Sewage Facilities Act, PA Code Title 25, Chapter 71*, in order to appropriately plan for the future needs of the Township, as well as its residents.

The Plan contains the requisite Environmental Checklist with the Study addressing the planning requirements necessary in order to provide public sanitary sewer services, where appropriate, to meet the immediate needs within the newly established Central Delaware County Authority (CDCA) service area, while at the same time addressing future needs, flow capacity, and existing community sewage systems, as well as the continuing use of Individual On-lot Sewage Disposal Systems under the guise of a newly established Township-wide "On-lot and Community Sewage System" Operation and Maintenance Ordinance. Refer to the accompanying service map (Appendix B).

The Plan of Study is comprised of the following components:

- I. Previous Wastewater Planning
- II. Physical and Demographic Analysis
- III. Existing Sewage Facilities in the Planning Area
- IV. Future Growth and Development
- V. Alternatives to Provide New or Improved Wastewater Disposal Facilities
- VI. The Evaluation of Alternatives
- VII. Institutional Evaluation
- VIII. Selected Wastewater Treatment and Institutional Alternatives

The Plan Update identifies and evaluates various aspects of alternatives in a prudent manner by which public sewer service currently exists as well as the merits of providing future service to residential, commercial, and institutional development within the overall planning area considered. Since the collection and conveyance of sewage is paramount, locations of these collection and conveyance systems from a practical usage basis, as well as cost effectiveness standpoint, are extremely important in order to transport projected wastewater flows.

Other available methods of treatment, including that of community wastewater treatment facilities and on lot sewage disposal systems, which were also considered and evaluated.

In order to meet current, as well as future, wastewater disposal needs regarding future projections within the planning area, the Township is in agreement that the Central Delaware County Authority (CDCA) as well as limited reallocation of flow from a portion of the BPG site to Radnor-Haverford-Marple (RHM) conveyance and Delaware County Regional Water Quality Authority (DELCORA) treatment alternative is the most responsible and cost effective to the residents and the most prudent, from a treatment standpoint, for environmental sensitivity. A network of low pressure sewers, gravity mains, pump stations and force mains will need to be in place in order to use this alternative.

Section 172-116 of the Zoning Ordinance states that “any lot in any district on which is built a dwelling which is not an accessory building and for which there is not public water supply or public sewer shall have an area of not less than 12,000 square feet. Further, all relevant state regulations governing the placement of on-site septic in relation to on-site water supply are incorporated herein by reference.” In addition, Section 148-38 of the Subdivision and Land Development Ordinance governs sewage treatment and disposal by connection to the public sewer system or by on-site sanitary sewage facilities. The Township also has other ordinances in effect related to the public sewer system: “Chapter 5, Article I – Sewer Authority,” “Chapter 121 – Plumbing,” and “Chapter 130 – Sewers.”

Individual development properties to be connected to the system will be the responsibility of the prospective owners of the proposed developments.

Additional information and details regarding the selected alternative can be found in Section V of this document.

The implementation Schedule for the completion of public sewer for the remainder of the Township is anticipated as follows<sup>1</sup>:

	<b><u>Schedule Item</u></b>	<b><u>Months from PA DEP Planning Approval</u></b>
1.	Receipt of PA DEP Approval of Act 537 Plan.	
2.	Design of proposed collection and conveyance Systems for immediate needs area.	On-going as Projects Evolve six (6) to nine (9) months after Act 537 approval & appeal period.

<sup>1</sup> It should be noted that due to the uncertainty of economic times the above schedule is the current best available information. Timing may differ slightly due to funding availability as well as product demand.

	<b><u>Schedule Item</u></b>	<b><u>Months from PA DEP Planning Approval</u></b>
3.	Submit Plan for Erosion & Sediment Control and NPDES Permit to Delaware County Conservation District.	On-going as part of the design process and in conjunction with future subdivisions and Land Development Process.
4.	Receipt of Erosion & Sedimentation Control and NPDES Permits, appropriate approval after each submission.	Six (6) Months after submission.
5.	Submission of Part II WQM Permit application to PA DEP will need to be evaluated on an individual basis depending on the scope of the project. Projects requiring a Pump Station and/or connection of future projected services to 250 or more EDU's or equivalent in the future will mandate such a submission.	Once design is completed.
6.	Receipt of Part II Application Approval. Prepare Bidding Documents and at the same time start the process of securing funding. At this juncture it appears that a bond secured by the Municipal Authority to be the most prudent and flexible. (The project may have to be phased depending upon funding availability. Also, it appears that any bond funding should take advantage of capitalized interest for a period of two (2) to three (3) years.	Three (3) to six (6) months after approval.
7.	Place project out to bid. Once bids are received close on Municipal Bond Issue. It appears a 120 day holding period for Bid Award will allow sufficient time to get all documents in order prior to issuance of notice to proceed.	Once all permits are received.
8.	Construct the Project. If phasing of the overall scope of the service area is required, Items two (2) through eight (8) may have to be repeated various times as funding may allow.	
9.	Begin Sanitary Sewer extension based upon permit approval, funding and demand.	
10.	Depending on timing of other projects it may be necessary to apply for Pump and Haul Permit(s).	As Applicable for each subdivision and individual basis.
11.	Receive Pump and Haul Permits.	As Applicable.
12.	Completion of Collection and Conveyance Systems.	As required on an individual basis.

## **Alternative of Choice**

The selected alternative which best meets the immediate and future wastewater treatment needs of the properties within the planning area is the CDCA Alternative. For this alternative, it is proposed that a network of gravity mains, pump stations, force mains and low pressure sewers, as shown in Appendix K, be constructed to collect and convey the wastewater to the DELCORA WWTP.

### **Melmark School**

Pump to a gravity line within Hunt Valley Lane, provide Hunt Valley Circle with a gravity collection system which would require a gravity line be constructed adjacent to an existing drainage ditch and adjacent to homes in the central portion of Hunt Valley Circle, to a lift station to be located along the southeasterly side of Hunt Valley Circle adjacent to the stormwater management basin. The lift (pump) #2 station would be required to handle average daily flow of 32,350 GPD. The lift station would utilize a force main that would pass through existing easements where possible to a proposed gravity line on the westerly portion of Echo Valley Road. It appears this 8" Sanitary Sewer collection system can be constructed beneath Lewis Run to a proposed pump station #3 along the northwestern side of Goshen Road. This flow path would allow for approximately 40 homes in the Hunt Valley Circle area and the western most portion of the Echo Valley Development to be connected by gravity.

### **Hunt Valley Lane and Circle**

An additional alternative, as previously discussed, as part of the Melmark School would be to provide gravity service to the area which would allow for the connection of the Melmark School. However, this option would require easement acquisitions. Also, some interaction with steep slopes, and existing drainage ditch and concerns of the proximity of the spine of the collection system to the existing homes need to be looked at carefully. In addition, a sewage lift station (pump station) #2 would be required. It is anticipated that the lift station would be required to handle an average daily flow of 32,350 GPD.

### **Echo Valley Area**

The Echo Valley Service Area now includes properties along a portion of Goshen Road, Echo-Valley Lane, Battles Lane, Meadow Lane, Pheasant Lane, Crum Creek Lane, Partridge Lane, Spring Water Lane and Fox Hill Lane.

Because of the undulating topography whereby houses along the northwesterly sides of Echo Valley Lane, Meadow Lane, Battles Lane and Crum Creek Lane are significantly higher than their counterparts along the southeasterly side of the respective roadways dual 8" PVC gravity line would need to be constructed along the street and to the rear of the lots on the southeastern side of the roadway. In this

regard and in order to preserve the Lewis Run corridor, the use of a gravity system in this location is clearly impractical from both an environmental impact as well as an economic one.

With the exception of the previous mentioned gravity scenario regarding the Melmark School and Hunt Valley Circle, the alternative of choice for this area with total flow of approximately 35,700 GPD of which approximately 6,300 GPD could be diverted to the proposed Goshen Road Pump Station for a flow of 29,400 GPD which would be sewered by a low pressure sewer system which would connect to the Ashford Pump Station through Spring Water Lane.

### **Goshen Road Area**

The anticipated flow to the Goshen Road Pump Station which would include flow from a portion of the Boot Road area, the Melmark School, Hunt Valley Lane and Circle, and a small portion of Echo Valley would be approximately 51,000 GPD.

The Goshen Road Pump Station is proposed to discharge to a gravity line along Boot Road then transverse by gravity through the Marville Property to a proposed pump station #4 located in proximity on the Olde Masters Site. This pump station is proposed to discharge into a gravity line proposed along Campus Boulevard. The flow will then travel by gravity to a proposed pump station #5 at the Springton Pointe Estates Sewage Treatment Facility along Stoney Brook Blvd. and then pumped to a proposed modified Camelot Pump Station #6 for conveyance to the CDCA line located at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252) In Marple Township, Delaware County, PA.

### **The Boot Road Area**

The Boot Road Service Area, which includes homes along Boot Road, as well as Philips Lane have been identified to contain 32 units some of which are anticipated to flow by gravity to the Goshen Road Pump Station #3 and follow the flow pattern identified therein. The remaining flow is to flow directly by gravity through the Marville Property to a proposed pump station #4 located near on the Olde Masters Site and again follow the flow route identified in Area #4 Goshen Road area noted above.

### **The Episcopal Academy**

Representatives of the Episcopal Academy have requested flow of 11,000 GPD. It should be pointed out the pump and haul records provided for review indicates flows of approximately 6,500 GPD. Therefore, it appears the flows requested to be reasonable.

The Episcopal Academy proposes the construction of a pump station and force main concerns to be connected with the infrastructure within the Ashford Development at a

point that would minimize interaction with sensitive environmental concerns such as stream crossings and steep slopes. The public sewer option appears to be an environmentally sound one and financing will be provided by the Episcopal Academy.

### **The Ashford Group**

The Ashford Development situated along the Northwest corner of Goshen Road (SR 1034) and Newtown Street Road (SR 0252) proposes the construction of 460 units residential with other connections that would generate 115,000 GPD of flow. The Ashford Group has made an application for Sewage Facilities Planning Module and a Part II Water Quality Permit for a pump station that will ultimately discharge flow to the CDCA line at a sanitary sewer manhole situated at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252) adjoining the Delaware County Community College in Marple Township, Delaware County, PA. Ashford has received approval for both the Sewage Facilities Planning Module, as well as their Part II Permit.

Flow to the Ashford Pump Station is anticipated to be able to handle flow from the following:

1.	Ashford Development	115,000 GPD
2.	Episcopal Academy	11,000 GPD
3.	Melmark School	25,000 GPD
4.	Hunt Valley Circle	7,350 GPD
5.	Echo Valley Area	<u>47,775 GPD</u> – Originally
	Total Anticipated Flow	206,125 GPD

The Ashford Group has worked with the Township to provide an appropriate Developer's Agreement, as well as post financial surety so that the project can move forward. It is anticipated that the Ashford Pump Station and Force Main Project will be under construction shortly.

### **The Marville Development, Newtown Business Center and Olde Master Site**

The Marville Development, the Newtown Business Center are located along the northwestern side of West Chester Pike (SR 003) in the western portion of the Township adjacent to Crum Creek and the Edgmont Township boundary line. The Olde Masters Site is situated along the southeasterly side of West Chester Pike (SR 003) and adjoin to Crum Creek and the Edgmont Township boundary. These properties are owned by National Developers Realty, Inc. with associated sewage flows of 3,500 GPD from the existing Newtown Business Center, 83,950 GPD for the Marville Development and 78,100 GPD for the Olde Masters Property. These properties are contained within various zoning districts such as SUZ, I, R4 and R5.

The property owner has received approval to construct a 50,000 GPD wastewater treatment plant at the Marville site but has expressed his interest in connecting to the public sewer system.

These properties would drain to pump station #4 proposed located on the Olde Masters Site and discharging to a proposed gravity sewer line to be constructed along Campus Boulevard. The flow then will follow the route described in the Goshen Road Service Area Scenario.

### **The Florida Park Area**

The Florida Park Service Area consists of 127 dwelling units.

Anticipated flow from this development based upon 262.50 GDD/unit is 33,338 GPD.

The Florida Park Service Area includes properties along West Chester Pike, Florida Avenue, Park Avenue, Columbia Avenue, Tuxedo Avenue, Pomona Avenue and Fairview Avenue. Because of the smaller lot sizes, the lack of additional ground by which a replacement “On-Site” sewage disposal system can be utilized, a gravity sewer system is being recommended for providing sewer services to this area.

Flow from the Florida Park Service Area is to flow by gravity to a proposed pump station #4 at the Olde Masters Site and then pump to a proposed gravity sewer main proposed for Campus Boulevard. Flow would then travel by gravity to the new Springton Pointe Estates Pump Station #5 along Stoney Brook Boulevard and then transport the sewage to the Camelot Pump #6 for conveyance to the CDCA line located at the southeasterly intersection of Media Line Road (SR 1030) and Newtown Street Road (SR 0252).

### **Newtown Square Corporate Campus**

The Newtown Square Corporate Campus is located along Campus Boulevard with a flow allocation of 26,000 GPD. The individual buildings along Campus Boulevard each have individual “On-Site” sewage disposal systems.

This area is proposed to be serviced by gravity sewer and will ultimately flow through the Camelot Pump Station #6 for transport to the CDCA System as noted above.

### **Hunters Run**

Hunters Run is a community of 76 existing homes with anticipated flow of 19,950 GPD. The existing homes are serviced by a community “On-Site” sewage disposal treatment and land application system which would be abandoned and connected by gravity to the sanitary sewer line in Stoney Brook Boulevard. Flow from Hunters Run would flow by gravity to the Springton Pointe Estates Pump Station #5 that is

proposed to be discharged to the Camelot Pump Station #6 and utilizing the CDCA System.

### **Springton Pointe Estates**

The Springton Pointe Estates Sewage Treatment and Disposal System rated to handle 35,000 GPD is proposed to be retired and replaced with Pump Station #5 for conveyance of sewage to the Camelot Pump Station #6 so that sewage may be conveyed to the CDCA system located at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252).

## **Sewer Service Areas Infrastructure – Pump Stations, Sewer Mains and Routing**

### **Proposed Pump Station No. One “Melmark”**

This pump station is scheduled to convey 25,000 gallons per day from the site. The forcemain will discharge sewage to a gravity line in Hunt Valley Lane and Hunt Valley Circle, where it will pass through an existing easement for connection with Echo Valley Lane.

### **Proposed Pump Station No. Two “Hunt Valley Circle”**

This pump station is proposed to convey sewage from the Melmark School, as well as Hunt Valley Lane and Hunt Valley Circle with the amount of 32,350 GPD where the discharge will pass through an existing easement for connection with a gravity line within Echo Valley Lane which will ultimately discharge to Pump Station #3 along Goshen Road.

### **Proposed Pump Station No. Three “Goshen Road”**

This pump station is proposed to convey sewage from the Hunt Valley Circle pump station in the amount of 32,350 GPD, approximately 6,300 GPD from the Echo Valley area and 12,350 GPD from the Goshen Road area, and a portion of Boot Road for a total flow of 51,000 GPD. Flow from this pump station is to be pumped to a gravity line along Boot Road and flow by gravity through the Marville Property to proposed Pump Station #4 at the Olde Masters Site.

### **Proposed Pump Station No. Four “Olde Masters Site”**

This pump station is proposed to take the 51,000 GPD for the Goshen Road Pump Station in addition to flow from the Newtown Business Center, Boot Road, the Marville Property, The Olde Masters Site and Florida Park, and a portion of Campus Boulevard in the total amount of approximately 262,910 GPD. The pump station will convey flow to a proposed gravity line in Campus Boulevard. Gravity flow will discharge to a proposed Pump Station #5 at the Springton Pointe Estates.

**Proposed Pump Station No. Five “Springton Pointe Estates”**

This pump station will receive flow from the Olde Masters Pump Station #4 in the amount of 262,910 GPD, in addition to the remainder of Campus Boulevard, the Hunters Run Development and the Springton Pointe Estates for a total flow of 336,860 GPD. This flow is to be pumped to the Camelot Pump Station #6.

**Proposed Pump Station No. Six “Camelot”**

Pump Station No. Six is the existing Camelot Pump Station that is proposed to be modified to accept additional flow from the CDCA Service Area in the amount of 336,860 GPD. Therefore, the total flow to the Camelot Pump Station will be 586,860 GPD which will be conveyed to the CDCA line located at the southeast corner of Media Line Road and Newtown Street Road in Marple Township, Delaware County, PA.

**Proposed Pump Station No. Seven “Ashford”**

This pump station was scheduled to convey 206,125 gallons per day from the site, receiving flow from Melmark (25,000), Echo Valley Service Area (47,775), Hunt Valley Circle Area (7,350), Episcopal (11,000) and the Ashford Development (115,000). The forcemain from the pump station will traverse along the Ashford Property to Route 252. The forcemain will terminate at the terminus manhole of the Central Delaware County Authority. By reevaluating the service area anticipated flow to the Ashford Pump Station is 155,400 GPD.

**I. PREVIOUS WASTEWATER PLANNING**

**A. Identify and Discuss Existing Wastewater Planning**

**1. Previous Act 537 Planning**

The Official Sewage Facilities Plan of Newtown Township was updated by “Act 537 Sewage Facilities Plan, Newtown Township, Delaware County,” dated March 20, 2002, and prepared by Peter Krasas, Jr. & Associates, Inc. and approved by DEP on August 29, 2002 (2002 Plan). The 2002 Plan was an update to “The Sewage Facilities Plan for Newtown Township, Delaware County, Act 537 Study” dated June 1986. The 2002 Plan incorporated revisions to the 1986 Plan which included sewerage of the Aronimink Golf Club, SAP North America Tract, Ivy Lane, and Oak Hill Lane, as well as community sewage disposal systems owned and operated by Homeowners Associations for the Springton Pointe Estates Subdivision and the Hunters Run Development. The 2002 Plan also addressed the existing and future wastewater disposal needs of the Township and its residents at the time the plan was implemented.

On February 6, 2009 the DEP approved the (2009 Plan) “Official Act 537 Plan Sewerage Facilities Plan Update for Newtown Township for CDCA Membership” dated May 21, 2007 with supplements. The Department incorporated by reference into the 2009 Plan Article V of the December 21, 2007 Supplemental Agreement between Newtown Township and the CDCA providing for the construction of improvements by CDCA to CDCA’s Crum Creek Interceptor, CDCA’s November, 2006 Capital Improvement Program & Comprehensive Trunkline Assessment, and CDCA’s August 8, 2007 letter to the Department regarding the coordination of construction of the facilities in light of the interceptor capacity needs of member municipalities.

On December 7, 2009 the Newtown Township Board of Supervisors voted to direct its engineers to pursue a revision of its Act 537 Plan (the 2009 Plan). Furthermore, the 2009 Plan was appealed by three (3) parties and the appeal has been upheld which, in essence, struck down the PA DEP Approval of the 2009 Plan.

This update is intended to address concerns raised with the 2009 Plan as well as address the immediate and future needs of the Township not addressed in previous Act 537 Plans and Updates.

**2. Planning Not Done in Accordance with an Approved Implementation Schedule**

For the most part the approved planning currently in place (the 2002 Plan) and implementation schedule for such planning has been followed by the Township and Municipal Authority.

The 2002 Plan identified areas of the Township with existing development where public sewage collection and disposal facilities will be extended, such as Florida Park, Echo Valley, West Goshen Road, and Newtown Hunt (Hunt Valley Circle). At the time of preparation of the 2002 Plan public sewer was not in close proximity or readily available to these areas.

**3. Additional Planning**

This Act 537 Plan Update addresses immediate (Phase I) and future (Phase II) needs largely within the CDCA service area in Newtown Township. It is anticipated that areas outside of Phases I and II will be the subject of future planning beyond the scope of this Act 537 Plan Update.

**4. Planning via Planning Module Addendum**

The Township's current Act 537 was approved in 2002. In addition, planning modules and/or exemptions from planning for the Sunrise Facility, Pulte Residential and Commercial Developments (Springton Pointe Woods), Alberto's Restaurant, Terrazza Developments, and Ashford Development, among some other minor amendments, have been approved since the 2002 Plan, which now form the basis of the Township's current Plan.

**B. Identification of Municipal and County Planning**

**1. Identify Land Use Plans and Zoning Maps as they pertain to Newtown Township.**

Land Use within the Township is regulated by the following:

- a) Newtown Township, Delaware County, PA Comprehensive Plan, dated December 27, 2001.
- b) Newtown Township Zoning Ordinance (Chapter 172), adopted October 14, 1974, last amended June 8, 2009.

- c) Newtown Township Zoning Map, last revised 2011.
- d) Newtown Township Subdivision and Land Development Ordinance (Chapter 148), adopted June 9, 1986.

**2. Identify Zoning Regulations that Establish Lot Sizes**

<b>Zoning District</b>		<b>Minimum Lot Area</b>
R-1	Residence District (Single Family Detached Dwellings (SFDD))	60,000 s.f. Lot Area; 30,000 s.f. Contiguous Buildable Lot Area
R-1A	Residence District SFDD	45,000 s.f. Lot Area; 22,500 s.f. Contiguous Buildable Lot Area
R-2	Residence District SFDD	25,000 s.f. Lot Area; 12,500 s.f. Contiguous Buildable Lot Area
R-3	Residence District SFDD	12,000 s.f. Lot Area; 6,000 s.f. Contiguous Buildable Lot Area
R-4	Residence District SFDD Townhouses or Row Houses	10 Acres with 4 DUs/Ac Max
R-4A	Residence District SFDD Townhouses or Row Houses	10 Acres with 2.25 DUs/Ac Max
R-5	Residence District Housing for the Elderly: SFDD Townhouses or Row Houses Apartment House Buildings	10 Acres with 10 DUs/Ac Max
A	Apartment District <sup>1</sup> Apartment House Buildings	2 Acres with 12 DUs/Ac Max where Public Sewer is available; 7 DUs/Ac Max where Public Sewer not available
A-O	Apartment Office District <sup>1</sup> Apartment House Buildings Service Office Buildings	2 Acres with 12 DUs/Ac Max where Public Sewer is available
O	Office District	35,000 s.f. Lot Area
C-1	Commercial District Residential Uses by Special Exception: SFDD Two-Family Dwellings Multi-Family Dwellings Apartment House Buildings	For On-Lot Sewage Disposal: 6,000 s.f. per Family Unit, Store, or combination of Store and Family Unit
C-2	Commercial District	

<b>Zoning District</b>		<b>Minimum Lot Area</b>
	Non-motel, non-hotel, and non-office/clinic uses Motel/Hotel uses Lifestyle Village	30 Contiguous Acres 5 Contiguous Acres 50 Acres Gross Tract
I	Light Industrial	2 Acres
SU-1	Special Use District Residential Uses by Conditional Use: Any Use Permitted in R-5	3 Acres
SU-2	Special Use District Residential Uses by Conditional Use: Any Use Permitted in SU-1	3 Acres

<b>Zoning Overlay Districts and Development Options</b>		<b>Minimum Lot Area</b>
	Open Space Option	
	Lots in R-1 Base Zoning District Lots in R-2 Base Zoning District Lots in R-3 Base Zoning District	36,000 s.f. 15,000 s.f. 7,200 s.f.
	Flood Hazard District	Subject to Base Zoning District Area Requirements
	Slope Conservation District	Subject to Base Zoning District Area Requirements and Chapter 134 Slope Conservation
	Cluster Development Community Option	Tracts at least 50 acres in area within the R-1 Residence District
	Planned Residential Development <sup>2</sup> (as set forth on the PRD Overlay District Map)	Total Tract Area at least 200 acres.

1. Locations that do not have access to available connection to an operating municipal sewage treatment plant, one or more on-site sewage treatment plants shall be provided, excluding septic tanks and cesspools, subject to the approval of the Board of Supervisors and the requirements of the Sanitary Water Board and/or the Department of Health of the Commonwealth of Pennsylvania.
2. Area and dimensional regulations dependent upon use.

## **II. PHYSICAL AND DEMOGRAPHIC ANALYSIS**

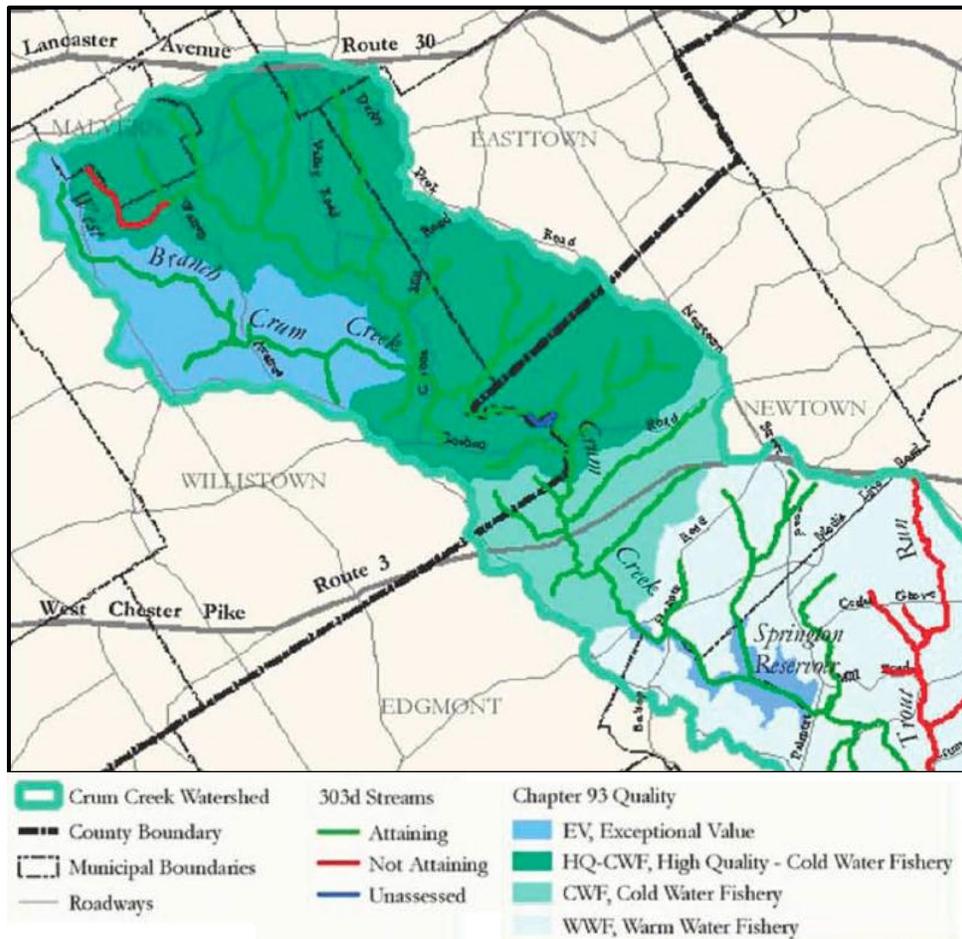
### **A. Identify Planning Area, Municipal Boundaries, and Service Area Boundaries Through Mapping**

This Act 537 Plan Update is being prepared to address the sewage facilities needs of existing and proposed development in the CDCA Service Area within the Township as defined by the CDCA Service Area Map for New Members, dated March 26, 2012 and last revised May 15, 2012. Note that a portion of the SAP America property and a portion of the Ellis Preserve (BPG) property is serviced by the R-H-M Sewer Authority and is excluded from this study. Those portions of the aforementioned properties currently serviced by or intended to be serviced by the CDCA have been included in this study. Refer to the Plan in Appendix B that shows the boundaries for the planning area addressed in this Act 537 Plan Update.

### **B. Identify the Physical Characteristics of the Planning Area**

Newtown Township is located in Delaware County, north of the Borough of Media. The Township is bounded to the north and west by Willistown Township, Chester County, to the northwest by Easttown Township, Chester County, to the northeast by Radnor Township, to the southeast by Marple Township, and to the southwest by Upper Providence Township, and to the west by Edgmont Township.

There are several Chapter 93 Water Quality Classifications for the Crum Creek Basin within the study area. The northern most portion of the study area is classified as High Quality – Cold Water Fishes and Migratory Fishes (HQ-CWF, MF). This is the Crum Basin from the West Branch Crum Creek to junction of Newtown, Edgmont, and Willistown Township Borders including tributaries such as Lewis Run. The central portion of the study area is designated as Cold Water Fishes and Migratory Fishes (CWF, MF) from junction of Newtown, Edgmont, and Willistown Township borders to the Springton Reservoir. This includes tributaries such as Reeses Run and Preston Run. The southern portion of the study area is classified as Warm Water Fishes and Migratory Fishes (WWF, MF) including non-tidal portions of the basin from the Springton Reservoir to the mouth, which includes tributaries such as Hunters Run.



(Map references Commonwealth of Pennsylvania Code, Title 25 Environmental Protection, Chapter 93 Water Quality Standards)

### Crum Creek Watershed Map<sup>1</sup>

#### C. Soils Analysis

Refer to the Soils Map and tabulation of soils limitations in Appendix D.

The study area is comprised of soils that are considered to be moderately and severely limited with regard to capability for on-lot sewage disposal according to soil characteristics found in the Soil Survey of Chester and Delaware Counties, United States Department of Agriculture, 1963 and NRCS Soils 2009. The soils with severe limitations are generally situated adjacent to watercourses and in areas of steep slopes.

<sup>1</sup> *Crum Creek Watershed Conservation Plan, Chester and Delaware Counties, Pennsylvania* – Figure 11, Water Quality (<http://crcwatersheds.org/crum>); Chester – Ridley – Crum Watersheds Association,.

**D. Geological Features of the Planning Area**

Refer to Geologic Formations Map in Appendix E.

The following geologic formations are present within the Planning Area:

<b>Map Symbol</b>	<b>Name</b>	<b>Description</b>
<b>fgh</b>	Felsic and intermediate gneiss	Light, medium grained; includes rocks of probable sedimentary origin.
<b>fgp</b>	Felsic gneiss	Light, medium grained; includes rocks of probable sedimentary origin.
<b>mgh</b>	Mafic gneiss	Dark, medium grained; includes rocks of probable sedimentary origin.
<b>mgp</b>	Mafic gneiss	Dark, medium grained; includes rocks of probable sedimentary origin.
<b>Xu</b>	Ultramafic rocks	Includes serpentine, steatite, and other products of alteration of peridotites and pyroxenites.
<b>Xw</b>	Wissahickon Formation	Includes oligoclase-mica schist, some hornblende gneiss, some augen gneiss, and some quartz-rich and feldspar-rich members due to various degrees of granitization.

**E. Topography**

Refer to Topographic Map in Appendix F.

The study area in general drains from the watershed boundary separating the Crum Creek and Darby Creek basins, which more or less follows Newtown Street Road (S.R. 0252), in a westerly direction toward the Crum Creek. The topography within the study area varies between a high elevation of 480 in the northern corner of the study area and a low elevation of 200 in the southern portion of the study area adjacent to the Springton Reservoir. The western/southwestern portion of the Township and study area are bounded by the Crum Creek, which drains in a southeasterly direction emptying into the Springton Reservoir. There are a number of tributaries to the Crum Creek, which drain in a westerly direction traversing the study area. Lewis and Reeses Run are located within the study area north of West Chester Pike. Preston Run and Hunter Run are located within the study area south of West Chester Pike. Topography is undulating between each tributary, which makes planning for public sewer challenging.

## **F. Potable Water Supply Information<sup>1</sup>**

Currently public water is provided to most of the Township by AQUA, PA. Although the entire Township lies within the AQUA, PA franchise service area, there are areas within the Township that are not currently serviced by public water. The areas currently not serviced are predominantly located within the study area of this Act 537 Plan Update (portion of the Township on the westerly side of Newtown Street Road). The areas not serviced include the following:

- Large Farm Properties along White Horse Road
- Ellis Preserve/BPG Properties (water service to be provided with proposed development)
- Boot Road Area
- Southwestern portion of Township between Florida Park and Gradyville Road
- Route 252 south of Newtown Square Area (Springton Pointe Woods is currently serviced and the properties/developments along the easterly side of Route 252 are proposed to have public water service as part of development)

Public water service would be extended to generally service the same areas as that of anticipated public sewer within the Act 537 Plan Area. It is anticipated that all public potable water service will be provided by AQUA, PA. (Appendix H).

## **G. Wetlands**

Refer to Water Resources Map in Appendix G. Wetlands were taken from the National Wetlands Inventory prepared by the United States Fish and Wildlife Service. While these maps do not provide a complete wetlands delineation, they serve as indications and are considered satisfactory for planning purposes. In areas where new sewage facilities are being considered, an actual Wetlands Delineation must be performed in the field prior to final design.

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<sup>1</sup> *Comprehensive Plan December 27, 2001, Newtown Township, Chester County, PA.*

**Wetlands Identification:**

Symbol (Mapped Code)	New Code	System	Subsystem	Class	Subclass	Water Regime	Modifying Terms	General Description
L1UBKHh	L1UBKh	Lacustrine	Limnetic	Unconsolidated Bottom		Artificially Flooded	Diked/Impounded	Lake
L2UBKGh	L2UBKh	Lacustrine	Littoral	Unconsolidated Bottom		Artificially Flooded	Diked/Impounded	Lake
PEM5A		Palustrine		Emergent	Phragmites australis	Temporary Flooded		Freshwater Emergent Wetland
PEM5C		Palustrine		Emergent	Phragmites australis	Seasonally Flooded		Freshwater Emergent Wetland
PEM5Eh		Palustrine		Emergent	Phragmites australis	Seasonally Flooded/Saturated	Diked/Impounded	Freshwater Emergent Wetland
PSS1/EM5A		Palustrine		Scrub-Shrub	Broad-Leaved Deciduous			Freshwater Forested/Shrub Wetland
		Palustrine		Emergent	Phragmites australis	Temporary Flooded		
PUBFh		Palustrine		Unconsolidated Bottom		Semipermanently Flooded	Diked/Impounded	Freshwater Pond
PUBFx		Palustrine		Unconsolidated Bottom		Semipermanently Flooded	Excavated	Freshwater Pond
PUBHh		Palustrine		Unconsolidated Bottom		Permanently Flooded	Diked/Impounded	Freshwater Pond
PUBHx		Palustrine		Unconsolidated Bottom		Permanently Flooded	Excavated	Freshwater Pond
PUBKGh	PUBKh	Palustrine		Unconsolidated Bottom		Artificially Flooded	Diked/Impounded	Freshwater Pond

### **III. EXISTING SEWAGE FACILITIES IN THE PLANNING AREA**

#### **A. Identify and Describe Sewerage Systems in the Planning Area**

Where sewerage systems are available within the study area of this plan, the majority are public sewers which ultimately drain to the Camelot Pump Station before being pumped to the CDCA collection and conveyance system. There is one community, Springton Pointe Estates, which is serviced by a community sewerage system. The sewerage system contains gravity sewer infrastructure that drains to a community wastewater treatment facility, which is permitted for 35,000 gpd of disposal by underground land disposal. The community contains approximately 130 single-family detached dwelling units with the potential to contain up to approximately 170. Hunters Run Townhome development is another community serviced by multiple on-lot disposal systems with gravity sewer infrastructure in place. Hunters Run contains 60 townhome units and 16 single-family detached dwelling units. Additionally, the Newtown Corporate Campus on Campus Boulevard contains 15 corporate office buildings generating an estimated total of 26,000 gpd which is treated and disposed of at several separate on-lot disposal systems. Other existing residential and commercial properties are serviced by individual on-lot disposal systems.

#### **1. Location, Size, and Ownership of Facilities**

Newtown Township is divided into two (2) drainage basins, the Crum Creek Basin and Darby Creek Basin. The Crum Creek Basin contains approximately 20% of the sewer collection system with a gravity sewer connection through Marple Township via the Crum Creek Interceptor in the CDCA service area. The existing CDCA service area is situated in the south-central portion of the Township.

There are approximately 42.5 miles of eight (8) inch diameter sewer within the Township. Approximately 70% was constructed between 40 to 50 years ago between 1960 and 1970 with a total length of 157,080 l.f., approximately 15% was constructed between 20 to 40 years ago between 1970 and 1980 with a total length of 33,600 l.f., and the remaining 15% was constructed within the past 20 years between the 1990s through present with a total length of 33,600 l.f.. The large majority, about 90%, of the pipe is vitrified clay pipe (VCP) and transite pipe. The remainder of the system is comprised of PVC pipe. The CDCA service area covers about two (2) square miles and contains approximately 10.6 miles of pipe.

Newtown Township does not own, however, does assist with the operation of a wastewater treatment facility. The Township Municipal Authority owns and the Township maintains and operates a dedicated

sanitary sewage collection system and does not utilize a combined sewer system. There are two (2) pumping stations owned by the Municipal Authority and operated by the Township within the CDCA service area.

The wastewater collection system in the CDCA service area within Newtown Township is comprised of eight (8) inch diameter pipe, drains to the Camelot Pumping Station, and sewage is then pumped to the CDCA Interceptor and is conveyed to the DELCORA system for treatment at their Western Regional WWTP. In addition to the Camelot Pumping Station, the Township Municipal Authority also owns and the Township maintains and operates, the Newtown Heights Pump Station (Hickory Lane P.S.). There are three (3) private pump stations, located in the CDCA service area as well. All of the public pump stations and WWTP are operated and maintained by AQUA, PA under a service contract with the Township. AQUA, PA also operates and maintains the Springton Pointe Estates WWTP. The Township took ownership of the Springton Pointe Estates WWTP, which has subsurface effluent disposal and is located within the CDCA Service Area. In addition, the Hunters Run Development uses two (2) community On-Lot disposal systems (COLDS) to service the existing 76 units. The systems are privately owned and maintained by the Owners Association.

All of the current CDCA service area within the Township drains to the Camelot Pump Station. The station is equipped with two (2) submersible Fairbanks Morse pumps. The conditions of service of the pumps are as follows: 850 gpm each @ 194' TDH @ 1760 RPM. The station is in good operating condition with no current problems. There were no overload conditions and no major repairs in 2011.

## **2. Narrative and Schematic Diagram of the Basic Treatment Process**

Refer to Appendix I for a Schematic of the treatment process. The Springton Pointe Estates WWTP (Water Quality Management Permit No. 2394406) is a Sequencing Batch Reactor (SBR) treatment facility with a Decant Equalization Tank, Sand Filtration, Chlorine Contact Tank Disinfection, Effluent Dosing Tank, with discharge to three (3) different subsurface absorption areas. In addition, a Waste Sludge is held in an Aerated Holding Tank and is removed from the site by a permitted hauler for ultimate treatment and disposal at an approved facility. The wet well of the Influent Lift Station at the WWTP is equipped with two (2) F.E. Meyers, Inc. submersible pumps able to handle 90 GPM at 30 feet TDH. The Effluent Dosing Pumps consist of two (2) Goulds Pumps, Inc. vertical turbine pumps capable of 300 gpm at 200 feet TDH.

**3. Description of Problems with the Existing Facilities**

The Township has staff available that does periodic monitoring of the sewer system in addition to the long-term maintenance of all of the lines. The Township includes sewer repair and/or rehabilitation in its annual capital improvement program. Work is performed on an as needed basis, by Township staff or private contractors.

The Township follows up on all complaints and inspections to repair I&I sources on an as-needed basis. The Radnor-Haverford-Marple (RHM) Sewer Authority also assists the Township in identifying and repairing sources of I&I during video inspection of sewer pipe. There have not been any major maintenance, repair, and/or rehabilitation projects performed in the CDCA service area in the past five (5) years.

**4. On-Going Upgrades or Expansion of Facilities**

The existing system is in good working condition. At present, no long-term plan has been developed by the Township to address I&I detection. Any portions of the system that appears to be experiencing I&I problems are addressed on a case by case basis. As the system grows and evolves it would be advisable that an ongoing I/I Infiltration and Inflow Program be established in order to monitor and maintain extraneous flow from entering the system.

**5. Operations and Maintenance Requirements and the Status of Past and Present Compliance**

Newtown Township contracts with AQUA, PA, a PADEP licensed operator, to maintain the Township's pump stations. The Springton Pointe Estates Community Association contracts with AQUA, PA to operate and maintain the Springton Pointe Community WWTP. The rest of the system is monitored by the Township Municipal Authority and The Township Public Works Department. As previously mentioned the Camelot Pump Station is in good working order with no current or anticipated overload conditions.

**B. Individual and Community On-Lot Disposal Systems**

The Florida Park Area and Echo Valley Area survey results indicate the most immediate sewage disposal needs from a public health standpoint. Echo Valley Area, including areas along West Goshen Road and Boot Road,

yielded the highest percentage, by survey area, of Confirmed Malfunctions with 8%. The Florida Park Area had the second highest percentage of Confirmed Malfunctions with 1%. Pennoni 2009 Study

**C. Wastewater Sludge and Septage Generation, Transport, and Disposal**

Private haulers are contracted by individual on-lot disposal system owners for sludge/septage removal. The Township currently is in the process of considering for adoption an ordinance governing on-lot and community sewage systems contained in Appendix P.

#### **IV. FUTURE GROWTH AND LAND DEVELOPMENT**

##### **A. Description of Future Growth and Land Development**

###### **1. Areas with Existing Development and Plotted Subdivisions**

The plan included in Appendix J shows the location of proposed and existing development within the planning area. These subdivisions (and land developments) include:

Immediate Needs Planning:

Existing Development:

- Florida Park Area
- NBC Business Park
- Old Masters Properties
- Campus Boulevard
- Hunters Run
- Echo Valley/Boot Road Area/West Goshen Road Area
- Newtown Hunt (Hunt Valley Lane/Circle)
- Melmark School
- Episcopal Academy
- Township Park Area
- Dogwood Lane Area

Proposed Development:

- Ashford Development
- Ellis Preserve (BPG Properties)
- Claude DeBotton properties along Fox Trail Farms (Marville)
- Old Masters Properties
- 

Future Needs Planning:

- Garrett Williamson Tract
- Springton Pointe/Sleepy Hollow/Frog Hollow
- Llangollen
- Whitehorse (Nolen)
- Claude DeBotton properties along 252 between Gradyville Road and Media Line Road (Four Seasons and other residential lots)

### **Echo Valley Service Area**

Due to the varied terrain, larger lots, steep slopes, and the presence of Lewis Run, practical cost effective alternatives including the use of “On-Site Sewage” Disposal Systems to be maintained only where their use is viable, not constrained, and properly maintained tempered by an ongoing “On Lot” Sewage Operation and Maintenance Program. The 2002 Act 537 Plan required this area to be provided with public sewage using the area adjacent to Lewis Run as a focal point of a gravity conveyance system and a possible Sewage Pump Station in the vicinity of Lewis Run and Boot Road. More recently, other draft iterations of the plan call for the use of low pressure sewers as an attempt to have less environmental intrusions, while at the same time, providing public sewer service to the entire Echo Valley area because of its varied and diverse terrain.

A combination of gravity (southwest portion of Echo Valley Area) and low pressure lines may be an option depending on the schedule of adjacent proposed development but this plan will focus on all low pressure sewers as the schedule of development is unknown at this time.

Because of the topography, individual gravity system may require duplicative parallel sewer mains, which would be more costly and a greater impact to the environment.

### **Florida Park**

The Florida Park area has been identified to be of smaller lots with a substantial amount of suspected and potential failing “On Site” Sewage Disposal Systems with limited space for replacement. Public sewer appears to be ideal for this area. Prior drafts of this plan included this area to be serviced by a low pressure sewer system, however, because of the density of the development, a gravity approach with a singular pump station appears to be the most cost effective approach for the residents.

A pump station location which could sewer Florida Park, as well as the Old Masters Site and Fox Trail Land Development, among others, appears to be the most cost effective approach especially for future maintenance. However, this option could involve multiple stream crossings.

### **Campus Boulevard (Newtown Square Corporate Campus)**

The Business Park accessing both West Chester Pike and Bishop Hollow Road needs a further look at the most practical and reasonable approach. It appears that the Southern portion of the business park could be serviced with gravity sewer with connection across Bishop Hollow Road into the existing gravity sewer in Stoney Brook Boulevard. It appears that the existing gravity sewer drains to the existing Springton Pointe Estates Community WWTF, therefore, the WWTF would need to be decommissioned and a gravity connection constructed to tie the system into the Camelot Pump Station prior to connection of the Newtown Corporate Campus being connected or in the alternative, convert to a pump station. As gravity sewer is the preferred method of collection for Florida Park, the northern portion of the business park could tie in to the gravity line that would service Florida Park which, would likely run along Preston Run.

### **Business Users**

The Commercial and Office users will play an important role in integrating the most reasonable cost effective approach to residential connections. Although some routing locations may not be the most prudent from a residential service area aspect, the coordination with the Business Community (existing and proposed development) will be needed in order to provide for a more regional approach in the most effective manner.

Additional easements and sewer agreements may be necessary to have the project come to fruition. In addition, a phased approach may also be needed for the project to reach completion due to the current economic times.

## **1. Land Use Designations**

Land use in Newtown Township is governed by the Township's Subdivision and Land Development Ordinance, as well as the Township's Zoning Ordinance. Refer to Section I.B.2 of this Act 537 Plan for the minimum lot sizes associated with these zoning designations. Land use is given the following designations per the Zoning Ordinance:

- R-1 Residence District
- R-1A Residence District

- R-2 Residence District
- R-3 Residence District
- R-4 Residence District
- R-4A Residence District
- R-5 Residence District
- A Apartment District 1
- A-O Apartment Office District 1
- O Office District
- C-1 Commercial District
- C-2 Commercial District
- I Light Industrial
- SU-1 Special Use District
- SU-2 Special Use District

In addition, the following districts may overlay the previously listed base zoning districts:

- Open Space Option
  - Lots in R-1 Base Zoning District
  - Lots in R-2 Base Zoning District
  - Lots in R-3 Base Zoning District
- Flood Hazard District
- Slope Conservation District
- Cluster Development Community Option
- Planned Residential Development
  - PRD Overlay District Map
  - Area and dimensional regulations dependent upon use

## **2. Future Growth Areas, Population and EDU Projections**

Within the planning area identified in this Act 537 Plan, there are areas that have existing development and areas that are planned for growth.

Table 1 lists the proposed development and the Equivalent Dwelling Units (EDUs) associated with the respective developments. Table 2 details the projected population increase based on the EDU projections.

**Table 1**  
**Projected Dwelling Unit Connections Per Year**  
 (Based on active proposed subdivisions with current applications to the Township)

Subdivision	Year					Future
	2013	2014	2015	2016	2017	
Ashford Development	0	0	25	25	25	385
Ellis Preserve (BPG)	0	0	50	50	50	555
Terrazza/Somerset/Cornerstone	0	0	40	40	40	267
National Developers Realty, Inc.						
Marville Site	0	0	0	0	0	320
Old Masters Site	0	0	0	0	0	298
“Four Seasons” and Gradyville Rd. Development	0	0	0	0	0	36

**Table 2**  
**Population Projections**  
 (Based on active proposed subdivisions with current applications to the Township)

Subdivision	Year					Future
	2013	2014	2015	2016	2017	
Ashford Development	0	0	62	62	62	959
Ellis Preserve (BPG)	0	0	125	125	125	1,382
Terrazza/Somerset/Cornerstone	0	0	100	100	100	665
National Developers Realty, Inc.						
Marville Site	0	0	0	0	0	797
Old Masters Site	0	0	0	0	0	742
“Four Seasons” and Gradyville Rd. Development	0	0	0	0	0	90

Per 2010 Census Data: 2.49 persons per dwelling

This Act 537 Plan addresses active, as well as potential subdivisions that the Township is aware of filed with the Township in the planning area. These developments include Ashford, Ellis Preserve (BPG), Della Porta (Cornerstone/Terrazza), and Episcopal Academy. Although at present the National Developers Realty, Inc. does not have any official subdivision or land development applications filed with the Township, National Developers Realty has filed several Sewage Facilities Planning Modules and since they control several large tracts of land within the study area, the potential effects on dwelling units and population increase are depicted in Table 1 and Table 2 above.

**3. Subdivision Regulations as they Pertain to Planned Developments**

Newtown Township has established guidelines for development, use, and protection of land within the Township's boundaries. The guidelines are established in the Township's Comprehensive Plan (October 25, 2001) and the Subdivision and Land Development Ordinance (June 9, 1986).

The purpose set forth in the Subdivision and Land Development Ordinance (Chapter 148-2.A-I), is as follows:

- A. To assure that development occurs only on sites suitable for building purposes and human occupancy.
- B. To assure that development of the Township is orderly, efficient, integrated and harmonious with the environment.
- C. To coordinate proposed streets with existing streets or other proposed streets, parts or other features of the Township.
- D. To assure that adequate open spaces are retained for recreation and for the proper distribution of population.
- E. To ensure coordination of subdivision and land development plans with Township, intermunicipal, count and commonwealth improvement plans.
- F. To eliminate or minimize adverse effects or damage to the environment and biosphere and to encourage productive and enjoyable harmony between man and his environment, consistent with the mandates of the National Environmental Policy Act of 1969 and Article 1, Section 27 (the Environmental Amendment), of the Pennsylvania Constitution.
- G. To secure equitable handling of all subdivision and land development plans by providing uniform procedures and standards.
- H. To protect the social and economic stability of the Township and conserve the value of land and buildings in the Township.
- I. To create conditions favorable to the health, safety and general welfare of the citizens of Newtown Township.

#### **4. Required Sewage Planning**

The following sections of this Act 537 Plan will examine the technical alternatives necessary to meet the sewage facilities needs of the planning area. Projected wastewater flows for the planning area are classified as either residential or commercial. Included in the analysis and alternatives thereto is a chart of anticipated sewage flows. In the past, stemming from information contained with PA DEP Chapter 73 from the 1970, as well as viewing the PA DEP Domestic Waste Water Design Manual, anticipated flows for individual residences as a methodology to determine the basis of an EDU was arrived at using the 3.5 persons per household as previously noted within Chapter 73 from the 1970's coupled with anticipated flow of 75 GPCD identified in the Domestic Wastewater Design Manual for households. As a result, a typical design flow of 262.50 GPD was used for design purposes in establishing flow design. In addition, it should be pointed out that for overall sewage flows for municipalities at that time flows of 100 GPCD were considered appropriate for design consideration in establishing needs for new sewer systems which account for infiltration and inflow.

More recently with the advent of low flow fixtures, measured flows in the neighborhood of 200-225 GPD per household seem to be the norm. This improvement has to do with the use of low flow fixtures and appropriate piping vents, trap assembly and the use of manhole inserts.

With the advent of PA Act 57, as amended, flow usage under these regulations have been prescribed to be determined by one (1) or two (2) methodologies of which states the use of 90 GPCD, as well as the anticipated population per household based upon the most recent census. The 2010 Census stipulates 2.49 persons per household for Newtown Township. Therefore, adjustments to flows per household for this methodology is 224.1 GPD, therefore, using 225 GPD is appropriate. Note: Ashford Development has utilized a flow of 250 GPD which has been approved through a sewage facilities planning module.

In addition, based upon anticipated flow provided by PA DEP in their letter dated May 29, 2008, flows are estimated as follows:

- |    |  |         |
|----|--|---------|
| 1. | Apartment                              | 200 GPD |
| 2. | Age Restricted                         | 200 GPD |
| 3. | Townhouse                              | 200 GPD |
| 4. | Single Family Dwelling                 | 225 GPD |
| 5. | Non-Residential-Based upon Chapter 73. |         |

However, based upon the flows per household and anticipating/accounting for some infiltration and inflow (I&I), it is

recommended that, from a planning standpoint, a flow of 225 gpd/EDU be used for all new residential development.

See Appendix “N” for anticipated flows and future needs.

The means for serving the needs of the planning area will be dependent upon the technical alternative that is selected and the capacity of that alternative to satisfy the needs.

The technical alternatives that are analyzed as part of this Act 537 Plan Update include:

- Installation of a sanitary sewer collection and conveyance system to convey wastewater to the DELCORA Western Regional Wastewater Treatment Plant via CDCA conveyance line.
- The construction and installation of a Community Sewage System.
- On-Site Sewage Disposal System
- Holding Tanks

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

**A. Identify Alternatives**

In evaluating the most appropriate methodology for Sewage Disposal, several alternatives of treatments need to be considered in order to protect the health safety and welfare of the public, and protect the waterways of the Commonwealth of Pennsylvania. The alternatives are:

1. Connection to Public Sewer via gravity sewer and pump station conveyance system.
2. Consideration of low pressure sewer grinder pumps and operation and maintenance requirements.
3. On-Site Sewage Disposal System Community Disposal.
4. On-Site Sewage Disposal System.
5. Holding Tanks.
6. No Action Alternative.

In evaluating alternatives, each area of the Township presents a unique situation relative to diversity of houses, adequacy of existing systems, future needs, topography, and environmental constraints such as wetlands, steep slopes, and endangered species.

An area currently moving forward with Public Sewers is the Ashford Development which has Sewage Planning approval from DEP for connection to the CDCA Sewer System currently terminated at the Southeast corner of Media Line Road of Newtown Street Road (SR0252) adjacent to the Delaware County Community College in Marple Township, Delaware County, PA.

In addition, the Episcopal Academy located along Newtown Street Road (S.R. 0252) at St. Davids Road is currently using a pump and haul system with the desire to connect to the public sewer system to Ashford Development Pump Station. The Episcopal Academy has recently received a Conditional Use and Special Exception to allow the school to connect to the Ashford System which required traversing environmental areas such as wetlands and steep slopes. However, the Ashford Development has agreed to modify the sanitary sewer line location in such a manner which avoids these environmental interactions.

The Episcopal Academy currently anticipates usage of 11,000 GPD based upon approved planning module. However, average daily pump and haul figures indicate a usage of approximately 6,700 GPD.

Included in the alternative analysis is a chart of anticipated sewage flows. In the past, stemming from information contained with PA DEP Chapter 73 from the 1970, as well as viewing the PA DEP Domestic Waste Water Design Manual, anticipated flows for individual residences as a methodology to determine the basis of an EDU was arrived at using the 3.5 persons per household as previously noted within Chapter 73 from the 1970's coupled with anticipated flow of 75 GPD identified in the Domestic Wastewater Design Manual for households. As a result, a typical design flow of 262.50 GPD was used for design purposes in establishing flow design. In addition, it should be pointed out that for overall sewage flows for municipalities at that time flows of 100 GPCD were considered appropriate for design consideration in establishing needs for new sewer systems which account for infiltration and inflow.

It should be pointed out that more recently, with the use of SDR-35 and SDR-26 pipes that typically come in 20 foot lengths, the former use of Vitrified Clay Pipe (VCP) or Transite Pipe with four (4) foot joints has significantly reduced root intrusion in the lines as well as minimized infiltration.

However, lateral connections still pose issues relative to Infiltration and Inflow I&I – plus the discharge of sump pumps discharged into the system still pose concerns relative to I&I.

More recently, with the advent of measuring discharge for individual subdivisions, flow within the newer developments have shown that flow in the neighborhood of 200-225 GPD per household is not uncommon. This improvement has to do with the use of low flow fixtures and appropriate piping vents, trap assembly, and the use of manhole inserts.

With the advent of PA Act 57, as amended by Act 149, flow usage under these regulations has prescribed two (2) methodologies for determining household flow, one of which is the use of 90 GPCD, as well as the anticipated population per household based upon the most recent census 2010, that stipulates 2.49 for Newtown Township. Therefore, adjustments to flows per household for this methodology is 224.1 GPD (use 225 GPD). Note: Ashford Development is using a flow of 250 GPD.

In addition, based upon anticipated flow provided by PA DEP in their letter of response dated May 29, 2008 to metered testing performed by Pennsylvania American Water Company within the Coatesville area Wastewater Treatment Plant service area flows are anticipated to be estimated as follows:

- |    |  |         |
|----|--|---------|
| 1. | Apartment                              | 200 GPD |
| 2. | Age Restricted                         | 200 GPD |
| 3. | Townhouse                              | 200 GPD |
| 4. | Single Family Dwelling                 | 225 GPD |
| 5. | Non-Residential-Based upon Chapter 73. |         |

Therefore, in evaluating the most appropriate alternative from both an economic and environmental standpoint for sewage disposal needs as it pertains to the Melmark School, Hunt Valley Circle, Echo Valley Development, Goshen and Boot Roads area, Florida Park Subdivision, Hunters Run, Springton Pointe Estates, as well as other portions of the Township within the study area, the following flow usage serves as a basis for determining allocation needs.

As a basis of flow projections for older developments constructed prior to 2002, a flow of 262.50 is recommended for flow allocations per household, and for newer developments constructed after 2002, flow projections of 225 GPD is recommended with the acknowledgement of 250 GPD relative to the Ashford Development that is noted in their Sewage Facilities Planning Module.

On Lot Sewage Disposal Systems need to be governed by an Operation and Maintenance Program that will be applicable Township-wide. (See Appendix P)

BPG is the process of requesting a flow alternative allowing a portion of their flow to be transported to the RHM system, thus minimizing flow to the CDCA System.

### **1. New Regional Wastewater Treatment Concept**

Once considered a viable alternative to be located at the Garrett Williamson Tract, there does not appear to be sufficient land area to handle all the areas of concern.

The area of concern in this document was identified as Area "H", in COWAMP 208 from 1978, that provided for connection to the Sanitary Sewer System at the Delaware County Community College as Alt 5.

### **2. Extension of Existing Municipal Sewage Facilities to Areas in Need**

As part of this Act 537 Plan Update a Needs Survey was sent to residents and business owners of the municipality to identify areas where public sewer is needed.

*a. Existing Collection and Conveyance Facilities*

Currently, there are public collection and conveyance facilities that serve the eastern portion of the CDCA Sewer Service Area. As discussed in Part A.1 of this section, wastewater collected in these facilities is conveyed to the CDCA system for conveyance, and treatment. To extend these facilities to existing and proposed development within the planning area, a network of gravity sewer, pump stations, low pressure sewer, and force mains will be required. Refer to the plan found in Appendix K that shows the proposed collection and conveyance system improvements that would allow for the extension of these facilities.

**3. Springton Pointe Decommissioning**

The Springton Pointe Estate currently has an SBR treatment facility that utilizes subsurface land applications for disposal of its effluent. The current facility has a design capacity of 35,000 GPD. In evaluating future needs within the area, although the treatment facility is currently being adequately maintained by AQUA, PA Wastewater pursuant to a contract with Newtown Township, effluent disposal is within the drainage area to Hunters Run, which is tributary to Springton Lake (Geist Reservoir) that serves as a public drinking water holding area owned by AQUA, PA.

With the advent of Newtown Township obtaining additional flow capacity with the CDCA conveyance system, as well as DELCORA for treatment, from a public safety standpoint this allows the Township of Newtown to provide public sewer services to the Springton Pointe Estates Development. The removal of the existing treatment facility and the construction of a pump station that would transport wastewater to the Camelot Pump Station for conveyance to the CDCA System. This would allow wastewater to be transported out of the Hunters Run, Springton Lake drainage area, thus eliminating the potential for wastewater being discharged from the SBR treatment facility into Hunters Run.

From an environmental standpoint, this represents a superior alternative than that which currently exists or the no action alternative. The Hunters Run community on-lot sewage system currently sewers 76 residents with an approximate flow of 19,950 GPD. The COLDS

system is being maintained by the Homeowners Association, based upon recent surveys and needs analysis.

Information provided by the Hunters Run Homeowners Association is the desire of Hunters Run to tie into a public sewer system due to the ages of their existing system and the maintenance required regarding same.

The alternative of tying into the public sewer system with the existing Springton Pointe Estates to allow flow to enter the existing collection system and be transported to the Springton Pointe Estates proposed pump station for transport to the Camelot Pump Station. Again, the alternative will eliminate potential future failures with the Hunters Run COLDS for inadvertent discharges into the Hunters Run drainage basin.

#### **4. Analysis of New Community Sewage System**

Community Sewage Systems could pose a hazard to the drinking water supply of the Springton Reservoir, especially those systems that are located in closest proximity to the reservoir, Crum Creek, and or the numerous tributaries that feed into Crum Creek and the reservoir. In addition, these systems are generally the responsibility of a Homeowners Association or Condo Association to operate and maintain which may or may not be overseen by the Township. This option is being discarded for the environmental reasons previously stated and the availability of public sewers.

#### **5. Analysis of Alternatives for Repair and Replacement of existing Collection/Conveyance**

Within the service area, several existing sewer lines which contain existing, capped sewer and in some cases active sewer, will need to be replaced and upgraded. Based upon anticipated flow in conjunction with peaking factors, the gravity portion of the line within Campus Boulevard and along Stoney Brook Blvd., the diameter of the conveyance system line should be a minimum of 10 inches.

#### **6. Analysis of Alternatives Identified in the Municipal Wide Act 537 Needs Analysis**

Area of needs and survey evaluations are contained in Appendix "Z" of this document.

**B. Use of Individual Disposal Systems**

With the investigation of the public or community sewerage system options, individual on-lot disposal systems will be considered for this Act 537 Plan Update for areas with larger lots and not located within reasonable proximity to existing or future anticipated public sewer areas. In addition, new residential developments, such as the Nolen subdivision and the Stoney Knoll subdivision both located off of White Horse Road, were approved for on-lot disposal systems. Since these systems are new, the service life of the systems will most likely extend beyond the timeframe of this Act 537 Plan Update, and the cost of connection would exceed the benefit of connecting to public sewer now, public sewer will not be considered for these developments at this time. However, their needs can be reassessed as part of a future Act 537 Plan Update.

**C. Small Flow Sewage Treatment Facilities**

Refer to the discussion and text in Section V.A.4 above. This section assesses the use of a small flow sewage treatment facility and land application to serve future areas of development within the planning area. Because of the fact that recent agreements with CDCA provided additional flow capacity within their system to Newtown Township, the continued use of small flow treatment facilities that were once considered the most economical and viable method for wastewater treatment and disposal are now being considered obsolete. The Public Sanitary Sewer option is felt to be a more appropriate and viable alternative both from an economic standpoint, as well as environmental. Although the construction of a new public collection and conveyance system may require some interactions with environmentally sensitive areas such as steep slopes, wetlands and waters of the U.S., these interactions are for a minimal amount of time during the construction process. Typical line installations of this nature have a 60 to 75 year life expectancy. Although there would still be a possibility of a sewage overflow, the possibility is extremely minimal when compared to the use of that of a small treatment plant flow overflows. Removal of the small treatment plant from the Crum Creek drainage basin provides a more sound approach of wastewater management by removal of discharge possibility to the public water storage facility Springton Lake (Geist Reservoir). Also the required operation and maintenance of these systems will no longer be needed which relieves the burden for the end users.

**D. Community Land Disposal**

Refer to Section V.A.4 and V.C for a discussion and analysis of this concept. Similar to that of small treatment plants the ability of land application of wastewater effluent is limited to the amount of viable land available. At one time consideration of the use of the Garrett Williamson tract in this regard

appeared to be a viable option. However, site limitations would allow for disposal of wastewater in the amount of approximately 300,000 GPD making use of drip dispersion. Since the entire service area needs are approximately 961,975 GPD available land area sufficient to support this type of flow is not available. In addition, any failure in regards to this system would ultimately discharge wastewater into the Springton Lake (Geist Reservoir).

**\*Cost estimates for the proposed selected alternatives can be found in the Appendix. The cost estimate for the proposed regional wastewater treatment facility to be built by Aqua of PA on the Garrett Williamson tract and designed to treat 300,000 gallons per day is as follows:**

<b>Plant and associated drip fields</b>	<b>\$ 7,500,000.00</b>
<b>Conveyance and piping in Newtown Township</b>	<b>\$ 9,436,000.00</b>
<b>Total Project</b>	<b>\$16,936,000.00</b>

**Construction Cost / EDU**

<b>Plant</b> <b>(credit of \$1.50 million contributions by Aqua)</b> <b>(\$6 million divided by 1144 EDUs)</b>	<b>\$ 5,245.00</b>
<b>Conveyance and piping for Newtown Township</b>	<b>\$ 9,936.00</b>
<b>Total Cost/EDU</b>	<b>\$ 15,181.00</b>

**Estimated projected sewer rates for Newtown Township would involve a monthly charge to Aqua of \$33.33 per EDU plus \$1.00 per 1,000 gallons of waste water metered at the pump station. Based on average per EDU, estimated annual charge for Aqua would be \$460.00 to \$470.0 plus Newtown Township's administrative costs.**

With the advent of Newtown Township backing and agreement with CDCA for flow capacity of 961,975 GPD, from an environmental, operation and maintenance, as well as economic standpoint, the CDCA option for the discharge of wastewater appears to be the most appropriate and therefore is the alternative of choice.

**\*Taken from the Draft Act 537 Plan Update dated July 7, 2011 prepared by Kelly & Close Engineers.**

**E. Retaining Tank**

Given consideration for implementation of the CDCA option, a "pump and haul" program would be considered as a temporary means of sewage disposal until the primary means of wastewater disposal is complete and functional. However, isolated commercial development generating less than 800 GPD not required to hook into a public sewer system by ordinance will be considered on a case by case basis. For use of a retaining tank subject to the provisions of

an ordinance regarding same, a sample ordinance is contained in the Appendix P.

**F. Septage Management**

An "On-lot and Community Sewage System" Operation and Maintenance Ordinance is currently being considered for adoption and implementation by the Township. In addition refer to Appendix P for a sample Holding Tank ordinance, as well as an Operation and Maintenance Ordinance.

**G. Non-Structural Comprehensive Planning Alternatives**

The Township Comprehensive Plan has been updated December 27, 2001. From a comprehensive planning perspective, the updated Plan places more emphasis on utilizing groundwater recharge via the most current stormwater management practices. This places less emphasis on implementation of land application of wastewater effluent for ground water recharge. Non-structural comprehensive planning alternatives are not being addressed as part of this Act 537 Plan Update.

**H. No Action Alternative**

**1. Water Quality and Public Health**

If a wastewater collection and conveyance system is not implemented and wastewater treatment and disposal is not available, water quality and public health may be impacted. No public sewer systems would be constructed. Other than the adoption of an Operation and Maintenance Ordinance for "On-Lot" systems, and the implementation thereof, the limited land availability of existing lots for the construction of a replacement system, particularly in the Florida Park area of the Township, may leave a homeowner with only a pump and haul option, which is not considered a viable option for an individual homeowner, both from an environmental, as well as economic standpoint.

**2. Growth Potential**

The potential for growth in the planning area would be impacted by a no action alternative. All proposed subdivisions may not go forward if appropriate wastewater collection, conveyance, and treatment are not available.

**3. Community and Economic Conditions**

With no-action to provide any means for collection, conveyance, and treatment of wastewater, development may not go forward. Consequently, future connections would be limited, thus restricting growth that would otherwise supplement the Township tax base.

**4. Recreational Opportunities**

At this juncture, it appears that a no action alternative would not necessarily pose any adverse effects to existing park facilities both passive and active.

**5. Drinking Water Sources**

If the proposed collection and conveyance systems are not constructed, there may be a direct impact on the drinking source. If the existing land application systems are not properly operated and maintained, or even if they have the potential for failure within a community system, may allow the discharge of wastewater to funnel into adjacent streams and wetlands, as well as directly into the Springton Lake (Geist Reservoir). This situation would be precluded if the CDCA option were chosen or at least minimized the chance of such an occurrence.

**6. Other Environmental Issues**

If the proposed collection and conveyance system is not constructed, there appears to be no other direct impact on environmental issues, other than what has been identified in paragraph 5 above.

## **VI. EVALUATION OF ALTERNATIVES**

For the CDCA Alternative and the community treatment alternative, consistency was evaluated based on each of the following:

### **A. Consistency Determination**

#### **1. Clean Streams Law**

The construction of a sanitary sewer collection, conveyance and/or treatment system for the Planning area does not conflict with the Clean Streams Law. Flow generated by the planning area will ultimately be treated at the DELCORA wastewater treatment plant, community wastewater treatment plant, or on-site sewage disposal system and disposed of in accordance with requirements and limits set forth by PADEP.

#### **2. Chapter 94 Report**

The Township Annual Wasteload Management (Chapter 94) Report does not conflict with this plan in that the report identifies new developments, such as Ashford, which is proposing extension of the sewer system, a new pump station, and the capability to service other developments, such as the Episcopal Academy, the Melmark School, Hunt Valley Circle and the Echo Valley via this new system. However, there is inconsistency with regard to the total projection of EDUs and flows. Since the time of filing of the 2011 Chapter 94 Wasteload Management Report in March of 2012 new information was presented and other areas for connection were identified in preparation of this report, in particular with regard to the table of projected EDUs and flow that resulted in projected flows inconsistent with the previously filed Chapter 94 Report. Furthermore, the anticipated connections to the expanded public sewer system that would be tributary to the Camelot Pump Station would ultimately result in a flow that would be beyond the capacity of the current pump station.

#### **3. Clean Water Act (Title II)**

This Act and the Federal Water Quality Act establish specific planning requirements for wastewater facilities planning. These requirements only apply to municipalities intending to apply for financial assistance from the Federal Government for the construction of sewage facilities. The funding of the construction of the alternatives would be through financial contributions by developers and the Township and/or Municipality Authority through loans or a Municipal Bond issue

through the auspices of the Municipal Authority. Each alternative is therefore consistent with these criteria.

**4. Comprehensive Plans**

This Act 537 Plan Update is consistent with the Newtown Township, Delaware County, Comprehensive Plan dated December 27, 2001.

**5. Antidegradation Requirements Contained in Chapters 93, 95 and 102 of the Clean Water Act**

Implementation of any of the alternatives for this Study will not impact the antidegradation requirements contained in Chapters 93, 95, 102 of the Clean Water Act. In fact, connection to the Public Sewer option will mitigate pollutants entering streams within Newtown Township such as Lewis Run, Reeses Run, Hunters Run, and Crum Creek, as well as the groundwater.

**6. State Water Plans**

For the alternatives considered in this Study, there are no anticipated conflicts with the State Water Plan for this submission.

**7. Pennsylvania's Prime Agricultural Land Policy**

4 PA Code, Ch. 7 is the Agricultural Land Preservation Policy which was enacted by Executive Order of Governor Rendell on March 20, 2003 states "It is the policy of the Commonwealth to protect through the administration of all agency programs and regulations, the Commonwealth's "prime agricultural land" from irreversible conversion to uses that result in its loss as an environmental and essential food and fiber resource." There are no anticipated conflicts with the Agricultural Land Preservation Policy for the chosen alternative. There are no known prime agricultural sites that are to be impacted by the public sewer option.

**8. County Stormwater Management Plan**

The alternative of providing a public sanitary sewer system to the CDCA conveyance system for treatment and disposal at the DELCORA WWTP is consistent with the Counties Act 167 Studies for Crum Creek, as well as the Darby and Cobbs Creeks Watersheds.

**9. Wetlands Protection**

As referenced in Section II.G of this Plan, wetlands within the planning area (as identified on the national Water Resources Map in Appendix G) are located primarily along tributaries to Crum Creek, along Crum Creek, and adjacent to the Springton Reservoir. It is anticipated that construction associated with the implementation of this Plan may have a temporary impact on the wetlands. Wetlands interaction is to be minimized to the extent practical so that there will be no permanent damage to the wetlands area. Any wetlands anticipated to be impacted as part of a particular project shall secure appropriate permits and/or approvals prior to impact or disturbance to any wetlands.

**10. Protection of Threatened, Rare, and Endangered Plant and Animal species (PNDI)**

As a large project, A Large Project Pennsylvania National Diversity Inventory (PNDI) search was completed for the study area as a whole See Appendix M. A PNDI search will need to be completed for each proposed improvement project to the public sewer collection and conveyance system identified in this Act 537 Plan Update.

**11. Historic and Archaeological Resource Protection**

The Pennsylvania Historic and Museum Commission (PHMC) has been contacted to determine if there are any potential conflicts with the primary development sites. All potential concerns regarding these sites have been resolved. A PHMC review for the proposed sewerage facilities has been completed. The results of the PHMC's review for the proposed sewerage facilities can be found in Appendix N.

**B. Resolution of Inconsistencies**

The inconsistency with regard to the projection of EDU connections and flows between this plan and the Chapter 94 Annual Wasteload Management Report for the CDCA service area within Newtown Township will be resolved by incorporating the projections identified in this plan into the 2012 Chapter 94 Report. In addition, the Camelot Pump Station will be upgraded in anticipation of receiving additional flow from the expanded public sewer service area so that the pump station does not enter into a hydraulic overload condition.

**C. Alternative Evaluation with Respect to Applicable Water Quality Standards and Effluent Limitations**

The planned alternatives to provide a sanitary sewer collection and conveyance system for this Study will not impact water quality standards or effluent limitation, other than to improve any illicit discharge to AQUA PA's Springton Reservoir. Wastewater will be discharged to the existing public collection and conveyance system, and treatment system, on-site sewage disposal systems to remain will be consistent with applicable requirements. Ultimately, wastewater will be treated at the DELCORA WWTP for the public sewer option.

**D. Preliminary Cost Opinions**

Preliminary cost opinions for the implementation of this Act 537 Plan Update, are included in the appendix. As previously provided by the August 13, 2012 meeting the "tap in fee" is anticipated to be estimated between \$4,500.00 and \$6,000.00

The annual user fee is anticipated to be approximately \$500.00 to \$750.00 per year, but is dependent upon debt service requirement of the bond issue that is directly related to the construction cost of the project, as well as debt services and operation and maintenance fee of CDCA as well as administrative fees.

**1. CDCA Alternative**

Construction of a wastewater collection and conveyance system network (refer to plans in Appendix K) to serve new and existing developments would convey wastewater to the DELCORA WWTP via the CDCA conveyance line in the Chester or Philadelphia Water Department (PWD) Plant in S.W. Philadelphia. Detailed construction cost estimates can be found in Appendix "O".

**2. Community Treatment System Alternative**

No new community wastewater collection, conveyance, treatment and disposal system are proposed as part of this Act 537 Update. Costs for such a system will be paid for by private funding as the need arises for future development and as such, no cost analysis will be provided for this disposal methodology.

**E. Analysis of Available Funding Methods**

This section of the Plan addresses methods available for financing alternatives. Three financing alternatives appear to be reasonable for future projects as the need arises.

## 1. **Municipal Bond Issue**

### a. *General*

There are several types of bonds; some are taxable and some are tax-exempt. However, the general classification of municipal bonds usually refers to tax-exempt bonds. There are three types of municipal bonds generally used in financing public works.

- *General Obligation Bonds* are tax-free bonds that are secured by the pledge of the full faith, credit, and taxing authority of the issuing agency. This means that this type of bond is backed by all of the taxes on real estates and personal property within the jurisdiction of the issuing agency. It involves minimum risk to the investor and therefore provides for a lower rate of interest than other types of bonds.
- *Dedicated Tax Bonds* are payable only from the proceeds from a special tax and are not guaranteed by the full faith, credit and taxing power of the issuing agency. Examples of special dedicated taxes are the special assessments against property which is adjacent to and the principal beneficiary of the improvement used to finance the project.
- *Revenue Bonds* (self-liquidating debt) are payable from revenues derived from the use of the improvement, sewer bills, or rents paid by the users of the improvement and do not otherwise represent an obligation of the issuing agency. Revenue bonds are typically self-liquidating and are not ordinarily subject to statutory or constitutional debt limitations. They are often issued by commissions, authorities, and other public agencies created for the specific purpose of financing, constructing, and operating essential public projects.

Typically, municipal bonds are sold to an investment-banking firm, which then resells the bonds to individual investors. The

advantage of municipal bonds to the investor is their tax-free status. A bond discount (a percentage of the total bond issue) serves as the investment banker's commission. Before bonds are sold, they must be rated on the basis of risk to the investor by a rating agency such as Standard and Poor's or Moody's. The higher the rating, the lower the risk to the investor and, consequently, the lower the interest rate paid on the bond.

The legal instrument, which sets the rules that must be observed by the issuing agency, is the Trust Indenture. The Trust Indenture is prepared by the Bond Counsel and must be printed along with the bonds. Due to specific requirements as to the denominations of the bonds and methods and materials for printing, printing costs can be substantial. A Trustee is required to administer the bond issue and insure the terms of the Trust Indenture are observed. This results in an Annual Trustee Fee. Bond issues of this nature typically run 20, 25 or 30 years.

*b. Advantages of Municipal Bond Issue Funding*

- This program affords long-term fixed rate financing.
- Tax-exempt municipal bonds are in high demand.
- There is local investment opportunity.
- Municipal credit is established.
- It retains flexibility for future borrowing.

*c. Disadvantages of Municipal Bond Issue Funding*

- A Debt Service Reserve Fund is generally required.
- There are trustee fees and costs of preparing a Trust Indenture.

## **2. Bank Loan**

Another financing option for the implementation of future projects is the bank loan. There are four basic categories of bank loans:

- Real Estate Loans (Mortgage)
- Participation and Interbank Loans
- Installment Loans (Personal)
- Commercial and Industrial Loans

Of the four types, a commercial and industrial loan would be the most applicable. Commercial and industrial loans may be made on a demand or time basis. A demand basis loan allows the bank to call for

repayment at any time, or the borrower can repay when convenient. A time basis loan provides for a specific loan maturity date. Most commercial and industrial loans are unsecured. The credit is extended on the basis of an analysis of all available information pertaining to the customer and the bank's confidence in that customer's ability and willingness to repay.

#### Advantages of the Bank Loan or Other Loan Financing

- Ability to shop around for a loan structure that best fits the customer's needs.
- Flexibility in establishing repayment schedules.
- Working with and through a local financial institution or Authority.
- Municipal credit is established.
- Ability to obtain fixed rate financing.

#### Disadvantages of Bank Loan Financing

- (Project cost may exceed the amount of financing available).
- Shorter term loan repayment than Bonds.
- Interest rates are charged for loan repayment.
- Processing fees may be required.
- Processing and issuances fees may be expensive.
- Less flexible payment schedule.

Delaware Valley Regional Finance Authority (DVRFA) is a loan with a combination of floating and fixed interest rates-Based upon DVRFA Bonds.

### **3. Direct Funding by Developers**

A third financing option for the implementation of any anticipated project is direct funding by those who are developing the property in the planning area. This would involve capital expenditures by the developer from their own capital funds.

#### Advantages of Direct Funding by Developer

- Avoid any third party involvement. Payment for services can be made directly to the contractor by the Developer.
- Bank processing and issuance fees are avoided.

- Removes the financial burden from the Township/ Authority.
- Can lower financing requirements by Township/ Authority.

#### Disadvantages of Direct Funding

- There appear to be no municipal disadvantages to this method of financing.

#### **F. Immediate or Phased Implementation**

Construction of the facilities infrastructure may need to be completed in phases in an effort to make sewage facilities available for the Immediate Needs identified in this Plan Update. Refer to the schedule listed in the Executive Summary. A pump and haul program can be put in place at each of the developments, as a temporary wastewater collection measure, until the infrastructure is complete and in place.

#### **G. Ability of the Township to Implement the Alternative**

The Township is well established and has the ability to implement future alternatives as the need arises.

## **VII. INSTITUTIONAL EVALUATION**

### **A. Analysis of the Township, Past Actions, and Present Performance**

#### **1. Financial and Debt Status**

The Township in conjunction with the Municipal Authority is a well-established entity that will be able to oversee the implementation of the proposed technical alternative. Financially, developers will be funding a portion of the overall project as construction will service the needs of their respective developments with the ability to provide infrastructure to enable other areas within the Township to tie into the system. It is anticipated the private (developer) financing, in conjunction with the Township / Municipal Authority financing (bond issue), will be needed for the overall project to come to fruition.

#### **2. Available Staff and Administrative Resources**

The Township is governed by five (5) Supervisors. This Board consists of a Chairman, Vice Chairman, and three (3) supervisors. Others associated with the Township are:

- Township Manager/Secretary/Treasurer/Zoning Officer
- Public Works Department
- Solicitor
- Township Engineer
- Municipal Authority

The Township has the necessary staff and administrative resources already in place. No further evaluation of staffing and resources appears to be necessary at this time.

#### **3. Existing Legal Authority**

As provided for under Pennsylvania Law the Township, as well as the Newtown Township Municipal Authority has the necessary legal authority to oversee the implementation of the technical alternatives presented in this Update.

### **B. Institutional Alternatives Necessary to Implement Technical Alternatives**

#### **1. Need for a New Authority**

Newtown Township Municipal Authority as owners of the system is already in place at this time to secure funding and implement the project. Therefore, there is no need for a new Authority.

**2. Function of the Township**

The Township is and will be in charge of operating and maintaining any new infrastructure components such as gravity collection, sewer interceptors, pump stations, and force mains.

**3. Cost of Administration**

The Township Municipal Authority will be given charge of obtaining financing and construction of the project. The Township will be ultimately responsible for the operation and maintenance of the system once constructed.

**C. Administrative and Legal Activities to be Completed and Adopted to Ensure the Implementation of the Technical Alternatives**

**1. Legal Authorities of Incorporation**

No new wastewater Authorities of Incorporation are necessary and there will be no changes to the current Township procedures to implement any projects.

**2. Required Ordinances, Standards, Regulations, and Intermunicipal Agreements**

Marple Township has acknowledged the necessity for Newtown to make connection to the CDCA manhole in Marple Township at the intersection of Newtown Street Road (S.R. 0252) and Media Line Road within Marple Township.

The following ordinances are currently being considered for adoption by Newtown Township (Appendix P):

- Governing On-Lot and Community Sewage Systems
- Regulating Grinder Pumps
- Amendment to Section 130-3 – Connections
- Holding Tanks Ordinance

**3. Provisions of Rights-of-Way, Easements, and Land Transfers**

The wastewater collection and conveyance system that will serve potential development will extend along Township or State Roads and within easements where necessary. Any proposed future pump stations or lines may require the acquisition of rights-of-way and easements at their respective locations.

**4. Other Sewage Facilities Plan Adoptions**

It is anticipated that Sewage Facilities Planning Modules will be needed to be adopted as part of future projects within the planning area.

**5. Legal Documents**

It is not anticipated at this time that any further legal documentation will be necessary, other than what has been previously mentioned, for the implementation of the selected alternatives.

**6. Dates and Timeframes of 1 Through 5 Above**

The dates and timeframes for the items in this section are found in the implementation schedule in the Executive Summary of this Plan.

## **VIII. SELECTED WASTEWATER TREATMENT AND INSTITUTIONAL ALTERNATIVE**

### **A. Identify the Chosen Technical Alternative**

The selected alternative which best meets the immediate and future wastewater treatment needs of the properties within the planning area is the CDCA Alternative. For this alternative, it is proposed that a network of gravity mains, pump stations, force mains and low pressure sewers, as shown in Appendix K, be constructed to collect and convey the wastewater to the DELCORA WWTP.

This public sewer alternative is recommended based on the following:

#### **1. Existing Wastewater Disposal Needs**

Within the planning area, wastewater disposal needs are met through the use of individual on-lot disposal systems for larger lots. However, the CDCA alternative could meet existing wastewater needs in areas where malfunctioning sewer systems and soils provide constraints to replacement systems. The CDCA alternative is more viable because it is an established and permitted system and capacity is available at the DELCORA facility, as evidenced by the recently-approved Connection Management Plan and Sewer Service Agreement.

#### **2. Future Wastewater Treatment Needs**

Future wastewater disposal needs are approximately 961,975 GPD. Under the CDCA alternative and agreement, on-lot disposal systems may be abandoned and wastewater diverted to the DELCORA WWTP once the collection and conveyance system upgrades would be completed. Additionally, future capacity may be available as the need arises, subject to a revised Sewer Agreement and Planning Module Approval.

#### **3. Operations and Maintenance Considerations**

Any proposed wastewater facilities will be dedicated to Newtown Township Municipal Authority upon completion. Operations and maintenance of the new facilities will be the responsibility of the Township, which currently operates and maintains other existing wastewater facilities within the Township. The CDCA alternative provides for appropriate wastewater treatment for the Township. Wastewater will ultimately be treated by DELCORA at a permitted facility that is operated and maintained by DELCORA.

**4. Cost Effectiveness**

In areas of sewer malfunctions and future development as presented in Section VI of this study, the CDCA Alternative that collects and conveys wastewater for treatment at the DELCORA WWTP appears to be the most cost effective.

**5. Available Management and Administrative Systems**

The Township and CDCA have the management and administrative staff in place to implement the selected alternative. The agreement between CDCA and the Township will be revised to reflect future flow requirements. A copy of the Addendum to Sewage Treatment between CDCA and the Township can be found within this document. In addition, a developer's agreement will be prepared between the developer of the properties that are part of the future needs as they arise, and the Township.

**6. Available Financing Methods**

Of the financing methods discussed in Section VI, each method can provide the necessary funding for a future project. Refer to Section VIII.B for the selected capital financing plan.

**7. Environmental Soundness**

Environmentally, the DELCORA WWTP can adequately treat the average and peak flows within the permitted concentration limits. The fact that the DELCORA facility is in place and permitted by the DEP makes this alternative a viable option.

In addition, there was initial concern about the potential for lost groundwater recharge if the CDCA alternative is implemented. Given recent stormwater management regulations and practices that require stormwater retention, as well as infiltration and also given that proposed development will be using a public water system that draws primarily on water supplies from the adjacent municipalities, the groundwater will not be affected by the implementation of the selected alternative.

**8. Identify the Alternative and Choose Alternative**

Within the overall CDCA service area sub areas have been established to particularly evaluate the wastewater service needs on a

neighborhood basis, as well as the effect on the overall areas. These sub-areas have been identified as follows:

1. Melmark School
2. Hunt Valley Lane and Circle
3. Echo Valley
4. Goshen Road Area
5. Boot Road Area
6. Episcopal Academy
7. Ashford Development
8. BPG
9. Marville Development
10. Newtown Business Center
11. Olde Master Property
12. Florida Park
13. Newtown Square Corporate Center
14. Hunters Run
15. Springton Pointe Estates
16. Dogwood Avenue
17. Gradyville Road
18. Four Seasons
19. Township Park Area
20. Whitehorse Development
21. Llangollen Area
22. Springton Pointe  
Sleepy Hollow and Frog Hollow

**1. The Melmark School**

The Melmark School service area is situated at the northwest corner of the Township along Wayland Road and is adjacent to Easttown Township in Chester County.

Representatives of the Melmark School have expressed concerns with malfunctions of some of their existing “On-Site” Sewage Facilities and their desire to connect to the public sewer system. Although currently the school has an existing “On-Site” Treatment Facility with the capability of handling 10,000 GPD of which only 5,000 GPD capacity is currently being used, the 5,000 GPD is not nearly enough to handle the 25,000 GPD of need expressed by the School.

There is limited land area on the property by which existing malfunctioning systems can be replaced. With the systems being pumped on a regular basis, it appears the public sewer option is the most pragmatic from our environmental

standpoint. Therefore, the no action alternative is not a real option in this particular case.

Since from a viability standpoint, one will see later on within this study that direct connection to the proposed Echo Valley System would not be appropriate because of the recommended use of low pressure sewer systems to discharge to the Ashford Pump Station. As such, several additional alternatives have been evaluated.

For the reasons stated above, the public sewer option is the option of choice.

In order to tie into the public sewer system, the Melmark School at their cost and expense will need to construct a pump station with a capacity of 25,000 GPD. Because of the sites location being the northwest corner of the Township, there does not appear that future expansion of the pump station would be necessary.

Currently, the Melmark School has an existing capped sewer system which can be utilized for the future sewer collection and discharge to the pump station. However, since the Echo Valley Development is being proposed as a low pressure sewer area, the interconnections of the two systems is precluded.

- a. Possible modification to allow for this interconnection would be to abandon the intended use of the existing capped sewer system and construct a new low pressure sewer system to interconnect with Hunt Valley Circle and Echo Valley.
- b. Provide septic tanks for each facility so that the flow being discharged will be that similar to a low pressure system by which an inter-connection can be taken. This option would require operation and maintenance to maintain the septic tanks with a routine pumping schedule and the use of a "Zabel Filter" system by which the integrity of the low pressure line can be maintained.
- c. Provide a separate force main that would run through the Hunt Valley Circle and Echo Valley Development to discharge directly into the Ashford Pump Station.

- d. Pump to a gravity line within Hunt Valley Lane, provide Hunt Valley Circle with a gravity collection system which would require a gravity line be constructed adjacent to an existing drainage ditch and adjacent to homes in the central portion of Hunt Valley Circle, to a lift station to be located along the southeasterly side of Hunt Valley Circle adjacent to the stormwater management basin. The lift (pump) #2 station would be required to handle average daily flow of 32,350 GPD. The lift station would utilize a force main that would pass through existing easements where possible to a proposed gravity line on the westerly portion of Echo Valley Road. It appears this 8" Sanitary Sewer collection system can be constructed beneath Lewis Run to a proposed pump station #3 along the northwestern side of Goshen Road. This flow path would allow for approximately 40 homes in the Hunt Valley Circle area and the western most portion of the Echo Valley Development to be connected by gravity.

## **2. Hunt Valley Lane and Circle**

Hunt Valley Land and Circle Development is situated along the northwesterly section of the Township located off Wayland Road and is adjacent to the Melmark School property and northwest of the Echo Valley Development.

Residents within this development have expressed a desire to connect to the public sanitary sewer system and, as such, because of topographic constraints, limited area for replacement systems exist. The 28 units involve are anticipated to generate 7,350 GPD based upon 262.5 GPD/HOME. Alternatives considered for providing sanitary sewer services were as follows;

- a. The low pressure sewer option is definitely one to consider by which this area can be directly connected to the proposed Echo Valley Lane system though as existing easement and routed through Echo Valley, Spring Water Lane for connection to the Ashford Pump Station. This option would require the residents to install operate and maintain an individual grinder pump for each home that would preclude the Melmark School from connecting to the system.

- b. An additional alternative, as previously discussed, as part of the Melmark School would be to provide gravity service to the area which would allow for the connection of the Melmark School. However, this option would require easement acquisitions. Also, some interaction with steep slopes, and existing drainage ditch and concerns of the proximity of the spine of the collection system to the existing homes need to be looked at carefully. In addition, a sewage lift station (pump station) #2 would be required. It is anticipated that the lift station would be required to handle an average daily flow of 32,350 GPD.

### **3. Echo Valley Area**

The original flow allocation for the Echo Valley Service Area was 47,775 GPD but has since been revised downward because of a gravity option that is now being proposed for the homes along Goshen Road including Woolman Drive, Springton Lane and Carriage Lane.

The Echo Valley Service Area now includes properties along a portion of Goshen Road, Echo-Valley Lane, Battles Lane, Meadow Lane, Pheasant Lane, Crum Creek Lane, Partridge Lane, Spring Water Lane and Fox Hill Lane.

Because of the undulating topography whereby houses along the northwesterly sides of Echo Valley Lane, Meadow Lane, Battles Lane and Crum Creek Lane are significantly higher than their counterparts along the southeasterly side of the respective roadways a 8" PVC gravity line would need to be constructed along the street and to the rear of the lots on the southeastern side of the roadway. In this regard and in order to preserve the Lewis Run corridor, the use of a gravity system in this location is clearly impractical from both an environmental impact as well as an economic one.

With the exception of the previous mentioned gravity scenario regarding the Melmark School and Hunt Valley Circle, the alternative of choice for this area with total flow of approximately 35,700 GPD of which approximately 6,300 GPD could be diverted to the proposed Goshen Road Pump Station for a flow of 29,400 GPD which would be sewered by a low pressure sewer system which would connect to the Ashford Pump Station through Spring Water Lane.

#### **4. Goshen Road Area**

The Goshen Road Area which has identified 38 units to generate 9,975 GPD is proposed to be serviced by a gravity sanitary sewer system which will flow to a proposed pump station #3 to be located along the northwesterly side of Goshen Road adjacent to the floodplain of the Crum Creek. The construction of this system will mitigate the illicit discharge of failing “On-Site” Sewage Disposal Systems within the vicinity of the Crum Creek and Lewis Run.

The service area includes a portion of the homes along Goshen Road, Carriage Lane, Spring House Lane and Woolman Drive as can be seen on the accompanying Service Area Mapping.

The anticipated flow to the Goshen Road Pump Station which would include flow from a portion of the Boot Road area, the Melmark School, Hunt Valley Lane and Circle, and a small portion of Echo Valley would be approximately 51,000 GPD.

The Goshen Road Pump Station is proposed to discharge to a gravity line along Boot Road then transverse by gravity through the Marville Property to a proposed pump station #4 located in proximity on the Olde Masters Site. This pump station is proposed to discharge into a gravity line proposed along Campus Boulevard. The flow will then travel by gravity to a proposed pump station #5 at the Springton Pointe Estates Sewage Treatment Facility along Stoney Brook Blvd. and then pumped to a proposed modified Camelot Pump Station #6 for conveyance to the CDCA line located at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252) In Marple Township, Delaware County, PA.

#### **5. The Boot Road Service Area**

The Boot Road Service Area, which includes homes along Boot Road, as well as Philips Lane have been identified to contain 32 units some of which are anticipated to flow by gravity to the Goshen Road Pump Station #3 and follow the flow pattern identified therein. The remaining flow is to flow directly by gravity through the Marville Property to a proposed pump station #4 located near on the Olde Masters Site and again follow the flow route identified in Area #4 Goshen Road area noted above.

**6. The Episcopal Academy**

Representatives of the Episcopal Academy have requested flow of 11,000 GPD. It should be pointed out the pump and haul records provided for review indicates flows of approximately 6,500 GPD. Therefore, it appears the flows requested to be reasonable.

The Episcopal Academy proposes the construction of a pump station and force main concerns to be connected with the infrastructure within the Ashford Development at a point that would minimize interaction with sensitive environmental concerns such as stream crossings and steep slopes. The public sewer option appears to be an environmentally sound one and financing will be provided by the Episcopal Academy.

**7. The Ashford Group**

The Ashford Development situated along the Northwest corner of Goshen Road (SR 1034) and Newtown Street Road (SR 0252) proposes the construction of 460 units residential with other connections that would generate 115,000 GPD of flow. The Ashford Group has made an application for Sewage Facilities Planning Module and a Part II Water Quality Permit for a pump station that will ultimately discharge flow to the CDCA line at a sanitary sewer manhole situated at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252) adjoining the Delaware County Community College in Marple Township, Delaware County, PA. Ashford has received approval for both the Sewage Facilities Planning Module, as well as their Part II Permit.

Flow to the Ashford Pump Station is anticipated to be able to handle flow from the following:

- |    |                     |                               |
|----|---------------------|-------------------------------|
| 1. | Ashford Development | 115,000 GPD                   |
| 2. | Episcopal Academy   | 11,000 GPD                    |
| 3. | Melmark School      | 25,000 GPD                    |
| 4. | Hunt Valley Circle  | 7,350 GPD                     |
| 5. | Echo Valley Area    | <u>47,775GPD</u> – Originally |

Total Anticipated Flow      206,125 GPD

The Ashford Group has worked with the Township to provide an appropriate Developer's Agreement, as well as post financial surety so that the project can move forward. It is

anticipated that the Ashford Pump Station and Force Main Project will be under construction shortly.

#### **8. The Berwind Property Group**

The Berwind Property Group has requested flow of 185,000 GPD for consideration to discharge to the CDCA facilities. Various development proposals for both commercial and residential concerns have been submitted to the Township and currently the Berwind Property Group is evaluating the most prudent way to proceed with their development. At this juncture, it is anticipated that the Berwind Property Group will construct a pump station on the property for their anticipated flow of 185,000 GPD that will be coordinated with the Ashford force main to be constructed along Newtown Street Road (SR 0252).

The Berwind Property Group Development site is situated along the southwesterly side of Newtown Street Road (SR 0252). Southeast of Goshen Road and adjacent to the northwesterly side of West Chester Pike (SR 003).

#### **9, 10, 11. The Marville Development, Newtown Business Center and Olde Masters Site.**

The Marville Development, the Newtown Business Center are located along the northwestern side of West Chester Pike (SR 003) in the western portion of the Township adjacent to Crum Creek and the Edgmont Township boundary line. The Olde Masters Site is situated along the southeasterly side of West Chester Pike (SR 003) and adjoin to Crum Creek and the Edgmont Township boundary. These properties are owned by National Developers Realty, Inc. with associated sewage flows of 3,500 GPD from the existing Newtown Business Center, 83,950 GPD for the Marville Development and 78,100 GPD for the Olde Masters Property. These properties are contained within various zoning districts such as SUZ, I, R4 and R5.

The property owner has received approval to construct a 50,000 GPD wastewater treatment plant at the Marville site but has expressed his interest in connecting to the public sewer system.

These properties would drain to pump station #4 proposed located on the Olde Masters Site and discharging to a proposed gravity sewer line to be constructed along Campus Boulevard.

The flow then will follow the route described in the Goshen Road Service Area Scenario.

## **12. The Florida Park Area**

The Florida Park Service Area consists of 127 dwelling units.

Anticipated flow from this development based upon 262.50 GDD/unit is 33,338 GPD.

The Florida Park Service Area includes properties along West Chester Pike, Florida Avenue, Park Avenue, Columbia Avenue, Tuxedo Avenue, Pomona Avenue and Fairview Avenue. Because of the smaller lot sizes, the lack of additional ground by which a replacement "On-Site" sewage disposal system can be utilized, a gravity sewer system is being recommended for providing sewer services to this area.

Flow from the Florida Park Service Area is to flow by gravity to a proposed pump station #4 at the Olde Masters Site and then pump to a proposed gravity sewer main proposed for Campus Boulevard. Flow would then travel by gravity to the new Springton Pointe Estates Pump Station #5 along Stoney Brook Boulevard and then transport the sewage to the Camelot Pump #6 for conveyance to the CDCA line located at the southeasterly intersection of Media Line Road (SR 1030) and Newtown Street Road (SR 0252).

## **13. Newtown Square Corporate Campus**

The Newtown Square Corporate Campus is located along Campus Boulevard with a flow allocation of 26,000 GPD. The individual buildings along Campus Boulevard each have individual "On-Site" sewage disposal systems.

This area is proposed to be serviced by gravity sewer and will ultimately flow through the Camelot Pump Station #6 for transport to the CDCA System as noted above.

## **14. Hunters Run**

Hunters Run is a community of 76 existing homes with anticipated flow of 19,950 GPD. The existing homes are serviced by a community "On-Site" sewage disposal treatment and land application system which would be abandoned and connected by gravity to the sanitary sewer line in Stoney Brook

Boulevard. Flow from Hunters Run would flow by gravity to the Springton Pointe Estates Pump Station #5 that is proposed to be discharged to the Camelot Pump Station #6 and utilizing the CDCA System.

**15. Springton Pointe Estates**

The Springton Pointe Estates Sewage Treatment and Disposal System rated to handle 35,000 GPD is proposed to be retired and replaced with Pump Station #5 for conveyance of sewage to the Camelot Pump Station #6 so that sewage may be conveyed to the CDCA system located at the southeast corner of Media Line Road (SR 1030) and Newtown Street Road (SR 0252).

**16. The Dogwood Avenue Area**

This is an area of older homes with aging “On-Site” Sewage Disposal Systems. It is anticipated that this area will be served by gravity sanitary sewer flow into Phase II of the Terrazza Development (Part of 7 Party and Agreement) once it would be constructed.

**17 & 18 The Gradyville Road Area and that of Four Seasons**

This area of the Township will be the subject of future planning whereby flow could be conveyed to the Camelot Pump Station or in the alternative to flow through the Four Seasons Development for ultimate connection through a proposed development within Marple Township, Delaware County. The development in Marple Township is owned by the same owner as the Four Seasons.

**19. Township Park Area**

This area located along Bishop Hollow Road across the street from the Township Municipal Building is proposed to be serviced by a gravity sewer line connecting to the existing sewer line along Ellis Road.

**20. Whitehorse Development and the Area along Whitehorse Road**

The Whitehorse Development located along the central northwestern section of the Township is comprised of 57 lots located along Whitehorse Road in close proximity to Darby

Paoli Road (SR 0252). This development is approximately ten (10) years old with limited residential development still taking place. There are currently approximately ten (10) buildings lots yet to be built on. A needs survey on the survey that the existing “On-Site” sewage disposal systems are adequate to serve current needs.

This area and the area along Whitehorse Road to the southwestern largely undeveloped should remain for the present time as “On-Site” sewage disposal as the primary means of Wastewater Treatment and Disposal subject to an Operation and Maintenance Agreement. A draft of which is contained in this document.

This area should be the subject of future planning which when and if the need arises, appears that connection to the Ashford Pump Station may prove to be the most viable alternative.

#### **21,22 The Llangollen Area and Springton Pointe – Sleepy Hollow and Frog Hollow**

The Llangollen area adjacent to Bishop Hollow and Gradyville Road consists of 51 lots with aging “On-Site” sewage disposal systems. This area as well as that of Springton Pointe, Sleepy Hollow and Frog Hollow consists of 56 lots along Gradyville Road, Frog Hollow Drive, Sleepy Hollow Lane, Sleepy Hollow Lane and Springton Pointe Drive have noted through the needs survey a significant amount of potential malfunction and/or suspected malfunction lots.

At one time, consideration was being given to combining this area with a force main serving Edgmont Township as a means of providing for public sewer service. Since that time, Edgmont Township has moved forward with their Act 537 Sewage Facilities Plan and this possibility is no longer considered a viable option.

The area should be considered under future needs. For the time being, the properties would benefit from an Operation and Maintenance Agreement with the Township until such time public sewer can be made available.

Even though these areas would be the subject of future planning, it appears that a pump station strategically placed near the intersection of Gradyville and Bishop Hollow Roads that would pump sewage through a force main along Gradyville

Road for a possible interconnection with the future Four Seasons area sanitary sewer system which may prove to be the most practical and cost effective.

**\*Existing properties and neighborhoods which are currently connected into the CDCA system include:**

### **Newtown Heights**

Properties along Hickory Lane, Main Street, Chestnut Street, Walnut Street, Locust Street, Pine Street, College Avenue, Tennis Avenue, Fairview Avenue and Summit Avenue are currently connected into the C.D.C.A. system.

### **Newtown Woods (Elgin Park)**

Properties along Newtown Woods, Ellis, Poplar and Clearbrook, Ellis Ave., Elgin Road, a portion of School Lane, Wisteria Drive, Bishop Hollow Road are currently connected into the C.D.C.A. system.

### **Dudie Drive, Greenbriar Lane, Mary Jane Drive**

Properties along these streets are currently connected into the C.D.C.A. system.

**\*Taken from the Draft Act 537 Sewage Facilities Plan Update prepared by Kelly & Close Engineers, dated July 7, 2011**

### **The Springton Woods**

Properties along Arthur Court, Lancelot Lane, Merline Road, Troop Farm Road and Guinevere Drive are currently connected into the C.D.C.A. system.

Commercial Areas associated with the Pulte Subdivision (Phase Five) along Route 252 are currently connected into the C.D.C.A. system.

The Camelot Pump Station is currently operational, and discharges flow to the C.D.C.A. System. Additional flow is scheduled to be routed into the Camelot Pump Station, as part of this Act 537 Plan.

### **Newtown Street Road (Route 252) Properties**

Several properties along Newtown Street Road are currently connected to the C.D.C.A. System.

The Albertos' Restaurant property is currently connected to the C.D.C.A. System.

The Terrazza Condominiums (108 Units) property is currently connected to the C.D.C.A. System. An additional (108) are proposed to be constructed.

The Office Building (formerly "Medstaff") is currently connected to the C.D.C.A. System.

The Office Building (formerly "Drexel Technical") is currently connected to the C.D.C.A. System.

The "Sunrise, Senior Living" facility is currently connected to the C.D.C.A. System.

The D.R Horton Site is a proposed land development – and is **NOT** currently connected to the C.D.C.A. System.

### **B. Selected Capital Financing Plan**

Future projects through the public sewer alternative will be paid for and financed through the use of the private funds of the developer and Municipal Bonds covered as self-liquidating debt by tapping and user fees.