3.1 EXISTING MUNICIPAL WASTEWATER TREATMENT SYSTEMS

There are no municipally owned wastewater systems within Strasburg Township that currently serve Township properties. There is an existing sanitary sewer main in the Creekview Study Area constructed in the late 1970's but no sanitary sewer service is currently provided. Two (2) residential properties and five (5) commercial properties are currently served by the Strasburg Rail Road Sanitary Sewer Extension and connect to the Strasburg Borough Authority's system. All remaining residences are currently served by on-lot disposal systems (OLDS). There are four (4) known holding tanks currently being used as repairs to failing systems in the Township as shown on Map 10 in Appendix H.

The only municipal system in the Township consists of an interceptor and pump station owned by the Strasburg Borough Authority (SBA). SBA owns, operates and maintains the municipal sanitary sewer collection and conveyance system (system) in Strasburg Borough. The SBA system also conveys flow from the privately owned Strasburg Rail Road sanitary sewer extension along S.R. 741 between Strasburg Borough and the Strasburg Rail Road. The locations of these sewerage facilities are shown on Map 10 in Appendix H. A copy of the Strasburg Borough Authority 2011 Chapter 94 Wasteload Management Report is included as Appendix K of this report.

All wastewater discharged into SBA's sanitary sewer system is conveyed through the Suburban Lancaster Sewer Authority (SLSA) sewage collection and conveyance system to the City of Lancaster Advanced Wastewater Treatment Facility (AWWTF) in Lancaster Township. The City's treatment facility discharges treated effluent to the Conestoga River under National Pollutant Discharge Elimination System (NPDES) Permit Number PA 0026743. The City's AWWTP has a rated capacity of 29.73 million gallons per day (MGD) and receives flows from the City of Lancaster, Manheim, Lancaster, East and West Lampeter, Upper Leacock, West Earl, Manor, and Pequea Townships, and Strasburg Borough.

3.2 EXISTING PACKAGED WASTEWATER TREATMENT FACILITIES

There is currently one (1) packaged wastewater treatment facility (PWWTF) in Strasburg Township owned and operated by Hershey Farm Restaurant & Inn. The privately owned treatment facility currently serves the Hershey Farm Restaurant & Inn and Sight & Sound Theatres located along S.R. 896. The permitted hydraulic capacity is 160,000 gpd with a current average flow of approximately 25,000 gpd. The Sewage Planning Module for the Hershey Farm PWWTF is presented in Appendix N. The wastewater collected at the facility is treated with a continuous flow treatment process which consists of two (2) separate dual trains (0.12 mgd and 0.05 mgd) of equalization, anoxic and aeration tanks, clarification, UV disinfection and sludge holding. One (1) train (25,000 gpd) at the treatment facility is currently in operation. The effluent is discharged to the Pequea Creek permitted under NPDES Permit Number PA 0080756.

There are currently no Township regulations for the operation and maintenance of the above referenced systems.

3.3 COLLECTION AND CONVEYANCE FACILITIES

The sanitary sewer facilities located in the Creekview Study Area was constructed in the late 1970's and consists of approximately 1,000 linear feet of 8-inch diameter gravity sewer of unknown pipe material,

according to Strasburg Township Zoning Records. The gravity sewer is presumed to be connected to SBA's 12-inch diameter interceptor along Edisonville Road. The condition of the sanitary sewer facilities is unknown at the time of this Plan.

The Strasburg Rail Road Sanitary Sewer Extension along S.R. 741 was constructed in 2007 and provides sanitary sewer service to 102 equivalent dwelling units (EDUs), according to the Strasburg Borough Authority 2011 Chapter 94 Wasteload Management Report. The sanitary sewer extension is composed of approximately 3,100 linear feet of 4-inch diameter PVC force main piping, a submersible pump station, and seven (7) sanitary sewer service connections, four (4) of which are low pressure connections with grinder pumps. Sewage flows from Strasburg Rail Road Sanitary Sewer Extension is discharged to SBA's system at manhole MH 197. A permanent flow meter is located upstream of the discharge manhole for monitoring of sewage flows from the Strasburg Rail Road Sanitary Sewer Extension.

3.4 EXISITNG INDIVIDUAL ON-LOT SYSTEMS

All remaining residences within Strasburg Township are currently served by on-lot disposal systems (OLDS) for treatment and disposal of domestic wastewater. There is no community on-lot disposal systems (COLDS) located within the Township. According to Strasburg Township's Sewage Enforcement Officer (SEO) records, there are four (4) known holding tanks currently being used in the Township as shown on Map 10 in Appendix H. The type of systems utilized varies, but is classified as one of the following:

- **In-Ground** – Systems consisting of absorption areas, trenches and other disposal systems that rely solely on the surrounding soil for treatment.
- **Elevated Sand Mound** – Systems utilizing a bed of sand, elevated above the existing surface, to enhance the treatment provided by the underlying soil.
- **Holding Tanks** – Holding tanks and privies that require periodic pumping for removal of waste and residual solids.
- **Aerobic Treatment Tanks** – Systems that use either mechanical or diffused aeration to increase the level of effluent treatment by encouraging aerobic bacteria growth prior to treatment provided by the underlying soil of a drainage field.

Types of systems observed during the sanitary survey (as described in Section 3.3.2) include:

- Standard in-ground systems (septic tank with below-grade seepage bed).
- Elevated sand mounds (septic tank with above-grade seepage bed).
- Packaged wastewater treatment facility.
- Aerobic treatment tanks.
- Holding tanks.
- Cesspools.
- Greywater discharge directed to boreholes or surface.

Current regulations regarding on-lot disposal systems began in 1966, and most systems that were created before 1972 did not use best available technologies or methods that would be acceptable today.

3.4.1 Residential Complaints and Requests for Service

According to Strasburg Township's Sewage Enforcement Officer (SEO) records and Strasburg Borough Authority Sewer Service Request records, past complaints of sewage disposal problems have been received from Township residents in the Refton Study Area, Creekview Study Area, and the S.R. 896 DGA. Most of the complaints have been due to malfunction of aged OLDS and/or small lot sizes. Some residents in the Refton Study Area, Creekview Study Area, and the S.R. 896 DGA have requested public sewage service in order to avoid future malfunctions of their OLDS systems.

A summary of malfunctions and repairs of Township OLDS systems, as identified in Township SEO records from 1989 to 2011, is included in Appendix C.

3.4.2 Sanitary Survey

As part of the planning work for this Act 537 Plan, sanitary surveys were conducted throughout portions of Strasburg Township where OLDS systems are utilized for sewage disposal. The Act 537 Sewage Disposal Needs Identification Guidance (SDNIG) document published by the DEP was utilized as the basis for performing the Sanitary Surveys. Herbert, Rowland & Grubic, Inc. (HRG) conducted the Tier 1 and Tier 2 sanitary surveys on various dates from July 2011 through September 2011 in addition to those completed in 1998 during preparation of the 2002 Draft Act 537 Plan Update.

A. *Public Health Needs*

The DEP has designated "public health needs" as a general needs category relating to sewage disposal that must be considered. The definitions and requirements stated in this section are taken from the DEP's SDNIG document. Public health needs are considered to be those health hazards and water pollution problems that involve discharging untreated or inadequately treated sewage to the surface of the ground or waters of the Commonwealth, including groundwater. Most commonly, these needs are found to be malfunctioning OLDS and malfunctioning community on-lot disposal systems (COLDS). On-lot disposal system malfunctions are classified into three categories: confirmed, suspected, and potential. When determining the public health needs of an area using OLDS/COLDS, all systems inventoried, mapped, and analyzed must be placed into one of four categories:

1. Confirmed Malfunctions are malfunctions documented by dye testing, laboratory test results, observation by a Sewage Enforcement Officer (SEO) or a professional with experience in OLDS, "Best Technical Guidance" repair permits, and seasonally wet absorption areas. Also included are piped discharges from a single structure with direct evidence of sewage (i.e. direct observation of soap suds, food residue, solids, odors, etc.), reported system backups, malfunctions with photographic documentation, or other similar evidence.

2. Suspected Malfunctions are systems exhibiting some malfunction characteristics such as abnormally green grass in the vicinity of an absorption area, piped discharges from a dwelling without direct evidence of sewage (i.e. no observation of soap suds, food residue, solids, odors, etc.), absorption areas located in known unsuitable soils (observed wetlands, rock outcropping, etc.), cesspools in high-density development areas, and pit privies.

3. Potential Malfunctions are systems that appear to be operating satisfactorily but were constructed prior to system permitting requirements, systems located in areas extremely unlikely to receive permitting by current standards, systems constructed in areas having soils mapped as unsuitable or with severe limitations for OLDS and systems located on exceptionally steep slopes greater than 25 percent. Included as potential malfunctions are permits issued for OLDS repairs that meet Chapter 73 standards. While this needs category does not represent "stand alone" existing needs, the information may be utilized in a needs analysis to locate areas affected by poorly defined adverse circumstances. For example, clusters of legitimate repairs will often indicate areas requiring closer scrutiny.

4. No Malfunction are those systems that appear to be operating satisfactorily, were constructed since the implementation of system permitting requirements, and appear to have been constructed in accordance with the permitting requirements in effect at the time of construction. For the purpose of needs identification, OLDS permitting under Act 537 became effective on May 15, 1972.

Several other situations exist that must be inventoried, mapped, and analyzed when identifying public health needs for an Act 537 Official Plan or Plan Update Revision. These include wildcat sewers, borehole disposal, holding tanks, public complaints, and sanitation-related illnesses.

5. Wildcat Sewers are collection systems (community sewers) serving more than one equivalent dwelling unit (EDU) and discharging untreated or partially treated sewage to the surface of the ground, storm sewers, or other waters of the Commonwealth.

6. Borehole Disposal is an individual or community system that discharges to a borehole, abandoned water well, dry well, ventilation shaft, or other subterranean structure.

7. Holding Tanks are watertight receptacles designed to retain sewage for disposal at another location. All holding tanks installed as repairs are counted as "needs." Specifically excluded are holding tanks installed to serve new land development or low flow commercial facilities. While not actually discharging sewage into the environment, properly maintained holding tanks, when used in OLDS repair situations, are included in the confirmed malfunction category.

8. Public Complaints are legitimate complaints received by the PA DEP or the municipality concerning improper sewage disposal. The number, nature, and location of public complaints concerning improper sewage disposal are important, yet often overlooked indicators of sewage disposal problem areas.

9. Sanitation Related Illness is any reported illness, either resulting from or suspected to be resulting from improper sewage disposal. Records and incidents in which polluted water supplies have been

suspected or confirmed as the cause of disease is documentation establishing a community's wastewater treatment needs. Confirmed or suspected vectorborne disease that may be attributed to surface ponding of sewage should also be considered.

B. ***Sanitary Sewage Survey***

In order to determine the extent of the conditions as stated above in Strasburg Township that could endanger public health, a sanitary sewage survey was completed in the areas utilizing OLDS systems. Mail surveys were sent to property owners in the Township served by OLDS. There are approximately 1,200 homes in Strasburg Township served by OLDS. A total of 198 surveys were collected from a random selection of property owners throughout the Township. The survey inquired about the age, type and condition of the septic and water systems on the property. A summary of the surveys is included in Appendix D.

Follow-up field verifications ("door-to-door surveys") were performed for a percentage of the properties based on guidelines set forth in the SDNIG document during June 2006. According to the SDNIG document, a recommended minimum number of properties with OLDS within each Sewage Management Area (SMA) should be surveyed in order to conduct a "representative", or "valid" door-to-door sanitary sewage survey of the SMA. The minimum percentage of the properties that should be surveyed varies with the total number of properties in the SMA in accordance with the requirements published in the SDNIG (Table 3-1).

Table 3-1 Minimum OLDS Requirements for Door-To-Door Sanitary Survey

OLDS in the SMA	Minimum Percentage of OLDS to Survey
Up to 50	50%
51 to 100	35%
101 to 500	25%
501 to 1,000	20%
Greater than 1,000	15%

In accordance with the SDNID, a Tier 1 (15%) survey was conducted for the entire Township in order to identify sub-areas of the Township for closer scrutiny. In addition, a minimum of 10 percent of properties in the Township and the study areas that were previously sampled during preparation of the 2002 Draft Act 537 Plan Update was re-sampled. Because of previous homeowner requests for sanitary sewer service and past OLDS malfunctions in the Refton Study Area and the Creekview Study Area, those areas were immediately considered for Tier 2 evaluation which was completed simultaneously with the Tier 1 survey. At each home where the sewage survey was completed, the field inspectors made general observations of the properties and performed closer investigations of sites that demonstrated evidence of sewage malfunctions including direct observation of sewage, soapsuds, food residues, solids, or odors. Other environmental conditions including abnormally green grass, piped discharges and swampy or wet areas in the vicinity of the on-lot systems were also noted.

During the Tier 1 survey, a total of 198 properties were surveyed. Based on the Tier 1 survey, the number and percentage of the properties in Strasburg Township that were determined to have confirmed, suspected, potential, and no malfunctions are summarized in Table 3-2. Complete results are presented in Appendix D.

Table 3-2 Summary of Tier 1 Survey Malfunction Categories*

OLDS Surveyed	Malfunction (% of OLDS Surveyed)							
	Confirmed		Suspected		Potential		None	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
198	24	12%	47	24%	82	41%	45	23%

** Based on door-to-door sanitary sewage survey and soils limitations*

Following completion of the Tier 1 sanitary survey, the planning area was further narrowed into specific study areas of the Township based on soil classifications, building density, and an elevated number of properties with suspected and confirmed OLDS malfunctions. Door-to-door field verifications were conducted in each study area based on the minimum requirements as identified in Table 3-1. Table 3-3 displays the results of the Tier 2 sanitary survey for the study areas. Complete results are presented in Appendix D.

Refton Study Area

The Refton Study Area includes the Village of Refton, properties along Refton Road and properties along Beaver Valley Pike (U.S. Route 222) within the Designated Growth Area (DGA) boundary. Village of Refton was also identified as a future needs area in the 2002 Strasburg Township Draft Act 537 Plan Update. All properties surveyed in the area were residential; however, commercial properties are located within the study area. There are approximately 95 properties with OLDS in the Refton Study Area. In order to meet the requirements shown in Table 3-1, a minimum of 35% of the properties (minimum 34 properties) were surveyed.

Creekview Study Area

The Creekview Study Area includes residential properties along Creekview Lane. There are 20 properties with OLDS in the Creekview Study Area. In order to meet the requirements shown in Table 3-1, a minimum of 50% of the properties (minimum of 10 properties) were surveyed.

Table 3-3 Summary of Tier 2 Survey Malfunction Categories*

Study Area	OLDS Surveyed	Malfunction (% of OLDS Surveyed)							
		Confirmed		Suspected		Potential		None	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent
Refton	59	16	27%	21	36%	16	27%	6	10%
Creekview	16	2	13%	3	19%	10	62%	1	6%

** Based on door-to-door sanitary sewage survey and soils limitations; includes results of Township-wide Tier 1 Study.*

C. *Soil Suitability for On-Lot Sewage Disposal*

The characteristics of soils in Strasburg Township were reviewed and analyzed to determine probable soil limitations for on-lot sewage disposal systems (OLDS) based on the 1985 *Soil Survey of Lancaster County, Pennsylvania*, prepared by the United States Department of Agriculture, Soils Conservation Service (USDA-SCS), and the GIS mapping provided by Lancaster County and the United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). These characteristics were used to determine the areas of the Township suitable for the use of OLDS. Factors taken into consideration for OLDS suitability

include the following:

- Depth to limiting zone (bedrock or water table).
- Percent slope.
- Hydric soils (soils with hydric components or inclusions of hydric components).

The criteria used to determine areas suitable for the use of either elevated sand mound OLDS or in-ground OLDS, are presented in Table 2-1. Using these criteria, in combination with the soil characteristics presented in the USDA's Soil Survey and Section 2.3, a determination was made regarding the suitability of areas of the Township for the use of elevated sand mound OLDS, or in-ground OLDS (See Table 2-2 and Map 5 in Appendix H).

3.4.3 Well Water Survey

Currently there are approximately 86 properties in Strasburg Township served by public water provided by the Strasburg Borough Authority (SBA). During the door-to-door sanitary sewage survey, well water samples were collected from the surveyed properties where private wells are used.

According to the guidelines for well water surveys published in the SDNIG document, well water surveys may be completed in two tiers (or steps). In tier one, a minimum of 15 percent of the wells in the study area must be sampled. For the second tier, representative sampling must be completed with percentages the same as for the Door-to-Door Survey (see Table 3-1). In addition, a minimum of 10 percent of wells in the Township and the study areas that were previously sampled during preparation of the 2002 Draft Act 537 Plan Update was re-sampled. Each well water sample was analyzed for total coliform bacteria, fecal coliform bacteria and nitrate-nitrogen concentration.

The Sewage Disposal Needs Identification Guidance requires representative sampling, or second tier sampling in any SMA, if:

1. The total coliform bacteria contamination rate is 10 percent or greater in the first tier well water samples; and

2. The fecal coliform bacteria contamination rate is 20 percent or greater in the first tier well water samples that had total coliform bacteria contamination.

A number of homeowners participating in the sampling program indicated that they have installed some type of water treatment system on their well. Well water samples were collected from these properties prior to the treatment system where it was possible.

A total of 209 water samples were collected during Tier 1 analysis of Strasburg Township. Water samples collected in 2011 were analyzed by Analytical Laboratory Services, Inc. as part of this Plan update. The results of the Tier 1 water sampling are displayed in Table 3-4. A letter containing the laboratory results for each sample collected by Herbert, Rowland & Grubic, Inc. and general information on water quality was prepared

and sent to the homeowners who participated in the well water sampling. The letter recommended that property owners with concerns regarding their water sample results should re-test their wells; a list of DEP certified laboratories was provided.

Table 3-4 Tier 1 Well Water Survey Results - Bacteria and Nitrate Contamination

	Total Coliform Present (% of Surveyed)		Fecal Coliform Present (% of Total Coliform)		Nitrate > 5mg/L, but <10 mg/L (% of Surveyed)		Nitrate >10 mg/L MCL (% of Surveyed)	
Wells Sampled	**No.**	**Percent**	**No.**	**Percent**	**No.**	**Percent**	**No.**	**Percent**
209	111	53%	29	26%	44	21%	86	41%

**Water samples were not taken in the sewered areas of the Township or where unsewered areas are provided with a public water supply.*

***Environmental Protection Agency: Safe Drinking Water Act set the limit for nitrate (as nitrogen) to 10 mg per liter.*

As illustrated in Table 3-4, the results of the Tier 1 well water testing indicated a need to complete Tier 2 sampling. As previously discussed, a Tier 2 study was conducted for the Refton Study Area and the Creekview Study Area based on previous homeowner requests for sanitary sewer service, past OLDS malfunctions, and previous planning efforts. The results of Tier 2 water sampling are displayed in Table 3-5. A letter containing the laboratory results collected by Herbert, Rowland & Grubic, Inc. for each sample and general information on water quality was prepared and sent to homeowners who participated in the well water sampling.

It should be noted that the high percentage of well water sample results exceeding the maximum contaminant level of 10 mg/L is potentially contributed by the carbonate bedrock underlying majority of the Township which may yield a high nitrate-nitrogen concentration in groundwater, as further discussed in Chapter 2.

Table 3-5 Tier 2 Well Water Survey Results - Bacteria and Nitrate Contamination

		Total Coliform Present (% of Surveyed)		Fecal Coliform Present (% of Total Coliform)		Nitrate > 5mg/L, but <10 mg/L (% of Surveyed)		Nitrate >10 mg/L MCL (% of Surveyed)	
Study Area	**Wells Sampled**	**No.**	**Percent**	**No.**	**Percent**	**No.**	**Percent**	**No.**	**Percent**
Refton	44	30	68%	11	37%	10	23%	13	30%
Creekview	10	9	90%	1	11%	1	10%	0	0%

**Water samples were not taken in the sewered areas of the Township or where unsewered areas are provided with a public water supply.*

***Environmental Protection Agency: Safe Drinking Water Act set the limit for nitrate (as nitrogen) to 10 mg per liter.*

Summary and Conclusions

Tables 3-2 and 3-3 display the results of the sanitary surveys completed for Strasburg Township as part of this Act 537 Plan. Map 13 in Appendix H displays the locations where the sanitary surveys were completed and the corresponding malfunction category. The Tier 1 survey indicated a 12% confirmed malfunction rate based on field observations.

Tables 3-4 and 3-5 display the results of the water samples collected. The Tier 1 water sampling revealed a positive total coliform result of 53%. Fecal coliforms were present in 26% of samples that contained total coliforms. The percentage of water samples collected which contained fecal coliforms tend to be only a fraction of the total samples identified as containing total coliforms.

Nitrate / nitrogen concentrations greater than 5 mg/L but less than 10 mg/L was present in 21% of the water samples with 41% of the water samples containing a concentration greater than 10 mg/L. The high percentage of water samples exceeding the maximum contaminant level of 10 mg/L is potentially contributed by the carbonate bedrock underlying majority of the Township which is susceptible to groundwater passing easily through the cavities in the subsurface without being cleansed by the soil.

The observation of few confirmed malfunctions located throughout the Township is most likely the result of the owners' diligent maintenance and periodic pumping of the OLDS as a result of the implementation of the Township's On-lot Management Ordinance (Ordinance No. 43). However, the large amount of water samples with fecal coliform located throughout the Township suggests that there are more malfunctioning OLDS than indicated during the survey. It is recommended that the Township continue to implement the Sewage Management Program to assist homeowners in developing a regular maintenance schedule to help avoid any future malfunctions. Also, the construction of public sanitary sewers for areas of the Township that are densely populated need to be considered as discussed further in this Plan. The construction of public sanitary sewer to areas of the Township is further discussed and evaluated in Chapter 5. A summary of each of the Study Areas are as follows:

Refton Study Area

During the sanitary sewage survey, sixteen (16) properties, or 27 percent of the properties that were surveyed in the Refton Study Area, had an OLDS with a confirmed malfunction; twenty-one (21) properties, or 36 percent had an OLDS with a suspected malfunction; sixteen (16) properties, or 27 percent, had an OLDS with a potential malfunction; and six (6) properties, or 10 percent, had an OLDS with no malfunction.

Thirty (30) wells, or 68 percent of wells sampled in the Refton Study Area had coliform bacteria, and eleven (11) wells, or 25 percent of those with total coliform had fecal coliform bacteria. Ten (10), or 23 percent of the wells tested in the Refton Study Area contained a nitrate / nitrogen concentration between 5 mg/L and 10 mg/L and thirteen (13), or 30 percent of the wells tested contained a nitrate / nitrogen concentration in excess of 10 mg/L.

The number of confirmed malfunctions and large amount of water samples with fecal coliforms in the Refton Study Area suggests that there are more malfunctioning OLDS than indicated during the Tier 1 survey. Most parcels surveyed in the area have OLDS that preceded current legislation, are located less than 100 feet from their private wells, and subsequently would not be permitted by today's standards. The relatively small lot sizes

that are typical of the area would not be suitable for an alternate drainage field if the current system failed. It is recommended that public sanitary sewers be considered to provide adequate sewage disposal for the Refton Study Area. Due to current public health concerns and requests for public sewer service, providing public sewer service for the Refton Study Area is evaluated in Chapter 5.

Creekview Study Area

During the sanitary sewage survey, two (2) properties, or 13 percent of the properties that were surveyed in the Creekview Study Area, had an OLDS with a confirmed malfunction; three (3) properties, or 19 percent had an OLDS with a suspected malfunction; ten (10) properties, or 62 percent, had an OLDS with a potential malfunction; and one (1) property, or 6 percent, had an OLDS with no malfunction.

Nine (9) wells, or 90 percent of wells sampled in the Creekview Study Area had coliform bacteria, and one (1) well, or 11 percent of those with total coliform had fecal coliform bacteria. One (1), or 10 percent of the wells tested in the Creekview Study Area contained a nitrate / nitrogen concentration between 5 mg/L and 10 mg/L and none of the wells tested contained a nitrate / nitrogen concentration in excess of 10 mg/L.

Although, there were few confirmed malfunctions and few samples with fecal coliform bacteria in the Creekview Study Area, a number of residents in this study area have requested public sewer service due primarily to the close proximity of existing sewer facilities. Due to requests for public sewer service, close proximity of existing facilities, and previous planning efforts, providing public sewer service for the Creekview Study Area is evaluated in Chapter 5.

3.5 WASTEWATER SLUDGE AND SEPTAGE GENERATION

Upon treatment of domestic and industrial wastewater, the entrained solids are removed and often require special consideration for ultimate disposal. Solids from wastewater are created in two forms, sewage sludge and septage. Sludge is generated at wastewater treatment facilities and is generally disposed by landfilling or land application. Homes not served by public sewers generate septage. Septage is the decomposed remains of the separated solids from domestic wastewater. As this sludge ages within a septic tank or similar treatment system, partial treatment is provided. Septage is a concentrated form of sludge.

3.5.1 Sources of Sludge or Septage in the Planning Area

Sludge is generated by the Hershey Farm's PWWTF located along Hartman Bridge Road (S.R. 896) within Strasburg Township and ultimately disposed of as discussed below. Septage is generated by the on-lot disposal systems described in Section 3.4 and is disposed of via septic hauling as described below.

3.5.2 Quantities of Sludge and Septage Generated

According to the 2003 *Sewage Planning Module for the Hershey Farm WWTP Relocation & Improvements*, completed by Lake Roeder Hillard & Associates, Hershey Farm's PWWTF located along Hartman Bridge Road (S.R. 896) wastes approximately 74 lbs/day (average daily flow) of dry sludge or 26,874 lbs/yr (13.4 tons/yr).

3.5.3 Present Methods of Disposal

Sludge within the Township is generated by the Hershey Farm PWWTF and transported by Kline's Services, Inc to their facilities for further treatment.

Septage is generated by the OLDS described in Section 3.4 and is removed from the Township via certified septic haulers and disposed of outside of the Township. Conservatively, assuming that approximately 25 percent of the Township's septic tanks are pumped out annually (1,000 gallons each), it is estimated that approximately 318,750 gallons of septage are disposed of in Strasburg Township annually.