

**Table 2-1  
Summary of Characteristics of Major Soil Components**

| <u>Soil Group</u>      | <u>Soil Symbol</u> | <u>High Water Table</u> <sup>2</sup><br>(ft) | <u>Soil Depth</u> <sup>1</sup><br>(ft) | <u>Limiting Permeability</u> <sup>1</sup><br>(in/hr) | <u>Limiting Septic Features</u> <sup>3</sup>   |
|------------------------|--------------------|--|--|--|--|
| Brinkerton             | BtB                | 0.0 - 0.5                                    | 5.1                                    | 0.06 - 0.6   | Very Limited: restricted permeability, depth to saturated zone                               |
| Comly                  | BtB                | 1.0 - 3.0                                    | 5.1                                    | 0.2 - 0.6  | Very Limited: restricted permeability, depth to saturated zone                               |
| Clarksburg             | CmA                | 1.5 - 3.0                                    | 7                                      | 0.06 - 0.6   | Very Limited: restricted permeability, depth to saturated zone                               |
| Edgemont               | EhB, EhC           | N/D  | 5                                      | 0.6 - 6  | Somewhat Limited: depth to bedrock   |
| Gladstone              | GeA - D            | N/D  | 5.7                                    | 0.2 - 0.6  | Very Limited: depth to bedrock   |
| Gladstone              | GfB - D            | N/D  | 5.7 - 6.5                              | 0.6 - 2  | Not Limited  |
| Glenville              | GnB                | 0.5 - 3.0                                    | 6.8                                    | 0.06 - 0.6   | Very Limited: restricted permeability, depth to saturated zone                               |
| Hazelton               | HeD, HeF           | N/D  | 4.6                                    | 2 - 6  | Very Limited: filtering capacity   |
| Holly                  | Ho                 | 0.0 - 1.0                                    | 5.2                                    | 0.2 - 2  | Very Limited: flooding, depth to saturated zone, restricted permeability                     |
| Laidig                 | LaB, LaC, LbB      | 2.5 - 4.0                                    | 5.2                                    | 0.06 - 0.6   | Very Limited: restricted permeability, depth to saturated zone                               |
| Middlebury             | Me                 | 0.5 - 2.0                                    | 5.3                                    | 0.6 - 2  | Very Limited: flooding, depth to saturated zone, filtering capacity, restricted permeability |
| Murrill                | MuB, MuC           | N/D  | 5.3                                    | 0.2 - 2  | Somewhat Limited: restricted permeability  |
| Neshaminy              | NaC                | N/D  | 4.5                                    | 0.2 - 0.6  | Very Limited: restricted permeability  |
| Penn                   | PkC                | N/D  | 3.7                                    | 0.2 - 6  | Very Limited: depth to bedrock   |
| Towkee                 | ToA, ToB, TwB      | 0.0 - 0.5                                    | 6.3                                    | 0.06 - 0.2   | Very Limited: restricted permeability, depth to saturated zone                               |
| Udorthents             | Ua                 | 5  | 5                                      | 0.06 - 0.2   | Not Rated  |
| Urban Land (w/ Laidag) | UkB                | N/D  | N/D                                    | N/D  | Not Rated  |
| Urban Land (w/Berks)   | UsD                | N/D  | N/D                                    | N/D  | Not Rated  |
| Washington             | WaB, WaC           | N/D  | 5.9                                    | 0.6 - 2  | Very Limited: filtering capacity, restricted permeability                                    |

**Notes:**

- 1 - Information obtained from Table J1b, USDA-NRCS NASIS Pangaea Reports
- 2 - Information obtained from Table K1, USDA-NRCS NASIS Pangaea Reports
- 3 - Information obtained from Table ENG-5, USDA-NRCS NASIS Pangaea Reports

**Table 2-2**

**Prime Agricultural Soil Types Within Upper Milford Township**

| Map symbol | Soil name   |
|------------|---|
| CmA        | Clarksburg silt loam, 0 to 3 percent slopes         |
| EhB        | Edgemont channery loam, 3 to 8 percent slopes       |
| GeA        | Gladstone gravelly silt loam, 0 to 3 percent slopes |
| GeB        | Gladstone gravelly silt loam, 3 to 8 percent slopes |
| GnB        | Glenville silt loam, 3 to 8 percent slopes          |
| LaB        | Laidig gravelly loam, 3 to 8 percent slopes         |
| Me         | Middlebury silt loam                                |
| MuB        | Murrill gravelly loam, 3 to 8 percent slopes        |
| NaB        | Neshaminy silt loam, 3 to 8 percent slopes          |
| WaB        | Washington silt loam, 3 to 8 percent slopes         |

3 - Information obtained from Table Y, USDA-NRCS NASIS Pangaea Reports

**TABLE 2-3**

**DESCRIPTION OF ZONING CODES**

|                               | <b>Rural Agricultural</b> | <b>Rural Suburban - Residential</b> | <b>Suburban - Residential</b> | <b>South Mountain Conservation District</b> |
|-------------------------------|---------------------------|-------------------------------------|-------------------------------|---|
|                               | R-A                       | RS-R                                | S-R                           | SM-C  |
| <b>Single Family Detached</b> |                           |                                     |                               |   |
| Public Sewer and Water        | 50,000                    | 12,000                              | 7,500                         | 87,120                                      |
| On-lot Sewer or Water         | 50,000                    | 40,000                              | 40,000                        | 87,120                                      |
| <b>Two Family Detached</b>    |                           |                                     |                               |   |
| Public Sewer and Water        | NP                        | 7,000                               | 6,000                         | NP  |
| On-lot Sewer or Water         | NP                        | 40,000                              | 40,000                        | NP  |
| <b>Townhouse</b>              |                           |                                     |                               |   |
| Public Sewer and Water        | NP                        | 3,500                               | 3,500                         | NP  |
| On-lot Sewer or Water         | NP                        | NP                                  | NP                            | NP  |
| <b>Other Multi-Family</b>     |                           |                                     |                               |   |
| Public Sewer and Water        | NP                        | NP                                  | 4,000                         | NP  |
| On-lot Sewer or Water         | NP                        | NP                                  | NP                            | NP  |

NP – Not permitted

**Table 2-4  
Summary of 2001 Water Consumption**

| <b>Water System</b>       | <b>Number of Users (edu)</b> | <b>Total Water Consumed (gallon)</b> | <b>Residential (gpd/edu)</b> |
|---------------------------|------------------------------|--------------------------------------|------------------------------|
| Emmaus Borough            | 198                          | 13,245,000                           | 183                          |
| Philip Buss Water Company | 89                           | 5,756,130                            | 177                          |
| Lehigh County Authority   | 57                           | N/D                                  | 176                          |
| <b>Township Average</b>   |                              |                                      | <b>179</b>                   |

**Table 2-5  
Summary of 1996 On-site System Survey Results**

|                   | Number of<br>Lots | Number<br>Surveyed | Lots<br>Vacant | Not<br>Completed | Number of Serious<br>Problems<br>(Number) | (%)          | Number of Minor<br>Problems<br>(Number) | (%)         | Total Systems with<br>Reported Problems<br>(Number) | (%)          | No Problem<br>Indicated |              |
|-------------------|-------------------|--------------------|----------------|------------------|---|--------------|---|-------------|---|--------------|-------------------------|--------------|
| Vera Cruz Road    | 32                | 31                 | 0              | 1                | 10  | 31.3%        | 1                                       | 3.1%        | 10  | 31.3%        | 19                      | 61.3%        |
| Vera Cruz         | 65                | 57                 | 4              | 4                | 19  | 31.1%        | 5                                       | 8.2%        | 24  | 39.3%        | 33                      | 57.9%        |
| Spruce Road       | 14                | 9                  | 3              | 2                | 0   | 0.0%         | 0                                       | 0.0%        | 0   | 0.0%         | 9                       | 100.0%       |
| Moyer Subdivision | 40                | 35                 | 2              | 3                | 12  | 31.6%        | 1                                       | 2.6%        | 13  | 34.2%        | 22                      | 62.9%        |
| Main Street East  | 67                | 50                 | 4              | 13               | 12  | 19.0%        | 2                                       | 3.2%        | 14  | 22.2%        | 36                      | 72.0%        |
| Old Zionsville    | 111               | 79                 | 8              | 24               | 8   | 7.8%         | 5                                       | 4.9%        | 13  | 12.6%        | 66                      | 83.5%        |
| Powder Valley     | 19                | 12                 | 1              | 6                | 1   | 5.6%         | 1                                       | 5.6%        | 2   | 11.1%        | 10                      | 83.3%        |
| Mill Road         | 3                 | 1                  | 0              | 2                | 1   | 33.3%        | 0                                       | 0.0%        | 1   | 33.3%        | 2                       | 200.0%       |
| <b>Total</b>      | <b>351</b>        | <b>274</b>         | <b>22</b>      | <b>55</b>        | <b>63</b>                                 | <b>19.1%</b> | <b>15</b>                               | <b>4.6%</b> | <b>78</b>   | <b>23.7%</b> | <b>197</b>              | <b>71.9%</b> |

Source : Act 537 Official Sewerage Facilities Plan Update - Phase 1 Report  
Note: Percentages do agree with those shown on original table

**Table 2-6  
Summary of 1996 Well Water Survey Results**

|                       | Needs Survey Water Samples |                 |   | Recent Homeowner Water Samples |   | Totals                |                          |   |
|-----------------------|----------------------------|-----------------|---|--------------------------------|---|-----------------------|--------------------------|---|
|                       | Number of Lots             | Number Surveyed | Number of Contaminated Samples (Number) (%) | Number Surveyed                | Number of Contaminated Samples (Number) (%) | Total Number Surveyed | Percent of Lots Surveyed | Total Contaminated samples (Number) (%) |
| Vera Cruz Road        | 32                         | 5               | 0 0.0%                                      | 2                              | 1 50.0%                                     | 7                     | 21.9%                    | 1 14.3%                                 |
| Vera Cruz Spruce Road | 65                         | 11              | 5 45.5%                                     | 6                              | 1 16.7%                                     | 17                    | 26.2%                    | 6 35.3%                                 |
| Moyer Subdivision     | 14                         | 2               | 1 50.0%                                     | 4                              | 0 0.0%                                      | 2                     | 14.3%                    | 1 50.0%                                 |
| Main Street East      | 40                         | 7               | 0 0.0%                                      | 1                              | 1 100.0%                                    | 11                    | 27.5%                    | 0 0.0%                                  |
| Old Zionville         | 67                         | 8               | 4 50.0%                                     | 6                              | 1 16.7%                                     | 9                     | 13.4%                    | 5 55.6%                                 |
| Powder Valley         | 111                        | 6               | 1 16.7%                                     | 2                              | 0 0.0%                                      | 12                    | 10.8%                    | 2 16.7%                                 |
|                       | 19                         | 3               | 0 0.0%                                      | 2                              | 0 0.0%                                      | 5                     | 26.3%                    | 0 0.0%                                  |
| <b>Total</b>          | <b>348</b>                 | <b>42</b>       | <b>11 26.2%</b>                             | <b>21</b>                      | <b>4 19.0%</b>                              | <b>63</b>             | <b>18.1%</b>             | <b>15 23.8%</b>                         |

Source : Act 537 Official Sewage Facilities Plan Update - Phase 1 Report

Note: Percentages do agree with those shown on original table

**Table 2-7**  
**Summary of On Site Repair Records**  
**Years 1992 - 2002**

| <b>Year</b>  | <b>Number of repair permits</b> | <b>Total number of permits</b> |
|--------------|---------------------------------|--------------------------------|
| 1992         | 32                              | 56                             |
| 1993         | 22                              | 49                             |
| 1994         | 25                              | 41                             |
| 1995         | 23                              | 55                             |
| 1996         | 26                              | 64                             |
| 1997         | 25                              | 68                             |
| 1998         | 39                              | 74                             |
| 1999         | 14                              | 59                             |
| 2000         | 11                              | 47                             |
| 2001         | 16                              | 46                             |
| 2002         | 20                              | 58                             |
| <b>Total</b> | <b>221</b>                      | <b>561</b>                     |

**Table 2-8  
Summary of Additional System Repair Data**

| Needs Area   | Total Systems Surveyed |   | Number of Impacted Systems by BTG |              | Number of Impacted Systems by Limited Isolation Distances For Future Repairs |               | Number of Impacted Systems Located In Floodplain |              |
|--------------|------------------------|---|-----------------------------------|--------------|--|---------------|--|--------------|
|              | Number                 | % | Number                            | %            | Number   | %             | Number   | %            |
| SC-1         | 26                     |   | 2                                 | 7.69%        | 5  | 19.23%        | 0  | 0.00%        |
| LC-1         | 25                     |   | 4                                 | 16.00%       | 20   | 80.00%        | 0  | 0.00%        |
| LC-2         | 146                    |   | 27                                | 18.49%       | 110  | 75.34%        | 33   | 22.60%       |
| LC-3         | 37                     |   | 4                                 | 10.81%       | 27   | 72.97%        | 0  | 0.00%        |
| LC-4         | 41                     |   | 1                                 | 2.44%        | 10   | 24.39%        | 1  | 2.44%        |
| LC-5         | 91                     |   | 7                                 | 7.69%        | 19   | 20.88%        | 0  | 0.00%        |
| IC-1         | 128                    |   | 4                                 | 3.13%        | 14   | 10.94%        | 0  | 0.00%        |
| HC-1         | 56                     |   | 1                                 | 1.79%        | 2  | 3.57%         | 0  | 0.00%        |
| HC-2         | 109                    |   | 15                                | 13.76%       | 81   | 74.31%        | 0  | 0.00%        |
| HC-3         | 19                     |   | 4                                 | 21.05%       | 18   | 94.74%        | 0  | 0.00%        |
| SWC-1        | 81                     |   | 5                                 | 6.17%        | 34   | 41.98%        | 7  | 8.64%        |
| LL-1         | 51                     |   | 2                                 | 3.92%        | 16   | 31.37%        | 0  | 0.00%        |
| LL-2         | 18                     |   | 1                                 | 5.56%        | 13   | 72.22%        | 0  | 0.00%        |
| <b>Total</b> | <b>828</b>             |   | <b>77</b>                         | <b>9.30%</b> | <b>369</b>   | <b>44.57%</b> | <b>41</b>  | <b>4.95%</b> |

**Table 2-9  
Summary of On Site System Survey**

| Needs Area   | Total Systems Surveyed | Unknown Disposal Method |              | Suspected Systems with Problems |               | Confirmed Malfunctions <sup>1</sup> |               | Elevated Sand Mounds |              | Confirmed/ Suspected Cesspools |              |
|--------------|------------------------|-------------------------|--------------|---------------------------------|---------------|-------------------------------------|---------------|----------------------|--------------|--------------------------------|--------------|
|              |                        | Number                  | %            | Number                          | %             | Number                              | %             | Number               | %            | Number                         | %            |
| SC-1         | 26                     | 0                       | 0.00%        | 4                               | 15.38%        | 4                                   | 15.38%        | 3                    | 11.54%       | 0                              | 0.00%        |
| LC-1         | 25                     | 3                       | 12.00%       | 7                               | 28.00%        | 6                                   | 24.00%        | 2                    | 8.00%        | 1                              | 4.00%        |
| LC-2         | 146                    | 8                       | 5.48%        | 34                              | 23.29%        | 35                                  | 23.97%        | 12                   | 8.22%        | 12                             | 8.22%        |
| LC-3         | 37                     | 3                       | 8.11%        | 6                               | 16.22%        | 7                                   | 18.92%        | 6                    | 16.22%       | 1                              | 2.70%        |
| LC-4         | 41                     | 0                       | 0.00%        | 5                               | 12.20%        | 3                                   | 7.32%         | 6                    | 14.63%       | 1                              | 2.44%        |
| LC-5         | 91                     | 3                       | 3.30%        | 6                               | 6.59%         | 8                                   | 8.79%         | 17                   | 18.68%       | 3                              | 3.30%        |
| IC-1         | 128                    | 0                       | 0.00%        | 5                               | 3.91%         | 5                                   | 3.91%         | 13                   | 10.16%       | 1                              | 0.78%        |
| HC-1         | 56                     | 3                       | 5.36%        | 4                               | 7.14%         | 2                                   | 3.57%         | 1                    | 1.79%        | 0                              | 0.00%        |
| HC-2         | 109                    | 5                       | 4.59%        | 8                               | 7.34%         | 15                                  | 13.76%        | 5                    | 4.59%        | 1                              | 0.92%        |
| HC-3         | 19                     | 0                       | 0.00%        | 3                               | 15.79%        | 4                                   | 21.05%        | 1                    | 5.26%        | 0                              | 0.00%        |
| SWC-1        | 81                     | 0                       | 0.00%        | 7                               | 8.64%         | 8                                   | 9.88%         | 7                    | 8.64%        | 3                              | 3.70%        |
| LL-1         | 51                     | 1                       | 1.96%        | 1                               | 1.96%         | 2                                   | 3.92%         | 0                    | 0.00%        | 1                              | 1.96%        |
| LL-2         | 18                     | 4                       | 22.22%       | 7                               | 38.89%        | 5                                   | 27.78%        | 0                    | 0.00%        | 3                              | 16.67%       |
| <b>Total</b> | <b>828</b>             | <b>30</b>               | <b>3.62%</b> | <b>97</b>                       | <b>11.71%</b> | <b>104</b>                          | <b>12.56%</b> | <b>73</b>            | <b>8.82%</b> | <b>27</b>                      | <b>3.26%</b> |

1- Includes system repairs using BTG

**Table 2-10  
Evaluation of Needs**

| Needs Area | Soils    | Geology  | Density  | System Repairs | Suspected Malfunctions | Confirmed Malfunctions | Confirmed/Suspected Cesspools | Floodplain Restrictions | Limiting Isolation Distances | Overall Rating |
|------------|----------|----------|----------|----------------|------------------------|------------------------|-------------------------------|-------------------------|------------------------------|----------------|
| SC-1       | High     | High     | High     | High           | Moderate               | Slight                 | Moderate                      | Slight                  | Moderate                     | Moderate       |
| LC-1       | High     | High     | High     | Moderate       | High                   | Slight                 | Slight                        | Slight                  | High                         | Moderate       |
| LC-2       | High     | High     | High     | Moderate       | High                   | Moderate               | Slight                        | High                    | High                         | High           |
| LC-3       | Moderate | High     | High     | High           | Moderate               | Moderate               | Moderate                      | Slight                  | High                         | Moderate       |
| LC-4       | High     | High     | Moderate | High           | Moderate               | Slight                 | Moderate                      | Slight                  | High                         | Moderate       |
| LC-5       | High     | High     | High     | High           | Slight                 | Slight                 | Moderate                      | Slight                  | High                         | Moderate       |
| IC-1       | High     | Moderate | Moderate | High           | Slight                 | Slight                 | Moderate                      | Slight                  | Moderate                     | Moderate       |
| HC-1       | High     | Moderate | High     | High           | Slight                 | Slight                 | Slight                        | Slight                  | Slight                       | Moderate       |
| HC-2       | High     | Moderate | High     | High           | Slight                 | Slight                 | Slight                        | Slight                  | High                         | Moderate       |
| HC-3       | High     | Moderate | High     | High           | Moderate               | Slight                 | Slight                        | Slight                  | High                         | Moderate       |
| SWC-1      | High     | High     | High     | High           | Slight                 | Slight                 | Slight                        | Slight                  | High                         | Moderate       |
| LL-1       | High     | Moderate | High     | High           | Slight                 | Slight                 | Slight                        | Slight                  | High                         | Moderate       |
| LL-2       | High     | Moderate | High     | High           | High                   | High                   | Moderate                      | Slight                  | High                         | High           |

**Risk Classifications**

|          |     |     |              |        |        |        |        |        |        |
|----------|-----|-----|--------------|--------|--------|--------|--------|--------|--------|
| High     | (1) | (2) | <0.50/acre   | >20%   | >20%   | >20%   | >20%   | >20%   | >20%   |
| Moderate | (1) | (3) | 0.5-2.0/acre | 10-20% | 10-20% | 10-20% | 10-20% | 10-20% | 10-20% |
| Low      | (1) | (4) | > 2.0/acre   | <10%   | <10%   | <10%   | <10%   | <10%   | <10%   |

- 1 - Estimated average soil condition for area based SCS soil data
- 2 - Areas underlain by carbonate rock
- 3 - Areas on the fringe of areas underlain by carbonate rock
- 4 - Areas not underlain by carbonate rock

**Table 2-11**  
**Summary of Detailed 2005 Needs Analysis**  
**Village of Vera Cruz Area**

|                                   |               |                |
|-----------------------------------|---------------|----------------|
| <i>Total Number of Properties</i> | 318           |                |
| <i>Vacant</i>                     | 33            |                |
| <b>Category</b>                   | <b>Number</b> | <b>% (1)</b>   |
| Confirmed Malfunctions            | 99            | 37.22%         |
| Suspected Malfunctions            | 52            | 19.55%         |
| Potential Malfunctions            | 78            | 29.32%         |
| No Malfunctions                   | 37            | 13.91%         |
| <b>Total Surveyed</b>             | <b>266</b>    | <b>100.00%</b> |

(1) % of surveyed properties

(2) As per 07/13/05 meeting, deleted lots in PSA-1 That were in the Saucon Creek drainage basin

\* Results based upon data provided by Brian Miller  
 UNIT SEO

**Table 2-12**  
**Existing Sewer Service Areas**  
**Summary of Existing Sewer Users**

| ESA          | Residential Customers | Total Residential EDU's (edu's) | Total Residential Population | Commerical Customers | Total Commerical EDU's (edu's) | Total Customers | Total EDU's (edu's) |
|--------------|-----------------------|---------------------------------|------------------------------|----------------------|--------------------------------|-----------------|---------------------|
| 1            | 2                     | 2                               | 6                            | 0                    | 0                              | 2               | 2                   |
| 2            | 8                     | 8                               | 25                           | 0                    | 0                              | 8               | 8                   |
| 3            | 30                    | 30                              | 92                           | 0                    | 0                              | 30              | 30                  |
| 4            | 45                    | 45                              | 138                          | 1                    | 3.62                           | 46              | 48.62               |
| 5            | 1                     | 1                               | 3                            | 0                    | 0                              | 1               | 1                   |
| 6            | 57                    | 66                              | 203                          | 10                   | 8.63                           | 67              | 74.63               |
| 7            | 26                    | 26                              | 80                           | 0                    | 0                              | 26              | 26                  |
| 8            | 202                   | 211                             | 648                          | 32                   | 97.11                          | 234             | 308.11              |
| 9            | 2                     | 2                               | 6                            | 0                    | 0                              | 2               | 2                   |
| 10           | 3                     | 3                               | 9                            | 0                    | 0                              | 3               | 9                   |
| <b>Total</b> | <b>373</b>            | <b>391</b>                      | <b>1200</b>                  | <b>43</b>            | <b>109.36</b>                  | <b>416</b>      | <b>500.36</b>       |

EDU Flow Rate      275 gpd/edu  
Occupancy Rate      3.07 people/house

**Table 2-13  
Proposed Sewer Service Areas  
Summary of Existing Sewer Users**

| Proposed Sewer Service Area | Residential Population Projections |                      |               | Estimated Population (mgd) | Commercial Users Total Units (units) | Total Users (units) |
|-----------------------------|------------------------------------|----------------------|---------------|----------------------------|--------------------------------------|---------------------|
|                             | Single Family (units)              | Multi Family (units) | Total (units) |                            |                                      |                     |
| PSA - 1                     | 23                                 | 0                    | 23            | 71                         | 0                                    | 23                  |
| PSA - 2                     | 35                                 | 2                    | 37            | 114                        | 2                                    | 39                  |
| PSA - 3                     | 139                                | 38                   | 177           | 543                        | 21                                   | 198                 |
| PSA - 4                     | 35                                 | 4                    | 39            | 120                        | 0                                    | 39                  |
| PSA - 5                     | 40                                 | 2                    | 42            | 129                        | 1                                    | 43                  |
| PSA - 6                     | 86                                 | 4                    | 90            | 276                        | 6                                    | 96                  |
| PSA - 7                     | 126                                | 2                    | 128           | 393                        | 1                                    | 129                 |
| PSA - 8                     | 57                                 | 0                    | 57            | 175                        | 0                                    | 57                  |
| PSA - 9                     | 99                                 | 11                   | 110           | 338                        | 4                                    | 114                 |
| PSA - 10                    | 18                                 | 0                    | 18            | 55                         | 1                                    | 19                  |
| PSA - 11                    | 72                                 | 7                    | 79            | 243                        | 15                                   | 94                  |
| PSA - 12                    | 48                                 | 4                    | 52            | 160                        | 1                                    | 53                  |
| PSA - 13                    | 16                                 | 5                    | 21            | 64                         | 0                                    | 21                  |
| PSA - 14                    | 11                                 | 0                    | 11            | 34                         | 0                                    | 11                  |
| <b>Total</b>                | <b>805</b>                         | <b>79</b>            | <b>884</b>    | <b>2715</b>                | <b>52</b>                            | <b>936</b>          |

Occupancy rate 3.07 people/ household  
 Note: PSA1 through PSA4 Service Areas reflect users within defined Project Area that will receive initial sewer service

**TABLE 2-14  
PROPOSED SEWER SERVICE AREAS  
REASONS FOR NEED**

| Service Area | 2003 Needs Survey   |                | Request<br>for Service |
|--------------|---------------------|----------------|------------------------|
|              | Area<br>Designation | Risk<br>Factor |                        |
| PSA - 1      | SC-1                | Moderate       | N/A                    |
| PSA - 2      | LC-1                | Moderate       | N/A                    |
| PSA - 3      | LC-2                | High           | N/A                    |
| PSA - 4      | LC-3                | Moderate       | N/A                    |
| PSA - 5      | LC-4                | Moderate       | N/A                    |
| PSA - 6      | LC-5                | Moderate       | N/A                    |
| PSA - 7      | IC-1                | Moderate       | N/A                    |
| PSA - 8      | HC-1                | Moderate       | N/A                    |
| PSA - 9      | HC-2                | Moderate       | N/A                    |
| PSA - 10     | HC-3                | Moderate       | N/A                    |
| PSA - 11     | SWC-1               | Moderate       | N/A                    |
| PSA - 12     | LL-1                | Moderate       | N/A                    |
| PSA - 13     | LL-2                | High           | N/A                    |
| PSA-14       | N/A                 | N/A            | X                      |

Note:  
PSA 13 will be addressed using a PADEP Sewage Planning Module for a Minor Act 537 Revision  
PSA 14 will be addressed by a Private Developer using a PADEP Planning Module

**Table 2-16  
New Housing Building Permits**

| <b>Year</b> | <b>Number of<br/>New Housing<br/>Permits</b> |
|-------------|--|
| 1990        | 28   |
| 1991        | 29   |
| 1992        | 30   |
| 1993        | 39   |
| 1994        | 31   |
| 1995        | 57   |
| 1996        | 47   |
| 1997        | 58   |
| 1998        | 43   |
| 1999        | 36   |
| 2000        | 35   |
| 2001        | 31   |
| 2002        | 14 <sup>1</sup>                              |
| Average     | 38.7   |

1- Issued to date as of July 25, 2002

|   |     |
|---|-----|
| <b>Average<br/>Annual<br/>Population<br/>Increase</b> | 119 |
|---|-----|

**Table 2-18  
Existing Sewer Service Areas  
Summary of Future Sewer Users**

| <b>ESA</b>   | <b>Residential Customers<br/>(edu's)</b> | <b>Total Residential Population<br/>(people)</b> | <b>Total Commerical EDU's<br/>(edu's)</b> | <b>Total EDU's<br/>(edu's)</b> |
|--------------|--|--|---|--------------------------------|
| 1            | 0  | 0  | 0   | 0                              |
| 2            | 0  | 0  | 0   | 0                              |
| 3            | 0  | 0  | 0   | 0                              |
| 4            | 0  | 0  | 0   | 0                              |
| 5            | 200                                      | 614  | 0   | 200                            |
| 6            | 2  | 6  | 0   | 2                              |
| 7            | 0  | 0  | 0   | 0                              |
| 8            | 300                                      | 921  | 5   | 305                            |
| 9            | 0  | 0  | 0   | 0                              |
| 10           | 0  | 0  | 0   | 0                              |
| <b>Total</b> | <b>502</b>                               | <b>1541</b>                                      | <b>5</b>                                  | <b>507</b>                     |

EDU Flow Rate                      275 gpd/edu

Occupancy Rate                      3.07 people/house

**Table 2-19  
Proposed Sewer Service Areas  
Summary of Future Projected Sewer Users**

| Proposed Sewer Service Area | Residential Users        |                      | Commercial Users       |                        | Total Users<br>(units) |
|-----------------------------|--------------------------|----------------------|------------------------|------------------------|------------------------|
|                             | Housing Units<br>(units) | Estimated Population | Total Units<br>(units) | Total Units<br>(units) |                        |
| PSA - 1                     | 0                        | 0                    | 0                      | 0                      | 0                      |
| PSA - 2                     | 1                        | 3                    | 0                      | 0                      | 1                      |
| PSA - 3                     | 26                       | 80                   | 5                      | 5                      | 31                     |
| PSA - 4                     | 6                        | 18                   | 0                      | 0                      | 6                      |
| PSA - 5                     | 40                       | 123                  | 0                      | 0                      | 40                     |
| PSA - 6                     | 10                       | 31                   | 10                     | 10                     | 20                     |
| PSA - 7                     | 20                       | 61                   | 5                      | 5                      | 25                     |
| PSA - 8                     | 15                       | 46                   | 0                      | 0                      | 15                     |
| PSA - 9                     | 10                       | 31                   | 10                     | 10                     | 20                     |
| PSA - 10                    | 10                       | 31                   | 0                      | 0                      | 10                     |
| PSA - 11                    | 10                       | 31                   | 20                     | 20                     | 30                     |
| PSA - 12                    | 10                       | 31                   | 0                      | 0                      | 10                     |
| PSA - 13                    | 10                       | 31                   | 0                      | 0                      | 10                     |
| PSA - 14                    | 3                        | 9                    | 0                      | 0                      | 3                      |
| <b>Total</b>                | <b>171</b>               | <b>525</b>           | <b>50</b>              | <b>50</b>              | <b>221</b>             |

Occupancy rate 3.07 people/ household  
 Note: The are 11 future users within the Defined Project Area within PSA1 through PSA4

Table 2-21  
Existing Service Area Flow Projections

| Proposed Sewer Service Area | Commercial Flow Projections |                               |                             |                     | Industrial Flow Projections   |                             |                     |                               | Total Flows                 |                |              |              |
|-----------------------------|-----------------------------|-------------------------------|-----------------------------|---------------------|-------------------------------|-----------------------------|---------------------|-------------------------------|-----------------------------|----------------|--------------|--------------|
|                             | Total Units (units)         | Existing Estimated Flow (mgd) | Future Estimated Flow (mgd) | Total Units (units) | Existing Estimated Flow (mgd) | Future Estimated Flow (mgd) | Total Units (units) | Existing Estimated Flow (mgd) | Future Estimated Flow (mgd) | Existing (mgd) | Future (mgd) | Design (mgd) |
| ESA-1                       | 2                           | 0.001                         | 0                           | 0                   | 0                             | 0.000                       | 0                   | 0                             | 0.000                       | 0.001          | 0.000        | 0.001        |
| ESA-2                       | 8                           | 0.002                         | 0                           | 0                   | 0                             | 0.000                       | 0                   | 0                             | 0.000                       | 0.002          | 0.000        | 0.002        |
| ESA-3                       | 30                          | 0.008                         | 0                           | 0                   | 0                             | 0.000                       | 0                   | 0                             | 0.000                       | 0.008          | 0.000        | 0.008        |
| ESA-4                       | 45                          | 0.012                         | 0                           | 1                   | 0.0003                        | 0                           | 0                   | 0                             | 0.000                       | 0.013          | 0.000        | 0.013        |
| ESA-5                       | 1                           | 0.000                         | 200                         | 0                   | 0.0000                        | 0                           | 0                   | 0                             | 0.000                       | 0.000          | 0.055        | 0.055        |
| ESA-6                       | 66                          | 0.018                         | 2                           | 10                  | 0.0228                        | 0                           | 0                   | 0                             | 0.000                       | 0.021          | 0.001        | 0.021        |
| ESA-7                       | 26                          | 0.007                         | 0                           | 0                   | 0.0000                        | 0                           | 0                   | 0                             | 0.000                       | 0.007          | 0.000        | 0.007        |
| ESA-8                       | 211                         | 0.058                         | 300                         | 32                  | 0.0088                        | 5                           | 0.001               | 59.34                         | 0.016                       | 0.083          | 0.111        | 0.194        |
| ESA-9                       | 2                           | 0.001                         | 0                           | 0                   | 0.0000                        | 0                           | 0.000               | 0                             | 0.000                       | 0.001          | 0.000        | 0.001        |
| ESA-10                      | 3                           | 0.001                         | 0                           | 0                   | 0.0000                        | 0                           | 0.000               | 0                             | 0.000                       | 0.001          | 0.000        | 0.001        |
| <b>Total</b>                | <b>394</b>                  | <b>0.108</b>                  | <b>502</b>                  | <b>43</b>           | <b>0.012</b>                  | <b>5</b>                    | <b>0.001</b>        | <b>59</b>                     | <b>0.016</b>                | <b>0.136</b>   | <b>0.167</b> | <b>0.303</b> |

1- Flow included in existing EDU flow rate  
Estimated residential Flow 275 gpd/edu

Table 2-22  
Proposed Service Area Flow Projections

| Proposed Sewer Service Area | Existing            |                      |                     |                      | Future              |                      |                     |                      | Commercial Flow Projections   |                             |                     |                      | Infiltration/Inflow |              | Total Flows    |              |
|-----------------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|-------------------------------|-----------------------------|---------------------|----------------------|---------------------|--------------|----------------|--------------|
|                             | Total Units (units) | Estimated Flow (mgd) | Total Units (units) | Estimated Flow (mgd) | Total Units (units) | Estimated Flow (mgd) | Total Units (units) | Estimated Flow (mgd) | Existing Estimated Flow (mgd) | Future Estimated Flow (mgd) | Total Units (units) | Estimated Flow (mgd) | Existing (mgd)      | Future (mgd) | Existing (mgd) | Future (mgd) |
|                             |                     |                      |                     |                      |                     |                      |                     |                      |                               |                             |                     |                      |                     |              |                |              |
| PSA-1                       | 23                  | 0.004                | 0                   | 0.000                | 1                   | 0.0002               | 0                   | 0.000                | 0.001                         | 0.000                       | 0                   | 0.000                | 0.001               | 0.000        | 0.006          | 0.006        |
| PSA-2                       | 37                  | 0.007                | 1                   | 0.000                | 1                   | 0.0002               | 0                   | 0.000                | 0.002                         | 0.000                       | 0                   | 0.000                | 0.002               | 0.000        | 0.009          | 0.009        |
| PSA-3                       | 177                 | 0.033                | 26                  | 0.005                | 11                  | 0.0020               | 5                   | 0.001                | 0.009                         | 0.002                       | 5                   | 0.001                | 0.009               | 0.002        | 0.044          | 0.007        |
| PSA-4                       | 39                  | 0.007                | 6                   | 0.001                | 0                   | 0.0000               | 0                   | 0.000                | 0.002                         | 0.000                       | 0                   | 0.000                | 0.002               | 0.000        | 0.009          | 0.001        |
| PSA-5                       | 42                  | 0.008                | 40                  | 0.007                | 1                   | 0.0002               | 0                   | 0.000                | 0.002                         | 0.002                       | 0                   | 0.000                | 0.002               | 0.002        | 0.019          | 0.009        |
| PSA-6                       | 90                  | 0.017                | 10                  | 0.002                | 6                   | 0.0011               | 10                  | 0.002                | 0.005                         | 0.001                       | 10                  | 0.002                | 0.005               | 0.001        | 0.023          | 0.005        |
| PSA-7                       | 128                 | 0.024                | 20                  | 0.004                | 1                   | 0.0002               | 5                   | 0.001                | 0.006                         | 0.001                       | 5                   | 0.001                | 0.006               | 0.001        | 0.030          | 0.006        |
| PSA-8                       | 57                  | 0.011                | 15                  | 0.003                | 0                   | 0.0000               | 0                   | 0.000                | 0.003                         | 0.001                       | 0                   | 0.000                | 0.003               | 0.001        | 0.013          | 0.004        |
| PSA-9                       | 110                 | 0.020                | 10                  | 0.002                | 4                   | 0.0007               | 10                  | 0.002                | 0.006                         | 0.001                       | 10                  | 0.002                | 0.006               | 0.001        | 0.027          | 0.005        |
| PSA-10                      | 18                  | 0.003                | 10                  | 0.002                | 1                   | 0.0002               | 0                   | 0.000                | 0.001                         | 0.001                       | 0                   | 0.000                | 0.001               | 0.001        | 0.004          | 0.002        |
| PSA-11                      | 79                  | 0.015                | 10                  | 0.002                | 15                  | 0.0028               | 20                  | 0.004                | 0.005                         | 0.002                       | 20                  | 0.004                | 0.005               | 0.002        | 0.022          | 0.007        |
| PSA-12                      | 52                  | 0.010                | 10                  | 0.002                | 1                   | 0.0002               | 0                   | 0.000                | 0.003                         | 0.001                       | 0                   | 0.000                | 0.003               | 0.001        | 0.013          | 0.002        |
| PSA-13                      | 21                  | 0.004                | 10                  | 0.002                | 0                   | 0.0000               | 0                   | 0.000                | 0.001                         | 0.001                       | 0                   | 0.000                | 0.001               | 0.001        | 0.005          | 0.002        |
| PSA-14                      | 11                  | 0.002                | 3                   | 0.001                | 0                   | 0.0000               | 0                   | 0.000                | 0.001                         | 0.001                       | 0                   | 0.000                | 0.001               | 0.001        | 0.003          | 0.001        |
| <b>Total</b>                | <b>684</b>          | <b>0.164</b>         | <b>171</b>          | <b>0.032</b>         | <b>42</b>           | <b>0.008</b>         | <b>50</b>           | <b>0.009</b>         | <b>0.046</b>                  | <b>0.011</b>                | <b>50</b>           | <b>0.009</b>         | <b>0.216</b>        | <b>0.051</b> | <b>0.216</b>   | <b>0.267</b> |

Estimated residential flow 186  
/l flow 50

**Table 2-23  
Design Wastewater Flow Projections  
Liebert Creek Drainage Basin**

|                          | Year 2003          |              | Year 2008          |              | Year 2013          |              | Year 2018          |              | Year 2023          |              |
|--------------------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|
|                          | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   |
| Residential <sup>1</sup> | 1,253              | 0.076        | 1,316              | 0.080        | 1,380              | 0.084        | 1,444              | 0.087        | 1,507              | 0.091        |
| Minor Commercial         |                    | 0.004        |                    | 0.004        |                    | 0.005        |                    | 0.006        |                    | 0.007        |
| Inflow/Infiltration      |                    | 0.021        |                    | 0.023        |                    | 0.024        |                    | 0.025        |                    | 0.026        |
| <b>Total</b>             |                    | <b>0.101</b> |                    | <b>0.107</b> |                    | <b>0.113</b> |                    | <b>0.118</b> |                    | <b>0.124</b> |

1- Includes Saucon creek drainage basin area

Occupancy Rate 3.07 persons/unit

**Table 2-24  
Design Wastewater Flow Projections  
Hosensack Creek Drainage Basin**

|                          | Year 2003          |              | Year 2008          |              | Year 2013          |              | Year 2018          |              | Year 2023          |              |
|--------------------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|
|                          | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   |
| Residential <sup>1</sup> | 568                | 0.034        | 595                | 0.036        | 622                | 0.038        | 649                | 0.039        | 675                | 0.041        |
| Minor Commercial         |                    | 0.001        |                    | 0.001        |                    | 0.002        |                    | 0.002        |                    | 0.003        |
| Inflow/Infiltration      |                    | 0.010        |                    | 0.010        |                    | 0.011        |                    | 0.011        |                    | 0.012        |
| <b>Total</b>             |                    | <b>0.045</b> |                    | <b>0.047</b> |                    | <b>0.050</b> |                    | <b>0.053</b> |                    | <b>0.055</b> |

1- Includes Saucon creek drainage basin area

Occupancy Rate 3.07 persons/unit

**Table 2-25  
Design Wastewater Flow Projections  
Existing Sewer Service Areas**

|                               | Year 2003          |              | Year 2008          |              | Year 2013          |              | Year 2018          |              | Year 2023          |              |
|-------------------------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|--------------------|--------------|
|                               | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   | Service Population | Flow (mgd)   |
| Residential <sup>1</sup>      | 1,210              | 0.108        | 1,595              | 0.143        | 1,980              | 0.177        | 2,365              | 0.212        | 2,751              | 0.246        |
| Minor Commercial              |                    | 0.012        |                    | 0.012        |                    | 0.013        |                    | 0.013        |                    | 0.013        |
| Major Industrial/ Commercial  |                    | 0.016        |                    | 0.016        |                    | 0.016        |                    | 0.016        |                    | 0.016        |
| Future Industrial/ Commercial |                    | 0.000        |                    | 0.007        |                    | 0.014        |                    | 0.021        |                    | 0.027        |
| <b>Total</b>                  |                    | <b>0.136</b> |                    | <b>0.178</b> |                    | <b>0.220</b> |                    | <b>0.262</b> |                    | <b>0.303</b> |

1- Includes Saucon creek drainage basin area

Occupancy Rate 3.07 persons/unit