

ATTACHMENT G

NUTRIENT TRADING WORKSHEET

**SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY  
TOTAL NITROGEN CREDIT TRADING WORKSHEET**

**PROJECTED LOADINGS AND CREDITS REQUIRED**

| Year | Annual Average Flow | # New Connections | Additional Flow * | Total Annual Flow | Current Loadings | Additional Loadings * | Total Loadings | Credits Required |
|------|---------------------|-------------------|-------------------|-------------------|------------------|-----------------------|----------------|------------------|
| 2007 | 580,767             |                   |                   | 580,767           | 44,997           |                       | 48,218         | 20,822           |
| 2008 | 580,767             | 180               | 40,680            | 621,447           | 48,218           | 1,620                 | 49,838         | 22,442           |
| 2009 | 621,447             | 180               | 40,680            | 662,127           | 49,838           | 1,620                 | 51,458         | 24,062           |
| 2010 | 662,127             | 180               | 40,680            | 702,807           | 51,458           | 1,620                 | 53,078         | 25,682           |
| 2011 | 702,807             | 180               | 40,680            | 743,487           | 53,078           | 1,620                 | 54,698         | 27,302           |
| 2012 | 743,487             | 180               | 40,680            | 784,167           | 54,698           | 1,620                 | 56,318         | 28,922           |
| 2013 | 784,167             | 180               | 40,680            | 824,847           | 56,318           | 1,620                 | 57,938         | 30,542           |
| 2014 | 824,847             | 180               | 40,680            | 865,527           | 57,938           | 1,620                 | 59,558         | 32,162           |
| 2015 | 865,527             | 180               | 40,680            | 906,207           | 59,558           | 1,620                 | 61,178         | 33,782           |
| 2016 | 906,207             | 180               | 40,680            | 946,887           | 61,178           | 1,620                 | 62,798         | 35,402           |
| 2017 | 946,887             | 180               | 40,680            | 987,567           | 62,798           | 1,620                 | 64,418         | 37,022           |
| 2018 | 987,567             | 180               | 40,680            | 1,028,247         | 64,418           | 1,620                 | 66,038         | 38,642           |
| 2019 | 1,028,247           | 180               | 40,680            | 1,068,927         | 66,038           | 1,620                 | 67,658         | 40,262           |
| 2020 | 1,068,927           | 180               | 40,680            | 1,109,607         | 67,658           | 1,620                 | 69,278         | 41,882           |
| 2021 | 1,109,607           | 180               | 40,680            | 1,150,287         | 69,278           | 1,620                 | 70,898         | 43,502           |
| 2022 | 1,150,287           | 180               | 40,680            | 1,190,967         | 70,898           | 1,620                 | 72,518         | 45,122           |
| 2023 | 1,190,967           | 180               | 40,680            | 1,231,647         | 72,518           | 1,620                 | 74,138         | 46,742           |
| 2024 | 1,231,647           | 180               | 40,680            | 1,272,327         | 74,138           | 1,620                 | 75,758         | 48,362           |
| 2025 | 1,272,327           | 180               | 40,680            | 1,313,007         | 75,758           | 1,620                 | 77,378         | 49,982           |
| 2026 | 1,313,007           | 180               | 40,680            | 1,353,687         | 77,378           | 1,620                 | 78,998         | 51,602           |
| 2027 | 1,353,687           | 180               | 40,680            | 1,394,367         | 78,998           | 1,620                 | 80,618         | 53,222           |
| 2028 | 1,394,367           | 180               | 40,680            | 1,435,047         | 80,618           | 1,620                 | 82,238         | 54,842           |
| 2029 | 1,435,047           | 180               | 40,680            | 1,475,727         | 82,238           | 1,620                 | 83,858         | 56,462           |
| 2030 | 1,475,727           | 180               | 40,680            | 1,516,407         | 83,858           | 1,620                 | 85,478         | 58,082           |

\* Based on 226 gallons/day/EDU, as identified in the Chapter 94 Report (Reserve Capacity Calculations)

\* Based on current calculated loadings of 9 lbs/day/EDU.

**PROJECTED CREDIT COSTS**

| Years     | Credits Required | Cost Per Credit | Total Cost For Period | Complete Cost |
|-----------|------------------|-----------------|-----------------------|---------------|
| 2010-2015 | 178,392          | \$5.15          | \$918,719             |               |
| 2016-2020 | 193,210          | \$6.71          | \$1,296,439           |               |
| 2021-2025 | 233,710          | \$7.98          | \$1,865,006           |               |
| 2026-2030 | 274,210          | \$9.01          | \$2,470,632           | \$6,550,796   |

**SOUTH MIDDLETON TOWNSHIP MUNICIPAL AUTHORITY  
TOTAL PHOSPHORUS CREDIT TRADING WORKSHEET**

**PROJECTED LOADINGS AND CREDITS GENERATED**

| Year | Annual Average Flow | # New Connections | Additional Flow * | Total Annual Flow | Current Loadings | Additional Loadings * | Total Loadings | Credits Generated |
|------|---------------------|-------------------|-------------------|-------------------|------------------|-----------------------|----------------|-------------------|
| 2007 | 580,767             |                   |                   | 580,767           | 330              |                       | 330            | 3,322             |
| 2008 | 580,767             | 180               | 40,680            | 621,447           | 330              | 22                    | 352            | 3,300             |
| 2009 | 621,447             | 180               | 40,680            | 662,127           | 352              | 22                    | 373            | 3,279             |
| 2010 | 662,127             | 180               | 40,680            | 702,807           | 373              | 22                    | 395            | 3,257             |
| 2011 | 702,807             | 180               | 40,680            | 743,487           | 395              | 22                    | 416            | 3,236             |
| 2012 | 743,487             | 180               | 40,680            | 784,167           | 416              | 22                    | 438            | 3,214             |
| 2013 | 784,167             | 180               | 40,680            | 824,847           | 438              | 22                    | 460            | 3,192             |
| 2014 | 824,847             | 180               | 40,680            | 865,527           | 460              | 22                    | 481            | 3,171             |
| 2015 | 865,527             | 180               | 40,680            | 906,207           | 481              | 22                    | 503            | 3,149             |
| 2016 | 906,207             | 180               | 40,680            | 946,887           | 503              | 22                    | 524            | 3,128             |
| 2017 | 946,887             | 180               | 40,680            | 987,567           | 524              | 22                    | 546            | 3,106             |
| 2018 | 987,567             | 180               | 40,680            | 1,028,247         | 546              | 22                    | 568            | 3,084             |
| 2019 | 1,028,247           | 180               | 40,680            | 1,068,927         | 568              | 22                    | 589            | 3,063             |
| 2020 | 1,068,927           | 180               | 40,680            | 1,109,607         | 589              | 22                    | 611            | 3,041             |
| 2021 | 1,109,607           | 180               | 40,680            | 1,150,287         | 611              | 22                    | 632            | 3,020             |
| 2022 | 1,150,287           | 180               | 40,680            | 1,190,967         | 632              | 22                    | 654            | 2,998             |
| 2023 | 1,190,967           | 180               | 40,680            | 1,231,647         | 654              | 22                    | 676            | 2,976             |
| 2024 | 1,231,647           | 180               | 40,680            | 1,272,327         | 676              | 22                    | 697            | 2,955             |
| 2025 | 1,272,327           | 180               | 40,680            | 1,313,007         | 697              | 22                    | 719            | 2,933             |
| 2026 | 1,313,007           | 180               | 40,680            | 1,353,687         | 719              | 22                    | 740            | 2,912             |
| 2027 | 1,353,687           | 180               | 40,680            | 1,394,367         | 740              | 22                    | 762            | 2,890             |
| 2028 | 1,394,367           | 180               | 40,680            | 1,435,047         | 762              | 22                    | 784            | 2,868             |
| 2029 | 1,435,047           | 180               | 40,680            | 1,475,727         | 784              | 22                    | 805            | 2,847             |
| 2030 | 1,475,727           | 180               | 40,680            | 1,516,407         | 805              | 22                    | 827            | 2,825             |

\* Based on 226 gallons/day/EDU, as identified in the Chapter 94 Report (Reserve Capacity Calculations)

\* Based on current calculated loadings of 0.12 lbs/day/EDU.

| PROJECTED CREDIT REVENUE |                   |                              |                    |                          |
|--------------------------|-------------------|------------------------------|--------------------|--------------------------|
| Years                    | Credits Generated | Credits Available for Sale * | Revenue Per Credit | Total Revenue For Period |
| 2010-2015                | 19,219            | 16,336                       | \$4.00             | \$65,345                 |
| 2016-2020                | 15,422            | 13,109                       | \$4.50             | \$58,989                 |
| 2021-2025                | 14,882            | 12,650                       | \$5.00             | \$63,249                 |
| 2026-2030                | 14,342            | 12,191                       | \$5.50             | \$67,049                 |
| <b>Total Revenue</b>     |                   |                              |                    | <b>\$254,632</b>         |

\* Based on 85 percent of available to allow reserve loadings.