

**TAPPING FEE**

**SANITARY SEWER SYSTEM**

**UPPER GWYNEDD TOWAMENCIN  
MUNICIPAL AUTHORITY**

**MONTGOMERY COUNTY  
PENNSYLVANIA**

**MAY 2005**



**CONSULTANTS, INC.**

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TAPPING FEE STUDY

SANITARY SEWER SYSTEM

UPPER GWYNEDD TOWAMENCIN  
MUNICIPAL AUTHORITY

MONTGOMERY COUNTY  
PENNSYLVANIA

May 2005

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UPPER GWYNEDD TOWAMENCIN  
MUNICIPAL AUTHORITY

Tapping Fee

Sanitary Sewer Conveyance System

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UPPER GWYNEDD TOWAMENCIN  
MUNICIPAL AUTHORITY

Tapping Fee

1.0 INTRODUCTION

On December 19, 1990 the Governor signed Act 203 of 1990, which amended the Municipality Authorities Act in regards to fees to connect to water and sewage facilities. Act 203-1990 governs municipal authorities in charging tapping fees, and by reference, tapping fees for municipalities, providing water and sewer service. The Act resulted in many court cases and challenges in connection with the charging of tapping fees. In 2000 legislation was proposed to update Act 203-1990. The Pennsylvania Municipal Authorities Association (PMAA) and the Pennsylvania Builders Association became involved and after three years of extensive negotiations, legislation, known as Act 57-2003, was developed to establish conformity and consistency in the calculation of tapping fees.

The Governor signed Act 57 of 2003 on December 30, 2003. The Act amends the provisions of the Municipality Authorities Act in regards to how water and sewage facility tapping fees are calculated. Fees for water and sewer service can include three components:

- Customer Facility Fee
- Connection Fee
- Tapping Fee

The customer facility fee includes the cost for facilities to connect from the property line or curb stop to the dwelling or building to be served. It is not unusual for the cost of the building

sewer (service line) to be the responsibility of the property owner. In such cases an authority or municipality would not develop a customer facility fee.

The connection fee includes the cost for facilities to connect from the sewer main to the property line or curb stop. Again the cost of the sewer lateral or water service line is generally the responsibility of the property owner.

The Upper Gwynedd Towamencin Municipal Authority (UGTMA) only provides treatment and conveyance. Therefore the development of the customer facility fee and connection fee would be the responsibility of the contributing municipalities. These fees were not evaluated as part of this report.

The Tapping Fee includes four components as follows:

- Capacity Part
- Collection Part
- Special Purpose Part
- Reimbursement Part

The capacity part includes capacity related facilities such as wastewater treatment, pumping stations, force mains, sewer interceptors, sewer outfalls and trunk sewers. The tapping fee for capacity related facilities include two components: 1) Existing Facilities and 2) Future Facilities.

The collection part includes facilities required to provide service such as sewer mains within subdivisions. Sewers extending through a subdivision that provide service to an

adjoining subdivision may be considered a trunk sewer and may be included as part of the capacity part of the tapping fee.

The special purpose part applies to a particular group of customers, serving a particular purpose or a special area. The special purpose tapping fee typically can include sewer mains and pump stations that provide service to a separate district of the sewer system.

The reimbursement part includes facilities paid for upfront by a developer. The reimbursement part provides for reimbursing the developer for a sewer main extended outside a development that can provide service to other new users. Reimbursement is for a period of ten (10) years.

Act 57-2003 provides for significant changes concerning the methodology for calculating tapping fees and procedures as follows:

- Tapping fees in accordance with Act 57-2003 are to be recalculated by June 30, 2005.
- Customers are required to fix leaking or damages lines on their property.
- Rules and regulations must be adopted by resolution.
- An option is provided to collect a fee to reserve capacity.
- The authority/municipality must adopt tapping fees via a resolution that includes all parts of the tapping fee to be imposed.
- The tapping fee calculations must be included as part of the resolution.
- Replacement cost basis is applicable only if historical costs are not ascertainable.
- Grants and contributions are to be subtracted before trending.
- Capacity related future facilities fees must increase the system design capacity.

- Capacity related future facilities are to be refunded if facilities are not build or placed into service within 7 years of the adopted resolution (15 years if 5 or more municipalities are served).
- The design capacity required by a residential sewer customer is to be established by one of three options: 1) 90 gpd X census figure, 2) metered average water usage + 10%, or 3) a sewage study.

The NPDES permit effluent limitations for the UGTMA facility are based on a design flow of 6.5 mgd as set forth on Page 2d of the permit, included as Appendix B. The maximum monthly average flow of 7.3 mgd is used to identify whether a hydraulic overload situation exists as defined in 25 PA Code Chapter 94. In accordance with a tri-party agreement between the Upper Gwynedd-Towamencin Municipal Authority (UGTMA), Towamencin Township and Upper Gwynedd Township, Towamencin Township is allocated 80 percent and Upper Gwynedd Township 20 percent of the plant capacity.

## 2.0 TAPPING FEE

Of the four separate components of the capacity tapping fee, only the capacity part and is applicable at this time. The capacity part of the tapping fee includes facilities such as treatment and the Kriebel Road Interceptor that provides sewage conveyance for both Upper Gwynedd and Towamencin Townships. The collection part, which serves only a finite number of users as part of a subdivision or project and includes sewage collection facilities that are installed as part of the improvements during the construction of a subdivision or project, is not applicable for the UGTMA as the developer is 100% responsible for all costs to design and construct the collection system. Since there are not any special purpose facilities specific to only a particular group of customers, the special purpose part of the tapping fee does not apply at this time. To date the UGTMA has not established a reimbursement component, although this may be utilized at a future date.

### 2.1 Capacity Related Historical Costs

The conveyance capacity part of the UGTMA tapping fee includes treatment and sewer conveyance facilities. The treatment facility includes the original 1 mgd wastewater treatment plant constructed in 1967, the expansion initiated in 1985 and capacity related capital facilities. The sanitary sewage conveyance system includes the portion of Contract No. 1, known as the Kriebel Road Interceptor that extends from the plant easterly to Valley Forge Road, as shown on Figure 1.

The UGTMA files were researched to identify construction and project costs for capacity related facilities. This included a review of files to the present. Historical costs were found for

the treatment facility and for Contract No. 1. The historic cost for the 1967 treatment plant, capacity related capital facilities and related engineering costs are summarized in Table 1.

Contract No. 1 included sewer lines with diameters to 24 inches. This contract included the UT Trunk Line (now designated as the Kriebel Road Interceptor), T Trunk Line (trunk sewer serving Towamencin Township), U Trunk Line (trunk sewer serving Upper Gwynedd Township) and collection sewers. A summary of the original cost of this contract is presented as Appendix A. The unit project costs attributed to the installed sewer pipe sizes were calculated so the original cost of the UT Trunk Line, T Trunk Line and U Trunk Line could be established. The lengths of the various sewer sizes that comprise the respective trunk sewers are summarized in Table 2. The 1968 project cost of the Kriebel Road Interceptor is \$225,546.45 (Table 2).

## 2.2 Capacity Part of Tapping Fee (Existing Facilities)

An EPA grant was received in connection with the original plant and Contract No. 1. EPA grant funds were received in 1969, 1971, 1974, 1975 and 1978 as follows:

Date/EPA Grant Distribution	Plant (\$)	Interceptor (\$)	Total (\$)
1969	134,900	53,000	187,900
1971	155,600		155,690
1974	64,680	37,842	102,522
1975	34,544	8,610	43,164
1978	48,416		48,416

EPA grant payments were also received for the plant expansion to 6.5 mgd. These grant payments were received from 1980 through 1999 and are summarized in Table 1.

The cost basis of capacity related facilities for calculating the tapping fee was determined by trending the historical cost with the Engineering News Record Construction Cost Index. Act 57-2003 requires grants be deducted from the historical cost before trending with a published cost index. The total trended cost (excluding grants) is \$33,334,333 (May 2005), as shown in Table 1.

### 2.3 Future Capacity Facilities

In order for the cost of future capacity related facilities to be included in the tapping fee calculation, the Authority needs to implement two (2) of the following actions:

- Obtained Financing
- Entered into a contract
- Obtained permit
- Obtained property
- Contract to acquire facilities
- Prepared engineering study
- Contract for design or construction (including in-house)

As of the date of this report the Authority has not accomplished two of these Act 57-2003 required actions to provide for future capacity facilities. Therefore a future capacity improvements fee is not included as part of the tapping fee.

### 2.4 Sewer System Capacity

The system design capacity, according to Act 57-2003, is the "permitted or rated capacity" expressed in millions gallons per day. The NPDES permit effluent limitations for the UGTMA facility are based on a design flow of 6.5 mgd as set forth on Page 2d of the permit, included as Appendix B. The maximum monthly average flow of 7.3 mgd is used to identify

whether a hydraulic overload situation exists as defined in 25 PA Code Chapter 94. The PaDEP evaluation of the UGTMA 2002 Chapter 94 Report, included as Appendix C, indicates for a two tier permit (effluent limitations flow and maximum monthly flow), the average annual hydraulic capacity would be equal to the maximum monthly flow divided by the maximum month to average annual flow ratio. For the year 2004, as summarized in Table D-1 (Appendix D), the maximum month flow to average annual flow ratio is 1.237 (5.568 mgd/4.501 mgd). The calculated average annual system hydraulic capacity for 2004 is 5.90 mgd (7.3 mgd/1.237 = 5.90 mgd). The available capacity or "rated capacity" of the UGTMA facility is the lesser of the hydraulic capacity (5.9 mgd) or effluent limitation flow (6.5 mgd). Therefore the UGTMA rated system design capacity is 5.9 mgd.

The household unit flow, according to Act 57-2003, may be established with a sewage generation rate of 90 gpd and the municipality's census for a household. If the sewer system service area includes more than the municipality, then the county household census is to be utilized. Since the UGTMA service area includes Upper Gwynedd and Towamencin Townships and contiguous municipalities adjacent to these townships the Montgomery County census of 2.54 persons per household (Appendix E) was used for the population per household. Based on a sewage generation rate of 90 gpd and 2.54 persons per household, the household unit flow is 228.6 gpd/household.

## 2.5 Capacity Fee Determination

The determination of the capacity part of the tapping fee includes the reduction in trended cost by current outstanding debt. As of May 2005, the Authority has existing capacity related outstanding principal debt of \$6,608,824 (1991 Capital Appreciation Bonds; \$5,271,824 and Series 2002 loan; \$1,337,000).

Based on the system design capacity of 5,900,000 gpd and the net cost of existing facilities of \$26,725,509, the cost per gallon equals \$4.530/gpd. At the household flow unit capacity of 228.6 gpd/household, the capacity part of the tapping fee would be \$1,035.50 per household. The capacity fee calculation is summarized in Table 3.

### 3.0 RECOMMENDED FEES

Based on the information and calculations presented in this report, it is recommended that Upper Gwynedd Towamencin Municipal Authority consider adopting a capacity part of the tapping fee in accordance with Act 57-2003 revisions as follows:

#### Tapping Fee

Capacity Part of Tapping Fee:	\$1,035/household
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At the present time the Upper Gwynedd Towamencin Municipal Authority sells capacity to non-households on the basis of whole 280 gpd units of capacity. It is suggested this procedure be continued for non-household customers. At a cost of \$4.530/gpd a 280-gpd unit would cost \$1,268.40 (Rounded \$1,268 per 280-gpd unit).

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## TABLES



TABLE 1

Upper Gwynedd Townamencin Municipal Authority  
Plant and Interceptor Facilities

Trended Historical Cost (May 2005)

Description*	Year Installed	Original Project Cost (\$)(1)	Grants & Contributions (\$)	Project Cost Less Grants/Contrib. (\$)	ENR Index at Installation (2)	ENR Index May 2005 (3)	ENR Ratio (3)	Trended Historic Cost (\$)(4)
Original Treatment Plant	1967	779,009		779,009	1074	7398	6.89	5,366,023
Original Plant/Intr Eng Design	1967	65,600		65,600	1074	7398	6.89	451,870
Kriebel Road Interceptor-Table 2	1968	225,546		225,546	1155	7398	6.41	1,444,669
EPA Grant Payments	1969		187,900	(187,900)	1269	7398	5.83	(1,095,417)
Original Plant/Intr Eng Insp	1969	52,319		52,319	1269	7398	5.83	305,009
EPA Grant Payments	1971		155,690	(155,690)	1581	7398	4.68	(728,523)
EPA Grant Payments	1974		102,522	(102,522)	2020	7398	3.66	(375,474)
EPA Grant Payments	1975		43,164	(43,164)	2212	7398	3.34	(144,361)
EPA Grant Payments	1978		48,416	(48,416)	2776	7398	2.66	(129,028)
Liptak Design	1976	849,538		849,538	2401	7398	3.08	2,617,610
Liptak Inspection	1978	269,856		269,856	2776	7398	2.66	719,162
Nisco Settlement	1979	583,323		583,323	3003	7398	2.46	1,437,037
Metz Engineering	1980	188,900		188,900	3237	7398	2.29	431,721
Guard Service During Construction	1980	42,784		42,784	3237	7398	2.29	97,781
Miscellaneous Costs	1980	18,265		18,265	3237	7398	2.29	41,744
Unitech Additional Design (Est.)	1985	600,000		600,000	4195	7398	1.76	1,058,117
Unitech Inspection	1987	905,539		905,539	4406	7398	1.68	1,520,467
CET Inspection	1990	130,527		130,527	4732	7398	1.56	204,066
EDM Inspection	1990	63,788		63,788	4732	7398	1.56	99,726
Fiberglass Specialty	1982	100,000		100,000	3825	7398	1.93	193,412
Altomose Settlement	1982	100,000		100,000	3825	7398	1.93	193,412
Electrical Modifications	1984	42,023		42,023	4146	7398	1.78	74,985
MCC Rehabilitation	1984	6,215		6,215	4146	7398	1.78	11,090
Contract 11 Additional Cost	1984	142,705		142,705	4146	7398	1.78	254,639
Spotts, Stevens, McCoy Eng.	1985	75,287		75,287	4195	7398	1.76	132,771
EDM O & M Manual	1988	77,525		77,525	4519	7398	1.64	126,915
Unitech Engineering	1980	10,942		10,942	3237	7398	2.29	25,007
Admin/Legal	1992	34,684		34,684	4985	7398	1.48	51,473
Miscellaneous Equipment	1985	7,844		7,844	4195	7398	1.76	13,833
Contract No. 1-A	1985	3,320,226		3,320,226	4195	7398	1.76	5,855,312
Contract No. 1-B	1986	450,875		450,875	4295	7398	1.72	776,618
Contract No. 2-A	1985	176,247		176,247	4195	7398	1.76	310,817

TABLE 1

Upper Gwynedd Towamencin Municipal Authority  
Plant and Interceptor Facilities

Trended Historical Cost (May 2005)

Description*	Year Installed	Original Project Cost (\$)(1)	Grants & Contributions (\$)	Project Cost Less Grants/Contrib. (\$)	ENR Index at Installation (2)	ENR Index May 2005 (3)	Trended	
							ENR Ratio (3)	Historic Cost (\$)(4)
Contract No. 3-A	1986	724,775		724,775	4295	7398	1.72	1,248,402
Contract No. 3-B	1985	296,824		296,824	4195	7398	1.76	523,457
Contract No. 3-D	1988	766,179		766,179	4519	7398	1.64	1,254,302
Contract No. 3-E	1990	668,000		668,000	4732	7398	1.56	1,044,350
Contract No. 3-F	1992	1,199,940		1,199,940	4985	7398	1.48	1,780,774
Contract No. 4-A	1986	442,400		442,400	4295	7398	1.72	762,020
Contract No. 5-A	1987	1,809,096		1,809,096	4406	7398	1.68	3,037,606
Contract No. 6-A	1989	3,178,580		3,178,580	4615	7398	1.60	5,095,370
Contract No. 6-B	1988	57,437		57,437	4519	7398	1.64	94,029
Contract No. 7-A	1990	1,030,715		1,030,715	4732	7398	1.56	1,611,418
Contract No. 7-B	1990	93,943		93,943	4732	7398	1.56	146,870
Contract No. 7-C	1990	120,479		120,479	4732	7398	1.56	188,357
Contract No. 7-D	1990	169,904		169,904	4732	7398	1.56	265,628
Contract No. 7-A-5	1990	31,207		31,207	4732	7398	1.56	48,789
Contract No.9-A	1992	40,625		40,625	4985	7398	1.48	60,290
Pre Interim Audit Contracts	1976	5,896,663		5,896,663	2401	7398	3.08	18,166,893
Force Account Work	1980	209,218		209,218	3237	7398	2.29	478,157
Misc. Construction	1983	92,174		92,174	4066	7398	1.82	167,709
EPA Grant Payments	1980		4,240,000	(4,240,000)	3237	7398	2.29	(9,690,306)
EPA Grant Payments	1982		805,700	(805,700)	3825	7398	1.93	(1,556,319)
EPA Grant Payments	1984		76,400	(76,400)	4146	7398	1.78	(136,326)
EPA Grant Payments	1985		1,627,800	(1,627,800)	4195	7398	1.76	(2,870,671)
EPA Grant Payments	1986		376,800	(376,800)	4295	7398	1.72	(649,026)
EPA Grant Payments	1987		1,556,200	(1,556,200)	4406	7398	1.68	(2,612,975)
EPA Grant Payments	1988		1,955,300	(1,955,300)	4519	7398	1.64	(3,200,998)
EPA Grant Payments	1990		2,971,600	(2,971,600)	4732	7398	1.56	(4,645,794)
EPA Grant Payments	1991		748,800	(748,800)	4835	7398	1.53	(1,145,734)
EPA Grant Payments	1992		1,064,000	(1,064,000)	4985	7398	1.48	(1,579,031)
EPA Grant Payments	1998		543,213	(543,213)	5920	7398	1.25	(678,833)
EPA Grant Payments	1999		40,155	(40,155)	6059	7398	1.22	(49,029)
Centrifuge # 1 Proj. Cost	2002	679,950		679,950	6538	7398	1.13	769,390
Centrifuge # 2 Proj. cost	2004	591,510		591,510	7109	7398	1.04	615,556

**TABLE 1**

Upper Gwynedd Towamencin Municipal Authority  
Plant and Interceptor Facilities

**Trended Historical Cost (May 2005)**

Description*	Year Installed	Original Project Cost (\$)(1)	Grants & Contributions (\$)	Project Cost Less Grants/Contrib. (\$)	ENR Index at Installation	ENR Index May 2005	ENR Ratio (3)	Trended	
								Historic Cost (\$)	(4)
Stage I Influent Grinder	2002	36,862		36,862	6538	7398	1.13	41,711	
Stage II Influent Grinder	2004	124,512		124,512	7109	7398	1.04	129,574	
Sludge Grinders	2002	22,189		22,189	6538	7398	1.13	25,108	
Telescopic Valves/Rotary Distrib	2001	433,721		433,721	6343	7398	1.17	505,860	
New Floc Tank Telescopic Valves	2002	416,249		416,249	6538	7398	1.13	471,002	
Roto Strainer and Hydrasteives	2002	427,213		427,213	6538	7398	1.13	483,408	
3000 AMP ATS	1997	142,600		142,600	5826	7398	1.27	181,077	
S.S Air Piping	1996	8,500		8,500	5620	7398	1.32	11,189	
S.S Air Piping	1997	9,564		9,564	5826	7398	1.27	12,145	
S.S Air Piping	1999	9,928		9,928	6059	7398	1.22	12,122	
S.S Air Piping	2000	16,278		16,278	6221	7398	1.19	19,358	
S.S Air Piping	2001	7,663		7,663	6343	7398	1.17	8,938	
S.S Air Piping	2002	14,815		14,815	6538	7398	1.13	16,764	
S.S Air Piping	2004	26,170		26,170	7109	7398	1.04	27,234	
Office Building Add./Diesel Disp.	1995	24,582		24,582	5471	7398	1.35	33,240	
Miscellaneous Items									
VFDs for two Sludge Pumps	2005	5,287		5,287	7398	7398	1.00	5,287	
VFDs for two Polymer Pumps	2005	2,834		2,834	7398	7398	1.00	2,834	
Switches for Sludge Pumps	2004	2,780		2,780	7109	7398	1.04	2,893	
Polymer Pump	2004	7,929		7,929	7109	7398	1.04	8,251	
Stage I Raw Pump VFD	2004	4,361		4,361	7109	7398	1.04	4,538	
P. Gage for Centrifuge	2004	400		400	7109	7398	1.04	416	
P. Switch for Sludge Pump	2004	945		945	7109	7398	1.04	983	
VFD for Polymer Pump	2003	5,490		5,490	6694	7398	1.11	6,067	
VFD for Sludge Pump	2003	9,490		9,490	6694	7398	1.11	10,488	
Density Current Baffles	2003	3,385		3,385	6694	7398	1.11	3,741	
Air Dryer	1996	2,734		2,734	5620	7398	1.32	3,599	
Sludge Grinder	1996	10,745		10,745	5620	7398	1.32	14,144	
Telescopic Valve Operator	2002	3,670		3,670	6538	7398	1.13	4,153	
Stage I Raw Pump VFD	2002	4,243		4,243	6538	7398	1.13	4,801	
Rigid Crimp Tool	2002	1,889		1,889	6538	7398	1.13	2,138	
Scum Pump	2001	5,852		5,852	6343	7398	1.17	6,825	

**TABLE 1**

Upper Gwynedd Towamencin Municipal Authority  
Plant and Interceptor Facilities

**Trended Historical Cost (May 2005)**

Description*	Year Installed	Original Project Cost (\$)(1)	Grants & Contributions (\$)	Project Cost Less Grants/Contrib. (\$)	ENR Index at Installation (2)	ENR Index May 2005 (3)	Trended		
							ENR Ratio (3)	Historic Cost (\$)(4)	
Stage I RAS Pinch Valve	2000	2,987		2,987	6221	7398	1.19	3,552	
RAS Pump Controller	1999	4,200		4,200	6059	7398	1.22	5,128	
Stage I Scum Mixer	1998	5,485		5,485	5920	7398	1.25	6,854	
AutoCrane Truck	1998	49,107		49,107	5920	7398	1.25	61,367	
Gen. Bldg Louvers/Dampers	1998	3,600		3,600	5920	7398	1.25	4,499	
Stage I Wet Well Transducer	1998	726		726	5920	7398	1.25	907	
Effluent Sample Pump	1997	1,481		1,481	5826	7398	1.27	1,881	
Stage I Raw Pump VFD	1996	6,295		6,295	5620	7398	1.32	8,287	
Installation of Air Drier	1996	1,804		1,804	5620	7398	1.32	2,375	
Lower Holding Tank Transfer Pump	1993	8,636		8,636	5210	7398	1.42	12,263	
Install Transfer Pump	1994	3,306		3,306	5408	7398	1.37	4,523	
Dechlorination Equipment	2002	6,894		6,894	6538	7398	1.13	7,801	
Effluent Lift Pump	1996	20,440		20,440	5620	7398	1.32	26,907	
Stage I Floc Valves	2000	59,290		59,290	6221	7398	1.19	70,508	
Parts for Stage I Comminutor	2004	1,452		1,452	7109	7398	1.04	1,511	
Bypass Sludge Grinder	2004	12,414		12,414	7109	7398	1.04	12,919	
Telescopic Valve Operators	2003	7,377		7,377	6694	7398	1.11	8,153	
Parts for Scum Pump Installation	2000	2,138		2,138	6221	7398	1.19	2,543	
Groundwater Well Pump	2000	2,627		2,627	6221	7398	1.19	3,124	
Sample Pump Hoist	1999	1,469		1,469	6059	7398	1.22	1,794	
Installation of ATS	1998	28,534		28,534	5920	7398	1.25	35,657	
Christy Site Acquisition	2000	640,000		640,000	6221	7398	1.19	761,087	
Original STP Site-Replacement	2005	344,000		344,000	7398	7398	1.00	344,000	
Total Trended Historic Cost									\$33,334,333

Notes:

- \* Capacity related facilities.
- 1. Original project costs from audited financial statements and/or files of the Authority.
- 2. Engineering News Record Construction Index.
- 3. Ratio of May 2005 ENR Index and ENR Index at installation.
- 4. Trended Cost: ENR ratio multiplied by original cost minus grants/contributions.

Table 2  
 Upper Gwynedd Towamencin Municipal Authority  
 1968 Interceptor Conveyance Facilities  
 Project Cost Distribution

Size/Length (inch)	Unit Project Cost (\$/ft)	UGTMA(a) (feet)	Sub-total UGTMA	Towamencin(b) (feet)	Sub-total	Upper Gwynedd(c) (feet)	Sub-total	Total
24	27.57	631	\$17,394.66					631
21	26.76	2,571	\$68,803.24					2,571
18	18.55	7,514	\$139,348.55	1,478	\$27,409.79			8,992
15	10.09			5,063	\$51,098.68	2,420	\$24,424.02	7,483
12	6.49			3,497	\$22,679.04	2,304	\$14,942.10	5,801
10	12.56			2,500	\$31,398.19	1,409	\$17,696.02	3,909
8	12.89			849	\$10,946.35			849
<b>Total Interceptor Length</b>		<b>10,716</b>		<b>13,387</b>		<b>6,133</b>		<b>30,236</b>
<b>Total Interceptor Cost</b>			<b>\$225,546.45</b>		<b>\$143,532.06</b>		<b>\$57,062.14</b>	<b>\$426,140.66</b>
<b>Item\Distribution</b>			<b>53.00%</b>		<b>Cost Distribution</b>		<b>13.00%</b>	<b>Total</b>
1969 Grant			\$53,000		\$34,000		\$13,000	\$100,000
1974 Grant			\$37,842		\$24,276		\$9,282	\$71,400
1975 Grant			\$8,610		\$5,524		\$2,112	\$16,246
			\$99,452		\$63,800		\$24,394	\$187,646

- (a) UT Trunk Line
- (b) T Trunk Line
- (c) U Trunk Line

TABLE 3

Upper Gwynedd Towamencin Municipal Authority

CAPACITY PART OF TAPPING FEE

Capacity Fee - Existing Facilities

Existing Facilities - Trended Historical Cost Basis (Table 1)	\$33,334,333
Outstanding Debt	6,608,824 *
	=====
Net Cost of Existing Facilities	\$26,725,509
	\$26,725,509
Capacity Fee For Existing Facilities =	-----
	5,900,000 gpd **
	= \$4.530 /gpd
	@ 228.6 gpd/household ***
	= \$1,035.50 /household
Total Capacity Part of Tapping Fee (Rounded Down) =	\$1,035.00 /household

Notes:

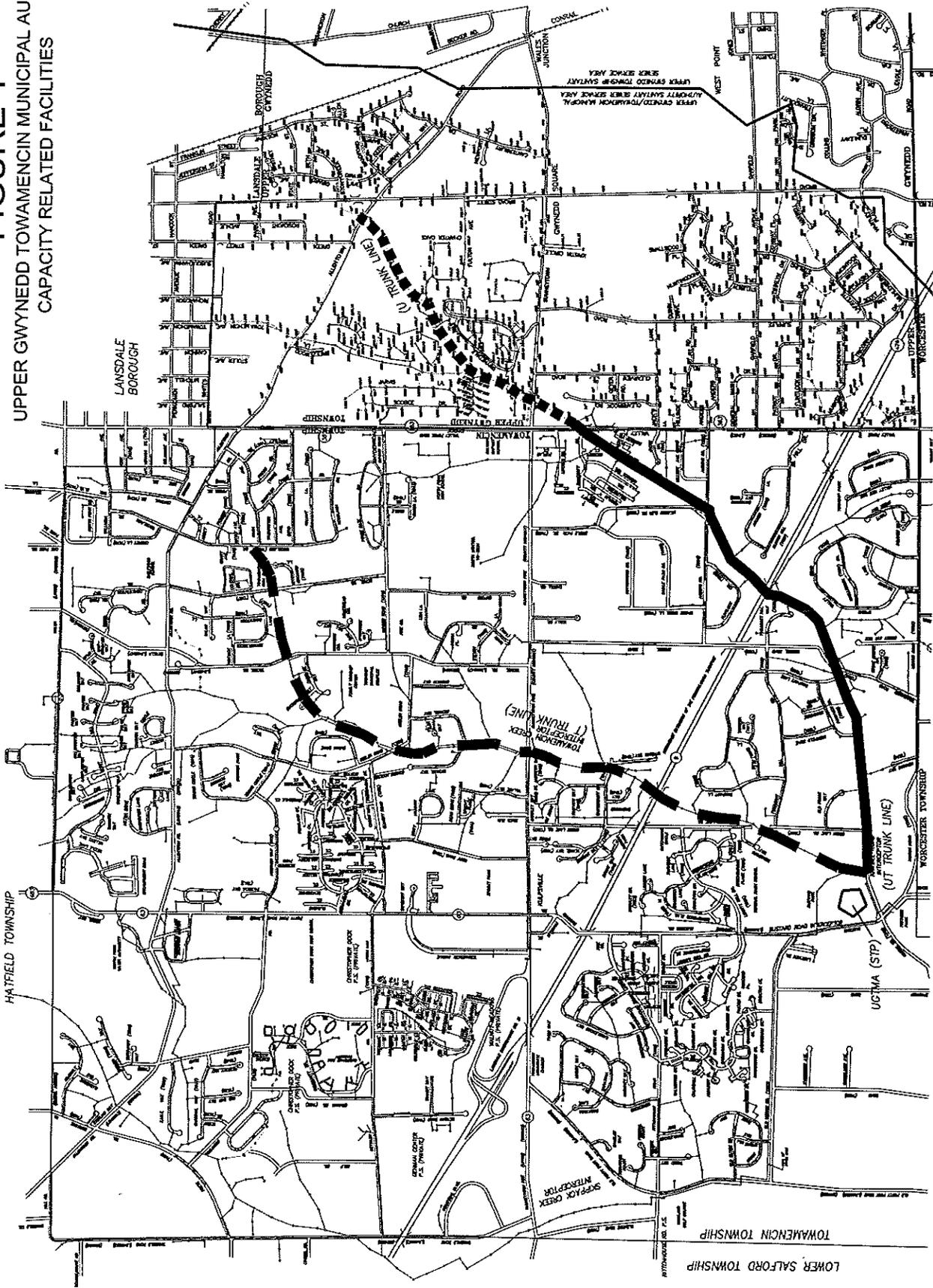
- \* Existing outstanding debt is \$6,608,824 (1991 Capital Appreciation Bonds; \$5,271,824 and Series 2002 loan: \$1,337,000).
- \*\* Existing System Design Capacity per PaDEP evaluation (June 2, 2003 letter) is 5,900,000 gpd (Appendix B thru D).
- \*\*\* Household Unit Flow -  
The UGTMA service area includes several townships. Therefore use Montgomery County person per household data (2.54 persons per household, as set forth in Appendix E).  
Household Unit Flow = 2.54 persons per household X 90 gpd/person  
= 228.6 gpd/Household

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## FIGURES



**FIGURE 1**  
UPPER GWYNEDD TOWAMENCIN MUNICIPAL AUTHORITY  
CAPACITY RELATED FACILITIES



## APPENDICES



TABLE A-1  
Upper Gwynedd Towamencin Municipal Authority  
SANITARY SEWERS - CONTRACT NO. 1  
Schedule of Values

Bid Date: November 6, 1968

Bid Item	Description	Unit	Estimated Quantity		
				Unit Price \$	Total Price \$
1a	24" Sewer 0'-6'	LF	27	12.00	324.00
1b	24" Sewer 6'-8'	LF	90	12.20	1,098.00
1c	24" Sewer 8'-10'	LF	316	14.00	4,424.00
1d	24" Sewer 10'-12'	LF	198	15.00	2,970.00
2a	21" Sewer 0'-6'	LF	50	9.60	480.00
2b	21" Sewer 6'-8'	LF	242	10.50	2,541.00
2c	21" Sewer 8'-10'	LF	180	12.30	2,214.00
2d	21" Sewer 10'-12'	LF	1,849	14.00	25,886.00
2e	21" Sewer 12'-14'	LF	250	15.00	3,750.00
3a	18" Sewer 0'-6'	LF	2,776	8.05	22,346.80
3b	18" Sewer 6'-8'	LF	3,407	8.70	29,640.90
3c	18" Sewer 8'-10'	LF	1,896	10.90	20,666.40
3d	18" Sewer 10'-12'	LF	827	13.05	10,792.35
3e	18" Sewer 12'-14'	LF	40	15.95	638.00
4a	15" Sewer 0'-6'	LF	2,754	6.70	18,451.80
4b	15" Sewer 6'-8'	LF	2,306	7.10	16,372.60
4c	15" Sewer 8'-10'	LF	2,862	7.60	21,751.20
4d	15" Sewer 10'-12'	LF	24	9.50	228.00
5a	12" Sewer 0'-6'	LF	3,159	5.90	18,638.10
5b	12" Sewer 6'-8'	LF	2,151	6.12	13,164.12
5c	12" Sewer 8'-10'	LF	456	6.85	3,123.60
5d	12" Sewer 10'-12'	LF	30	7.80	234.00
6a	10" Sewer 0'-6'	LF	4,901	5.42	26,563.42
6b	10" Sewer 6'-8'	LF	3,458	5.82	20,125.56
6c	10" Sewer 8'-10'	LF	1,102	6.32	6,964.64
6d	10" Sewer 10'-12'	LF	532	8.45	4,495.40
6e	10" Sewer 12'-14'	LF	381	10.05	3,829.05
6f	10" Sewer 14'-16'	LF	467	15.05	7,028.35
7a	8" Sewer 0'-6'	LF	11,008	5.05	55,590.40
7b	8" Sewer 6'-8'	LF	20,608	5.45	112,313.60
7c	8" Sewer 8'-10'	LF	14,809	5.95	88,113.55
7d	8" Sewer 10'-12'	LF	6,797	8.00	54,376.00
7e	8" Sewer 12'-14'	LF	3,950	9.60	37,920.00
7f	8" Sewer 14'-16'	LF	670	14.60	9,782.00
7g	8" Sewer 16'-18'	LF	150	19.30	2,895.00
7h	8" Sewer 18'-20'	LF	200	24.30	4,860.00
8a	5" Sewer 0'-6'	LF	2,343	6.15	14,409.45
8b	5" Sewer 6'-8'	LF	1,455	6.65	9,675.75
8c	5" Sewer 8'-10'	LF	1,475	7.45	10,988.75
8d	5" Sewer 10'-12'	LF	753	9.00	6,777.00

TABLE A-1  
Upper Gwynedd Towamencin Municipal Authority  
SANITARY SEWERS - CONTRACT NO. 1  
Schedule of Values

Bid Item	Description	Unit	Estimated Quantity	Unit Price \$	Total Price \$
8e	5" Sewer 12'-14'	LF	65	12.00	780.00
9a	5" x 21" Y Branches	EA	1	114.00	114.00
9b	5" x 18" Y Branches	EA	2	92.50	185.00
9c	5" x 15" Y Branches	EA	1	32.00	32.00
9d	5" x 10" Y Branches	EA	22	10.80	237.60
9e	5" x 8" Y Branches	EA	565	4.50	2,542.50
10	Deep cut laterals	VF	930	8.50	7,905.00
11a	Manhole under 6'	EA	277	232.00	64,264.00
11b	Manhole Extra depth over 6'	VF	698	24.00	16,752.00
11c	Drop manhole	VF	87	22.50	1,957.50
11d	Extra wall thickness manholes >12'	VF	49	xxx	-
11e	Extra for watertight manhole	EA	25	105.00	2,625.00
12a	Concrete Encasement 21" sewer	LF	135	10.00	1,350.00
12b	Concrete Encasement 18" sewer	LF	980	10.00	9,800.00
12c	Concrete Encasement 15" sewer	LF	1,082	6.00	6,492.00
12d	Concrete Encasement 12" sewer	LF	560	6.00	3,360.00
12e	Concrete Encasement 10" sewer	LF	515	6.00	3,090.00
12f	Concrete Encasement 8" sewer	LF	610	6.00	3,660.00
13a	Type I Roadway Trench	LF	18,159	2.65	48,121.35
13b	Type II Roadway Trench	LF	6,205	3.20	19,856.00
13c	Type III Roadway Trench	LF	2,429	6.20	15,059.80
14a	Stabilized Shoulder	LF	13,569	0.55	7,462.95
14b	Macadam Drive	LF	1,560	1.70	2,652.00
14c	Stone Drive	LF	1027	1.50	1,540.50
14d	Sidewalk	SY	58	7.80	452.40
14e	Concrete curb	LF	114	5.00	570.00
14f	Paved road ditch	SY	400	5.00	2,000.00
15	Bedding Stone	TON	5,565	4.20	23,373.00
16	Rock excavation	CY	32,678.00	7.00	228,746.00
17a	8" Stub pipes	EA	29.00	12.00	348.00
17b	10" Stub pipes	EA	11.00	10.00	110.00
18	Shoring left in place	MBF	120.00	50.00	6,000.00
19	Clearing and Grubbing	LS	1.00	6,000.000	6,000.00
20	Seeding	LS	1.00	6,700.00	6,700.00
21	Sodding	SY	2,535.00	1.00	2,535.00
22	Calcium Chloride dust control	LB	6,800.00	0.20	1,360.00
23	Unclassified concrete	CY	95	30.00	2,850.00
24	Reinforcing Steel in place	TON	2	400.00	900.00
25	Additional Backfill	CY	2,800	4.00	11,200.00
		LF	0		-
		LS	1		-

\* Change Order No. 1.

Sub-Total Construction Cost

\$ 1,209,426.40

TABLE A-1  
Upper Gwynedd Towamencin Municipal Authority  
SANITARY SEWERS - CONTRACT NO. 1

Sub-Total Construction Cost	\$	1,209,426
Engineering		50,566
Legal, Admin, Misc (@ 5%)		<u>60,000</u>
Sub-Total Soft Costs	\$	110,566
		=====
Total Project Cost	\$	1,319,992

Description	Length	Sewer LF Cost	Ratio
8" Sewer	58,192	\$380,260	0.57
10" Sewer	10,841	69,006	0.10
12" Sewer	10,697	35,160	0.05
15" Sewer	11,105	56,804	0.08
18" Sewer	8,946	84,084	0.13
21" Sewer	2,571	34,871	0.05
24" Sewer	631	<u>8,816</u>	0.01
		\$669,001	
			<b>Project Cost</b>
Cost attributed to 8" sewer: 0.57	x cost =	\$ 750,283.02	<b>12.89 \$/ft</b>
Cost attributed to 10" sewer: 0.10	x cost =	\$ 136,155.12	<b>12.56 \$/ft</b>
Cost attributed to 12" sewer: 0.05	x cost =	\$ 69,373.10	<b>6.49 \$/ft</b>
Cost attributed to 15" sewer: 0.08	x cost =	\$ 112,077.99	<b>10.09 \$/ft</b>
Cost attributed to 18" sewer: 0.13	x cost =	\$ 165,905.26	<b>18.55 \$/ft</b>
Cost attributed to 21" sewer: 0.05	x cost =	\$ 68,803.24	<b>26.76 \$/ft</b>
Cost attributed to 24" sewer: 0.01	x cost =	\$ 17,394.66	<b>27.57 \$/ft</b>
	Total =	\$ 1,319,992	

## DISCHARGE REQUIREMENTS FOR PUBLICLY OWNED TREATMENT WORKS

### PART A - EFFLUENT LIMITATIONS, MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

- c. The permittee shall provide for effective disinfection of this discharge to control disease-producing organisms during the swimming season (May 1 through September 30) by achieving a fecal coliform concentration not greater than 200/100 ml as a geometric average (mean), and not greater than 1,000/100 ml in more than 10% of the samples tested. During the period October 1 through April 30 the fecal coliform concentration shall not exceed 200/100 ml as a geometric average (mean).
- d. All discharges of floating materials, oil, grease, scum and substances which produce tastes, color, odors, turbidity or settle to form deposits shall be controlled to levels which will not be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life (93.6)(b).
- e. Except as otherwise specified in this permit, the 30-day average percent removal for carbonaceous biochemical oxygen demand and total suspended solids shall not be less than 85 percent.
- f. For discharges in the Delaware River Basin only - the permittee shall provide for effective disinfection of this discharge to control disease producing organisms by continuously achieving a fecal coliform concentration of not greater than 200/100 ml as a geometric average.

#### Footnotes (Refer to Pages 2 and 2a)

- (1) When sampling to determine compliance with the mass discharge limitations, discharge flow at the time of sampling must be measured, recorded, and reported on the Discharge Monitoring Report Form.
- (2) The instantaneous maximum discharge limitations are for compliance use by the Department only. Do not report instantaneous maximums on the Discharge Monitoring Report (DMR) or Supplemental DMR unless specifically required on those forms to do so.

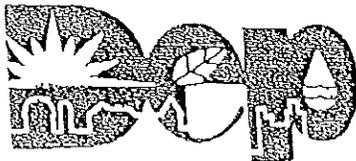
#### Supplemental Information

 The effluent limitations for Outfalls 001, 002, and 003 were determined using an average annual effluent discharge rate (design flow) of 6.5 mgd (million gallons per day).

A maximum monthly average flow of 7.3 mgd is the rated hydraulic capacity of the treatment facility and is used to help determine whether a "hydraulic overload" situation exists, as defined in 25 Pa. Code Chapter 94 (relating to municipal wasteload management).

Re 30 (AR03)163-18K.

## Appendix C – PaDEP June 2, 2003 Letter to UGTMA




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 Pennsylvania Department of Environmental Protection
 

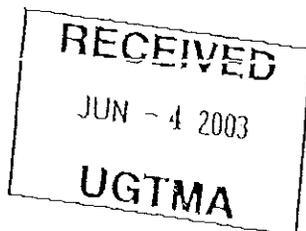
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Lee Park, Suite 6010  
 555 North Lane  
 Conshohocken, PA 19428  
 June 2, 2003

Southeast Regional Office

610-832-6130  
 Fax 610-832-6133

Mr. Robert M. Duffy, Manager  
 Upper Gwynedd-Towamencin  
 Municipal Authority  
 2225 Kriebel Road  
 Lansdale, Pennsylvania 19446



Re: 2002 Chapter 94 Wasteload Management  
 Report  
 Upper Gwynedd-Towamencin MA  
 Montgomery County

Dear Mr. Duffy:

We have received your March 17, 2003 submission of the referenced annual report, which was submitted in accordance with Section 94.12 of the Chapter 94 Municipal Wasteload Management Regulations.

Your facility appears to be in compliance with Chapter 94 reporting requirements. Below, you will find our tabulation of your current and projected hydraulic capacity:

	1996	1997	1998	1999	2000	2001	2002
AA	4.904	4.045	3.880	3.965	4.460	4.348	3.955
3 MM	5.407	4.897	5.075	4.841	5.442	5.814	5.019
3MM/AA	1.10	1.21	1.31	1.22	1.22	1.34	1.27

5-Year Average	1996/2000	1997/2001	1997/2002
AA	4.251 MGD	4.139 MGD	4.121 MGD
3 MM	5.132 MGD	5.214 MGD	5.238 MGD
3 MM/AA	1.21	1.26	1.27

Part II Permit Hydraulic Design = 6.5 MGD

Projected 2007 AA Flow based on past 5 year hydraulic average =  
 $4.121 \text{ MGD} + [(5) \times (0.012040 \text{ MGD}) + 0.418968] = 4.600 \text{ MGD}$



Mr. Robert M. Duffy

- 2 -

June 2, 2003

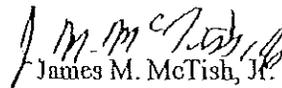
Projected 2007 MM Hydraulic Flow based on past 5 year average =  
 $5.238 + 1.27[(5) \times (0.012040) + 0.418968] = 5.846 \text{ MGD}$

Projected hydraulic overload calculation:  
Design flow / 5 year 3MM/AA  
 $6.5 \text{ MGD} / 1.27 = 5.12 \text{ MGD}$

Based on the above calculations, your facility will fall into projected hydraulic overload once the annual average hydraulic flow reaches 5.12 mgd. Although, your facility is not projected to reach the 5.12 mgd limit during the next five years, you are advised of two cost effective methods, which would increase the 5.12 mgd ceiling closer to STP's design flow of 6.5 mgd. The first method would require aggressive I/I mitigation activities. By reducing your I/I contribution, you will reduce your 3 MM/AA ratio and ultimately increase your AA flow capabilities. The second method would require a two-tier permit. The first tier would allow the current annual average flow limit of 6.5 mgd and the second tier would allow a max month hydraulic flow limit greater than the current annual average flow of 6.5 mgd.

If you should have any questions regarding the Chapter 94 program, please call Mr. Jim McTish at 610-832-6098.

Sincerely,

  
James M. McTish, Jr.  
Project Manager  
Water Management

cc: Mr. Smith – EDM Consultants  
Re 30

TABLE D-1  
 UGTMA Capacity Portion of Tapping Fee

Twelve Month Flow Summary/System Capacity  
 and  
 Flow per Household

**Twelve Month Flow Summary**

Month/Year	Mnth Avg (mgd)	Max. Mnth (mgd)
January-04	3.858	
February-04	4.340	
March-04	4.686	
April-04	5.568	5.568
May-04	4.028	
June-04	3.542	
July-04	4.979	
August-04	4.098	
September-04	5.057	
October-04	4.019	
November-04	4.767	
December-04	5.068	
12-month Average	4.501	
Maximum Month Ratio (MthMax:Avg)		5.568 1.237
Minimum	3.542	

**System Capacity**

UGTMA Maximum Monthly Capacity (mgd) = 7.3

$$\begin{aligned} \text{Avg. System Capacity (mgd)} &= [\text{Max. Mnth Cap./Ratio}] = \\ &= \frac{7.3}{1.237} = \\ \text{Avg. System Capacity (mgd)} &= 5.90 \end{aligned}$$

**Household Unit Flow**

The UGTMA service area includes more than the one township. Therefore use Montgomery County person per household data (2.54 persons per household).

$$\begin{aligned} \text{Household Unit Flow} &= 2.54 \text{ persons per household} \times 90 \text{ gpd/person} \\ &= 228.6 \text{ gpd/Household} \end{aligned}$$

# Appendix E – Montgomery County, PA Year 2000 Household Census



2000 Households and Families by Municipality				
Municipality	2000 Total Population	Total Number of Households	Number of Family Households	Persons Per Household
Abington	56,103	21,690	15,136	2.54
Ambler	6,426	2,510	1,600	2.45
Bridgeport	4,371	1,983	1,070	2.20
Bryn Athyn	1,351	377	292	3.21
Cheltenham	26,875	14,346	9,638	2.47
Collegeville	4,628	1,408	1,011	2.67
Conshohocken	2,589	1,329	1,835	2.27
Douglas	2,104	3,211	2,552	2.83
East Greenville	1,103	1,124	806	2.67
East Norriton	13,211	5,156	3,547	2.45
Franconia	11,523	4,151	3,298	2.70
Green Lane	384	231	165	2.53
Harboro	2,393	3,041	1,956	2.43
Hatfield Boro	2,605	1,106	650	2.31
Hatfield Twp.	16,712	6,302	4,452	2.63
Horsham	24,232	9,082	6,447	2.64
Jenkintown	4,478	2,035	1,088	2.19
Lansdale	16,071	6,670	4,052	2.36
Limerick	13,534	5,143	3,745	2.61
Lower Frederick	4,795	1,730	1,317	2.77
Lower Gwynedd	10,422	4,177	2,754	2.39
Lower Merion	59,850	22,868	15,021	2.42
Lower Moreland	11,281	4,112	3,329	2.71
Lower Pottsgrove	11,213	4,015	3,093	2.75
Lower Providence	22,390	7,446	5,604	2.75
Lower Salford	12,893	4,432	3,543	2.89
Marlborough	3,104	1,174	889	2.63
Montgomery	22,025	7,926	6,055	2.74
Narberth	4,233	1,904	1,037	2.22
New Hanover	2,369	2,537	2,147	2.91
Norrisstown	31,282	12,028	7,148	2.52
North Wales	3,342	1,299	869	2.56
Pennsburg	2,732	1,009	705	2.59
Perkiomen	7,093	2,468	1,967	2.87
Plymouth	16,045	6,512	4,364	2.43
Pottstown	21,859	9,146	5,534	2.36
Red Hill	2,196	899	576	2.44
Rockledge	2,577	1,060	646	2.43
Royersford	4,246	1,928	1,066	2.20
Salford	2,363	807	677	2.92
Schwenksville	1,693	626	327	2.13
Shippack	2,920	2,353	1,828	2.73
Souderton	6,730	2,635	1,766	2.54
Springfield	19,533	7,471	5,137	2.44
Telford*	2,469	1,930	1,201	2.34
Towamencin	17,597	6,872	4,807	2.55
Trappe	3,210	1,292	886	2.48
Upper Dublin	25,878	9,174	7,273	2.78
Upper Frederick	3,141	1,045	812	2.79
Upper Gwynedd	14,243	5,341	4,007	2.63
Upper Hanover	4,885	1,737	1,433	2.81
Upper Merion	26,863	11,575	7,137	2.30
Upper Moreland	24,993	10,120	6,635	2.40
Upper Pottsgrove	4,102	1,417	1,156	2.87
Upper Providence	15,398	5,355	4,104	2.77
Upper Salford	3,024	1,053	843	2.86
West Conshohocken	1,446	600	342	2.40
West Norriton	14,901	6,614	3,842	2.23
West Pottsgrove	3,815	1,524	1,011	2.59
Whitemarsh	16,702	6,179	4,597	2.62
Whitpain	18,562	6,960	5,204	2.64
Worcester	2,789	2,896	2,145	2.69
<b>Montgomery County</b>	<b>750,097</b>	<b>286,098</b>	<b>197,640</b>	<b>2.54</b>
U.S. Census Bureau, Census 2000				
* Montgomery County portion only				
A household includes all persons who occupy a housing unit.				
A family includes one adult householder and one or more other persons living in the same household who are related to the householder by birth, marriage, or adoption.				