PHILADELPHIA WATER DEPARTMENT

Randy E. Hayman, Water Commissioner

Darrell L. Clarke, President
Philadelphia City Council
City Hall, Room 490
Philadelphia, PA 19107

May 20, 2020

RE: Advance Notice of Proposed Changes in Rates and Charges – Annual Adjustment of TAP-R, Preliminary Proposed TAP-R Reconciliation Statement

Dear President Clarke and City Council:

The purpose of this correspondence is to provide advance notice to the Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board") of changes in rates and charges proposed by the Philadelphia Water Department ("Department") to implement the annual adjustment to the Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) and to revise related water, sewer and fire service connection quantity charges. The proposed changes in rates and charges, if approved by the Rate Board, will take effect on October 1, 2020. The following rates and charges will be impacted by the new TAP-R:

Rate/Charge	Rates and Charges Section Reference
Total Water Quantity Charges	Section 2.1(c)(1)
Total Sewer Quantity Charges	Section 3.3(b)(1)
Total Fire Service Quantity Charges	Section 9.1(d)(1)
TAP-R Surcharge Rates	Section 10.3

This notice is submitted in accordance with the ratemaking authority and procedural requirements specified in Sections 5-801 and 8-407 of the Philadelphia Home Rule Charter, Sections 13-101 and 21-1703 of the Philadelphia Code, Sections II.A.2(a) and II.C.1 of the Rate Board's regulations, and the Rate Board's 2018 Rate Determination. The Department's Preliminary Proposed TAP-R Reconciliation Statement with the accompanying exhibits is enclosed. As always, the Department's management staff will be available to answer any questions.

Sincerely,

Randy E. Hayman
Water Commissioner

Enclosures
cc: The Public Advocate (w/ enc.)
All Other Participants in the 2018 and 2020 Rate Proceedings (w/ enc.)

PHILADELPHIA WATER DEPARTMENT

Randy E. Hayman, Water Commissioner

Sonny Popowsky, Chair
Philadelphia Water, Sewer and Storm Water Rate Board
c/o Steven Liang
17th Floor, One Parkway
1515 Arch Street
Philadelphia, PA 19102

May 20, 2020

RE: Advance Notice of Proposed Changes in Rates and Charges – Annual Adjustment of TAP-R, Preliminary Proposed TAP-R Reconciliation Statement

Dear Philadelphia Water, Sewer and Storm Water Rate Board:

The purpose of this correspondence is to provide advance notice to the Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board") of changes in rates and charges proposed by the Philadelphia Water Department ("Department") to implement the annual adjustment to the Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) and to revise related water, sewer and fire service connection quantity charges. The proposed changes in rates and charges, if approved by the Rate Board, will take effect on October 1, 2020. The following rates and charges will be impacted by the new TAP-R:

Rate/Charge	Rates and Charges Section Reference
Total Water Quantity Charges	Section 2.1(c)(1)
Total Sewer Quantity Charges	Section 3.3(b)(1)
Total Fire Service Quantity Charges	Section 9.1(d)(1)
TAP-R Surcharge Rates	Section 10.3

This notice is submitted in accordance with the ratemaking authority and procedural requirements specified in Sections 5-801 and 8-407 of the Philadelphia Home Rule Charter, Sections 13-101 and 21-1703 of the Philadelphia Code, Sections II.A.2(a) and II.C.1 of the Rate Board's regulations, and the Rate Board's 2018 Rate Determination. The Department's Preliminary Proposed TAP-R Reconciliation Statement with the accompanying exhibits is enclosed. As always, the Department's management staff will be available to answer any questions.

Sincerely,

Randy E. Hayman
Water Commissioner

Enclosures
cc: The Public Advocate (w/ enc.)
All Other Participants in the 2018 and 2020 Rate Proceedings (w/ enc.)

TAP-R Proposed Reconciliation Filing Index

Philadelphia Water Department

PRELIMINARY PROPOSED RECONCILIATION STATEMENT

Date: May 19, 2020

To: Philadelphia Water Department

From: Black & Veatch Management Consulting, LLC

Subject: Preliminary Proposed Reconciliation Statement for the Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) - Effective October 1, 2020

Introduction

This Preliminary Proposed Reconciliation Statement for the Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) effective as of October 1, 2020, is submitted on behalf of the Philadelphia Water Department (Water Department or PWD). This submission is supported by the following documents: Schedules BV-1 through BV-4, Schedules RFC-1 through RFC-3, and Exhibits 1A and 1B. The reconciliation calculations, resulting bill impacts and supporting documentation (including data used in completing the TAP-R reconciliation calculations were prepared with the assistance of Black & Veatch Management Consulting, LLC and Raftelis Financial Consultants. Resumes of the above consultants are attached hereto for your reference.

Proposed TAP-R Rates – Effective October 1, 2020

The proposed Water TAP-R rate, effective October 1, 2020, is $0.57 per thousand cubic feet (MCF) of water usage. The proposed Sewer TAP-R rate, effective October 1, 2020, is $0.78 per thousand cubic feet (MCF) of sewer billed volume.

Rates And Charge That Will Increase Or Decrease

The following rates and charges will be impacted by the new TAP-R rates:

Rate/Charge	Rates and Charges Section Reference
Total Water Quantity Charges	Section 2.1(c)(1)
Total Sewer Quantity Charges	Section 3.3(b)(1)
Total Fire Service Quantity Charges	Section 9.1(d)(1)
TAP-R Surcharge Rates	Section 10.3

PWD Exhibit No. 2B, attached hereto, shows the proposed revisions to PWD's rates and charges, reflecting the calculated TAP-R rates effective October 1, 2020.

Supporting Calculations and Data

The calculations supporting the derivation of the proposed TAP-R rates are provided in Schedule BV-1.

Table 1 provides an overall summary of the TAP-R reconciliation calculations presenting the water and sewer portions of Projected Tap Billing Loss (C-Factor), Experienced and Estimated Over/Under Collection of TAP costs (E-Factor), Interest on Over/Under Collection Amount (I-Factor), the resulting Net Recoverable Costs [i.e. C-(E+I)], the projected water and sewer billed volumes (S-Factor) for the Next Rate Period of October 1, 2020 through September 30, 2021 and the calculated water and sewer TAP-R rates.

Table 2 presents the calculation of the projected TAP Billing Loss or C-Factor for the Next Rate Period of October 1, 2020 through September 30, 2021 and the apportionment of the total TAP Billing Loss between water and sewer.

Tables 3-W and 3-WW present the calculation of the Experienced & Estimated Net Over/Under Collection or E-Factor for the Most Recent Period of September 1, 2019 through September 30, 2020 for water and sewer respectively. This calculation reconciles the discounts provided to TAP participants with the estimated TAP-R revenues collected from Non-TAP customers. In addition, the E-Factor is adjusted to reconcile estimated amounts of Over/Under Collection for the period of March 2019 through August 2019 included in the prior reconciliation with the actuals for the same period. Tables 3-W-A and 3-WW-A present the reconciliation of estimated amounts of Over/Under Collection for the period of March 2019 through August 2019.

Tables 4-W and 4-WW present the calculation of Interest on the Net Over/Under Collection Amount or I-Factor for the Most Recent Period of September 1, 2019 through September 30, 2020 for water and sewer respectively. In addition, the I-Factor is adjusted to reconcile estimated amounts of interest for the period of March 2019 through August 2019 included in the prior reconciliation based upon the actuals for the same period. Tables 4-W-A and 4-WW-A present the reconciliation of estimated amounts of interest for the period of March 2019 through August 2019.

Table 5 presents the calculation of the final water and sewer quantity charges, effective October 1, 2020, resulting from the addition of the proposed TAP-R rates to the previously adopted base rates for FY 2020 as determined in the Rate Determination, dated July 12, 2018 (2018 Rate Determination).

Underlying Assumptions

The assumptions used in developing the TAP-R calculations are detailed in Schedule BV-3. There are three primary types of assumptions: 1) Codified Factors, 2) Estimation Assumptions and 3) Projection Assumptions.

Codified factors are those established as a result of the 2018 Rate Determination and codified in Section 10.1 of the Philadelphia Water Department Rates and Charges.

Codified Factors include:

- Allocation Factors – used to apportion TAP Billing Losses to water and sewer
  - Water Tap Cost Allocation: 41 percent
  - Sewer Tap Cost Allocation: 59 percent
- Collection Factor – Used to adjust TAP Billing Loss and TAP-R billings for the Most Recent Period
  - Collection Factor: 96.54 percent
- Interest Rate - Applied to under/over collection (i.e., I-Factor). The interest rate is based upon the 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 1, 2020.
  - Interest Rate: 0.17 percent

Estimation Assumptions for the remainder of the Most Recent Period (March through September 2020) include:

- TAP Participants;
- TAP Billing Loss; and
- TAP Billed Volumes.

PWD Exhibit No. 1 provides additional details regarding the derivation of the Estimation Assumptions.

Projection Assumptions for the Next Rate Period include:

- **TAP Participants** – The level of monthly TAP Participants was assumed to remain flat at 15,180 based upon the estimated participation at the end of the Most Recent Period (i.e., as of September 2020).
- **TAP Billing Loss** – Estimated based upon the projected number of TAP Participants for the Next Rate Period and the average discount of $51.25 per TAP Participant. Total TAP Billing Loss for the Next Rate Period was assumed to be approximately $9.3 million.

Methodology Used to Complete the TAP-R Reconciliation Calculations

The calculations are based upon the following equation and computation approach as defined in Section 10.1 of the Philadelphia Water Department Rates and Charges.

TAP Equation

$$TAP\text{-}R = \frac{(C) - (E + I)}{S}$$

C-Factor

The calculation of the C-Factor is presented in Table 2 of Schedule BV-1. The C-Factor is calculated as the projected number of TAP Participants for the Next Period multiplied by the Average Discount per Tap Participant based on the most recent 6 months (September 2019 to February 2020) of the Most Recent Period. The C-Factor is allocated to the water and sewer TAP-R based on the codified Allocation Factors.

E-Factor

The calculation of the E-Factor is presented in Tables 3-W and 3-WW of Schedule BV-1. The E-Factor is calculated as Adjusted Actual TAP Discounts minus the Estimated Non-TAP TAP-R Revenues Experienced.

The Adjusted Actual TAP Discounts, which represents the level of TAP Discounts to be recovered by the TAP-R during Prior Rate Period, is calculated as the estimated TAP Discounts net of TAP-R billings to TAP Participants multiplied by the system codified Collection Factor.

The Estimated Non-Tap TAP-R Revenues Experienced, which represents the level of TAP-R revenue from Non-TAP Customers during the Prior Rate Period, is calculated as the product of the Non-Tap Customer Water Sales and the TAP-R rate for the Prior Rate Period multiplied by the system codified Collection Factor.

I-Factor

The calculation of the I-Factor is presented in Tables 4-W and 4-WW of Schedule BV-1. The I-Factor is calculated monthly as the cumulative E-Factor multiplied by the Interest Rate.

S-Factor

The S-Factor is presented on Line 5 of Table 1 of Schedule BV-1. The S-Factor, which represents the projected Non-TAP customer sales volumes for the Next Rate Period, is calculated as the annualized overall Non-TAP water and sewer sales volumes for the Most Recent Period multiplied by 1.05 percent. As stated in Schedule BV-3: TAP Reconciliation Assumptions dated May 15, 2020, PWD continues to experience declining sales volumes, therefore a reduction in total sales volumes was applied to reflect current conditions.

The methodology used the complete the TAP-R calculations is described in Schedule BV-4.

Effects of the Revised Rates on Bills of Typical Small User Customers

Table C-4, in Schedule BV-2, presents a series of typical or representative combined residential water, sanitary sewer, and stormwater monthly bills for the 5/8-inch meter customers under the Department's currently effective base rates (as of September 1, 2019) as well as the existing and proposed TAP-R rates. A typical PWD residential customer has a 5/8-inch meter and uses about 0.5 Mcf (thousand cubic feet), approximately 500 cubic feet, monthly. Under the existing base rates and proposed TAP-R rates, this customer's monthly bill would decrease from $66.99 to $66.73, a decrease of $0.26 or about (0.4) percent.

A typical PWD senior residential customer has a 5/8-inch meter and uses about 0.3 Mcf (thousand cubic feet), approximately 300 cubic feet, monthly. Based on the results presented in Table C-4, under the existing schedules of base rates and proposed TAP-R rates, this customer's monthly bill would decrease from $38.54 to $38.43, a decrease of $0.11 or about (0.3) percent.

Table C-5, in Schedule BV-2, presents a series of typical or representative combined non-residential water, sanitary sewer, and stormwater monthly bills under existing and proposed TAP-R rates for multiple meter sizes and various parcel characteristics (i.e. gross and impervious area). A typical PWD small commercial business customer has a 5/8-inch meter and uses about 0.6 Mcf (thousand cubic feet), approximately 600 cubic feet, monthly. A parcel with gross area of 5,500 square feet and impervious area of 4,000 square feet was assumed for development of the typical bill comparison. Under the existing base rates and the proposed TAP-R rates, this customer's monthly bill would decrease from $112.45 to $112.13, a decrease of $0.32 or about (0.3) percent.

Table 1 - Calculation of TAP Rider Rates Effective October 1, 2020 (FY 2021)

		TOTAL	Water	Wastewater
		Amount	Amount	Amount
(1)	C = Projected TAP Billing Loss[a]	$ 9,335,700	$ 3,827,637	$ 5,508,063
(2)	E = Experienced & Estimated Net Over/Under Collection [b]	$ 1,859,457	$ 583,397	$ 1,276,060
(3)	I = Interest on Experienced & Estimated Net Over/Under Collection [c]	$ 3,254	$ 1,162	$ 2,092
(4)	Net Recoverable Costs[d]: (C) - (E + I)	$ 7,472,988	$ 3,243,078	$ 4,229,911
(5)	S = Projected Non-TAP Sales for Next Rate Period (MCF)[e]		5,730,856	5,395,285
(6)	**TAP-R Surcharge[f]:** (4)/(5)		$ 0.57 **/MCF**	$ 0.78 **/MCF**

Notes:

[a] Recoverable TAP Billing Loss for the Next Rate Period. Refer to Table 2 for additional information.

[b] Actual TAP Discounts versus TAP Revenue Collection for the Most Recent Period. Refer to Tables 3-W and 3-WW for further information.

[c] Simple Annual Interest on Net Over/Under Collection for the Most Recent Period. Refer to Tables 4-W and 4-WW for further information. Interest rate of 0.17% as of May 01, 2020.

[d] Net Recoverable Costs.

[e] Estimated water and sewer sales for Non-Tap Customers for the Next Rate Period based upon the overall annualized Non-TAP sales volume for the Most Recent Period and reduced by 1.05% in accordance with the FY 2021 to FY 2022 Cost of Service Study. Next Rate Period is assumed to be October 1, 2020 to September 30, 2021.

[f] TAP-R Surcharge for the Next Rate Period.

Philadelphia Water Department
Table 2 - Projected TAP Lost Revenue (C-Factor) for Next Rate Period

Period	October 1, 2020 through September 30, 2021		Water	Wastewater
			41%	59%
(1)	Projected TAP Billing Loss[a]	$ 9,335,700	$ 3,827,637	$ 5,508,063

Notes:

[a] Projected TAP Billing Loss based upon Raftelis' TAP Program Projections. Assumes 15,180 participants per month at an average discount of $51.25.

[b] Allocation between Water and Wastewater per Philadelphia Water Department Regulations - Rates and Charges Effective September 1, 2019 Section 10.1(a)(i) and (ii).

Philadelphia Water Department
Table 3-W - Experienced & Estimated Net Over/(Under) Collection (E-Factor) for Most Recent Period

	Billing Period	Total Actual TAP Discounts (Credits) (1)	Billed TAP Water Sales (Mcf) (2)	Total TAP-R Billed to TAP Participants $ 0.710 (3) = (2) * $ 0.710/Mcf	Adjusted Actual TAP Discounts (Credits) 96.54% (4) = [(1) - (3)]* 0.9654	Billed Non-TAP Water Sales (Mcf) (5)	TAP-R Billed Non-Tap Water Sales $ 0.710 (6) = (5) * $ 0.710/Mcf	Estimated TAP-R Revenues Experienced 96.54% (7) = (6) * 0.9654	Over/(Under) Collection (8) = (7) - (4)
(a)	Sep-19	$ 334,969	12,666	$ 8,993	$ 314,698	520,295	$ 369,410	$ 356,628	$ 41,930
(a)	Oct-19	$ 327,259	12,365	$ 8,779	$ 307,461	500,977	$ 355,694	$ 343,387	$ 35,926
(a)	Nov-19	$ 284,043	10,715	$ 7,607	$ 266,871	473,432	$ 336,137	$ 324,507	$ 57,636
(a)	Dec-19	$ 319,066	12,067	$ 8,567	$ 299,755	484,924	$ 344,296	$ 332,384	$ 32,628
(a)	Jan-10	$ 333,191	12,649	$ 8,981	$ 312,992	501,091	$ 355,775	$ 343,465	$ 30,473
(a)	Feb-20	$ 263,227	10,103	$ 7,173	$ 247,194	429,088	$ 304,653	$ 294,112	$ 46,917
(e)	Mar-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	Apr-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	May-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	Jun-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	Jul-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	Aug-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
(e)	Sep-20	$ 318,970	12,083	$ 8,579	$ 299,651	480,643	$ 341,256	$ 329,449	$ 29,798
Total		$ 4,094,542	155,147	$ 110,153	$ 3,846,530	6,274,307	$ 4,454,758	$ 4,300,624	$ 454,094
								Adjustment for Prior Estimates	$ 129,304

From Table 3-W-A

Total E-Factor Recovery	**$ 583,397**

Line 2 in Summary Table

Notes:
(a) - Actuals
(e) - Estimated
(1) - TAP Actual Discounts reflect water's 41.0% allocated portion of the Total TAP Discount.
(2) - TAP Discounts and billed sales volume reflect projections developed by Raftelis. Refer to Schedule RFC-3.
(3) & (6) - Water TAP-R Rates per *Philadelphia Water Department (PWD) Regulations - Rates and Charges Effective September 1, 2019 Section 10.3(a)(1)*
(4) & (7) - Adjusted for system-wide collection factor in accordance with *PWD Regulations - Rates and Charges Effective September 1, 2019 Section 10.1(b)(3)*
(5) - Estimated billed water sales volumes for March 2020 through September 2020 based upon average sales for prior 12 month period.

Philadelphia Water Department
Table 3-WW - Experienced & Estimated Net Over/(Under) Collection (E-Factor) for Most Recent Period

	Billing Period	Total Actual TAP Discounts (Credits) (1)	Billed Sewer Volume TAP Participants (Mcf) (2)	Total TAP-R Billed to TAP Participants $ 1.160 (3) = (2) * $ 1.160/Mcf	Adjusted Actual TAP Discounts (Credits) 96.54% (4) = [(1) - (3)]* 0.9654	Billed Non-TAP Sewer Volume (Mcf) (5)	TAP-R Billed Non-Tap Water Sales $ 1.160 (6) = (5) * $ 1.160/Mcf	Estimated TAP-R Revenues Experienced 96.54% (7) = (6) * 0.9654	Over/(Under) Collection (8) = (7) - (4)
(a)	Sep-19	$ 482,029	12,662	$ 14,688	$ 451,171	489,089	$ 567,343	$ 547,713	$ 96,542
(a)	Oct-19	$ 470,934	12,362	$ 14,340	$ 440,796	470,772	$ 546,095	$ 527,200	$ 86,404
(a)	Nov-19	$ 408,744	10,711	$ 12,425	$ 382,607	445,177	$ 516,405	$ 498,537	$ 115,931
(a)	Dec-19	$ 459,143	12,064	$ 13,994	$ 429,747	460,075	$ 533,687	$ 515,221	$ 85,474
(a)	Jan-10	$ 479,469	12,645	$ 14,668	$ 448,719	470,236	$ 545,474	$ 526,601	$ 77,881
(a)	Feb-20	$ 378,790	10,100	$ 11,716	$ 354,373	406,246	$ 471,245	$ 454,940	$ 100,566
(e)	Mar-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	Apr-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	May-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	Jun-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	Jul-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	Aug-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
(e)	Sep-20	$ 459,005	12,083	$ 14,017	$ 429,592	452,189	$ 524,539	$ 506,390	$ 76,798
Total		$ 5,892,146	155,126	$ 179,946	$ 5,514,558	5,906,915	$ 6,852,022	$ 6,614,942	$ 1,100,384
		$ 5,433,141						**Adjustment for Prior Estimates**	$ 175,676

From Table 3-WW-A

Total E-Factor Recovery	**$ 1,276,060**

Line 2 in Summary Table

Notes:
(a) - Actuals
(e) - Estimated
(1) - TAP Actual Discounts reflects water's 59.0% allocated portion of the Total TAP Discount.
(2) - TAP Discounts and billed sales volume reflect projections developed by Raftelis. Refer to Schedule RFC-3.
(3) & (6) - Sewer TAP-R Rates per *PWD Regulations - Rates and Charges Effective September 1, 2019 Section 10.3(b)(1).*
(4) & (7) - Adjusted for system-wide collection factor in accordance with *PWD Regulations - Rates and Charges Effective September 1, 2019 Section 10.1(b)(3)*
(5) - Estimated billed sewer volumes for March 2020 through September 2020 based upon average sales for prior 12 month period.

Philadelphia Water Department

Table 3-W-A - Prior Reconciliation Adjustment - Experienced & Estimated Net Over/(Under) Collection (E-Factor) for Most Recent Period

	Prior Reconciliation Period with Updated Actuals								Original Estimates	Adjustment
Billing Period	Total Actual TAP Discounts (Credits)	Billed TAP Water Sales (Mcf)	Total TAP-R Billed to TAP Participants $ 0.670	Adjusted Actual TAP Discounts (Credits) 96.54%	Billed Non-TAP Water Sales (Mcf)	TAP-R Billed Non-Tap Water Sales	Estimated TAP-R Revenues Experienced 96.54%	Over/(Under) Collection	Over/(Under) Collection	Delta
	(1)	(2)	(3) = (2) * $ 0.670/Mcf	(4) = [(1) - (3)]* 0.9654	(5)	(6) = (5) * $ 0.670/Mcf	(7) = (6) * 0.9654	(8) = (7) - (4)	(9)	(10) = (8) - (9)
Sep-18	$ 344,249	12,529	$ 8,395	$ 324,234	553,990	$ 371,173	$ 358,331	$ 34,097	$ 34,097	$ -
Oct-18	$ 316,124	11,632	$ 7,794	$ 297,662	488,519	$ 327,308	$ 315,983	$ 18,321	$ 18,321	$ -
Nov-18	$ 336,349	12,400	$ 8,308	$ 316,691	494,663	$ 331,424	$ 319,957	$ 3,266	$ 3,266	$ -
Dec-18	$ 323,405	12,017	$ 8,052	$ 304,442	461,516	$ 309,216	$ 298,517	$ (5,925)	$ (5,925)	$ -
Jan-19	$ 321,069	11,989	$ 8,033	$ 302,205	446,927	$ 299,441	$ 289,080	$ (13,125)	$ (13,125)	$ -
Feb-19	$ 295,590	11,055	$ 7,407	$ 278,211	437,840	$ 293,353	$ 283,203	$ 4,991	$ 4,991	$ -
Mar-19	$ 300,686	11,251	$ 7,538	$ 283,005	457,713	$ 306,667	$ 296,057	$ 13,052	$ 6,679	$ 6,373
Apr-19	$ 277,220	10,449	$ 7,001	$ 260,870	435,642	$ 291,880	$ 281,781	$ 20,912	$ 3,721	$ 17,191
May-19	$ 301,031	11,367	$ 7,616	$ 283,262	466,953	$ 312,859	$ 302,034	$ 18,771	$ 731	$ 18,041
Jun-19	$ 325,429	12,292	$ 8,236	$ 306,218	494,595	$ 331,379	$ 319,913	$ 13,694	$ (2,277)	$ 15,971
Jul-19	$ 305,907	11,644	$ 7,801	$ 287,792	463,191	$ 310,338	$ 299,600	$ 11,809	$ (5,323)	$ 17,131
Aug-19	$ 321,997	12,224	$ 8,190	$ 302,950	539,811	$ 361,674	$ 349,160	$ 46,210	$ (8,386)	$ 54,596
Total	$ 3,769,056	140,849	$ 94,371	$ 3,547,541	5,741,360	$ 3,846,711	$ 3,713,615	$ 166,074	$ 36,770	$ 129,304

Total	**$ 166,074**	**$ 36,770**	**$ 129,304**	**Adjustment for Prior Estimates** Included in Table 3-W

Notes:

(1) - TAP Actual Discounts reflect water's 41.0% allocated portion of the Total TAP Discount.

(2) - Updated TAP Discounts and billed sales volume to reflect actuals for March 2019 through August 2019 as provided by Raftelis. Refer to Schedule RFC-3.

(3) & (6) - Water TAP-R Rates per *Philadelphia Water Department (PWD) Regulations - Rates and Charges Effective September 1, 2018 Section 10.3(a)(1)*

(4) & (7) - Adjusted for system-wide collection factor in accordance with *PWD Regulations - Rates and Charges Effective September 1, 2018 Section 10.1(b)(3)*

(5) - Billed Non-TAP Water Sales, updated to reflect actual billed water sales volumes for March 2019 through August 2019.

(8) - Updated Over/(Under) Collection

(9) - Over/(Under) Collection for September 2018 to August 2019 as calculated during the prior TAP-R Reconcilation Determination.

(10) - Difference between Updated Over/(Under) Collection and Original Estimates.

Philadelphia Water Department

Table 3-WW-A - Prior Reconcilation Adjustment - Experienced & Estimated Net Over/(Under) Collection (E-Factor) for Most Recent Period

	Prior Reconciliation Period with Updated Actuals								Original Estimates	Adjustment
Billing Period	Total Actual TAP Discounts (Credits)	Billed Sewer Volume TAP Participants (Mcf)	Total TAP-R Billed to TAP Participants $ 0.940	Adjusted Actual TAP Discounts (Credits) 96.54%	Billed Non-TAP Sewer Volume (Mcf)	TAP-R Billed Non-Tap Water Sales $ 0.940	Estimated TAP-R Revenues Experienced 96.54%	Over/(Under) Collection	Over/(Under) Collection	Delta
	(1)	(2)	(3) = (2) * $ 0.940/Mcf	(4) = [(1) - (3)]* 0.9654	(5)	(6) = (5) * $ 0.940/Mcf	(7) = (6) * 0.9654	(8) = (7) - (4)	(9)	(10) = (8) - (9)
Sep-18	$ 495,383	12,529	$ 11,777	$ 466,873	516,197	$ 485,225	$ 468,436	$ 1,563	$ 1,563	$ -
Oct-18	$ 454,910	11,630	$ 10,932	$ 428,616	462,874	$ 435,101	$ 420,047	$ (8,569)	$ (8,569)	$ -
Nov-18	$ 484,014	12,399	$ 11,655	$ 456,015	467,013	$ 438,992	$ 423,803	$ (32,213)	$ (32,213)	$ -
Dec-18	$ 465,388	12,017	$ 11,296	$ 438,381	437,734	$ 411,470	$ 397,233	$ (41,148)	$ (41,148)	$ -
Jan-19	$ 462,026	11,989	$ 11,269	$ 435,161	421,440	$ 396,153	$ 382,446	$ (52,715)	$ (52,715)	$ -
Feb-19	$ 425,361	11,054	$ 10,391	$ 400,612	417,154	$ 392,125	$ 378,557	$ (22,054)	$ (22,054)	$ -
Mar-19	$ 432,694	11,251	$ 10,576	$ 407,513	429,333	$ 403,573	$ 389,609	$ (17,904)	$ (26,218)	$ 8,314
Apr-19	$ 398,927	10,448	$ 9,821	$ 375,642	410,631	$ 385,993	$ 372,638	$ (3,005)	$ (30,481)	$ 27,476
May-19	$ 433,190	11,365	$ 10,683	$ 407,888	437,892	$ 411,619	$ 397,377	$ (10,512)	$ (34,789)	$ 24,278
Jun-19	$ 468,301	12,290	$ 11,553	$ 440,944	464,868	$ 436,976	$ 421,857	$ (19,088)	$ (39,123)	$ 20,035
Jul-19	$ 440,208	11,638	$ 10,940	$ 414,416	437,641	$ 411,382	$ 397,148	$ (17,267)	$ (43,512)	$ 26,244
Aug-19	$ 463,362	12,221	$ 11,487	$ 436,240	504,304	$ 474,045	$ 457,643	$ 21,403	$ (47,925)	$ 69,328
Total	$ 5,423,764	140,831	$ 132,381	$ 5,108,301	5,407,080	$ 5,082,654	$ 4,906,794	$ (201,507)	$ (377,183)	$ 175,676

Total	**$ (201,507)**	**$ (377,183)**	**$ 175,676**	**Adjustment for Prior Estimates** Included in Table 3-WW

Notes:

(1) - TAP Actual Discounts reflects sewer's 59.0% allocated portion of the Total TAP Discount.

(2) - Updated TAP Discounts and billed sales volume to reflect actuals for March 2019 through August 2019 as provided by Raftelis. Refer to Schedule RFC-3.

(3) & (6) - Sewer TAP-R Rates per *PWD Regulations - Rates and Charges Effective September 1, 2018 Section 10.3(b)(1)* .

(4) & (7) - Adjusted for system-wide collection factor in accordance with *PWD Regulations - Rates and Charges Effective September 1, 2018 Section 10.1(b)(3)*

(5) - Updated to reflect actual billed water sales volumes for March 2019 through August 2019.

(8) - Updated Over/(Under) Collection

(9) - Over/(Under) Collection for September 2018 to August 2019 as calculated during the prior TAP-R Reconcilation Determination.

(10) - Difference between Updated Over/(Under) Collection and Original Estimates.

Philadelphia Water Department
Table 4 -W - Interest on Experienced & Estimated Net Over/(Under) Collection (I-Factor) for Most Recent Period

Billing Period	Difference in Collection Water Portion From Table 3-W (1)	Cumulative Over/(Under) Collection Water Portion (2)	Estimated Monthly Interest Owed/ (Interest to be Recouped) Water Portion (2) * [0.17% / 12]
Sep-19	$ 41,930	$ 41,930	$ 5.94
Oct-19	$ 35,926	$ 77,856	$ 11.03
Nov-19	$ 57,636	$ 135,492	$ 19.19
Dec-19	$ 32,628	$ 168,120	$ 23.82
Jan-10	$ 30,473	$ 198,593	$ 28.13
Feb-20	$ 46,917	$ 245,510	$ 34.78
Mar-20	$ 29,798	$ 275,308	$ 39.00
Apr-20	$ 29,798	$ 305,106	$ 43.22
May-20	$ 29,798	$ 334,903	$ 47.44
Jun-20	$ 29,798	$ 364,701	$ 51.67
Jul-20	$ 29,798	$ 394,499	$ 55.89
Aug-20	$ 29,798	$ 424,296	$ 60.11
Sep-20	$ 29,798	$ 454,094	$ 64.33
Total			$ 485
		Adjustment for Prior Estimates	$ 677
		Total I-Factor Recovery	**$ 1,162**

Line 3 in Summary Table

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-W
(2) Interested calculated monthly based on 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 01, 2020.

Philadelphia Water Department
Table 4 -WW - Interest on Experienced & Estimated Net Over/(Under) Collection (I-Factor) for Most Recent Period

Billing Period	Difference in Collection Sewer Portion From Table 3-WW (1)	Cumulative Over/(Under) Collection Sewer Portion (2)	Estimated Monthly Interest Owed/ (Interest to be Recouped) Sewer Portion (2) * [0.17% / 12]
Sep-19	$ 96,542	$ 96,542	$ 13.68
Oct-19	$ 86,404	$ 182,946	$ 25.92
Nov-19	$ 115,931	$ 298,877	$ 42.34
Dec-19	$ 85,474	$ 384,351	$ 54.45
Jan-10	$ 77,881	$ 462,232	$ 65.48
Feb-20	$ 100,566	$ 562,799	$ 79.73
Mar-20	$ 76,798	$ 639,597	$ 90.61
Apr-20	$ 76,798	$ 716,394	$ 101.49
May-20	$ 76,798	$ 793,192	$ 112.37
Jun-20	$ 76,798	$ 869,990	$ 123.25
Jul-20	$ 76,798	$ 946,788	$ 134.13
Aug-20	$ 76,798	$ 1,023,586	$ 145.01
Sep-20	$ 76,798	$ 1,100,384	$ 155.89
Total			$ 1,144
		Adjustment for Prior Estimates	$ 948
		Total I-Factor Recovery	**$ 2,092**

Line 3 in Summary Table

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-WW
(2) Interested calculated monthly based on 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 01, 2020.

Philadelphia Water Department

Table 4 -W-A - Interest on Experienced & Estimated Net Over/(Under) Collection (I-Factor) for Most Recent Period

	Prior Reconciliation Period with Updated Actuals			Original Estimates	Adjustment
Billing Period	Difference in Collection Water Portion From Table 3-W-A (1)	Cumulative Over/(Under) Collection Water Portion (2)	Estimated Monthly Interest Owed/ (Interest to be Recouped) Water Portion (3) = (2) * [2.44% / 12]	Estimated Monthly Interest Owed/ (Interest to be Recouped) Water Portion (4)	Cumulative Over/(Under) Collection Water Portion (5) = (3) - (4)
Sep-18	$ 34,097	$ 34,097	$ 69.33	$ 69.33	$ -
Oct-18	$ 18,321	$ 52,418	$ 106.58	$ 106.58	$ -
Nov-18	$ 3,266	$ 55,684	$ 113.22	$ 113.22	$ -
Dec-18	$ (5,925)	$ 49,759	$ 101.18	$ 101.18	$ -
Jan-19	$ (13,125)	$ 36,634	$ 74.49	$ 74.49	$ -
Feb-19	$ 4,991	$ 41,626	$ 84.64	$ 84.64	$ -
Mar-19	$ 13,052	$ 54,678	$ 111.18	$ 98.22	$ 12.96
Apr-19	$ 20,912	$ 75,589	$ 153.70	$ 105.78	$ 47.91
May-19	$ 18,771	$ 94,360	$ 191.87	$ 107.27	$ 84.60
Jun-19	$ 13,694	$ 108,055	$ 219.71	$ 102.64	$ 117.07
Jul-19	$ 11,809	$ 119,864	$ 243.72	$ 91.82	$ 151.91
Aug-19	$ 46,210	$ 166,074	$ 337.68	$ 74.77	$ 262.92
Total			$ 1,807	$ 1,130	$ 677
	Total		**$ 1,807**	**$ 1,130**	**$ 677** **Adjustment for Prior Estimates** Included in Table 4-W

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-W-A
(3) Interested calculated monthly based on 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on March 27, 2019.
(4) Difference in collection from Total of Column 8 - Table 3-W (Prior Reconciliation)

Philadelphia Water Department

Table 4 -WW-A - Interest on Experienced & Estimated Net Over/(Under) Collection (I-Factor) for Most Recent Period

	Prior Reconciliation Period with Updated Actuals			Original Estimates	Adjustment
Billing Period	Difference in Collection Sewer Portion From Table 3-WW-A (1)	Cumulative Over/(Under) Collection Sewer Portion (2)	Estimated Monthly Interest Owed/ (Interest to be Recouped) Sewer Portion (3) * [2.44% / 12]	Estimated Monthly Interest Owed/ (Interest to be Recouped) Sewer Portion (4)	Delta Prior Period Estimates (5) = (3) - (4)
Sep-18	$ 1,563	$ 1,563	$ 3.18	$ 3.18	$ -
Oct-18	$ (8,569)	$ (7,006)	$ (14.25)	$ (14.25)	$ -
Nov-18	$ (32,213)	$ (39,219)	$ (79.75)	$ (79.75)	$ -
Dec-18	$ (41,148)	$ (80,367)	$ (163.41)	$ (163.41)	$ -
Jan-19	$ (52,715)	$ (133,082)	$ (270.60)	$ (270.60)	$ -
Feb-19	$ (22,054)	$ (155,136)	$ (315.44)	$ (315.44)	$ -
Mar-19	$ (17,904)	$ (173,039)	$ (351.85)	$ (368.75)	$ 16.91
Apr-19	$ (3,005)	$ (176,044)	$ (357.96)	$ (430.73)	$ 72.77
May-19	$ (10,512)	$ (186,555)	$ (379.33)	$ (501.47)	$ 122.14
Jun-19	$ (19,088)	$ (205,643)	$ (418.14)	$ (581.02)	$ 162.88
Jul-19	$ (17,267)	$ (222,910)	$ (453.25)	$ (669.49)	$ 216.24
Aug-19	$ 21,403	$ (201,507)	$ (409.73)	$ (766.94)	$ 357.21
Total			$ (3,211)	$ (4,159)	$ 948
	Total		**$ (3,211)**	**$ (4,159)**	**$ 948** **Adjustment for Prior Estimates** Included in Table 4-WW

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-WW-A
(3) Interested calculated monthly based on 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on March 27, 2019.
(4) Difference in collection from Total of Column 8 - Table 3-WW (Prior Reconciliation)

Table 5 - Application of TAP Rate Rider Adjustment Effective October 1, 2020						
		Adopted		TAP-R Surcharge		*Total*
Rates		Current		Proposed		Total
Water Quantity Charges		($/Mcf)		($/Mcf)		($/Mcf)
1	*0 to 2 Mcf*	$ 44.80		$ 0.57		$ 45.37
2	*2.1 to 100 Mcf*	$ 38.56		$ 0.57		$ 39.13
3	*100.1 to 2,000 Mcf*	$ 29.88		$ 0.57		$ 30.45
4	*2,000 + Mcf*	$ 29.06		$ 0.57		$ 29.63
Sewer Quantity Charges		($/Mcf)		($/Mcf)		($/Mcf)
5	Sewer Volume Rate	$ 31.25		$ 0.78		$ 32.03

Notes:

Adopted Rates reflect the currently enacted quantity charges effective September 1st 2019 as approved per the 2018 Rate Determination.

The final quantity charges (including the TAP-R surcharge) will be in the final PWD Rates and Charges, if approved.

TABLE C-4

COMBINED SYSTEM: COMPARISON OF TYPICAL BILL FOR RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED TAP-R RATES

(1)	(2)	(3)	(4)	(5)
		FY 2020	UPDATED TAP-R	
Meter Size	Monthly Use	Existing Rates	Proposed Rates	% Proposed of Existing
Inches	Mcf	$	$	%
5/8	0.0	28.02	28.02	0.0
5/8	0.2	43.60	43.50	(0.2)
5/8	0.3	51.39	51.24	(0.3)
5/8	0.4	59.18	58.98	(0.3)
5/8	0.5	66.99	66.73	(0.4)
5/8	0.6	74.78	74.46	(0.4)
5/8	0.7	82.57	82.20	(0.4)
5/8	0.8	90.36	89.94	(0.5)
5/8	1.7	160.49	159.60	(0.6)
5/8	2.7	234.04	232.63	(0.6)
5/8	3.3	277.04	275.33	(0.6)

Notes:

(a) FY 2020 figures reflect the current TAP-R rates, of $0.71 MCF for water and $1.16/MCF for sewer.

(b) Proposed Rates reflect currently effective base rates as of (September 1, 2019) and proposed TAP-R rates, of $0.57 /Mcf for water and $0.78/Mcf for sewer.

Mcf - Thousand cubic feet

TABLE C-5

COMBINED SYSTEM: COMPARISON OF EXAMPLE BILLS
FOR NON-RESIDENTIAL CUSTOMERS
UNDER EXISTING AND PROPOSED TAP-R RATES

(1)	(2)	(3)	(4)	(5)	(6)	(7)
				FY 2020	UPDATED TAP-R	
Meter Size	Monthly Use	Impervious Area	Gross Area	Existing Rates	Proposed Rates	% Proposed of Existing
Inches	Mcf	sf	sf	$	$	%
5/8	0.0	1,794	2,110	39.75	39.75	0.0
5/8	0.2	1,794	2,110	55.33	55.23	(0.2)
5/8	0.3	1,794	2,110	63.12	62.97	(0.2)
5/8	0.4	1,794	2,110	70.91	70.71	(0.3)
5/8	0.5	1,794	2,110	78.72	78.46	(0.3)
5/8	0.6	4,000	5,500	112.45	112.13	(0.3)
5/8	0.7	4,000	5,500	120.24	119.87	(0.3)
5/8	0.8	26,000	38,000	412.67	412.25	(0.1)
5/8	1.7	26,000	38,000	482.80	481.91	(0.2)
5/8	2.7	4,000	5,500	271.71	270.30	(0.5)
5/8	3.3	4,000	5,500	314.71	313.00	(0.5)
5/8	11.0	7,000	11,000	906.99	901.27	(0.6)
1	1.7	7,700	7,900	252.57	251.68	(0.4)
1	5.0	22,500	24,000	670.82	668.22	(0.4)
1	8.0	7,700	7,900	706.02	701.86	(0.6)
1	17.0	22,500	24,000	1,530.98	1,522.14	(0.6)
2	7.6	1,063	1,250	625.67	621.72	(0.6)
2	16.0	22,500	24,000	1,487.27	1,478.95	(0.6)
2	33.0	66,500	80,000	3,262.21	3,245.05	(0.5)
2	100.0	7,700	7,900	7,328.55	7,276.55	(0.7)
4	30.0	7,700	7,900	2,407.09	2,391.49	(0.6)
4	170.0	10,500	12,000	11,867.48	11,779.08	(0.7)
4	330.0	26,000	38,000	22,152.47	21,980.87	(0.8)
4	500.0	140,000	160,000	34,270.90	34,010.90	(0.8)
6	150.0	10,500	12,000	10,743.70	10,665.70	(0.7)
6	500.0	41,750	45,500	33,182.57	32,922.57	(0.8)
6	1,000.0	26,000	38,000	64,498.69	63,978.69	(0.8)
6	1,500.0	140,000	160,000	97,407.12	96,627.12	(0.8)
8	750.0	10,500	12,000	48,702.53	48,312.53	(0.8)
8	1,500.0	66,500	80,000	96,655.96	95,875.96	(0.8)
8	2,000.0	26,000	38,000	127,657.52	126,617.52	(0.8)
8	3,000.0	140,000	160,000	191,245.95	189,685.95	(0.8)
10	600.0	22,500	24,000	39,596.40	39,284.40	(0.8)
10	1,700.0	41,750	45,500	109,138.22	108,254.22	(0.8)
10	3,300.0	26,000	38,000	208,688.34	206,972.34	(0.8)
10	6,000.0	140,000	160,000	377,982.77	374,862.77	(0.8)

(a) Examples with gross area less than 5,000 square feet reflect an impervious area of 85% of the gross area consistent with PWD Regulations section 304.3.
(b) FY 2020 reflect the current TAP-R rates, of $0.71/MCF for water and $1.16/MCF for sewer.
(c) Proposed Rates reflect currently effective base rates (as of September 1, 2019) and proposed TAP-R rates, of $0.57/Mcf for water and $0.78/Mcf for sewer.

Mcf - Thousand cubic feet
sf - square feet

To: Philadelphia Water Department	From: Black & Veatch Management Consulting, LLC
Task Name: TAP Rider Reconciliation	Schedule: BV-3
Document: TAP-R Reconciliation Assumptions	Date: May 15, 2020

This document summarizes the assumptions used in developing the Tiered Assistance Program (TAP) Rate Rider reconciliation calculations for October 1, 2020 to September 30, 2021 (the Next Rate Period), as it relates to the Philadelphia Water Department's (PWD) TAP-R surcharge rates. These assumptions are based upon currently available data.

Definitions

Per *Section 10 of PWD Rates and Charges Effective September 1, 2019*, the following list of terms is used in this assumptions document:

- C – (or C-Factor) The cost in dollars of the estimated TAP Billing Loss for the Next Rate Period.
- E – (or E-Factor) The net over or under-collection of the TAP-R surcharge amount for the Most Recent Period.
- I – (or I-Factor) Interest on any over or under-collection of the TAP-R for the Most Recent Period.
- S – (or S-Factor) Projected sales in thousand cubic feet (MCF) for Non-TAP customers.
- Most Recent Period – The Current Fiscal Year and/or the period for which TAP-R reconciliation is performed. For this reconciliation filing, the Most Recent Period is September 1, 2019 to September 30, 2020.
- Next Rate Period – The fiscal year and/or the period that immediately follows the Most Recent Period, and in which the proposed TAP-R is effective. Also referred to as the Projected Period. For this reconciliation filing, the Next Rate Period comprises October 1, 2020 to September 30, 2021.
- TAP Participants – The number of unique customers issued a TAP bill during the period in question.
- TAP-R – The TAP Rider water and sewer surcharge rates.

Current TAP-R Rates

The current TAP-R rates, as stated in Section 10 of *PWD Rates and Charges Effective September 1, 2019,* were utilized in the TAP-R reconciliation calculations for the Most Recent Period:

- **Water TAP-R:** $0.71 per MCF
- **Sewer TAP-R:** $1.16 per MCF

Codified Factors

The following codified factors, as stated in Section 10 of *PWD Regulations Rates and Charges Effective September 1, 2019,* were utilized in the TAP-R reconciliation calculations:

- Allocation of TAP Discounts (i.e., Lost Billings):
  - The costs of TAP discounts for the Most Recent Period and the Next Rate Period proportioned to water and sewer, based on the following allocation percentages:
    - Water Tap Cost Allocation: 41 percent
    - Sewer Tap Cost Allocation: 59 percent
- Collection Factor:
  - TAP Revenue Loss and TAP-R billings for the Most Recent Period adjusted for collections based upon the following:
    - Collection Factor: 96.54 percent
- Interest Rate:
  - Interest on under/over-collection (i.e., I-Factor) uses the 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 1, 2020.
    - Interest Rate: 0.17 percent

Appendix A provides a snapshot of the current interest rate, as noted above.

TAP Assumptions

PWD Exhibit No. 1 details the actual TAP reporting data and TAP projections.

Most Recent Period

For the Most Recent Period, actual data was available for September 2019 through February 2020 and estimates were developed to cover the months of March 2020 through September 2020. The estimates utilized the following approach:

- TAP Participants – Projected to remain constant at January 2020 levels.
- TAP Billing Loss – Estimated based upon the projected number of monthly participants and the average monthly bill discount of $51.25 per TAP participant.
- TAP Billed Volumes – Estimated based upon the projected number of TAP Participants and the average monthly consumption of 796 cubic feet (cf) per TAP Participant.

Note - Estimates for the period of March 2020 through September 2020 will be reconciled as part of the next reconciliation filing.

Next Rate Period

For the Next Rate Period, projections of TAP Participants and TAP Billing Loss were developed for October 2020 through September 2021.

- TAP Participants – For reconciliation purposes, the level of monthly TAP Participants was assumed to remain flat at 15,180 based upon the estimated participation at the end of the Most Recent Period.

- TAP Billing Loss – Estimated based upon the projected number of TAP Participants for the Next Rate Period and the average monthly bill discount of $51.25 per TAP Participant. Total TAP Billing Loss for the Next Rate Period was assumed to be approximately $9.3 million.

Note – TAP Billing Loss for the Next Rate Period serves as the basis for the C-Factor in the reconciliation calculations.

Non-TAP Billed Volumes

Actual water and sewer billed volumes for Non-TAP customers are detailed in PWD Exhibit No. 1 for September 2019 through February 2020.

Most Recent Period

For the Most Recent Period, actual data was available for September 2018 through February 2020. For reconciliation purposes, water and sewer billed volumes for March 2020 through September 2020 were estimated based upon the average monthly sales for prior twelve months. Estimated monthly sales for March 2020 through September 2020 are as follows:

- Monthly Billed Water Volume - 4,806,428 hundred cubic feet (ccf)
- Monthly Billed Sewer Volume - 4,521,886 ccf

Note – Billed Volumes are used to estimate revenues from Non-TAP customers in developing the E-Factor in the reconciliation calculations. Estimates for the period of March 2020 through September 2020, will be reconciled as part of the next reconciliation filing.

Next Rate Period

For the Next Rate Period, projections for total Non-TAP water and sewer sales volumes were developed for the period of October 2020 through September 2021.

- Projections for Non-TAP water and sewer sales volume for the Next Rate Period are based upon the overall annualized sales[1] for the Most Recent Period; and
- Assume a decrease in total sales of 1.05 percent in accordance current sales information.
    - PWD continues to experience a decrease in overall usage. For the purposes of the TAP-R reconciliation calculations, PWD is utilizing an estimated decline in sales based upon the current conditions.

Note – Projected Sales Volumes for Non-TAP customers are the S-Factor in the reconciliation calculations.

[1] Total sales for the Most Recent Period represents 13 months. Overall annualized sales are determined by dividing the total sales by 13 and multiplying by 12.

APPENDIX A

1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 1, 2020

H.15 Selected Interest Rates RSS Data Download

The release is posted daily Monday through Friday at 4:15pm. The release is not posted on holidays or in the event that the Board is closed.

Release date: May 6, 2020

Selected Interest Rates

Yields in percent per annum

Instruments	2020 Apr 29	2020 Apr 30	2020 May 1	2020 May 4	2020 May 5
Federal funds (effective) 1 2 3	0.04	0.05	0.05	0.05	0.05
Commercial Paper 3 4 5 6					
Nonfinancial					
1-month	0.21	0.22	0.15	0.20	0.12
2-month	0.43	0.14	0.19	0.21	0.19
3-month	0.66	0.78	0.21	0.18	0.19
Financial					
1-month	n.a.	n.a.	n.a.	0.10	n.a.
2-month	n.a.	n.a.	n.a.	n.a.	n.a.
3-month	n.a.	n.a.	n.a.	n.a.	n.a.
Bank prime loan 2 3 7	3.25	3.25	3.25	3.25	3.25
Discount window primary credit 2 8	0.25	0.25	0.25	0.25	0.25
U.S. government securities					
Treasury bills (secondary market) 3 4					
4-week	0.10	0.10	0.10	0.10	0.09
3-month	0.10	0.09	0.12	0.13	0.13
6-month	0.12	0.11	0.12	0.14	0.15
1-year	0.18	0.16	0.17	0.16	0.16
Treasury constant maturities					
Nominal 9					
1-month	0.10	0.10	0.10	0.10	0.09
3-month	0.10	0.09	0.12	0.13	0.13
6-month	0.12	0.11	0.12	0.14	0.15
1-year	0.18	0.16	0.17	0.16	0.16
2-year	0.20	0.20	0.20	0.19	0.19
3-year	0.24	0.24	0.25	0.24	0.24

Accessed via: https://www.federalreserve.gov/releases/h15/

To: Philadelphia Water Department	From: Black & Veatch Management Consulting, LLC
Task Name: TAP Rider Reconciliation	Schedule: BV-4
Document: TAP Reconciliation Calculation Methodology	Date: May 19, 2020

This document summarizes the methodology used for the Tiered Assistance Program (TAP) Rate Rider reconciliation calculations for October 1, 2020, to September 30, 2021 (the Next Rate Period), as it relates to the Philadelphia Water Department's (PWD) TAP-R surcharge rates.

Note –Black & Veatch Schedule BV-3 dated May 15, 2020 summarizes the assumptions and inputs used in the calculations discussed herein.

TAP-R OVERVIEW

The Water Department implemented TAP, effective July 1, 2017, to assist low-income water customers with their water, sewer, and stormwater utility bills. PWD recovers the costs associated with the TAP from water and sewer customers via Water and Sewer surcharge rates. The Water and Sewer surcharge rates are embedded in the Water and Sewer Quantity charges, respectively.

The TAP-R Surcharge Rate Rider is a revenue true-up mechanism designed to enable PWD to (i) reconcile the actual costs of the TAP incurred in the *Most Recent Period* with the TAP-R surcharge revenues estimated for that period, and (ii) determine the TAP-R for the *Next Rate Period*.

TAP-R consists of two sub-components:

- The "Water TAP-R" which is added to each block rate of the water quantity "base rate;" and
- The "Sewer TAP-R" which is added to the sewer quantity "base rate."

TAP-R EQUATION AND VARIABLES

Determination of the TAP-R surcharge relies on a mathematical equation defined and approved by the Rate Board, effective September 1, 2019. As stated in *Section 10 of PWD Rates and Charges Effective September 1, 2019*, the equation consists of variables that require updating during the reconciliation process. Other variables within the equation are set by the Rate Board until they are revised under a subsequent Rate Board determination.

The TAP-R Equation

$$TAP\text{-}R = \frac{(C) - (E + I)}{S}$$

Figure 1 presents a description of each of the components in the TAP-R equation.

Figure 1 – Description of TAP-R Components

Component	Definition
TAP-R	TAP Rider Surcharge Rate ($ per MCF).
C	Cost in dollars of the estimated TAP Billing Loss for the Next Rate Period (i.e., discounts provided to TAP participants). Note – the discounts do not include the associated TAP Rate Rider Surcharge Amount.
E	The net over or under collection of the TAP-R surcharge amount for the Most Recent Period. The net over or under collection is calculated by comparing the actual TAP Revenue Loss (resulting from discounts provided to TAP participants) with the actual TAP-R surcharge amounts billed to Non-TAP Customers. Both the TAP Revenue Loss and the TAP-R billings, determined for the *Most Recent Period*, are adjusted for collections by applying the Water Department's system-wide collection factor as identified in the most recent rate proceeding and stated in the Philadelphia Water Department Rates and Charges, Section 10.1(b) (3). The system-wide collection factor identified in the rate proceeding is 96.54%.
I	Interest on any over or under-recovery (i.e. collection) of the TAP-R for the *Most Recent Period*. Interest is determined on an annual basis using the yield to maturity 52-week interest rate of United States Treasury Securities with constant maturities as compiled and published in the Federal Reserve Statistical Release H.15 (519), as it exists each year as of the first day of the month, preceding the month of the annual reconciliation submission to the Rate Board.
S	Projected sales in MCF for *Non-TAP* customers during the Next Rate Period.

Other Key Terms

Beyond the equation components defined above, the following is a list of key terms used in this document:

- Most Recent Period – The Current Fiscal Year and/or the period for which TAP-R reconciliation is performed. For this reconciliation filing, the Most Recent Period comprises September 1, 2019 to September 30, 2020.
- Next Rate Period – The fiscal year and/or the period that immediately follows the Most Recent Period, and in which the proposed TAP-R is effective. Also referred to as the Projected Period. For this reconciliation filing, the Next Rate Period comprises October 1, 2020 to September 30, 2021.
- TAP Participants – The number of unique customers that were issued a TAP bill during the period in question.

Calculation Methodology

The following section provides a brief overview of the methodology employed in performing the TAP -R reconciliation calculations as presented in Tables 1 through 5 of Schedule BV-1.

C-Factor

Table 2 of Schedule BV-1 presents the calculation of the C-Factor.

For the Next Rate Period of October 1, 2020 to September 30, 2021, the C-Factor is calculated as follows:

1. The Total Reconcilable TAP costs for the Next Rate Period is estimated by multiplying the Projected Number of TAP Participants (for the Next Rate Period) by the Average Discounts provided per TAP Participant (based upon the most recent 6 months (September 2019 to February 2020) of the Most Recent Period).
2. The water and sewer share of the Total Reconcilable TAP costs is then calculated by applying the respective water and sewer allocation factors.

E-Factor

Tables 3-W and 3-WW of Schedule BV-1 present the calculation of the E-Factor.

For the Most Recent Period of September 1, 2019 to September 30, 2020[1], the E-Factor is determined based on the following multi-step process:

1. Apportion the reported monthly Total Actual TAP Discounts provided to TAP Participants to water and sewer by applying the respective allocation factors.
2. Determine the monthly Total Amount of TAP-R Billed to TAP Participants[2], by multiplying the monthly billed volume by the applicable surcharge rate (i.e., water or sewer TAP-R).
3. Determine the Adjusted[3] Actual TAP Discounts for the Most Recent Period by:
    - *Subtracting* the surcharge portion determined in Step 2 above from the reported monthly Total Actual TAP Discounts provided; and
    - *Applying* the system-wide collection factor of 96.54%.
4. Determine the monthly Non-TAP customers' TAP-R billings by multiplying the monthly sales volumes by the applicable TAP-R rate.
5. Determine the estimated amount of TAP-R Revenues from Non-TAP customers by applying the system-wide collection factor of 96.54% to the Non-TAP customers' TAP-R billings determined in Step 4.

[1] For the Most Recent Period, actual data was available for September 2019 through February 2020 and estimates were developed to cover the months of March 2020 through September 2020. Estimates used for the period of March 2020 through September 2020 will be reconciled with the next TAP-R Reconciliation filing.
[2] Due to billing system constraints, the TAP-R surcharge is included in the TAP participants billings prior to TAP discounts when monthly bills are processed.
[3] The adjusted Actual TAP Discount takes into account the TAP-R surcharge billed to TAP participants and adjusts for collections.

6. Determine the net over/under collection of TAP-R as the difference between the TAP-R revenues recovered from Non-TAP customers (Step 5) and Adjusted Actual TAP Discounts (revenue loss) from TAP Participants (Step 3).
7. Adjust the resulting water and sewer over/under collection to account for the difference in the estimated amounts of over/under collection for the period of March 2019 to August 2019 as included in the prior reconciliation and the updated actuals for the same period.
    - The process to adjust for the prior E-Factor estimates uses the same methodology outlined in Steps 1-6 and compares the results against the monthly over/under collection as reflected in the FY 2019 TAP-R Reconciliation.
    - The adjustment is derived in Tables 3-W-A and 3-WW-A.

I-Factor

Tables 4-W and 4-WW of the TAP-R Reconciliation Filing present the calculation of the I-Factor. The I-Factor interest on a monthly basis per the methodology utilized in the FY 2019 TAP-R Reconciliation.

For the Most Recent Period of September 1, 2019 to September 30, 2020, the I-Factor is determined as follows:

1. Multiply the cumulative monthly water and sewer E-Factors (i.e., the amount of over/under collection determined for the Most Recent Period), as outlined above, by the identified interest rate of 0.17%[4] and divide by twelve to calculate the monthly interest.
2. Adjust the resulting water and sewer interest to account for the difference in the estimated amounts of interest for the period of March 2019 to August 2019 as included in the prior reconciliation and the updated actuals for the same period.
    - The process to adjust for the prior I-Factor estimates uses the same methodology outlined in Step 1 and compares the results against the monthly interest as reflected in the FY 2019 TAP-R Reconciliation.
    - The adjustment is derived in Tables 3-W-A and 3-WW-A.

S-Factor

The S-Factor reflects the projected sales volume in thousands of cubic feet (MCF) of the Non-TAP customers for the Next Rate Period and is found on Line 5 of Table 1 of Schedule BV-1.

For the Next Rate Period of October 1, 2020 to September 30, 2021, the S-Factor is determined as follows:

[4] As stated in *Schedule BV -3: TAP Reconciliation Assumptions dated April 1, 2020,* the 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on May 1, 2020.

1. Reduce the overall annualized[5] Non-TAP Billed Sales Volumes for the Most Recent Period (as stated on the total line for Column 5 in Tables 3-W and 3-WW, respectively) by 1.05%[6] to reflect anticipated declines in consumption.

TAP-R Rates

Table 1 of Schedule BV-1 summarizes the derivation of the TAP-R surcharge for the Next Rate Period.

For the Next Rate Period of October 1, 2020 to September 30, 2021, the water and sewer TAP-R Surcharge are determined as follows:

1. Using the results of the C-Factor, E-Factor and I-Factor calculations, as outlined above, calculate the total Net Recoverable Costs using the equation: $(C) - (E + I)$ as presented in Line 4 of Table 1.
2. Calculate the TAP-R Surcharge for water and sewer by dividing the Net Recoverable Costs from the previous step by the respective S-Factor (i.e., Projected Non-TAP Sales for the Next Rate Period) in MCF.

[5] Total sales for the Most Recent Period represents 13 months. Overall annualized sales are determined by dividing the total sales by 13 and multiplying by 12.

[6] As stated in *Schedule BV-3: TAP Reconciliation Assumptions dated May 15, 2020,* PWD continues to experience declining sales volumes. A reduction in average monthly sales volumes was applied based upon recent projections.

Black & Veatch Team Resumes

Ann Bui

Managing Director

Ms. Bui has more than 30 years of experience working with utilities on more than 400 engagements and has provided financial and business planning services for public and investor-owned utilities across the US of all different sizes ranging from those with less than 5,000 service connections to those that serve populations over 3 million.

Ms. Bui is a Managing Director and the Water Market Lead for Black & Veatch Management Consulting. She is responsible for the growth and strategy of advisory and financial planning, operational technologies, and asset management services for all water clients. She has also provided services to agencies located internationally in the United Arab Emirates, Chile, Hong Kong, and Singapore.

Her recent assignments have focused on water insecurity; addressing affordability and assistance program needs; quantifying the financial impact of deferred asset maintenance; developing innovative approaches for structuring alternative delivery projects using private and public financing instruments and preparing financial feasibility reports supporting more than $6 billion of revenue bond sales and more than $2 billion in state revolving fund loans.

Ms. Bui has completed due diligence engagements for entities of many internationally well-established companies such as KKR, Macquarie Capital, Credit Suisse, Morgan Stanley, J.P. Morgan, Goldman Sachs, Bank of America Merrill Lynch, Rothschild, Canada Pension Plan Investment Board, Barclays, Fiera Infrastructure, Alma Global, and PGGM. Her due diligence efforts have supported successful buyside/sellside water and wastewater assets totaling over $5 billion.

Over the past two decades, Ms. Bui has provided expert witness testimony in front of the California Public Utilities Commission, the Indiana Utilities Regulatory Commission, and the Kentucky Public Service Commission. Additionally, she has served as an expert witness in front of utility rate commissions for such clients as Philadelphia Water Department and Washington Suburban Sanitary Commission.

An active proponent of advancing the water industry, Ms. Bui is a long-standing member of several industry associations. She is the immediate past Chair of the American Water Works Association (AWWA) Finance, Accounting, and Management Controls (FAMC) Committee and is involved with AWWA's Strategic Practices Committee, AWWA's Rates and Charges Committee, the National Association of Clean Water Agency's (NACWA's) Utility Management Committee, and with the Water Environment Federation (WEF).

EDUCATION

Masters, Business Administration, Finance, University of California – Davis, 1995

MS, Chemical, University of California Los Angeles, 1989

BS, Chemical, British Columbia University, 1986, Canada

YEARS EXPERIENCE

31

PROFESSIONAL REGISTRATION

License, Engineer-In-Training, #XE094654, California, 1995

PROFESSIONAL ASSOCIATIONS

AWWA

Past Chair - AWWA's Finance, Accounting & Management Controls Committee

Member - AWWA's Strategic Management Practices Committee

Member – AWWA's Rates & Charges

WEF

NACWA's Utility Management Committee

RELEVANT EXPERTISE

Financial & Management Consulting Services; Debt Issuance Support; Elasticity Studies; Cost of Service & Rate Design; Institutional & Organizational Studies; Alternative Financing; Valuations/M&A

Under her six-year tenure as FAMC Vice-Chair and Chair, she was a lead author and editor for AWWA's book ***Financial Management for Water Utilities: Principles of Finance, Accounting and Management Controls***. Additionally, she has been an author or peer reviewer for AWWA's M1 – Principles of Water Rates, Fees and Charges, the current update to M1, the current update of WEF's Manual of Practice 27, Financing and Charges for Wastewater Systems, and WEF's User-Fee Funded Stormwater Program. She is presently leading the update for AWWA's M29 – Water Capital Financing.

Ms. Bui is the coordinating editor for Journal AWWA's ***Money Matters***, a column focused on financial issues in the water industry.

REPRESENTATIVE PROJECT EXPERIENCE

Philadelphia Water Department; Water, Wastewater and Stormwater Cost of Service Studies; Pennsylvania; 2003 – 2006; 2017-Ongoing

Project Director. Ms. Bui has worked with the City of Philadelphia since 2003 and currently serves as the Project Director for Black & Veatch's multi-utility cost of service work with the Philadelphia Water Department (PWD). The 2018 Rate Case incorporated program costs for PWD's long-term control plan, green infrastructure, public-private grants to incentivize stormwater improvements, and restructuring of the City's assistance programs. The 2018 Rate Case also included development of a customer assistance rate rider as well as changes in public fire protection cost recovery.

Washington Suburban Sanitary Commission; Comprehensive Water and Wastewater Rate Study; Laurel, Maryland, United States; 2016-In-Progress

Project Director. Ms. Bui is directing the completion of a comprehensive water and wastewater rate study for WSSC. Phase 1 of the project included analysis of WSSC's current rate structure as well as numerous alternative rate structures, and extensive public outreach to a bi-county working group as well as a stakeholder representatives group. Workshops included explanation of the rate-making process, WSSC priorities and goals for rate setting, and discussion of stakeholder issues and concerns. Phase 2 included a comprehensive cost of service and rate design study for WSSC's water and wastewater utilities. The Black & Veatch team continues to advise WSSC on alternative rate structures as management and the Board consider a new rate structure that better addresses WSSC's goals and objectives.

Water Supplies Department; Water Conservation and Loss Analysis; Hong Kong, China; 2016

Technical Reviewer. Ms. Bui is serving as the lead reviewer and subject matter expert for the regulatory and infrastructure governance aspect of Black & Veatch's engagement with the Hong Kong Water Supplies Department (WSD) as part of a larger Total Water Management program. The WSD supplies more than 7 million people. Under this part of the engagement, Ms. Bui reviewed recommendations made to improvement the organization's governance and structure to meet current and future regulatory needs.

American Water Company; Automated Metering Infrastructure Rate Case Support and Water-Budget Rate Setting Expert Witness; California; 2016 – 2018

Expert Witness and Project Director. Served as the Project Director for California American Water's (CAW's) Rate Case petition for an Automated Metering Infrastructure (AMI) program in front of the California Public Utilities

Commission (CPUC) and served as an expert witness for CAW's separate CPUC rate petition regarding its water budget-based rate design for the Monterey service area.

City of San Diego; Cost of Service Study and System Development Charge Update; San Diego, CA; 2012 - 2016

Project Director. Comprehensive cost of service studies for water and wastewater, including update of system development charges. Conducted over 70 stakeholder meetings to support successful adoption of rate structure changes and multi-year rate increases.

Western US - Water, Wastewater, Stormwater, & Solid Waste Utility Enterprise Financial Planning, Rate & Cost-of-Service Studies, Indirect Cost Allocations, Management Audits /Organizational Assessment Studies, & Business Planning Activities

- City of Glendale, AZ
- City of Phoenix, AZ
- City of Tucson, AZ
- City of Flagstaff, AZ
- City of Scottsdale, AZ
- City of Henderson, NV
- City of Las Vegas, NV
- City of Santa Monica, CA
- Los Angeles Bureau of Sanitation
- City of Long Beach, CA
- City of Orange, CA
- City of Palo Alto, CA
- City of Napa, CA
- City of South Gate, CA
- City of San Diego, CA
- County of San Diego, CA
- Cambria Community Services District, CA
- Marin Municipal Water District, CA
- Helix Water District, CA
- Rancho California Water District, CA
- Indio Water Authority, CA
- City of San Clemente, CA
- City of Soledad, CA
- San Joaquin County, CA
- City of Port Hueneme, CA
- Santa Ynez River Water Conservation District, CA
- Guam Waterworks Authority
- City of Salem, OR
- City of Oxnard, CA
- City of Los Angeles, Stormwater Division
- City of San Juan Capistrano, CA
- City of Downey, CA
- Camrosa Water District, CA
- City of Pico Rivera, CA
- Leucadia Water District
- City of Orange, CA
- City of Yuba City, CA
- City of Antioch, CA
- Encinitas Wastewater Authority, CA
- City of Escondido, CA
- Dublin San Ramon Service District, CA
- Padre Dam Municipal Water District, CA
- Sweetwater Authority, CA
- Western Municipal Water District, CA
- Cucamonga Valley Water District, CA
- City of Patterson, CA
- City of Chino Hills, CA
- Riverside Public Utilities, CA
- Vallecitos Water District, CA
- City of Fountain Valley, CA
- City of Westminster, CA
- City of Santa Ana, CA
- City of Lomita, CA
- Atascadero Mutual Water Company, CA
- Golden States Water Company
- California American Water
- City of Ontario, CA
- City of San Jose, CA
- County of San Bernardino, CA

- Goleta Water District
- Burbank Water & Power, CA
- Metropolitan Water District of Southern California
- City of Tacoma, WA
- Cherry Hills Sanitation District, CO
- Parker Water and Sanitation District, CO
- Waste Management Inc., CO
- Vallejo Flood Control District, CA
- Central Contra Costa Sanitation District, CA
- LA DWP
- City of Santa Clara, CA
- City of Menlo Park, CA
- Olivehain Municipal Water District
- Port of San Diego
- Simi Valley Sanitation, CA
- Las Campanas Water & Sewer Cooperative, NM

Midwestern & Eastern US - Water, Wastewater, Stormwater, Solid Waste & Gas Utility Enterprise Financial Planning, Rate & Cost-of-Service Studies, System Development Charges, Indirect Cost Allocations, & Business Planning Activities

- City of Dayton, OH
- Greater Cincinnati Water Works, OH
- Metropolitan Sewer District of Hamilton County, OH
- City of Mason, OH
- City of Columbia, OH
- City of Wyoming, MI
- City of Detroit, MI
- Great Lakes Water Authority, MI
- City of Grand Rapids, MI
- City of Holland, MI
- Philadelphia Water Department, PA
- Philadelphia Gas Works, PA
- Sewerage and Water Board of New Orleans, LA
- Puerto Rico Aqueduct and Sewer Authority, PR
- Northern Kentucky Water District, KY
- Louisville Water Company, KY
- Warren County, KY
- Alleghany County Sanitary Authority, PA
- Johnson County Wastewater, KS
- Unified Government of Wyandotte County, KS
- WaterOne, KS
- City of Kansas City, MO
- City of Jasper, AL
- City of Highland, IL
- City of Bloomington Department of Utilities, IN
- City of Columbus, SC
- City of Charleston, SC
- Charleston Water System, SC
- Beaufort-Jasper Water and Sewer Authority, SC
- Regional Water Authority, SC
- Gulf Coast Water Authority, TX
- San Antonio Water System, TX
- City of Arlington, TX
- North Texas Municipal Water Authority, TX
- Washington Suburban Sanitary Commission
- New Jersey American Water

PUBLICATIONS & PRESENTATIONS

"Water Reuse Cost Allocations and Pricing" Journal AWWA, November 2019.

"A Smoother Road to AMI: Leveraging applicable lessons from the Power Industry" Journal AWWA, September 2017.

"What is a World-Class Utility and How Does Yours Become One? Water Online, July 25, 2017

"Where are We Heading Next? Strategic Directions in the Water Industry", presented at the Conference of Infrastructure Financing Agencies, Federal Policy Meeting in Washington, D.C., April 2017.

"What's in Your Wallet? Ways to Address Aging Infrastructure and Lack of Money." Annual Utility Management Conference. June 2016

"No More Sacred Cows", published in Journal AWWA, January 2016.

"Business Risks to the Capital Financing Process", published in AWWA's Opflow magazine, September 2015.

"Securing Solid Revenues Streams for Water Utilities is Crucial for Financial Resilience", published in Breaking Energy, September 10, 2015.

"Revenues and Expenses and Ratios, Oh My! A Finance Primer for Non-Finance Professionals", presented at the Annual Utility Management Conference in Glendale, Ariz., March 2013.

Bui, Ann T., Editor, Financial Management for Water Utilities: Principles of Finance, Accounting and Management Controls, 2012, published by AWWA, Denver, Colo.

"Checks and Balances: An Overview of the New Financial Management for Water Utilities Handbook", presented at the Annual AWWA Conference in Dallas, Tex., June 2012.

"Introduction to Financial Planning" presented at the Pacific Northwest Section of the Clean Water Association Winter Short Course University, Portland, Oreg., February 2010.

"Money Makes the World Go 'Round: An Overview of the New Financial Management for Water Utilities Handbook," presented at the Annual AWWA Conference in San Diego, Calif., June 2009.

"Key Performance Indicators" presented at the Annual AWWA Conference in San Diego, Calif., June 2009.

"Everything You Ever Wanted to Know About Finance Management but were Afraid to Ask: An Overview of the New Financial Management for Water Utilities Manual", presented at the Annual AWWA Conference in Atlanta, Ga., June 2008.

"Alternative Funding Sources" presented at the Regional Water Authority Conference in Rancho Cordova, Calif., April 2007.

"Financial Benchmarks" presented at the Annual AWWA Conference in San Francisco, Calif., June 2005.

"Maximize Debt Market Options – Minimize Revenue Adjustments" presented at the Kentucky/Tennessee AWWA/WEF Conference in Nashville, Tenn., August 2004.

"Quantification and Reduction of Risk from Hazardous Air Emissions - Key note address," presented at the AIChE Annual Conference in San Francisco, Calif., November 1994.

Dave Jagt

Manager, Consulting

Mr. Jagt, a Manager with Black & Veatch Management Consulting, LLC., has over 30 years of experience, spanning a variety of projects, including utility revenue forecasting, estimation and projection of revenue requirements, financial planning and rate design, capital improvement program review and financing, computer rate modeling, fixed-asset record keeping and present worth analyses. Dave also has experience with civil engineering projects, such as hydraulic design, computer hydraulic modeling, structural design, building plan review, and preparation of specifications and bid documents.

EDUCATION

BS, Civil Engineering, Virginia Polytech Inst St U, 1987

YEARS' EXPERIENCE

32

EXPERTISE

Bond Feasibility; Computer Modeling; Financial Planning; Fixed Asset Recordkeeping; Rate Design

REPRESENTATIVE PROJECT EXPERIENCE

Philadelphia Water Department; Water and Wastewater Financial Rate Study; Philadelphia, Pennsylvania; 2007-Present

Project Manager/Task Lead. Mr. Jagt has performed comprehensive studies of revenue requirements, costs of service and rates for water and wastewater utilities. The cost of service studies involved allocation of costs of service and determination of charges for 10 municipal wholesale wastewater customers and two wholesale water customers in accordance with the terms of wholesale service contractual agreements with these customers. He assisted with the development of the Tiered Assistance Program Rate Rider Surcharge (TAP-R), a rate rider concept to recover costs related to the PWD's Tiered Customer Assistance Program (TAP), and supported the TAP-R reconciliation. He assisted with contract negotiations with municipal wholesale customers, including the development of exceedance charges. He assisted with issuance of revenue bonds, including preparation of required engineering and financial feasibility studies, presentations before bond rating agencies and preparation of official statements.

Mr. Jagt has participated in enhancements to stormwater cost allocation and rate methodologies and the impacts of the alternative rates on various representative customers. The City's evolving geographic information system network and new billing system facilitated the establishment of stormwater charges based upon the customer's impervious and gross property area.

Mr. Jagt served as a task lead for the Water Department's Alternative Rate Structure study, which consisted of a review of the existing water and stormwater rate structures, supporting policies and programs, as well as an evaluation of a potential rider for pension expenses. The study also included discussions with various stakeholders and prior rate proceeding participants to gather feedback on potential alternatives. A report was issued to the Rate Board in the Fall of 2019.

City of Norfolk Department of Utilities, Norfolk, Virginia | Water Utility Wholesale Contract True-up Calculations | 1995–2003 and 2010–2019

Project Manager/Project Advisor. Mr. Jagt managed and assisted with the preparation of biennial rate projections and revenue true-up calculations during the period of 1995 to 2003 and 2010 to 2019 for Norfolk's wholesale water contracts with the City of Virginia Beach and the U.S. Navy. A Black & Veatch-developed computer model facilitated the comparisons of adopted rates (using budget projections) with recalculated rates (using actual

costs) to determine amounts of revenue to be reserved for use by the annual audit and to meet the contract-specified two-year, or biennial true-up, periods.

As stipulated by the contracts, adopted wholesale rates were based on budget projections and specified formulas recognizing the utility basis of cost allocations. The true-up comparisons revealed actual costs of wholesale service based on audited financial results.

City of Columbia, South Carolina – Department of Utilities & Engineering | Water, Sewer and Stormwater Rate Study |2017 - 2019

Water and Sewer Study Task Lead. Mr. Jagt assisted with the comprehensive study of water and sewer utility rates for FY 2018 and FY 2019. The study covered multi-year projections of revenue and revenue requirements, cost of service by customer class, design rate schedules of rates for the sale of water to retail and wholesale service customers, and sewer service. Additionally, Mr. Jagt provided support to the City during public sessions related to educating and informing existing stakeholders about the City's FY 2018 water and sewer financial plan and rates.

Department of Utilities, Norfolk, Va. | Water Revenue Bond Feasibility Studies | 1993–2015

Project Manager/Project Advisor. Mr. Jagt managed and assisted with Black & Veatch's evaluations of the Norfolk Department of Utilities' ability to issue water revenue bonds (Series 1993, 1995, 1998, 2001, 2010, 2012, 2013, 2014, and 2015). The studies included a formal review of system facilities for sound operating conditions, current regulatory compliance, sufficient treated and raw water capacity, and adequate staffing. A detailed review and projection of all revenue requirements including operation and maintenance expense, recurring capital, existing debt service, cost of new debt, maintenance of required reserve funds, Payment in Lieu of Taxes (PILOT), transfers to General Fund, and anticipated major capital improvements was also performed.

Key West, Florida | Wholesale Wastewater Rates Assessment and Contract Review | 2016

Task Leader. Mr. Jagt was a task leader for a cost of service analysis for wholesale wastewater service and assisted with a review of the existing wholesale wastewater services agreement and drafting an updated wholesale wastewater agreement. This study included an assessment and analysis of the existing wholesale wastewater rate furnished to the US Navy, the development of a proposed wholesale wastewater rate for Key Haven, a new service territory that was acquired and operated by the Florida Key Aqueduct Authority (FKAA), and an update of the existing Navy Wholesale Wastewater Agreement.

City of Wilmington, Delaware | Water, Wastewater, Stormwater Utility Annual Financial Planning and Rate Study | 2016

Technical Advisor. As Technical Advisor, Mr. Jagt assisted with the rate support efforts for the wholesale wastewater treatment rates. The study involved assisting with the development of a presentation of the wholesale wastewater treatment cost of service analysis methodology and results and assisting with providing responses to the wholesale customer queries regarding the proposed cost of service rates.

Harford County, Maryland | Comprehensive Utility Revenue Rate Study | 2015

Task Leader. Mr. Jagt was a task leader for a comprehensive water/sewer utility revenue study for Harford County. This comprehensive study included eight (8) interrelated work items comprising of 13 tasks. The work items included Operating and Capital Funding Analysis; Infrastructure Reinvestment Forecasting; Billing Period Modification Analysis; Labor Resource Analysis; Connection Fee Study; Electronic Bill Payment Investigation; Rate Benchmarking; and Rate Seminar. The objective of this comprehensive revenue study is to prepare a six-year

financial plan incorporating the financial results from all of the other work items, to determine the magnitude of annual revenue adjustments required during the six-year study period, and its impact on rates. Mr. Jagt was the task lead for the Operating and Capital Funding Analysis and Connection Fee Study work items.

Pittsburgh Water and Sewer Authority, Pittsburgh| Stormwater Management and Rate Structure Project | 2012

Consultant. Mr. Jagt assisted with the development of stormwater cost allocation analysis, financial planning, user fee funding options evaluation and Equivalent Residential Unit (ERU) rate development as part of the stormwater utility feasibility evaluation. The study included concept development, development of combined sewer cost allocation methodology for debt service and O&M costs, analysis of annual stormwater revenue requirements and funding options and the development of stormwater Equivalent Residential Unit (ERU) rates.

Philadelphia Water Department | Stormwater Implementation Services, City of Philadelphia, Pennsylvania | 2009–2011

Consultant. Mr. Jagt provided assistance with the implementation of Philadelphia Water Department's parcel area-based stormwater charges. The implementation assistance included reviewing the Credit and Appeals manual, frequently asked questions documents, and parcel fact sheets, which were provided to non-residential customers as part of the public outreach program. The parcel area-based stormwater charge bill is to go live on July 1, 2010.

Henrico County, Richmond, VA| Stormwater Utility Study | 2011

Consultant. Mr. Jagt performed the stormwater financial planning, and funding options evaluation. The study included program review and level of service alternatives evaluation, financial planning and funding options analysis, impervious area analysis and rate structure evaluation. The study also included a preliminary review of credits program, appeals process and billing options evaluation.

Public Utilities Department, Chesapeake, Va. | Water Revenue Bond Feasibility Study | 2010

Project Manager. Mr. Jagt managed Black & Veatch's evaluation of the ability of the City of Chesapeake to issue $36.4 million in water and sewer revenue bonds, Series 2010. The project included conducting site inspections of water and sewer system facilities to evaluate their adequacy to provide utility service, projection of revenue requirements and revenues; cash flow financial planning analyses; evaluation of adequate working capital balances; and debt service coverage analyses, including system maximum and annual debt ratios.

Mr. Jagt also participated in the bond working group for official statement and agreement of trust reviews and in developing presentations to bond rating agencies. He prepared a final engineering report included in the bond issue's official statement.

City of Dallas, Texas | Stormwater Fee Study | 2009–2010

Task Leader. Mr. Jagt assisted with the effort to update the stormwater user fee program for the City of Dallas. He led the financial planning and cost of service analyses. The study involved the following key tasks:

- *Financial Planning:* Developed stormwater revenue requirements for a multi-year financial plan utilizing an Excel based model. Revenue requirements developed served as the basis for the Utility's FY 2009 budget.
- *Parcel Data Analysis:* Involved an extensive parcel data analysis of the City's parcel data received from Dallas County along with billing data received from the new billing system (SAP Pay1) and the previous billing system (CIABS). Analysis also provided an estimation of the runoff coefficient for parcels. A review of the billing

mechanism and procedures for ongoing maintenance were reviewed as well as an update of parcel impervious data.

- *User Fee Methodology:* Reviewed various stormwater user fee billing methodologies and alternative rate structures. Defined a methodology based on impervious area for residential, and runoff coefficient based impervious area for the non-residential parcels.
- *Rate Schedule:* Defined a rate schedule with a five-tiered rate structure for the residential parcels and an individually computed fee for commercial parcels. Unimproved (vacant) land parcels saw an increase applicable to the level of uncapped/capped gross area square footage.

Water Revenue Bureau, City of Philadelphia, Pennsylvania | Utility Billing Appeals Process Optimization | 2009

Consultant. Mr. Jagt assisted in conducting a Utility Billing Appeals Process Optimization study for the Water Revenue Bureau (WRB). The purpose of the study was to do a comprehensive review of the existing billing dispute/appeals and hearing process to facilitate better alignment of business processes with Philadelphia Water Department (PWD) regulations; and to streamline policies, staffing, and workflow to enhance the overall operations for meeting desired service levels. The key elements of the study included the following:

- Formation of a WRB Advisory Group;
- Review of existing business processes and workflow, and policies and regulations;
- Gap analysis on processes, technology, policy, and staffing issues/constraints;
- Optimization of business workflow and technology utilization;
- Staffing and workload analysis to determine staffing needs;
- Development of recommendations for requisite policy changes; and
- Development of procedures to integrate the stormwater utility billing appeals with the water/sewer appeals processes.

Department of Utilities, Lynchburg, Va. | Water and Wastewater Financial Planning Model, Water Wholesale Cost-of-Service Study, and CSO Compliance Report Certification | 2006–2007

Project Manager. Mr. Jagt managed Black & Veatch's effort to develop financial planning models that would allow the City to conduct water and wastewater utility financial planning and rate analyses. The models allowed the City staff to analyze historical customer account and billed volumes, revenues and revenue requirements; develop projections of customer accounts and billed volumes, revenue under existing rates and revenue requirements; prepare cash-based flow of funds statements for each utility; develop financial plans for each utility; and calculate test year rates necessary to provide the net revenue requirements of each utility as established by the financial plans.

In addition, Black & Veatch assisted the City in conducting a cost-of-service water rate study for purposes of developing the cost of service and rates for the City's wholesale water service to the Counties of Amherst, Bedford and Campbell. Black & Veatch determined revenue requirements and units of service; evaluated revenue requirement basis and cost allocation methodologies; allocated revenue requirements to functional cost components; distributed functional cost component costs to customer classes; determined proposed rates for wholesale service; and assisted with the development of a wholesale service water rate agreement.

Black & Veatch also reviewed and certified the City-prepared Annual CSO Compliance Report. Black & Veatch checked the accuracy of the current year data on each of the provided schedules. The City's Annual CSO Compliance Report also includes verification that the annual residential wastewater bill based on 700 cubic feet per month is greater than or equal to 1.25 percent of median household income to ensure that enough funds are being spent on wastewater projects.

Department of Utilities, Chesapeake, Va. | Comprehensive Water and Wastewater Rate Study | 2005–2006

Project Manager. Mr. Jagt managed Black & Veatch's comprehensive analysis of the City's water and wastewater rates. The study includes the development of a 10-year financial plan for water and wastewater separately and combined, cost of service for the identified test year and cost-of-service rate design to equitably recover costs from customers based on their identified service requirements. Black & Veatch also developed a sophisticated financial planning and rate model for the City.

SELECTED PUBLICATIONS

Co-presented paper entitled, *"Sustainable Wet Weather Funding Can Be Achieved by Developing Multi-Objective Stormwater Utility Programs,"* at WEFTEC 2014 in New Orleans, La., September 2014.

Presented technical presentation entitled, *"Building Financial Resiliency: The Critical Role of Establishing and Adhering to Financial Performance Metrics,"* at the 2014 Tri-Association Conference in Ocean City, MD., August 2014.

Coauthored paper on "*Fairfax County, Virginia OWM's Approach to Sewer Utility Financial and Operational Planning,"* Presented at Chesapeake Water Environment Association and The Water and Waste Operations Association of Maryland, Delaware and District of Columbia 30th Joint Annual Conference, Ocean City, Md., July 1999.

Coauthored paper on "A Combined Water and Wastewater Utility Approach to Meeting Increasing Costs While Operating Efficiently" presented to WEF/AWWA Joint Conference in March 1999.

Coauthored paper on "*Useful Marketing Strategies Necessary for Bond Issue Preparedness,*" Presented to Chesapeake AWWA in September 1998. and 1998 Annual VA Section AWWA Conference, Roanoke, Va., October 1998.

Coauthored paper entitled, *"Fairfax County, Virginia OWM's Approach to Sewer Utility Financial & Operational Planning,"* presented at Annual WEFTEC "96", in Dallas, Texas, October 1996.

Co-presented paper entitled, *"Norfolk's Use of Computer Models During Water Sales Contract Negotiations,"* at AWWA's 1995 Computer Conference in Norfolk, Va., April 1995.

Coauthored article entitled, "Long Range and Short Range Planning: Fairfax County OWM's Approach to Today's Decision Making," published in Virginia Review, September/October 1994.

Brian Merritt

Manager, Consulting

Civil/water resources project management professional with over 17 years of experience in the engineering and consulting industry. Extensive experience in project management, stormwater fee implementation and development, cost of service, financial planning and rate design, engineering design, permitting, public outreach, program evaluations and planning, and funding strategy implementation.

EDUCATION

MS, Civil & Environmental Engineering, Lehigh University, 2007

BS, Civil & Environmental Engineering, Lehigh University, 2000

YEARS' EXPERIENCE

17

EXPERTISE

Stormwater Fee and Utility Implementation; Stormwater Management; Strategic Planning; Hydraulics; Hydrology; Green Infrastructure Planning and Design; Credit Program Development; Rate Structure Analysis and Design; Stormwater Financial Planning; Public Outreach and Stakeholder Engagement; Stormwater Needs Assessments.

REPRESENTATIVE PROJECT EXPERIENCE

Philadelphia Water Department, City of Philadelphia, Pennsylvania | Financial Planning and Cost of Service Study | 2019-Present

Project Manager. Mr. Merritt served as project manager for the Water Department's Alternative Rate Structure study, which consisted of a review of the existing water and stormwater rate structures, supporting policies and programs, as well as an evaluation of a potential rider for pension expenses. The study also included discussions with various stakeholders and prior rate proceeding participants to gather feedback on potential alternatives. A report was issued to the Rate Board in the Fall of 2019. During this time Mr. Merritt also supported the 2019 reconciliation of the Tiered Assistance Program Rate Rider Surcharge (TAP-R). Current work includes the financial planning, stormwater cost of service analysis, and rate study update for the Philadelphia Water Department (PWD). The study involves a six-year financial planning, cost of service analysis, cost allocation analysis, policy issues review, rate design, and rate case support.

City of Norfolk Department of Utilities, Norfolk, Virginia | Water Utility Wholesale Contract True-up Calculations | 2019

Project Support. Mr. Merritt aided in the preparation of biennial revenue true-up calculations for Norfolk's wholesale water contract with the City of Virginia Beach for the periods of FY 2018 and FY 2019. As stipulated by the contract, adopted wholesale rates were based on budget projections and specified formulas recognizing the utility basis of cost allocations. The true-up comparisons revealed actual costs of wholesale service based on audited financial results. Mr. Merritt supported the review of updated fixed asset listings to update utility basis cost allocations, revisions to demand based allocations, updates to annual O&M expenses, as well as review of billing and revenue adjustments.

Metropolitan St. Louis Sewer District (MSD), St. Louis, Missouri | Rate Consultant to MSD Rate Commission | 2019

Project Support. Black & Veatch has served as a rate consultant to MSD's Rate Commission the last two rate cycles. MSD establishes rates through a thorough stakeholder engagement process, whereby a broad cross section of stakeholders serve as a Rate Commission to evaluate MSD's Rate Proposal, supporting documentation, and testimony. In response to a request made by the Rate Commission, Mr. Merritt supported the Black & Veatch team in the development of wastewater rate comparisons of MSD's wastewater rates and rate structure to those of selected peer utilities across the country. This work included a review of industry trends, as well as

the costs of wastewater collection and treatment, underlying infrastructure needs, regulatory requirements, revenue sources, rate structures as well as resulting customer rates and bill impacts.

City of Takoma Park, Maryland | Stormwater Rate Study | 2018-2019

Project Manager. Mr. Merritt has been working with the City of Takoma Park, Maryland to complete a review of their stormwater billing information and associated stormwater rates. The City had not holistically re-evaluated its stormwater rate structure since initial implementation in the late 1990s. In addition, the City had obtained updated impervious area data (i.e. planimetric data) for the entire service area. Mr. Merritt worked with the City to assess impacts of the updated data set on the existing rate structure and identify potential rate adjustments needed to maintain revenue sufficiency for the stormwater program. Customer bills were also evaluated to assess potential impacts on the various stormwater customer classes. In addition, alternative rate structures were developed to help improve the public understanding and improve the overall equity of the stormwater rate structure. A rate study report was delivered to staff in late 2018, with consideration by City Council expected to follow.

City of Jonesboro, Arkansas | Stormwater Feasibility Study | 2018-2019

Project Support. Mr. Merritt has been assisting in the evaluation of a dedicated stormwater fee for the City of Jonesboro, Arkansas. This involves the evaluation of policies related to stormwater revenue requirements, impervious area development, customer classification, rate structure development, billing and enforcement as well as credit and appeals. Work also includes establishing stormwater units of service and analyzing the operations, capital and other costs to determine the revenue requirements. The funding approach is currently under consideration by City staff and leadership.

Unified Government of Wyandotte County and Kansas City, Kansas| Stormwater Feasibility Study | 2018-2019

Project Support. Mr. Merritt has been assisting in the development and evaluation of an impervious area based stormwater user fee for the Unified Government of Wyandotte County and Kansas City, Kansas (UG). UG currently charges all customer a flat fee for stormwater services. Work includes the review of available data sources, evaluation of stormwater rate structures, development of stormwater customers classifications, establishing stormwater units of service as well as the development of credit and appeals policies. Other areas of work have included the development of updates stormwater revenue requirements including an assessment of operation and maintenance, capital improvement and capital financing need. As of March 2019, the impervious area based stormwater fee is still under development, with recommendations expected to be delivered to the UG Board of Commissioners by mid-2019.

City of Columbia, South Carolina – Department of Utilities & Engineering | Stormwater Bond Feasibility Study | 2018

Project Support. Mr. Merritt worked with the City of Columbia, South Carolina to perform a five-year financial feasibility analysis of the City's Stormwater System operating results associated with the issuance of Stormwater System Revenue Bonds. The analysis included a forecast of revenues and revenue requirements, to determine the financial feasibility of the City issuing the Series 2018 Bonds.

City of Newark, New Jersey | Stormwater Utility Feasibility Study | 2017-2019

Project Support. Mr. Merritt has been assisting in the evaluation of a stormwater utility for the City of Newark, New Jersey. The project involves a review of the City's current stormwater management program, identification of program improvements and level of service enhancements, as well as capital improvements needs. Part of the

evaluation includes the allocation of combined sewer related costs between sewer and stormwater revenue requirements. Work also includes impervious area development, customer classification, rate structure development, policy development including credits, appeals, as well as billing and enforcement. Work is currently ongoing with recommendations anticipated to be provided to City leadership in Mid-2019 along with anticipated planned public outreach and education efforts.

City of Newark, Delaware | Stormwater Utility Implementation | 2016-2018

Project Support. Mr. Merritt has been assisting in the development and implementation of a stormwater utility for the City of Newark, Delaware. This involves the evaluation of policies related to stormwater revenue requirements, impervious area development, customer classification, rate structure development, billing and enforcement as well as credit and appeals. Work also includes establishing stormwater units of service and analyzing the operations, capital and other costs to determine the revenue requirements. During 2017, Mr. Merritt assisted with the implementation phase of the project helping the City with the finalization of customer service processes including credit and appeals, billing integration and parcel account mapping. The City began billing for stormwater in January 2018.

City of Cincinnati, Ohio – Stormwater Management Utility | Stormwater Rate Study | 2016-2018

Project Manager. Mr. Merritt has been working with the City of Cincinnati Ohio's Stormwater Management Utility (SMU) to complete a comprehensive review of their stormwater rates. Current work includes the evaluation of projected revenue requirements and anticipated system-wide revenue increases due to the anticipated need for a large capital program to rehabilitate and/or replace components of the City's Barrier Dam as well as other critical stormwater infrastructure. Additional costs associated with NPDES MS4 Phase II permit requirements, increased operation and maintenance costs, were also evaluated. A financial plan report was delivered to staff in and City Council ultimately adopted updated stormwater rates to support the revenue requirements of SMU.

Philadelphia Water Department, City of Philadelphia, Pennsylvania | Financial Planning and Cost of Service Study | 2017-2018

Project Manager. Mr. Merritt is supported the financial planning, stormwater cost of service analysis, and rate study update for the Philadelphia Water Department (PWD). The study involved a six-year financial planning, cost of service analysis, cost allocation analysis, policy issues review, rate design, and rate case support. Mr. Merritt aided in the development of the financial plan, cost of service analysis including: sewer cost of service, system-wide billing units estimates, stormwater cost allocation, user fee methodology, credit, incentive and customer assistance program cost recovery. Mr. Merritt worked with the project team to develop a rate rider concept to recover costs related to the PWD's Tiered Customer Assistance Program (TAP). Mr. Merritt led the stakeholder engagement support services provided under this contract. Mr. Merritt also helped with drafting testimony for the rate proceedings.

City of Columbia, South Carolina – Department of Utilities & Engineering | Water, Sewer and Stormwater Rate Study | 2017

Stormwater Task Lead. Mr. Merritt assisted with a water, sewer and stormwater rate study for the City of Columbia, South Carolina's Department of Utilities & Engineering. Mr. Merritt led the stormwater portion of the study. Project worked included: development of a multi-year financial plan, revenue and revenue requirements review, stormwater rate structure alternatives analysis, development of financial metrics, review of capital program needs and financing. The project included the development of a Stormwater Rate Study report and

presentation of the Rate Study findings and recommendations to City Council. Based upon the study's findings, the City adopted a series (i.e. multi-year) stormwater rate increases.

City of Havre de Grace, Maryland | Water and Sewer Rate Study | 2016-2017

Project Manager. Mr. Merritt served as project manager for the City of Havre de Grace, Maryland's comprehensive review of their current water and sewer rates. The project integrated an asset renewal forecast with the rate study and development of alternative funding mechanisms (such as an asset reinvestment charge) to alleviate the current deficit fiscal position and adequately fund water and sewer operations and capital program obligations. Work also included: Preparation of a reasonable estimate of repair and renewal forecast for all of the water system treatment, storage, transmission, and distribution assets; Development a five-year financial plan for the water/sewer enterprise fund to assure financial self-sufficiency; Review of the existing rate structure and design rate schedules to enable a defensible recovery of fixed and variable costs of the water and sewer utilities; and presentation of the Rate Study findings and recommendations to the Water and Sewer Rate Commission and to the City Administration and Council.

Philadelphia Water Department, City of Philadelphia, Pennsylvania | Stormwater Cost of Service and Rate Study | 2015-2016

Project Support. Mr. Merritt supported the stormwater cost of service analysis, and rate study update for the Philadelphia Water Department. The study involved a six-year financial planning, cost allocation analysis, stormwater fee policy issues review, rate design, and rate case support. Mr. Merritt aided in the development of stormwater related analysis including: sewer cost of service, system-wide billing units estimates, stormwater cost allocation, user fee methodology, credit, incentive and customer assistance program cost recovery. Mr. Merritt helped with drafting testimony for the rate proceedings.

Pittsburgh Water and Sewer Authority, Pittsburgh | Stormwater Management and Rate Structure Project | 2015-2019

Project Manager. Mr. Merritt is currently serving as Project Manager for Black & Veatch's portions of the Pittsburgh Water and Sewer Authority's (PWSA) Stormwater User Fee Development and Implementation project. Phase 2 builds from work previously conducted in 2012, and is intended to take the decisions and recommendations developed during Phase I- Feasibility Study up to the development of a draft ordinance for consideration by Pittsburgh City Council. Project work includes updates to the stormwater cost allocation analysis, financial planning, user fee funding and rate structure finalization. Mr. Merritt is providing technical advice and input into PWSA's public outreach efforts.

South Fayette Township, Allegheny County, Pennsylvania | Stormwater Program Needs Assessment | 2015

Project Manager, while with a former employer, assisting South Fayette Township in a comprehensive needs assessment of their existing stormwater program. The goal of the project was to define an enhanced program that meets the future needs and priorities of the community while addressing operation and maintenance, infrastructure replacement, and MS4 compliance responsibilities. All of the main streams, which run through the Township, are impaired. Impairments include acid mine drainage, nutrients, PCBs, and sediments. Actions to address these pollutants must be considered as part of the next MS4 permit cycle. A stormwater needs assessment committee was conveyed to gain public input into which program areas needed the most attention and to develop a five-year plan on which to evaluate funding options.

White Township, Indiana County, Pennsylvania |Stormwater Assessment Feasibility Study | 2014-2015

Project Manager, while with a former employer, assisting White Township in a program evaluation process that could result in the implementation of a stormwater user fee in the Township. This fee would be used to support enhancements to the Township's stormwater management program with resources directed to meet community-wide goals and needs. The project was intended to provide the Township with sufficient information on the viability of implementing a stormwater user fee, prior to investing in full implementation. Responsible for program evaluation and planning, billing system and data evaluation, impervious area data analysis, parcel and account review, rate structure development, initial rate estimates, public/Board of Commissioners presentations as well as overall project and client management. White Township implemented their stormwater fee in early 2016.

Radnor Township, Montgomery County, Pennsylvania | Stormwater Program and Fee Implementation | 2012-2013

Project Manager, while with a former employer, for the evaluation and development of an updated stormwater management program and funding mechanism for Radnor Township, PA. Led project team working with the Township personnel to develop a dedicated funding source to help meet the community's goals for infrastructure maintenance, flood mitigation, and green infrastructure. Services included stormwater program assessment and level of services analysis, financial analysis, data and master account file development, stakeholder meeting facilitation, rate evaluation, rate structure and ordinance development. Radnor convened a stormwater advisory committee to provide input into key policy issues such as the stormwater program needs, level of service considerations, the overall program plan, rate structure, credit and incentive program options and public education requirements. Assisted the Township with appeals policy development, billing system implementation support, customer service training, draft credit program development, and public education efforts. The stormwater user fee was approved by the Radnor Board of Commissioners in September 2013.

City of Meadville, Crawford County, Pennsylvania | Stormwater Program and Fee Implementation Project | 2012-2013

Project Manager, while with a former employer, for the evaluation and development of an updated stormwater management program for the City of Meadville, PA. Assessed the current stormwater program with the goal of establishing a functioning stormwater funding mechanism that fully accounts for the City's stormwater program costs. Tasks included a review of the City's current level of service, evaluation of the stormwater program's organizational structure, future needs assessment, current cost estimation, facilitation of Citizen's Advisory Groups, ordinance development, credit and appeals policy and program development, customer service training, management of public outreach and education activities as well as GIS and billing database development. Two separate Citizen's Advisory Groups were convened, one to provide input on the initial stormwater fee policies and the second to help develop a detailed stormwater credit and appeals program to enhance the equity of the fee and provide incentivizes to private property owners to better manage stormwater on-site. The Meadville stormwater fee was approved by their City Council in November 2012 and the first bills were processed in 2013.

SELECTED PUBLICATIONS AND PRESENTATIONS

Presentations – Stormwater Utility Implementation

- "Road to Resiliency: Integrated Stormwater Management Planning and Funding," NJ Future, May 2015
- New Jersey Watershed Institute Stormwater Seminar, June 2019

- Government Finance Officers Association of Pennsylvania, April 2015
- Villanova University Guest Lecturer – Sustainability & Science, 2014
- St Joseph's University Stormwater Workshop, 2014
- Villanova University Stormwater Symposium, 2013
- 3 Rivers Wet Weather, 2013
- Erie County GIS Workshop, 2013
- PA Northwest City Manager's Meeting, 2012

Publications

"Sustainable Stormwater Programs and Financing", Pennsylvania Borough News, October 2014

MEMO

To: Melissa LaBuda - Philadelphia Water Department
From: Jon Davis, Henrietta Locklear, Jennifer Tavantzis - Raftelis
Date: May 18, 2020
Re: Digest to accompany reports and projections to support TAP Reconcilable Rate Rider calculation

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Introduction

Raftelis developed reports and projections to support the TAP Reconcilable Rider calculation performed by Black and Veatch Management Consulting, LLC (Black & Veatch) for the rate year beginning in September 2019 for the Philadelphia Water Department (PWD). Reports and projections were prepared by Jon Davis, Henrietta Locklear, and Jennifer Tavantzis. Resumes for each are included as Schedule RFC-2. Raftelis delivered the reports and projections on March 18, 2020 in a single workbook with multiple worksheets, one for each report and others for calculations and explanatory information.

Reports

Raftelis developed four reports, DR-1, DR-2, DR-3, and DR-4. The reports were developed in accordance with specifications agreed upon by PWD, Black & Veatch and Raftelis. The reports cover actual data for months contained in two periods:

- *Reconciled Period* (March 2019 to August 2019)
- *Most Recent Period* (September 2019 to February 2020)

Projections

Raftelis projected TAP participants, TAP discounts, TAP water consumption and TAP sewer consumption for the *Most Recent Period* months March 2020 to September 2020 and the *Next Rate Period* months October 2020 to September 2020. Projections were based on a 0% monthly participation increase over the January 2020 participant baseline through September 2020. Projections over the *Next Rate Period* also remained flat. Projections relied on January, rather than February, 2020 figures because February showed uncharacteristically low participation, likely owing to the limited number of billing days during the month.

Important Information and Definitions Used in Reports and Projections

Data Source – The snapshot of basis2, WRB's billing system that is used to generate reports DR-1 through DR-4. In this case, the snapshot is dated February 29, 2020.

Reconciled Period – The period of March 2019 through August 2019 that was projected for the prior TAP Reconcilable Rate Rider (TAP-R) calculation (rate proceedings occurred in April 2019).

Most Recent Period – The anticipated period during which the TAP-R calculated in the last annual rate proceeding is effective. The Most Recent Period comprises September 2019 to September 2020 and within the Most Recent Period, September 2019 to February 2020 numbers are actuals, while March 2020 to August 2020 are projections. September 2019 to February 2020 figures were projected in the last TAP-R rate proceeding, and can now be reconciled.

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Next Rate Period – The fiscal year and/or the period that immediately follows the Most Recent Period, and in which the TAP-R presented in this rate proceeding is effective. In this case, the next rate period comprises October 2020 to September 2021 and the entire period is projected data.

TAP Participants – The number of unique customers that were issued a TAP bill during the period in question. Customers issued more than one TAP bill during a calendar month were counted once. Customers not issued a TAP bill during a calendar month were not counted during the month in question. Note that depending on a customer's billing cycle, a customer enrolled in one month is first included in this number in the month in which they receive their first bill, which may not be the same month that customer is enrolled.

TAP Bills – The number of TAP bills issued to TAP participants. A TAP bill is identified by the presence of transactions that result in the TAP capped bill for the customer in question. Each TAP bill for a customer is counted. If a customer was issued more than one TAP bill during a calendar month, each bill is counted. Bills that have subsequently been reversed are not included.

Cost per Participant – Dollars of TAP discounts issued (TAP Discount Amount) divided by the number of TAP participants.

Consumption per Participant – Total water consumption (Billed Water Usage (Consumption)) divided by the number of TAP participants

TAP Discount Amount - The total dollar amount of TAP discounts associated with TAP bills. TAP discount amount does not include non-TAP discounts issued to TAP customers, if any. TAP Discounts are stored in the TAP_DISC_AMNT field of the PHL_TAP_ADJUSTMENT_DETAILS table.

Billed Water Usage (Consumption) - Billed water usage is developed from the debit lines table (CIS_DEBIT_LINES.tran_qty) in basis2. Quantities in this field are stored in CCF units and are multiplied by 100 to get cubic feet.

Billed Sewer Usage - Billed sewer usage is developed from the debit lines table (CIS_DEBIT_LINES.tran_qty) in basis2. Quantities in this field are stored in CCF units and are multiplied by 100 to get cubic feet.

Results

Results from the analysis are summarized in the table below. The full model is included as Schedule RFC-3.

	Average Monthly Number of TAP Participants	Total Number of TAP Participants*	Total TAP Discount Amount
Reconciled Period (March 2019 to August 2019)	**15,245**	**91,472**	**$4,468,951**
Most Recent Period - Actual (September 2019 to February 2020)	14,767	88,603	$4,540,864
Most Recent Period - Projected (March 2020 to September 2020)	15,180	106,260	$5,445,825
Most Recent Period - Entire (September 2019 to September 2020)	**14,989**	**194,863**	**$9,986,689**
Next Rate Period (October 2020 to September 2021)	**15,180**	**182,160**	**$9,335,700**

*This counts the number of monthly participants during the period. Most participants are the same from month to month, so this does not count unique participants.

Jon Davis
Executive Vice President
Raftelis Financial Consultants, Inc.

Technical Specialties
Utility cost of service and rate structure studies
Development impact fee studies
Affordability program development
Long-range financial planning and feasibility studies
Cost analysis and cost allocation

Professional History
Raftelis Financial Consultants, Inc.: Executive Vice President (2019-present), Vice President (2013-2018); Senior Manager (2009-2012); Manager (2005–2009); Senior Consultant (2000–2004)
Lance, Incorporated: Director of Energy & Environment, Projects Manager, Financial Analyst (1992-2000)

Education
Master of Business Administration - Queens College (1998)
Bachelor of Science, Physics and Mathematics - Wake Forest University (1990)

Professional Memberships
American Water Works Association: Virginia Section; Chesapeake Section; Pennsylvania Section; North Carolina Section
Water Environment Federation: Utility Management Committee; Finance & Administration Subcommittee Chair; WEFTEC Conference Planning Committee; Utility Management Conference Planning Committee; Technical Practices Committee

Certifications
Series 50 Municipal Advisor

Profile
Mr. Davis joined Raftelis in 2000 and currently serves the firm as a Vice President. Mr. Davis has extensive experience in financial forecasting and modeling and has led projects to apply advanced risk analysis techniques to rate and financial planning studies for the water and wastewater industry. Mr. Davis is an active member of the Water Environment Federation (WEF) Utility Management Committee where he chairs the subcommittee on Finance and Administration. He also serves on the WEF Technical Practices Committee and the WEFTEC Planning Committee. Mr. Davis has presented at many industry conferences, an dalso co-authored a chapter entitled, "Financial Capability and Affordability," for the Fourth Edition of the industry guidebook, *Water and Wastewater Finance and Pricing: The Changing Landscape*. Prior to joining Raftelis, Mr. Davis worked in water resource recovery facility management and capital projects engineering.

Relevant Project Experience

Philadelphia Water Department (PA)

Mr. Davis is serving as Project Manager on a long-term contract to provide financial and management consulting services for the Philadelphia Water Department (PWD). The services involve debt issuance support, financial forecasting, service affordability review, and strategic planning assistance. At present under the agreement, Raftelis is performing a bond feasibility study and consulting engineers' report for inclusion in PWD's Official Statement for a 2016 planned bond issuance. The bond feasibility study provides a forecast of revenues and expenditures for the utility to assure bondholders that PWD will be able to repay bonds and meet debt covenants.

As part of the same engagement, Raftelis is identifying and evaluating affordability programs including customer assistance and rate structure alternatives. The affordability program development is driven by a City Council mandate to overhaul the existing customer assistance programs. To date, Raftelis has developed program structure and administration options, modeled revenue impacts of a variety of options (including ones proposed by Council and outside groups), and participated in discussions both on structure and administration leading to the implementation of a final program.

In addition, Mr. Davis served as Project Manager for a management audit of customer service functions for PWD and the Water Revenue Bureau (WRB).

DC Water (DC)

Mr. Davis currently serves as Project Manager for an ongoing engagement with DC Water. Raftelis is working under a long-term contract to provided financial planning and rate consulting services. As the first task order under the contract, Raftelis performed the 2009 Cost of Service Study (COS Study). The COS Study included four major project deliverables: assure the sufficiency of projected revenue to cover projected expenditures; calculate cost of service-based rates and compare them to projected rates; review miscellaneous fees and charges; and, recommend rate structure alternatives that enhance priority pricing objectives of DC Water. Raftelis worked closely with DC Water staff over a compressed project timeframe beginning in July, 2009. Results of the COS Study, along with a comprehensive report and revenue sufficiency/cost of service model, were presented to the Retail Rates Committee of the Board on September 24, 2009. Raftelis will continue to develop rate structure options based on the recommendations in the study.

Columbus Water Works (GA)

Mr. Davis has served as Project Manager on a multi-phase project with Columbus Water Works (CWW) involving a financial management systems evaluation, cost of service analysis, block rate design, contract rate analysis, and financial reporting system review. The project goal was development and implementation of equitable yet understandable cost-based rate structures for both inside city and contract customers. The task was complicated by the recent departure of several large contract and wholesale customers and major looming capital needs. The study used a 5- to 10-year planning horizon that incorporated long-term capital planning needs, debt funding assumptions, operating cost

projections, and demand projections. The Water Works Board voted on and agreed to the five-year program as recommended by Raftelis and CWW staff.

City of Baltimore (MD)

Mr. Davis serves as Project Manager on a multi-year cost of service, rate, and financial consulting contract for the City of Baltimore (City). As part of the contract, Raftelis is performing cost of service and rate design studies for the water and wastewater utilities. The contract also calls for assistance with long-term fiscal planning and development of financial plans for utility capital programs. Since the City provides wholesale and retail utility service for surrounding counties, the engagement includes inter-jurisdictional contract negotiation support and rate setting. Mr. Davis is responsible for project administrative functions such as invoicing and sub-consultant coordination over the term of the engagement.

Washington Suburban Sanitary Commission (MD)

Mr. Davis served as Project Manager on an engagement with Washington Suburban Sanitary Commission (WSSC) in Laurel, Maryland. WSSC is looking at alternatives to fund infrastructure renewal and AMR/AMI. The Raftelis Team is identifying and evaluating revenue enhancement opportunities to help fund approximately $2.1 billion in incremental capital projects over the next ten years. As part of our assistance, the Raftelis Team is helping to build the business case for monthly customer billing facilitated by AMR/AMI. WSSC has looked into automated meter reading for at least 12 years but has run into challenges with cost justification; their system contains over 440,000 customer accounts and almost 1,000 square miles. The Raftelis Team, led by Mr. Davis, will help to justify the investment in AMR/AMI through placing a value on its intangible benefits: more frequent pricing communication with customers, reduced delinquency, and reduced unaccounted for water.

City of San Diego Metro Wastewater Department (CA)

Mr. Davis served as Lead Consultant for a sewer cost of service and rate design study for the City of San Diego (City) Metro Wastewater Department. The study was conducted with extensive stakeholder group involvement and included a comprehensive review of the City's revenue requirements and allocation methodology, review of the City's user classification, an analysis of cost of service and rate design for City users. Rate design included evaluation of rate structure alternatives with emphasis on incorporating a uniform monthly base fee in conjunction with volume rates. The study also included a review of the City's capacity charges.

Charlotte-Mecklenburg Utilities (NC)

Mr. Davis has assisted on several financial services engagements for Charlotte-Mecklenburg Utilities (Utilities). Originally, Raftelis assisted Utilities in developing a water financial planning and rate model and related user manual. The rate model has been used to update rates and assist with Utilities' financial planning. Since the original model development, Raftelis has provided assistance in updating and refining the rate model. In addition, Mr. Davis and Raftelis have provided assistance in conservation-based rate development, industrial waste charge methodology, recycled water rate setting, managed competition, and utility billing system cost allocation. Raftelis is currently assisting Utilities in

developing stronger conservation-based water rates, while trying to maintain revenue sufficiency and stability.

Richmond Department Public Utilities (VA)
Mr. Davis currently serves as Project Director for our engagement with the Richmond DPU. Raftelis is developing a financial planning model that incorporates all utility systems: water, wastewater, natural gas, street lighting and storm water. DPU will use the model to set rates in addition to determining financial condition.

City of Virginia Beach Department of Public Utilities (VA)
Mr. Davis served as the Project Manager on an engagement looking into the feasibility of transitioning the Department of Public Utilities (DPU) from bi-monthly billing to monthly billing. DPU leadership was concerned that non-utility fees added to the utility bill would incite a public outcry for monthly billing. DPU wanted to be prepared to address this with two scenarios: an analysis of the most expedient method to enact monthly billing in the short term; and an analysis of the most efficient method to enact monthly billing in the long term. The Raftelis Project Team examined customer service functions related to monthly billing including meter reading, customer information systems, collections, and account management. These functions were split between the Operations Division, which handled field activities, and the Business Division, which handled customer account maintenance and call center operations. As a result of this project, DPU was able to identify both short-term and long-term approaches to meet its monthly billing transition.

York County (SC)
Mr. Davis served as Project Director on a wheeling rate study for York County, South Carolina (County). The County engaged Raftelis to calculate a wholesale or bulk rate for water purchased by the City of York and Tega Cay from the City of Rock Hill to be delivered through the County transmission system. The study involved developing a cost allocation methodology and associated rate for delivering water through the County system that considered alternative options for the assessment of capital costs.

City of Buffalo (NY)
Mr. Davis served as Project Manager for a comprehensive cost of service and rate study for the Buffalo Water Board (Board). The Board's primary pricing objectives were revenue sufficiency and equitable cost recovery from all customer classes. To achieve these objectives, Raftelis performed a cost of service study and developed two alternatives to the existing three-block, declining block rate structure. The results of the cost of service study indicated that the discount being realized by large volume customers was not cost justified and that only a minor portion of consumption was within the middle rate block. Raftelis recommended a phased approach to bringing the discount for consumption in the third rate block closer to a cost justified level and phasing out the middle rate block. Both the Board and the City's Common Council unanimously approved Raftelis' recommendations.

Other Relevant Project Experience
City of Arlington (TX) – Wholesale Reclaimed Water Negotiation

City of Baltimore (MD) – Cost of Service Rate Study, Financial Planning, Interjurisdictional Contract Negotiation Support, Stormwater Utility Implementation, Organizational Optimization
City of Buffalo (NY) – Cost of Service Water Rate Study
Bureau of Governmental Research, New Orleans (LA) – Managed Competition Proposal Evaluation Study
Charlotte-Mecklenburg Utilities (NC) – Conservation Pricing, Reclaimed Water Program Feasibility, Billing and Collections Costs Analysis and Allocation Study
Columbus Water Works (GA) – Cost-of-Service Rate Study, Financial Planning, Procurement Feasibility
City of Corona (CA) – Wastewater Rate Study
DC Water and Sewer Authority (DC) – Economic Development/Service Extension Policy
Erie County (NY) – Regionalization Feasibility Study
City of Hendersonville (NC) – Water and Sewer Rate Study
Town of Hillsborough (NC) – Development/Impact Fee Study for Water and Wastewater, Water and Wastewater Rate Study
City and County of Honolulu (HI) - Department of Environmental Services – Wastewater Rate Structure Study
Town of Marana (AZ) – Water Financial Planning/Rate Study
Philadelphia Water Department (PA) – Wholesale Rate Arbitration, Customer Service Strategic Review
City of Phoenix (AZ) – Environmental Fee Study, Privatization Study
City of Portland (OR) – Water Rate Model Design
City of Poway (CA) – Wastewater Rate Structure Study
City of Richmond (VA) – Financial Forecasting Model
City of Rock Hill (SC) – Wholesale Cost-of-Service Rate Study, Development/Impact Fee Study
City of San Diego (CA) – Recycled Water and Wastewater Rate Study
City of Siler City (NC) – Debt Feasibility Study
Tarrant Regional Water District, Fort Worth (TX)– Financial Feasibility Study
United States Navy – Privatization Procurement
City of Virginia Beach (VA) – Customer Billing Feasibility Study
York County (SC) – Countywide Study for Evaluation of Water and Sewer Alternatives

Presentations

"The New Deal: Capital Project Financing Under Constrained Credit Conditions" – WEFTEC Workshop, October 2009
"Rate Setting in Tough Times" - WEF Webcast, July 2009
"The New Drought Emergency - Combating Revenue Trickle" - Utility Management Conference, February 2009

Henrietta Locklear, MPA
Vice President
Raftelis Financial Consultants, Inc.

Technical Specialties
Stormwater program planning and development
Stormwater finance and utility development
Stormwater rate structure analysis and cost allocation
Affordability program analysis, development and implementation
Billing and information systems
Meter technology modernization (AMI/AMR)
Public involvement and stakeholder facilitation
Management policy and practice
Technical writing
Business process development and improvement
Data and systems integration
Database architecture and analysis

Professional History
Raftelis Financial Consultants, Inc.: Vice President (2019-present), Senior Manager (2015-2018); Manager (2013-2014); Senior Consultant (2011-2012)
AMEC: Team Leader and Project Manager (Morrisville, NC) 2009-2011; Supervisor and Project Manager (Raleigh, NC) 2008-2009; Project Manager (Raleigh, NC) 2006-2008; Public Affairs Coordinator (Nashville, TN), 2004-2006
Wake County Government: Planning Technician (Department of Environmental Services) (2003-2004); Intern (Manager's Office) (2003)
School of Government at the University of North Carolina at Chapel Hill: Research Assistant (2004)

Education
Master of Public Administration -- University of North Carolina at Chapel Hill (2004); Deil S. Wright Award for Outstanding Capstone Paper
Bachelor of Arts in Political Science, University of North Carolina at Chapel Hill (2002); Phi Beta Kappa; Order of the Golden Fleece

Professional Memberships
Water Environment Federation

Certifications
Series 50 Municipal Advisor

Profile
Ms. Locklear has 15 years of experience in local government finance and stormwater management. She specializes in working with local government staff, stakeholders, and elected officials to identify solutions and implement programs to meet environmental and public health challenges. Ms. Locklear is experienced in governmental financial analysis and planning, particularly in stormwater utility implementation and rate studies. She is also experienced in all aspects of utility implementation, with particular focus on policy analysis and development, and data and billing system implementation. She has studied fee credit programs and served as project lead on credit program development for several large stormwater utilities. Ms. Locklear has worked with more than 50 local governments on stormwater funding analyses, fee feasibility, or implementation projects and has served as project manager for more than 15 stormwater utility fee implementation projects. She was a member of the working group that developed the certification test for APWA's Stormwater Manager Certification. She was also a reviewer for the Water Environment Federation's Special

Publication entitled, *User-Fee-Funded Stormwater Programs, 2nd Edition*. In addition, Ms. Locklear co-authored two chapters in the industry guidebook *Water and Wastewater Finance and Pricing: The Changing Landscape*, which are entitled, "Public Outreach and Gaining Stakeholder Commitment" and "Expanding Financing and Pricing Concepts into Stormwater." Ms. Locklear has a wealth of experience with public input processes. On a variety of projects, she has developed and facilitated public stakeholder processes, outreach strategies, and education campaigns for programs ranging from stormwater utilities and NPDES compliance efforts to brownfields, on-site wastewater, and hazard mitigation programs. Her strengths include: policy analysis and development; research methods, including survey development and administration; data analysis; local government finance; stakeholder facilitation; and strong written and oral communication skills. Recently, she has also focused on developing utility customer assistance and affordability programs.

Stormwater Funding Analysis and Fee Development Experience

State	**Name of Local Government**
CA	Modesto Irrigation District
CA	City of Sacramento
CA	San Diego County
CA	City of San Jose
CO	Adams County
CO	City of Boulder
CO	Southeast Metro Storm water Authority
DC	DC Water
FL	City of Largo
FL	City of Margate
GA	City of Cartersville
IL	City of Bloomington
IL	City of Champaign
IL	City of Urbana
KY	Lexington-Fayette Urban County Government
LA	Sewerage and Water Board of New Orleans
MA	Boston Water and Sewer Commission
MA	Town of Westford
MD	City of Baltimore
MO	St. Louis Metropolitan Sewerage District
MT	City of Shelby
NC	City of Burlington
NC	Town of Butner
NC	City of Charlotte
NC	City of Creedmoor
NC	Granville County
NC	City of Jacksonville
NC	Mecklenburg County
NC	Town of Kernersville
NC	Town of Mooresville

State	Name of Local Government
NC	Person County
NC	City of Raleigh
NC	Town of Stem
NC	City of Wilmington
NC	Wake County
NH	City of Manchester
OH	Northeast Ohio Regional Sewer District
OK	City of Chickasha
PA	City of Mount Lebanon
PA	Philadelphia Water Department
SC	Georgetown County
RI	City of Newport
SC	Horry County
SC	City of Tega Cay
TN	City of Columbia
TN	Metropolitan Government of Nashville & Davidson County
TX	City of Copperas Cove
TX	City of Dallas
TX	City of Fort Worth
TX	City of Round Rock
VA	City of Richmond
WA	City of Tacoma

Project Experience

Philadelphia Water Department (PA)

Ms. Locklear manages several efforts for Raftelis' engagements with PWD. These include the development of the City's affordability program and a management study of the utility's meter-to-cash operation and annual reporting efforts to support the department's financial planning and cost of service studies. For the management audit, she oversaw the review of customer service and billing processes as well as a detailed analysis of the utility's billing system. She is also assistant project manager for Raftelis' multi-year engagement with the Department to provide financial consulting services.

City of Baltimore (MD)

Ms. Locklear served as one of the project leads for a complex and fast-paced project to implement a stormwater fee for the Bureau of Water and Wastewater with the City of Baltimore. She was the architect of the project approach covering all aspects of required elements for implementation. The City sent its first stormwater bills in October of 2013 and Ms. Locklear has continued to assist the City with customer service, billing system and policy topics to the present.

Pinellas County (FL)

Ms. Locklear led the development of the business case for Advanced Metering Infrastructure (AMI), monthly billing, and rate structure changes. Pinellas County (County), located in the Tampa-St. Petersburg area of Florida, provides potable water, wastewater, and reclaimed water service throughout its utility service area. The County engaged Raftelis in January 2014 to conduct a comprehensive utility business and rate sustainability analysis to provide a comprehensive road map for the County utility over the next decade in terms of customer service, technology, rate structure, and

sustainability. The business case initiatives include evaluation of the billing cycle (currently bi-monthly), the potential for automating the meter reading process, and other technology and process improvements. Another part of the project, focused on rate sustainability, included development of a comprehensive 10-year financial forecast and evaluation of existing rate structures for equity, revenue sufficiency, and long-term sustainability.

Based on the need for a comprehensive analysis of the factors involved in changing the utility's business model, Ms. Locklear lead workshops to define over 80 cost variables involved in the transitions. The results of the workshop were rolled into a detailed, flexible model that allowed for a variety of scenarios (from conservative to not conservative) to be modeled for seven business case scenarios and the best, worst, and expected costs and benefits for each. The model provides a 20-year net present value to the utility for each case. Ms. Locklear vetted the model with staff, employing collaborative work with stakeholders throughout the business case development. The results were explicated in a detailed report in late 2014 and presented to the core group and the County management team. The report, including the long-term road map for utility enhancements and rate recommendations, was finalized in early 2015 and presented to the Board of County Commissioners.

Granville-Person Cooperative Stormwater Services (NC)
Ms. Locklear served as project manager for implementation of an innovative multi-jurisdictional utility in a group of jurisdictions affected by nutrient-sensitive waters rules. The three municipalities and two counties that make up the collaborative group differ in population, population density, land use/land cover, and current and planned level of service provision. The project thus involved complex policy development around rate structure, organizational structure, and other issues.

In addition, Ms. Locklear now serves as the Stormwater Utility Services Manager for the group of jurisdictions to assist with coordination and regulatory compliance. Here duties included assisting the local governments with compliance for the Falls Watershed nutrient management strategy rules. She has served as the manager since 2013.

County of San Diego (CA)
Ms. Locklear served as project manager for a study of the County's funding strategies to meet new, stringent regulatory requirements for stormwater. The study includes analysis of an array of options including county-only and regional funding alternatives that would include the jurisdictions within the County, co-permittees under a single water quality permit. The study involves coordination with the co-permittees as well as extensive data analysis, development of a financial model and implementation plan for the recommended strategy.

City of Sacramento (CA)
Raftelis was engaged by the City to develop rate structure alternatives for the City's water, wastewater, and stormwater drainage rate structures. Ms. Locklear oversaw the development of the stormwater drainage rate structure alternatives and modeling, including more than five alternatives. She oversaw the development of the potential rates from each and for modeling the City's favored rate structure alternative. Raftelis' findings were compiled in a report, and Ms. Locklear contributed to presentations to stakeholders and staff throughout the project on the storm drainage fee alternatives.

City of Richmond (VA)
Since 2007, Raftelis has been engaged by the Department of Public Utilities (DPU) as its financial and rate consultant. Ms. Locklear lead the review of a potential stormwater fee structure change under the City's consideration. Since the rate structure posed issues of public acceptance as proposed, Ms. Locklear developed additional, more palatable alternatives for the City's consideration. The analysis involved a detailed impacts analysis for customers. Ms. Locklear assisted with presentations to staff on the alternatives, the selected alternative and the potential rates for the current stormwater financial plan.

Ms. Locklear is leading an assessment of reporting capabilities, gaps, and needs for DPU. The goal of the assessment and Raftelis recommendations is to enable staff to streamline reporting and facilitate strategic activities within the Department. The assessment is ongoing.

Adams County (CO)
Ms. Locklear managed an engagement with Adams County to complete a Stormwater Utility Credit Study, of which the outcome was to develop guidelines, policies, and procedures for offering utility fee credits to customers in the Adams County Stormwater Utility. The team completed a preliminary review of the stormwater program and utility documentation, financial materials, billing data, and the Stormwater Management Task Force meeting materials and minutes. Following this review, Ms. Locklear visited sites around the utility service area that were representative of existing stormwater management or special drainage conditions. Ms. Locklear summary of these site visits and an overview of available credit types were presented to utility staff and the County board along with the preliminary Raftelis recommended program structure. Ms. Locklear used program costs and other data to determine maximum available credits and estimate the revenue impacts of implementing the program. Raftelis recommended that the utility implement a limited credit program, focused primarily on incentivizing treatment practices that result in improved water quality or reduced peak flow or runoff volume. Recommendations were based on analyses of the utility's costs and a determination of which costs have the potential to be reduced through customers' stormwater treatment or activities, and which costs could not be further reduced through these means. Finally, Ms. Locklear estimated the potential revenue impact of implementing the recommended credit program.

City of Charlotte (NC)
Raftelis' most recent engagement, with the City of Charlotte, has been to assess the City's program including comparing the program with those of other utilities nationwide. Ms. Locklear lead the assessment, which included reviews of program policies and finance, including funding methodology. One focus of the assessment was on the City's Maintenance and Repair program which is the portion of the City's capital improvement program that resolves drainage complaints from citizens. The program has a large backlog of projects and the City sought to analyze the program and the best solution to resolve the backlog, including potential level of service, policy and funding changes. As a part of the study, Raftelis performed analysis of debt funding options over 10-year and 20-year planning horizons as one option to increase investment to meet capital needs. Raftelis provided the broad assessment of the program's health, identified chief challenges for the future and recommended strategies to meet those challenges. Raftelis provided presentations to Council and to the program's citizen stakeholder committee on the study and results.

City of Raleigh Public Utilities Department (NC)
In March 2012, the City of Raleigh contracted Raftelis to conduct a comprehensive organizational analysis and development study for the City's Public Utility Department within a 20-week time frame. For several years, the City has been discussing whether to relocate its stormwater utility from the Public Works Department to the Public Utilities Department. The move could have far-reaching effects on the relationship between stormwater and transportation, the efficiency of planning, design and engineering activities, regulatory compliance, and customer service management. Ms. Locklear is one of the project leads on the Raftelis team. With extensive knowledge of and experience in the field of surface water management, the Raftelis team was asked to compile, measure, and analyze the costs and benefits of relocating the utility. As this data would inevitably be presented in both qualitative and quantitative formats, Raftelis conducted both types of analysis to arrive at its recommendation. Finally, Raftelis has reported its findings to the leadership of Public Utilities, Public Works, and the City of Raleigh.

In addition, Ms. Locklear is currently serving as Project Manager for on-call stormwater services contract. In this position, she serves as lead for tasks including benchmarking study of the City's program.

Northeast Ohio Regional Sewer District (OH)
Ms. Locklear assisted in the Data Track of the project to develop a user fee to support Northeast Ohio Regional Sewer District's (NEORSD) stormwater management program. Once implemented, the stormwater management program will serve 61 municipalities and two counties that are part of NEORSD's service area. She developed policy documentation for the utility's data management. Ms. Locklear also assisted in a variety of tasks to support the development of a user fee to support the NEORSD's stormwater management program. She has performed policy analysis and documentation and data analysis to support program implementation and billing and data development. She also supervised additional documentation and analysis and peer reviewed project deliverables. As Project Manager, Ms. Locklear has overseen project management for NEORSD, reviewing charges, invoicing, and subcontractor

invoicing in compliance with NEORSD standard procedures. She managed both data development and data quality control tasks as supervisor of the data and policy analysts performing tasks such as parcel aggregation and database development.

Ms. Locklear is currently serving as Assistant Project Manager for the billing implementation phase of this project. In this capacity, she has led policy review and development and prepared and reviewed deliverables.

City of Dallas (TX)
Ms. Locklear is serving as Assistant Project Manager for the study and implementation of a stormwater rate structure change for the City of Dallas (City). The City implemented a stormwater fee in 1991 that generates about $49 million annually. The rate structure change represents a significant effort on the part of the City to assure the financial stability of its Storm Drainage Fund, recover costs more equitably from its ratepayers, and to do both in a transparent fashion. If implemented, the updated rate structure embodies a considerable change, not only for ratepayers receiving changed bills, but also for the City's business processes for billing and account maintenance. Raftelis is tasked with determining the stormwater cost of service and developing the stormwater financial plan. Raftelis will also be updating available impervious area data and evaluating potential rate structures. We will be performing an account review and evaluating the impacts upon customers of a rate structure change. In addition we will evaluate the billing mechanism and perform account to parcel matching. Raftelis will assist the City with necessary rate ordinance changes and with public outreach around the rate structure changes. Raftelis will be assisted by subcontractors K Bealer, Pacheco Koch Consulting Engineers, and Ware and Associates.

Town of Kernersville (NC)
Ms. Locklear served as Project Manager for the development of a strategic plan for the Town's stormwater program. The plan development involved a series of workshops with staff throughout the Town that touch the stormwater program and the development of a comprehensive plan to drive the program over the next five years. Her team is currently conducting a review of the Town's stormwater billing data and providing recommendations on bringing the data up to date. Previously, Ms. Locklear led a project to review the Town's stormwater program. She conducted interviews of stormwater, public services, and Town administrative staff to document stormwater program details. She then analyzed the program for compliance with NPDES requirements and is in the process of compiling results. The project also involved developing a written procedure for the annual stormwater billing update for the fees, which are conveyed on Guilford and Forsyth Counties' tax bills.

City of Tacoma (WA)
Ms. Locklear served as Technical Reviewer of the stormwater cost allocation study as part of a water, wastewater, and surface water rate study. In this role, she provided guidance on cost allocation methodology.

Town of Mooresville (NC)
Ms. Locklear served as Project Lead for a feasibility study for the Town of Mooresville. Tasks included development of stormwater program existing and future costs, including staffing, hourly equipment costs, and capital program costs. She assisted with development of rate base estimate and fee estimations. She developed stakeholder process meeting materials and presentations, and led stakeholder meetings.

City of Charlotte and Mecklenburg County (NC)
Ms. Locklear serves as Project Manager for strategic planning in support of business process improvements for all business processes that relate to stormwater utility billing, collections, database maintenance, and customer service. The outcomes from this project will support improvements in the connectivity between the third-party billing vendor and the stormwater utility and among the departments serving stormwater customers.

In addition, Ms. Locklear served as Project Manager for the analysis of residential rate structures and crediting options for this well-established stormwater utility. She developed options and analyzed rate implications and pros and cons of

various options. She also presented initial options to the Storm Water Advisory Committee (SWAC), responded to comments, presented revised options to SWAC, and developed handout materials for SWAC and final report for staff.

Philadelphia Water Department (PA)
Ms. Locklear served as project key lead for a study assessing potential changes to PWD's stormwater fee rate structure, credits regulations, and green infrastructure incentives. The project involved a detailed assessment of the Department's then current rate structure and program, a national credit and incentives study of comparable utilities, as well as an intensive stakeholder input process. Ms. Locklear led the national credits study and coordinated the stakeholder process, including policy development and assessment. Ms. Locklear also oversaw data analysis inputs into the stakeholder process.

Town of Butner (NC)
Ms. Locklear served as Project Manager for a stormwater management program development project for the Town of Butner (Town). The Town is subject to both NPDES Phase II rules and the recently mandated Falls Lake Nutrient Management Strategy, which is considered to be one of the strictest set of nutrient management rules in North Carolina. Ms. Locklear developed a five-year stormwater program plan, prepared the Town's NPDES Phase II permit application, and assisted in presentation of each of these to Town Council for approval. As part of the project, Ms. Locklear developed planning level costs for the program and then assessed options for funding the program plan. The Town is currently weighing these options.

Tri-Cities (TN) (Bristol, Elizabethton, and Johnson City/East Tennessee State University)
Ms. Locklear co-authored Notices of Intent for renewal of MS4 NPDES Phase II permits for three northeast Tennessee cities, one of which was a co-permitted application with East Tennessee State University. To complete the NOIs, Ms. Locklear reviewed current programs with each of the permittees, consulted with the regulator on acceptable BMPs, developed best management practices and measurable goals for each permittee, and developed Public Information and Education plans (PIE plans) for each permittee. Ms. Locklear also coordinated the co-permitting information and development of BMPs between Johnson City and ETSU, and coordinated the on-time submission of NOIs, submitting one on behalf of a permittee.

City of Wilmington (NC)
As Project Manager for a rate study of a 10-year old stormwater utility in eastern North Carolina, Ms. Locklear developed a program cost of service for the seven-year analysis period as well as a rate model, and performed rate modeling. Issues considered in the cost of service projections and rate model included uncertainties in costs related to regulatory compliance and landfill fee. The utility funds an aggressive capital improvements program and all modeling was performed in compliance with the City's conservative cash management principals and with existing revenue bond covenants. Ms. Locklear drafted the cost of service report and rate study report.

Lexington-Fayette Urban County Government (KY)
Ms. Locklear was peer reviewer for the development of a user fee to support LFUCG's stormwater management program including review of policy documentation.

City of Tega Cay (SC)
Ms. Locklear was Project Manager for development and implementation of the stormwater utility for the City of Tega Cay. In this role, she coordinated program review and finalization, crediting process, cost of service analysis, rate structure and rate study reports, rate ordinance and enterprise fund establishment, data development, and public relations assistance. She also served as client manager overseeing annual updates to the billing file for annual stormwater fee billing.

City of Aspen (CO)
Ms. Locklear performed an analysis of current regulations and the degree to which development standards encourage green stormwater practices. In addition, she performed reviews of draft manual chapters.

City of Manchester (NH)
Ms. Locklear was Project Manager for development and implementation of the stormwater utility for the City of Manchester. In this role, she was responsible for reviewing policy papers related to data issues, as well as ensuring timely deliverables and financial control of the project.

Wake County Department of Environmental Services (NC)
As Project Manager, Ms. Locklear was responsible for a multi-faceted project to implement the recommendations of a countywide, multi-jurisdictional stakeholder group that recently completed its work. The project involved several disparate elements: facilitation of a stakeholder group tasked with developing a multi-jurisdictional post-construction ordinance, development of a risk-based methodology for erosion control enforcement, and an innovative pilot basin model that would help the County test development scenarios. In this role, she oversaw the coordination and management of a stakeholder group; conducted research on risk factors for construction site erosion, channel protection methodologies, and other stormwater concerns; conducted interviews with local key stakeholders including stormwater staff, regulators, and members of the real estate community; and supervised modeling schedule, technical review and input, and publicization.

City of Jacksonville (NC)
As Project Manager for year-long management consulting project to assist the City departments, Ms. Locklear was responsible for stormwater compliance activities with organization, scheduling, tracking of activities, and reporting to enable the City to comply with its NPDES phase II permit. The project also included education sessions for Council, assistance with the creation of the City's stormwater ordinance to include construction and post-construction requirements, and coordination with the Unified Development Ordinance revisions process.

Southeast Metro Stormwater Authority (CO)
Ms. Locklear served as Project Manager for a project to identify and describe potential credits and other fee-reducing actions that could be undertaken by the Southeast Metro Stormwater Authority (SEMSWA) stormwater utility in Englewood, CO. This analysis included a qualitative screening of the pros and cons of credits, an examination of the financial implications of adopting credits, a presentation to the Board of SEMSWA about the options, and development of credit application policies and procedures chosen by the Board. Ms. Locklear managed the project, wrote the qualitative and quantitative analyses, and presented to the Board of SEMSWA.

Georgetown County (SC)
Ms. Locklear was Project Manager for development and implementation of a stormwater utility for Georgetown County. In this role, she coordinated the program review and finalization, crediting process, cost of service analysis, rate structure and rate study reports, rate ordinance and enterprise fund establishment, data development, and public relations assistance. In addition, she ensured timely deliverables and financial control of the project and responded to requests for follow-up on work for MS4 program implementation and program management.

City of Cartersville (GA)
As Project Manager for the implementation phase of the City's stormwater utility, Ms. Locklear developed a public education and outreach campaign. Her responsibilities included writing public education and outreach plan and carrying out the plan. She created content and oversaw design of public education materials such as brochures, and drafted stakeholder policy papers and meeting presentations. Ms. Locklear coordinated timely delivery of materials and meeting follow-up tasks.

City of Bettendorf (IA)
Ms. Locklear was primary researcher and writer of technical, informational papers for use by staff to present to council on policies and designs of infiltration practices nationwide. Topics were: the use of infiltration practices to reduce required detention volume and utility credits for infiltration practices.

Metro Water Services of Nashville and Davidson County (TN)

As Task Manager on Phase II of revisions, Ms. Locklear's responsibilities included drafting manual revision language and BMP designs and communicating with client and stakeholders on responses to revisions. Train staff and assist Metro with training for development community on new manual. She assisted with Phase I of revisions including facilitation of staff technical review and public stakeholder groups for Metro Water Services, Stormwater Division. Responsibilities included developing policy options for discussion, review, and modification or adoption by stakeholders groups; coordination of group meetings including distribution of meeting materials, facilitating communication among group members, and fielding and addressing group member concerns; addressing policy concerns from multiple agencies including Metro Planning, Public Works, Public Health, Legal and state environmental agencies. In addition, Ms. Locklear revised the stormwater management manual based on stakeholder and staff process.

Knox County (TN)
Ms. Locklear assisted with Stormwater Ordinance and Manual Revisions for the County. Her responsibilities included conducting policy research and development; formulating policy alternatives and recommendations; drafting white papers on policy research and recommendations and drafting stormwater management manual chapters.

Local Government Program Development and Environmental Compliance Assistance
Wake County (NC)
Ms. Locklear served as Project Manager for a follow-on project to implement recommendations made by a stakeholder group facilitated by an earlier project, tasked with developing an action plan for County on-site wastewater program. The project included development of a plan for implementing the recommendations of the stakeholder group, including options for providing public education and outreach, making changes to County on-site wastewater rules, managing data collection on on-site wastewater systems, and developing a financial framework for the plan. Ms. Locklear provided assistance in implementing some of these recommendations, such as drafting rule changes. To assist in implementation of one of the committee's public education recommendations, Ms. Locklear designed brochure templates to be distributed by the County to residents using on-site wastewater systems.

In addition, Ms. Locklear was Project Manager and facilitator for a project to lead a stakeholder group tasked with developing an action plan for the County on-site wastewater program. The year-long process involved identification of needs and issues and development of a plan to meet the needs and issues, and support of budget requests to support the action plan.

Ms. Locklear was also Project Manager and client contact for program and funding study of options for expansion of on-site wastewater management program. The study led to follow-on projects during which Ms. Locklear facilitated a stakeholder group that recommended an expanded on-site wastewater system management program.

Texas Army National Guard, various sites in TX.
Ms. Locklear conducted site visits for updating Spill Prevention Control and Countermeasure Plans in compliance with local, state, and federal regulations. Collected and updated information on personnel and facility characteristics through interviews, digital photographs, GPS points (using Trimble unit), inventory of materials, and an examination of the site.

Brownfields Assessment
City of Concord (NC)
Ms. Locklear rovided public education assistance to the City in the implementation of its Brownfields Assessment Grant.

City of New Bern (NC)
Ms. Locklearled apublic education and outreach track for the City including finalization of public input plan, coordination and production of public outreach materials and leading public stakeholder group (Brownfields Steering Committee). In addition, she assisted the City in writing another EPA grant application, for area-wide planning for Brownfields Programs.

Hazard Mitigation and DFIRM
City of St. Augustine (FL)

Ms. Locklear facilitated the outreach project strategy stakeholder group and developed documentation in support of the City's CRS program. Through the project, the City obtained an upgrade in its CRS classification from an 8 to a 7. Ms. Locklear also assists on additional CRS credit activities such as the development of outreach materials.

State of North Carolina, Raleigh (NC)
Ms. Locklear was Project Manager for an innovative project to derive finished floor elevations in five sea level rise risk counties using mobile scanning (terrestrial LiDAR) field data for buildings inside the 0.2% annual chance floodplain and using a statistically-derived algorithm for buildings outside the floodplain. In addition, her team performed quality control field measurements of coastal structures.

In addition, Ms. Locklear was Assistant Project Manager for statewide aerial photography acquisition and orthophotography production for 48 of 100 North Carolina counties. She was responsible for subcontractor management and contracting, client invoicing, scope and budget control.

State of Alabama
Ms. Locklear developed content for user-guided multimedia training CD and web application. Topics included general information on flooding and floodplains, as well as the NFIP, flood studies, map modernization and floodplain management. The intended audiences for the training were local government officials. Media collected and/or created included text, illustrations, animated sequences, sounds and songs, and pictures. Ms. Locklear coordinated creative development of curriculum themes and design.

Other relevant experience
NPDES Phase I or II Permit Implementation Assistance, Various Clients
Ms. Locklear provided program assessment, developed new program component, provided training and carried out public education, involvement and other activities as staff extension.

- Hurlburt Field, Fort Walton Beach, FL
- City of Indianapolis, Indianapolis, IN
- City of Clarksville, Clarksville, TN
- Metropolitan Nashville-Davidson County
- City of Jacksonville, NC

Publications and presentations
"Facilitating and Tracking Chesapeake Bay Compliance through Stormwater Fee Credits - Baltimore's Innovative Program" Locklear, Henrietta H, Kimberly Grove, Jennifer Fitts. WEFTEC 2015
"Saving Money Together: A multi-jurisdictional Environmental Compliance Approach in North Carolina" Locklear, Henrietta H, Keith Readling, Jennifer Fitts, Utility Management Conference, February 2014
"Stormwater Billing: Getting the Best of Both Worlds" Locklear, Henrietta H., Jeff Duke, Keith Readling, Chris McPhee. Stormwater Congress, WEFTEC October 2013
"Satisficing LID: Local Government Ordinances that Incorporate LID" Locklear, Henrietta H., Annual Conference of the Southeastern Stormwater Association; October 5, 2011.
"Mobile Scanning to Collect First Floor Elevations for Assessing Coastal Risk" Readling, Keith, Tim Cawood and Henrietta Locklear. The North American Surface Water Quality Conference and Exposition. Ed. Janice Kasperson. Proceedings of StormCon Coastal Protection Symposium 2011. August 23-24, 2011.
"Trackin' Mud: Keeping an Eye on the Construction General Permit" Locklear, Henrietta H., Current Issues in Stormwater Regulation. Lorman Educational Services. April 8, 2011.
"Mobile Scanning to Collect First Floor Elevations for Integrated Hazard Risk Management Projects" Locklear, Henrietta H. and Christopher McPhee, 2010 AMEC Technical Summit, Englewood, CO. September 26, 2010.
"Satisficing LID: Real Life Experiences with Local Government Ordinances that Incorporate Low Impact Development." Locklear, Henrietta H.P. and Trina Ozer. The North American Surface Water Quality Conference and Exposition. Ed. Janice Kasperson. Proceedings of StormCon 2010. August 2-5, 2010.

"Managing Septic Systems to Meet NPDES and Infrastructure Sustainability Goals" NCAPWA Annual Conference and Equipment Show, June 9,2010 – Henrietta Locklear, Keith Readling
"NPDES and Performance Measurement." Locklear, Henrietta H.P. and Trina Ozer. The North American Surface Water Quality Conference and Exposition. Ed. Janice Kasperson. Proceedings of StormCon 2009. August 17-20, 2009.
"Washington State Decision Makes LID Mandatory" Locklear, Henrietta H.P. Stormwater Magazine July/August 2009. http://www.stormh2o.com/july-august-2009/washington-state-decision.aspx
"Wasting Water by Law." Locklear, Henrietta H.P., Trina Ozer, and Keith Readling. WaterEC, the International Water Efficiency Conference. March 30 – April 2, 2009.
"Mind the Gap: The National Water Infrastructure Gap and the Local Stormwater Manager." Henrietta H. P. Locklear. Stormwater Magazine. November/December 2007.
"Major Trends in Stormwater Utility Fee Credit Programs" Henrietta H. P. Locklear and April M. Barker. Proceedings of Stormcon 2007, The North American Surface Water Quality Conference and Exposition Ed. Janice Kasperson. August 19-23, 2007.
"National Policy, Local Innovation: Clean Water State Revolving Funds at 20 Years." Henrietta H. P. Locklear. Stormwater Magazine. October 2007.
"Preparing for Everyday Threats: A New Landscape in Stormwater Infrastructure Security." Henrietta H. P. Locklear. Stormwater Magazine. July 2007.
"What's all the fuss? News and Views on EPA's Proposed Water Transfer Rule." Henrietta H. P. Locklear. Stormwater Magazine. May 2007.
"Successful Implementation of Riparian Buffer Programs." Henrietta H Presler. Stormwater Magazine. November/December 2006.
"Infiltration BMPs: Policies and Design Standards That Permit Detention Volume Reductions." Henrietta H Presler. Proceedings of Stormcon 2006, The North American Surface Water Quality Conference and Exposition Ed. Janice Kasperson. July 24-27, 2006.
"Municipal Stormwater System Maintenance: An Assessment of Current Practices and Methodology for Upgrading Programs." Andrew J. Reese and Henrietta H. Presler. Stormwater Magazine. September/October 2005.
"Municipal Stormwater System Maintenance: An Assessment of Current Practices and Methodology for Upgrading Programs." Andrew J. Reese and Henrietta H. Presler. Proceedings of Stormcon 2005, The North American Surface Water Quality Conference and Exposition Ed. Janice Kasperson. July 18-21, 2005.
"How Public is Too Public? Property Tax Records Availability on North Carolina Government Websites." Henrietta H. Presler. Digital Government Innovation Bulletin, No. 2004/02, Institute of Government, University of North Carolina at Chapel Hill. June 2004.
"How Public is Too Public? Property Tax Records Availability on North Carolina Government Websites," Henrietta H. Presler. Presentation of paper at Southeastern Conference on Public Administration, Charlotte, NC. October 2004.

Jennifer Tavantzis
Manager

Technical Specialties
Stormwater finance and utility development
Management policy and practice
Utility rate studies
Stakeholder engagement
Organizational assessments

Professional History
Raftelis Financial Consultants, Inc.: Manager (2018-present); Senior Consultant (2016-2018); Consultant (2012-2016)
Colorado Department of Public Health and Environment (2011-2012)

Education
Master of Environmental Management – Duke University (2011)
Bachelor of Arts in Environmental Studies and Urban Planning – University of Richmond (2009)

Certifications
Series 50 Municipal Advisor

Experience: 8 years

Career Highlights:

- Stormwater Consulting experience with Philadelphia, Baltimore, Dallas, Richmond, Northeast Ohio Regional Sewer District, multi-jurisdictional stormwater programs and utilities
- Contributing editor of the WEF Manual of Practice 27: *Financing and Charges for Wastewater Systems*
- Municipal Advisor Representative qualified through the Municipal Securities Rulemaking Board

Profile
Ms. Tavantzis has a strong background in water resources and utility management and possesses extensive data management and analytical skills. Her educational background lies in the areas of water quality, hydrology, and resource conservation. In her six years with Raftelis, she has consulted with numerous local governments on projects related to stormwater program development and review, and stormwater utility feasibility, development, implementation, and reorganization studies. Ms. Tavantzis has also worked with water and sewer utilities on a wide variety of projects – from rate development and affordability analysis to revenue loss investigations – all with the common thread of being driven by existing utility data and designed to positively impact utility performance and management. Ms. Tavantzis has worked extensively with GIS data and systems and with relational databases in

association with water, wastewater, and stormwater utility projects. In addition to her analytical work, she has a strong knowledge of municipal finance, and serves as a Municipal Advisor Representative, which ensures her fiduciary responsibility to clients. Ms. Tavantzis was also a contributing editor of the WEF's *Manual of Practice No. 27: Financing and Charges for Wastewater Systems*.

Relevant Project Experience

Northeast Ohio Regional Sewer District (OH)
The Northeast Ohio Regional Sewer District (NEORSD) in Cleveland, OH provides wastewater service to over 50 communities in the region. In early 2013 it began billing for stormwater service to the entire region as well. Raftelis worked with the District through every step of the stormwater utility design and implementation process. Ms. Tavantzis developed policy documentation for the utility's data management, customer service, credit program, inspection and maintenance program, and billing. In addition, Ms. Tavantzis assisted with GIS data analysis, billing database development, and project management.

Upper Falls Watershed Multi-Jurisdictional Stormwater Utility (NC)
Five jurisdictions in the Falls Lake Watershed of central North Carolina engaged Raftelis to address pressing stormwater management issues across the region through the implementation of a coordinated stormwater funding mechanism. Raftelis worked with the jurisdictions to create a rate structure that would most appropriately and feasibly fund the planned level of service provision. Raftelis worked with each jurisdiction to determine the current and future costs associated with stormwater services and to set rates. Raftelis also assisted the jurisdictions in coordinating service activities for maximum cost savings. Raftelis developed the utility billing data for each jurisdiction, assisted them with determining the best billing and collection method (County tax bill line item), and coordinated with the County tax offices to implement the billing methodology. Raftelis also worked with the jurisdictions to develop a credits policy, as well as assisting them with extensive public and elected board meeting support and customer service representative training. The project involved complex governance, service provision, rate structure, and billing policy issues. Ms. Tavantzis was involved in many aspects of complex policy development around rate structure, organizational structure, customer outreach, and other issues.

City of Raleigh Public Utilities Department (NC)
Raftelis conducted a comprehensive organizational analysis for the City of Raleigh Public Utilities Department to determine whether to relocate its stormwater utility from its existing organizational home as a division of the Department of Public Works. The assessment considered the relationship between stormwater and transportation, the efficiency of design and engineering activities, the future of regulatory compliance, and best means for customer service management. The Raftelis team was asked to compile, measure, and analyze the costs and benefits (in both quantitative and qualitative measures) of relocating the utility. The project involved extensive stakeholder input, with individual department meetings, two staff roundtable meetings, and two meetings with citizen stakeholder groups. Ms. Tavantzis assisted with stakeholder feedback sessions, design and execution of the analysis, and benchmarking efforts designed to create the most effective organizational structure of the utility.

City of Baltimore (MD)
Raftelis was engaged by the City of Baltimore (City) as its stormwater program implementation manager. The first major task was to assist the Bureau of Water and Wastewater (Bureau), within the Department of Public Works, with the implementation of a new stormwater fee and stormwater utility. Raftelis conducted a quick assessment of the Bureau's readiness to implement the utility, scoring the

Bureau on seven major implementation areas. This quick assessment was followed by an in-depth gap analysis. One of the results of the gap analysis, in addition to a detailed assessment of the Bureau's current capacity for implementation, was a timeline for implementation, with the timing of tasks to be accomplished. The stormwater fee is slated for a go-live billing date of July 2013. Raftelis will assist the Bureau with all aspects of implementation from data development and custom software needed for customer service provision, to policy, process development, financial, program, and outreach tasks. The project included extensive policy and process development, data quality control measures, and organizational management on an expedited timeline in order to meet an existing utility go-live date. Ms. Tavantzis conducted reviews of existing policy and processes, as well as review and revision of the City's geographic data relevant to stormwater management.

Beaufort County (SC)

Beaufort County, SC and the underlying municipalities have been cooperating in a multi-jurisdictional utility for several years. In advance of three of the participating jurisdictions being issued MS4 permits, Raftelis was included in a multi-faceted project to develop a notice of intent, conduct a rate structure analysis, and develop rates and an associated financial strategy over a five year planning period supportive of the enhanced program. Ms. Tavantzis assisted the County with development and submittal of its MS4 permit Notice of Intent. After assisting with program visioning and cost development for each of the five jurisdictions, Ms. Tavantzis created a tool for the County and the municipalities to model several different rate structure options, including different ways for shared costs to be divided among the jurisdictions and conveyed to customers. The model also allowed the County and the municipalities to plan capital project work by observing the feasibility of debt issuance and its impact on rates.

City of Dallas (TX)

The City of Dallas engaged Raftelis for a dual-track approach to updating the efficiency and efficacy of the mature stormwater program First, Raftelis conducted a thorough review of the stormwater program and financial strategies in support of restructuring the stormwater utility billing mechanism and developing a revised rate structure. Second, Raftelis assisted in assessing and modifying tools and systems in use within the stormwater regulatory compliance group. Ms. Tavantzis oversaw billing data development, led the policy revision efforts, and assisted with City outreach related to an updated approach to stormwater billing. Ms. Tavantzis also assisted with the documentation of staff needs and resource gaps to facilitate updating the City's internal systems and processes.

City of Philadelphia (PA)

The City of Philadelphia engaged Raftelis to conduct a thorough audit of its "meter to cash" operation, comprising functions in at least four different City departments. The comprehensive project worked toward aligning the inter-departmental processes and identifying opportunities for efficiencies and cost savings throughout the utility, and ultimately increasing realized revenues. Ms. Tavantzis conducted numerous interviews of staff and management with regard to customer service processes, back-office functions (payment processing, bill print and mailing, etc.), collections, billing system support, data integrity, and affordability programs and synthesized these findings along with the results of a benchmarking of industry standards to provide meaningful recommendations to the City.

City of Jackson (MS)

During a transition from an outdated utility billing system to a more modern billing application, the City engaged Raftelis to analyze the existing billing data and processes to discover why expected

revenues were not being realized, and to assist with remedying any identified errors prior to transitioning to the new system. As a separate component of the project, Raftelis performed a rate study for the City to ensure revenue sufficiency over the planning period. Ms. Tavantzis analyzed billing data and identified several divergences from stated billing policy to be remedied through immediate programming updates in the existing billing system, or to be addressed during conversion. Ms. Tavantzis also used the available historical data to quantify revenues and detail consumption patterns over previous years as a critical input into the rate study.

Carlisle Borough (PA)

Raftelis was engaged by the Borough of Carlisle to provide assistance in assessing the financial needs of its growing stormwater program and evaluating the feasibility of a fee as the most appropriate funding mechanism. Ms. Tavantzis served as Project Manager during this successful effort. Ms. Tavantzis coordinated and oversaw a comprehensive review of all operating and capital costs, specifically identifying and quantifying costs related to existing stormwater program elements, which at that time were primarily categorized as Streets-related costs. Ms. Tavantzis was also the primary developer of a flexible financial planning and rate model. Subsequent to the feasibility study, Raftelis was engaged by the Borough to implement the stormwater fee based on implementation and data maintenance considerations and recommendations made during the feasibility phase.

Lower Paxton Township (PA)

Raftelis was engaged by Lower Paxton Township to evaluate the feasibility of establishing a stormwater fee as the funding mechanism for the Township's growing stormwater program. Ms. Tavantzis serves as Project Manager of this project. At the time the feasibility study started, the Township had recently established a Chesapeake Bay Joint Pollutant Reduction Plan (PRP) with neighboring jurisdictions to achieve huge reductions in sediment loading required by TMDLs in receiving waterbodies. Ms. Tavantzis coordinated Raftelis' work with the Township to evaluate its current program and envision the scope and costs of the future program, with elements both included in and excluded from the PRP. The funding requirements to sustain the program were modeled by Ms. Tavantzis alongside a preliminary rate base estimate that relied on digitization of a sample of single family residential properties and expert estimation of other impervious surface areas.

Other Relevant Project Experience

City of Baltimore (MD) – Stormwater Utility Implementation
City of Burlington (NC) – Stormwater Utility Feasibility Study
Beaufort County (SC) – Multi-Jurisdictional Stormwater Rate Structure Analysis and Rate Study
City of Charlotte/Mecklenburg County (NC) – Stormwater Utility Data and Policy Update
City of Dallas (TX) – Stormwater Program Review and Update
City of Durham (NC) – Water & Sewer Rate Study; Water Supply Enhancement Economic Feasibility Assessment
City of Fayetteville (NC) – Stormwater Program Evaluation
City of Jackson (MS) – Water Utility Billing Data Review and Process Assessment
Town of Kernersville (NC) – Stormwater Program Strategic Planning

Modesto Irrigation District (CA) – Drainage Maintenance Cost Allocation Study

Town of Mooresville (NC) – Stormwater Utility Feasibility Study

Town of Mount Pleasant (SC) – Cost of Service Study

Newport News (VA) – Water Utility Rate Study & Affordability Analysis

Northeast Ohio Regional Sewer District – Stormwater Utility Development and Implementation

City of Philadelphia (PA) – Water Department Management Assessment

City of Raleigh Public Utilities Department (NC) – Stormwater Utility Organizational Assessment & Benchmarking Study

City of Richmond (VA) – Proposed Rate Study Impact Analysis

Sewerage and Water Board of New Orleans (LA) – Rate Study; Fee-in-Lieu Study

Upper Falls Watershed Multi-Jurisdictional Stormwater Utility (NC) – Stormwater Utility Implementation; Stormwater Services Manager

2020 TAP Reconcilable Rider Reports and Projection Model

For: Philadelphia Water Department

By: RAFTELIS

Sheet Name	Description
Table of Contents	List of each sheet in the workbook
TRR_Summary	Summary of assumptions and results by period of major variables requested of Raftelis
TRR_Assumptions	Dashboard of assumptions, allowing for variable scenario selection
TRR_Projections	Results by month of major variables requested of Raftelis
Data Source	Description of data source for reports DR-1, DR-2, DR-3A Participants, and DR-4
DR_1	Water Monthly Retail Billed Volume
DR_2	Sewer Monthly Retail Billed Volume
DR_3A Participants	Monthly Number of TAP Participants
DR_4	Monthly Total TAP Discount Amount

Assumptions used to develop the Results below

Assumption or scenario type	Scenario name	Short description
Subscription Projection	Flat	
Cost per participant	Updated	Cost per bill of $51.25
Consumption	Actuals and flat	Consumption of 796 CF per customer per month and flat consumption over time

	Average Monthly Number of TAP Participants	Total Number of TAP Participants	Total TAP Discount	Total TAP Water Consumption (CF)	Total TAP Sewer Consumption (CF)
Reconciled Period (March 2019 to August 2019)	**15,245**	**91,472**	**$ 4,468,951**	**692,269**	**692,129**
Most Recent Period - Actual (September 2019 to February 2020)	14,767	88,603	$ 4,540,864	705,639	705,432
Most Recent Period - Projected (March 2020 to September 2020)	15,180	106,260	$ 5,445,825	845,830	845,830
Most Recent Period - Entire (September 2019 to September 2020)	**14,989**	**194,863**	**$ 9,986,689**	**1,551,469**	**1,551,262**
Next Rate Period (October 2020 to September 2021)	**15,180**	**182,160**	**$ 9,335,700**	**1,449,994**	**1,449,994**

	Scenario or Assumption
Subscription Projection	Flat
Cost per participant	Updated
Cost per participant (based on actuals)	$ 51.25
Consumption	Actuals and flat
Consumption per participant (based on actuals)	796

Data Type	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual
Projected Increase in Participants												
Participants	**Mar 2019**	**Apr 2019**	**May 2019**	**Jun 2019**	**Jul 2019**	**Aug 2019**	**Sep 2019**	**Oct 2019**	**Nov 2019**	**Dec 2019**	**Jan 2020**	**Feb 2020**
Total Participants	14,687	15,025	15,386	15,652	15,665	15,057	15,050	15,337	13,533	15,251	15,180	14,252
Discount	**Mar 2019**	**Apr 2019**	**May 2019**	**Jun 2019**	**Jul 2019**	**Aug 2019**	**Sep 2019**	**Oct 2019**	**Nov 2019**	**Dec 2019**	**Jan 2020**	**Feb 2020**
Total Discounts	$ 733,379.39	$ 676,146.93	$ 734,220.93	$ 793,729.82	$ 746,115.00	$ 785,359.29	$ 816,998.50	$ 798,192.83	$ 692,787.06	$ 778,209.04	$ 812,659.76	$ 642,016.74
Water Consumption	**Mar 2019**	**Apr 2019**	**May 2019**	**Jun 2019**	**Jul 2019**	**Aug 2019**	**Sep 2019**	**Oct 2019**	**Nov 2019**	**Dec 2019**	**Jan 2020**	**Feb 2020**
Total TAP Water Consumption	112,511	104,488	113,669	122,924	116,438	122,239	126,658	123,645	107,145	120,669	126,488	101,034
Total Sewer Consumption	**Mar 2019**	**Apr 2019**	**May 2019**	**Jun 2019**	**Jul 2019**	**Aug 2019**	**Sep 2019**	**Oct 2019**	**Nov 2019**	**Dec 2019**	**Jan 2020**	**Feb 2020**
Total TAP Sewer Consumption	112,507	104,483	113,650	122,903	116,379	122,207	126,622	123,617	107,112	120,637	126,447	100,997

Data Type	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Projected Increase in Participants	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Participants	**Mar 2020**	**Apr 2020**	**May 2020**	**Jun 2020**	**Jul 2020**	**Aug 2020**	**Sep 2020**	**Oct 2020**	**Nov 2020**	**Dec 2020**	**Jan 2021**
Total Participants	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180
Discount	**Mar 2020**	**Apr 2020**	**May 2020**	**Jun 2020**	**Jul 2020**	**Aug 2020**	**Sep 2020**	**Oct 2020**	**Nov 2020**	**Dec 2020**	**Jan 2021**
Total Discounts	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00
Water Consumption	**Mar 2020**	**Apr 2020**	**May 2020**	**Jun 2020**	**Jul 2020**	**Aug 2020**	**Sep 2020**	**Oct 2020**	**Nov 2020**	**Dec 2020**	**Jan 2021**
Total TAP Water Consumption	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833
Total Sewer Consumption	**Mar 2020**	**Apr 2020**	**May 2020**	**Jun 2020**	**Jul 2020**	**Aug 2020**	**Sep 2020**	**Oct 2020**	**Nov 2020**	**Dec 2020**	**Jan 2021**
Total TAP Sewer Consumption	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833

Data Type	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected	Projected Next Rate Year
Projected Increase in Participants	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Participants	**Feb 2021**	**Mar 2021**	**Apr 2021**	**May 2021**	**Jun 2021**	**Jul 2021**	**Aug 2021**	**Sep 2021**	**Oct 2020 - Sept 2021**
Total Participants	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180	15,180
Discount	**Feb 2021**	**Mar 2021**	**Apr 2021**	**May 2021**	**Jun 2021**	**Jul 2021**	**Aug 2021**	**Sep 2021**	**Oct 2020 - Sept 2021**
Total Discounts	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 777,975.00	$ 9,335,700.00
Water Consumption	**Feb 2021**	**Mar 2021**	**Apr 2021**	**May 2021**	**Jun 2021**	**Jul 2021**	**Aug 2021**	**Sep 2021**	
Total TAP Water Consumption	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	
Total Sewer Consumption	**Feb 2021**	**Mar 2021**	**Apr 2021**	**May 2021**	**Jun 2021**	**Jul 2021**	**Aug 2021**	**Sep 2021**	
Total TAP Sewer Consumption	120,833	120,833	120,833	120,833	120,833	120,833	120,833	120,833	

Data in DR_1, DR_2, DR_3A Participants, and DR_4 are from reports run on a static copy of basis2 captured on 2/29/2020.

DR-1: Water Billed Volume (March 1, 2019-February 29, 2020)													
Customer Group	Discount Group	March 2019 Water Billed Volume (CCF)	April 2019 Water Billed Volume (CCF)	May 2019 Water Billed Volume (CCF)	June 2019 Water Billed Volume (CCF)	July 2019 Water Billed Volume (CCF)	August 2019 Water Billed Volume (CCF)	September 2019 Water Billed Volume (CCF)	October 2019 Water Billed Volume (CCF)	November 2019 Water Billed Volume (CCF)	December 2019 Water Billed Volume (CCF)	January 2020 Water Billed Volume (CCF)	February 2020 Water Billed Volume (CCF)
TAP	All Groups	112,511	104,488	113,669	122,924	116,438	122,239	126,658	123,645	107,145	120,669	126,488	101,034
Non-TAP	Senior Discount*	87,572	78,824	85,340	86,158	78,920	91,703	92,833	88,988	73,533	85,323	88,691	72,657
Non-TAP	PHA Discount	115,251	107,073	112,715	172,455	123,093	136,708	132,293	123,397	128,474	120,913	125,720	113,887
Non-TAP	Non-PHA Discount (Other discount)	325,075	324,474	369,471	369,369	349,598	468,605	367,991	380,655	429,531	364,305	330,476	228,033
Non-TAP	No Additional Discount	4,049,227	3,846,053	4,102,004	4,317,966	4,080,301	4,701,098	4,609,834	4,416,729	4,102,786	4,278,702	4,466,022	3,876,306
PWD (not subject to reconciliation)	PWD	186,404	200,420	268,316	182,689	215,499	286,187	447,341	411,358	141,727	220,593	271,031	130,108

Water Billed Volume Subtotals, by Customer Group													
Customer Group		March 2019 Water Billed Volume (CCF)	April 2019 Water Billed Volume (CCF)	May 2019 Water Billed Volume (CCF)	June 2019 Water Billed Volume (CCF)	July 2019 Water Billed Volume (CCF)	August 2019 Water Billed Volume (CCF)	September 2019 Water Billed Volume (CCF)	October 2019 Water Billed Volume (CCF)	November 2019 Water Billed Volume (CCF)	December 2019 Water Billed Volume (CCF)	January 2020 Water Billed Volume (CCF)	February 2020 Water Billed Volume (CCF)
TAP		112,511	104,488	113,669	122,924	116,438	122,239	126,658	123,645	107,145	120,669	126,488	101,034
Non-TAP		4,577,125	4,356,424	4,669,530	4,945,948	4,631,912	5,398,114	5,202,951	5,009,769	4,734,324	4,849,243	5,010,909	4,290,883
PWD (not subject to reconciliation)		186,404	200,420	268,316	182,689	215,499	286,187	447,341	411,358	141,727	220,593	271,031	130,108

*Senior Citizen Discount figures represent only those Senior Citizen Discount customers not enrolled in TAP. Senior Citizen Discount customers enrolled in TAP are included in the TAP Customer Group.

DR-2: Sewer Billed Volume (March 1, 2019-February 29, 2020)													
Customer Group	Discount Group	March 2019 Sewer Billed Volume (CCF)	April 2019 Sewer Billed Volume (CCF)	May 2019 Sewer Billed Volume (CCF)	June 2019 Sewer Billed Volume (CCF)	July 2019 Sewer Billed Volume (CCF)	August 2019 Sewer Billed Volume (CCF)	September 2019 Sewer Billed Volume (CCF)	October 2019 Sewer Billed Volume (CCF)	November 2019 Sewer Billed Volume (CCF)	December 2019 Sewer Billed Volume (CCF)	January 2020 Sewer Billed Volume (CCF)	February 2020 Sewer Billed Volume (CCF)
TAP	All Groups	112,507	104,483	113,650	122,903	116,379	122,207	126,622	123,617	107,112	120,637	126,447	100,997
Non-TAP	Senior Discount*	87,476	78,727	85,250	86,065	78,842	91,543	92,688	88,900	73,446	85,239	88,618	72,583
Non-TAP	PHA Discount	115,251	107,073	112,655	172,310	122,990	136,580	132,158	123,257	128,426	120,913	125,720	113,887
Non-TAP	Non-PHA Discount (Other discount)	297,628	294,832	337,151	335,121	316,655	423,378	350,254	360,520	363,121	337,640	300,907	220,778
Non-TAP	No Additional Discount	3,792,975	3,625,673	3,843,867	4,055,188	3,857,918	4,391,534	4,315,789	4,135,042	3,886,776	4,056,960	4,187,116	3,655,210
PWD (not subject to reconciliation)	PWD	186,404	200,420	268,316	182,689	215,499	286,187	437,253	411,358	141,727	220,593	271,031	130,108

Sewer Billed Volume Subtotals, by Customer Group													
Customer Group		March 2019 Sewer Billed Volume (CCF)	April 2019 Sewer Billed Volume (CCF)	May 2019 Sewer Billed Volume (CCF)	June 2019 Sewer Billed Volume (CCF)	July 2019 Sewer Billed Volume (CCF)	August 2019 Sewer Billed Volume (CCF)	September 2019 Sewer Billed Volume (CCF)	October 2019 Sewer Billed Volume (CCF)	November 2019 Sewer Billed Volume (CCF)	December 2019 Sewer Billed Volume (CCF)	January 2020 Sewer Billed Volume (CCF)	February 2020 Sewer Billed Volume (CCF)
TAP		112,507	104,483	113,650	122,903	116,379	122,207	126,622	123,617	107,112	120,637	126,447	100,997
Non-TAP		4,293,330	4,106,305	4,378,923	4,648,684	4,376,405	5,043,035	4,890,889	4,707,719	4,451,769	4,600,752	4,702,361	4,062,458
PWD (not subject to reconciliation)		186,404	200,420	268,316	182,689	215,499	286,187	437,253	411,358	141,727	220,593	271,031	130,108

*Senior Citizen Discount figures represent only those Senior Citizen Discount customers not enrolled in TAP. Senior Citizen Discount customers enrolled in TAP are included in the TAP Customer Group.

Customer Type	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	Jan 2020	Feb 2020
Senior Discount*	3,367	3,502	3,607	3,705	3,743	3,630	3,663	3,741	3,370	3,815	3,945	3,783
PHA	-	-	-	-	-	-	-	-	-	-	-	-
Non-PHA	-	-	-	-	-	-	-	-	-	-	-	-
No Discount	11,320	11,523	11,779	11,947	11,922	11,427	11,387	11,596	10,163	11,436	11,235	10,469
All	14,687	15,025	15,386	15,652	15,665	15,057	15,050	15,337	13,533	15,251	15,180	14,252

*Senior Citizen Discount figures represent only those Senior Citizen Discount customers enrolled in TAP. Senior Citizen Discount customers not enrolled in TAP are not coun

ted among TAP Participants

Customer Type	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Aug 2019	Sep 2019	Oct 2019	Nov 2019	Dec 2019	Jan 2020	Feb 2020
Senior Discount*	$ 108,639.36	$ 103,245.39	$ 114,841.11	$ 118,640.69	$ 115,115.38	$ 122,009.77	$ 134,395.07	$ 130,946.48	$ 111,986.64	$ 128,446.38	$ 139,931.60	$ 110,303.44
PHA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-PHA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
No Discount	$ 624,740.03	$ 572,901.54	$ 619,379.82	$ 675,089.13	$ 630,999.62	$ 663,349.52	$ 682,603.43	$ 667,246.35	$ 580,800.42	$ 649,762.66	$ 672,728.16	$ 531,713.30
All	$ 733,379.39	$ 676,146.93	$ 734,220.93	$ 793,729.82	$ 746,115.00	$ 785,359.29	$ 816,998.50	$ 798,192.83	$ 692,787.06	$ 778,209.04	$ 812,659.76	$ 642,016.74

*Senior Citizen Discount figures represent only those Senior Citizen Discount customers enrolled in TAP. Senior Citizen Discount customers not enrolled in TAP are not counted among TAP Participants

Effective: October 1, 2020

PHILADELPHIA WATER DEPARTMENT

RATES AND CHARGES
Effective: October 1, 2020.

1.0 DEFINITIONS.

(a) Condominium Properties: Real estate, portions of which are designated for separate ownership and the remainder of which is designated for common ownership by the owners of those portions.

(b) Customer: An owner, Tenant or occupant who by operation of law or agreement is responsible for payment of the charges for water/sewer/stormwater service at a Residential, Non-residential or Condominium Property.

(c) Department: The Philadelphia Water Department is the operating department of the City of Philadelphia with the duties, powers and obligations set forth in the Home Rule Charter and the Philadelphia Code.

(d) Home Rule Charter: The Philadelphia Home Rule Charter, as codified in Pennsylvania First Class City Home Rule Act, April 21, 1949 P.L. 665, 351 Pa. Code §1-100 et seq.

(e) Mcf: Thousand cubic feet. The quantity charges in Sections 2, 3, 9 and 10 are expressed in Mcf.

1 Mcf = 1,000 cubic feet = 7,480 gallons

(f) Municipal Stormwater System: City owned and maintained real property, infrastructure or natural feature used and/or constructed for purposes of transporting, conveying, retaining, detaining, or discharging stormwater runoff.

(g) Non-residential Property: Real estate which cannot be classified as either Residential or Condominium. Real estate used exclusively as a cemetery shall not be considered Non-residential property.

(h) Philadelphia Code: The body of laws and regulations enacted by the Philadelphia City Council.

(i) Philadelphia Department of Records: An operating department of the City of Philadelphia with the duties, powers and obligations set forth in the Home Rule Charter and the Philadelphia Code.

(j) Property: Any parcel of real estate identified in the records of the Philadelphia Department of Records.

(k) Property Owner: The owner of the particular parcel of real estate identified in the records of the Philadelphia Department of Records, or the grantee in a land transfer of record.

(l) Residential Property: Real estate used exclusively for residential purposes with at least one and no more than four Dwelling Units and which cannot be classified as Condominium Property. Property adjacent to Residential Property owned and utilized exclusively by the Residential Property owner for residential uses. Upon proof submitted to the Department, said properties shall be deemed by the Department to form one Residential parcel comprised of the Property and the Residential Property.

(m) Stormwater Management Practice (SMP): Any man-made structure that is designed and constructed to detain, infiltrate, or otherwise control stormwater runoff quality, rate, or quantity.

(n) Surface Discharge: The discharge of stormwater runoff from a property to an adjacent surface water body, without the use of City infrastructure.

(o) Undeveloped Property: Property classified by the Board of Revision of Taxes as SB, SC, SI, SR, or SS; Undeveloped refers to the status of the property as having no structures and is not related to whether the property has ever been developed.

(p) Water Commissioner: The Water Commissioner of the City of Philadelphia who performs the duties and obligations as set forth in the Philadelphia Home Rule Charter and the Philadelphia Code.

1.1 Conformity with Existing Law.

Nothing contained herein shall be deemed to overrule or annul any existing provisions of the Home Rule Charter or the Philadelphia Code.

1.2 Severability.

If any provision, paragraph, word or sections herein is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words and sections shall not be affected and shall continue in full force and effect.

2.0 WATER CHARGES

Charges for water service supplied by the City of Philadelphia shall be effective on September 1, 2019, as follows:

2.1 General Customers.

Charges for the supplying of water shall be determined and billed as follows:

(a) Charges and billing in general.

(1) Water charges shall consist of a service charge and quantity charge.

(2) A service charge shall be billed monthly.

(3) As set forth in Section 2.1(b), the type and size of the meter shall determine the service charge.

(4) In addition, there shall be a quantity charge as provided herein for water used in a monthly billing cycle, either as metered or as estimated.

(5) Quantity charges shall be billed for monthly cycles as provided herein. The cycle shall be the period between the dates of scheduled metered readings, actual or estimated.

(b) Monthly service charges.

(1) Effective September 1, 2019 and thereafter, the monthly service charge for the various types and sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$5.21
3/4	Z	5.55
1	Q	6.70
1 -1/2	P	8.88
2	X	12.32
3	O	19.44
4	W	35.39
6	N	66.29
8	V	100.66
10	E	147.50
12	T	239.52

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	8.51
1	Q	9.66
1 -1/2	P	11.84
2	X	15.28

(c) Quantity charges

In addition to the service charge, the quantity charge portion of each bill is determined by applying the quantity charge set forth below to all water use. In addition, the quantity charge will also include a Tiered Assistance Program (TAP) Rate Rider Surcharge, as set forth in Section 10.

(1) Effective October 1, 2020 and thereafter, the quantity charge portion of each bill shall be as follows:

1 Mcf = 1,000 cubic feet = 7,480 gallons.

Monthly Water Usage	Base Charge Per Mcf	TAP-R Per Mcf	Total Charge Per Mcf
First 2 Mcf (0 to 2 Mcf)	**$44.80**	**$0.57**	**$45.37**
Next 98 Mcf (2.1 to 100 Mcf)	**38.56**	**0.57**	**39.13**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**29.88**	**0.57**	**30.45**
Over 2,000 Mcf	**29.06**	**0.57**	**29.63**

(d) Temporary Transitional Provisions: Some special customers whose charges are now based on meter size may find that they are in fact 'over-metered' - their metered service is too large for their actual requirements and results in excessive bills. They may apply for a downward revision in the size of their meters. After the approval of the Department, the revision of plumbing arrangements and the installation of smaller meter, the lower charge by meter size shall apply.

3.0 SEWER CHARGES

Charges for sewer service supplied by the City of Philadelphia shall be effective on September 1, 2019, as follows:

3.1 General Customers.

(a) All customers discharging wastewater into the City's wastewater system shall pay sewer charges as set forth in Section 3.3. In addition to the charges set forth in Section 3.3, all customers discharging wastewater whose pollutant content is greater than the pollutant content of Normal Wastewater, as defined below in Section 3.1(b), shall pay an additional surcharge as set forth in Section 3.4.

(b) Normal Wastewater subject to the regular sewer charges set forth in Section 3.3 is that wastewater which contains 250 milligrams per liter or less of five day biochemical oxygen demand (BOD_5) and 350 milligrams or less per liter or less of suspended solids (SS).

(c) Wastewater subject to the surcharge set forth in Section 3.4 is that wastewater which contains either more than 250 milligrams per liter of BOD_5 or more than 350 milligrams per liter of SS, or both.

3.2 Charges.

(a) Sewer charges shall consist of a service charge and a quantity charge.

(b) A service charge shall be billed monthly.

(c) As set forth in Section 3.3(a), the size of the meter shall determine the service charge.

(d) In addition, as set forth in Section 3.3(b), there shall be a quantity charge for sewer service in a monthly billing cycle, either as metered or as estimated.

(e) Quantity charges shall be billed for monthly cycles as provided herein. The cycle shall be between the dates of scheduled metered readings, actual or estimated. Quantity charges imposed shall be based on the water usage of the Property served.

3.3 Regular Sewer Charges.

(a) Monthly service charges shall be determined and billed as follows:

(1) Effective September 1, 2019 and thereafter, the monthly service charge for the various sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$7.01
3/4	Z	8.93
1	Q	13.07
1 -1/2	P	22.97
2	X	35.42
3	O	63.82
4	W	108.49
6	N	213.81
8	V	338.27
10	E	488.25
12	T	887.22

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	7.01
1	Q	7.01
1 -1/2	P	7.01
2	X	7.01

(b) Quantity charge

In addition to the service charge, the quantity charge portion of each sewer bill is determined by applying the quantity charge rate shown below to all water use. In addition, the quantity charge will also include a TAP Rate Rider Surcharge, as set forth in Section 10.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective October 1, 2020 and thereafter, the quantity charge shall be:

Base Charge Per Mcf	TAP-R Per Mcf	Total Charge Per Mcf
$31.25	**$0.78**	**$32.03**

3.4 Surcharge.

(a) Effective September 1, 2019 and thereafter, the surcharge for wastewater by definition in excess of Normal Wastewater shall be fixed at thirty nine and seven tenths cents ($0.397) per pound of pollutants received into the wastewater system in excess of 250 milligrams per liter of BOD_5 and thirty eight and eight tenths cents ($0.388) per pound of pollutants received into the wastewater system in excess of 350 milligrams per liter of SS.

(b) The BOD_5 and SS of wastewater shall be determined from samples taken on the Customer's Property at any period or time and of such duration and in such manner as the Department may prescribe or at any place mutually agreed upon between the Customer and the Department. With prior written approval of the Department, the results of routine sampling and analyses by the Customer may be used in determining the amount of the surcharge.

(c) If, in the Department's judgment, sampling of wastewater is neither feasible nor practical, the Department, for billing purposes, may base BOD_5 and SS of the wastewater on sampling results for similar discharge and/or values obtained from technical literature.

(d) Customers discharging wastewater subject to the surcharge shall, as prescribed by the Department:

(1) Install and maintain such facilities for sampling and measuring the wastewater discharged from their properties; and

(2) Maintain such records and information deemed necessary for the determination of the surcharge.

(e) Customers, as required from time to time, shall file with the Department responses to a questionnaire establishing or revising pertinent information on the quantity of flow and the quality of wastewater and other data deemed necessary for the determination of the surcharge.

(f) Measurements, tests and analyses of the characteristics of wastewater subject to surcharge shall be determined in accordance with the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published jointly by the American Public Health Association, the American Water Works Association (AWWA) and the Water Environment Federation (WEF).

(g) The surcharge shall be applied to the total wastewater discharged less any portion excluded by the Department.

3.5 Sewer Credits.

Pursuant to Section 13-201(4) of the Philadelphia Code, the method of crediting water users' sewer bills for City water used but not discharged into the wastewater disposal system shall be as follows.

(a) Eligibility. Where commercial and industrial facilities that use City water do not discharge all of such water into the wastewater system, the quantity of such water may be excluded in determining the proper sewer charge, provided that:

(1) at least 5% of water used, or

(2) 225,000 cubic feet per year, whichever is less, is not discharged into the wastewater system.

(b) Determination of the Amount of Exclusion. To determine the amount of such exclusion the Customer shall install a meter or measuring device satisfactory to the Department provided that, if in the opinion of the Department, it is not feasible to install a meter or measuring device, some other satisfactory method of measuring ("credit factor") may be designated by the Department on application of the Customer.

(c) Fee for Application. When the Customer applies to the Department for a determination on the quantity of water to be excluded by some method other than

metering of the sewer, or re-applies for a revised method measuring a larger quantity of water to be excluded, there shall be charge of two hundred and ninety five dollars ($295) for the review of such application.

(d) Effective Date of Credits and Approved Credit Factors. Credits on a water user's sewer bills for quantities of water used but not discharged into the wastewater disposal system shall be effective from the submission date of an approved application. In order to be reviewed for approval, applications shall be complete, submitted on forms provided by the Department and shall be accompanied by a check payable to the City of Philadelphia in the amount required in Section 3.5(c). No credits shall be made retroactively.

(e) Review of Approved Credit Factors. The Department reserves the right to review approved credit factors. Customers may, from time to time, be required to submit current water use and sewer discharge information. Customers may also be required to submit new applications for the credit factor. Failure to comply with the Department's requests for information or new applications may result in termination of the Customer's credit factor.

(f) Failure to Inform the Department of Increased Sewer Use. Customers with credit factors who fail to inform the Department of increased discharges to the wastewater system shall be subject to the imposition of the full charges for sewer use based on total water usage from the most recent application date, with applicable interest. In addition, the Department may impose a fine of two hundred and seventy five dollars ($275) for each billing period from the application date.

4.0 STORMWATER MANAGEMENT SERVICE CHARGES

Charges for Stormwater Management Services (SWMS) supplied by the City of Philadelphia shall be effective September 1, 2019 as follows:

4.1 Charges.

All properties within the City shall be billed a SWMS charge.

4.2 Residential Properties.

All Residential Properties shall be charged a monthly SWMS charge and a monthly Billing and Collection charge as follows:

(a) Effective September 1, 2019 and thereafter all Residential Properties shall be charged the rates listed below:

SWMS	Billing & Collection
$14.03	$1.77

(b) Residential Properties which do not have sewer service and which also have previously been charged only for water service shall be charged the rates shown above at 4.2 (a).

4.3 Non-Residential Properties.

All Non-Residential Properties shall be charged a monthly SWMS charge and a monthly Billing and Collection charge as follows:

(a) Non-residential Properties shall be charged based on the Gross Area (GA) of the Property and the Impervious Area (IA) of the Property.

(1) GA includes all of the Property area within the legally described boundaries except streets, medians, and sidewalks in the public right-of-way and railroad tracks and station platforms in the railroad right-of-way.

(2) IA includes surfaces which are compacted or covered with material that restricts infiltration of water, including semi-pervious surfaces such as compacted clay, most conventionally hard-scaped surfaces such as streets, driveways, roofs, sidewalks, parking lots, attached and detached structures, and other similar surfaces.

(i) For Non-residential Properties with less than 5,000 square feet GA, the IA shall be estimated as a percentage of GA.

(A) For Undeveloped Property as defined in Section 1.0, the IA shall be 25% of the GA.

(B) For other Properties, the IA shall be 85% of the GA.

(3) In determining the GA Factor and IA Factor of a Property for the SWMS charge, the Department shall use increments of 500 square feet rounding up to the next highest increment.

(4) Calculating the Monthly SWMS charge. The monthly SWMS charge for each Non-residential Property is calculated by:

(i) dividing the GA in square feet by 500 and rounding up to the next whole unit to determine the GA Factor, then multiplying the GA Factor by the GA Rate to determine the GA charge;

(ii) dividing the IA in square feet by 500 and rounding up to the next whole unit to determine the IA Factor, then multiplying the IA Factor by the IA Rate to determine the IA charge;

(iii) the addition of the GA charge and the IA Charge equal*s* the SWMS charge; and

(iv) the addition of the SWMS charge and the Billing and Collection charge together equals the total monthly stormwater charge.

(5) Rates for GA, IA and Billing and Collection.

(i) Effective September 1, 2019 and thereafter, the Rates shall be as follows:

GA ($/500 s.f.)	IA ($/500 s.f.)	Billing & Collection
0.717	5.410	$2.30

(6) Minimum Monthly Charges. Non-residential Properties shall be subject to a minimum monthly charge. If the monthly charge calculated in Section 4.3(a)(4) is less than the monthly charges listed below then the monthly charges below shall be billed to the Property.

SWMS	Billing & Collection
$14.03	$2.30

(7) Adjustment Appeal Procedure.

(i) Customers may appeal the GA and/or IA calculations, property classification, or charge distribution of their property.

(ii) Adjustments shall be made using forms and procedures as defined by the Credits and Adjustment Appeals Manual and sent to:

Philadelphia Water Department
SWMS Charge Appeals
1101 Market Street
4th Floor
Philadelphia, PA 19107-2994

(iii) Adjustments to the GA and/or IA determination are separate and distinct from the billing review procedures established by Section 19-1702 of the Philadelphia Code.

(iv) The grounds supporting the adjustment shall be stated in writing, and include any exhibits, such as photographs, drawings or maps, site plans, and affidavits that support the claim. In addition, a land survey prepared by a registered surveyor shall be attached showing all Dwelling Units, total property area, type of surface material and impervious area, as appropriate, and any other information requested in writing by the Department. The Department may waive the submission of a land survey, if the Department determines that the survey is not necessary to make a determination on the appeal.

(v) The Customer filing the appeal is solely responsible to demonstrate, by clear and convincing evidence, that the GA and/or IA square footage information used by the Department, from which the adjustment appeal is being taken, is erroneous.

(vi) The filing of a notice of an adjustment appeal shall not stay the imposition, calculation or duty to pay the SWMS charge.

(vii) If the adjustment appeal results in a revised GA and/or IA calculation, correction of property classification, correction of parcel identification, or revisions to the default charge allocation, then the adjusted SWMS Charge will be effective from the date of receipt of the Adjustment Appeals Application.

(8) Multiple Accounts Serving One Property. Where there are multiple water accounts on a single Property, the entire SWMS charge of that Property shall be divided equally among the accounts. Each account shall also be billed a Billing and Collection charge. Property Owners shall have the opportunity to request an alternative allocation of the SWMS Charge.

4.4 Condominium Properties.

(a) Condominium Properties shall be charged SWMS and Billing and Collection charges on the same terms as Non-residential Properties under Section 4.3, but shall be billed as follows:

(1) Condominium Properties with a single water meter account shall be billed such that the entire SWMS charge of the condominium complex property plus a Billing and Collection Charge are billed to that single account.

(2) Condominium Properties with individual water meter accounts for each unit shall be billed such that the entire SWMS charge of the condominium complex property shall be divided and billed equally to each individual account. In addition, each account shall be billed a Billing and Collection Charge.

(3) Condominium Properties with more than one water meter, but without individual water meters for each unit, shall be billed such that the entire SWMS charge of the condominium complex property shall be divided equally among the accounts. Each

account shall also be billed a Billing and Collection Charge. The Condominium Owner's Association shall have the opportunity to request an alternative allocation of the SWMS charge.

4.5 SWMS Credits

(a) Eligibility.

(1) Accounts on Non-residential and Condominium properties must be current to be eligible for credits.

(2) The Customer shall make the Property available for inspection by the Department and provide all necessary documentation for purposes of verifying the appropriateness of a SWMS credit(s).

(3) The Customer shall fulfill credit requirements, as described in Section 4.5(c) below, in accordance with the maintenance guidelines as prescribed by the Department, including any and all inspection and reporting obligations.

(b) Classes of Credits. There are three classes of credits: IA Credit, GA Credit, and NPDES Credit. The IA Credit provide*s* a reduction to the IA Charge; the GA Credit provides a reduction to GA Charge; and the NPDES Credit provides reduction to the total SWMS Charge. A Property may be approved for credits from each of the three classes; however*,* if the resulting SWMS Charge after the application of any credits is less than the Non-residential minimum monthly charge, then the minimum monthly charge will apply.

(c) Credit Requirements.

(1) IA Credit. IA Credit is available for the portion of IA on a property where stormwater runoff is managed (IA Managed). IA Managed is achieved as follows:

(i) For areas of the property that meet the requirements of the following Impervious Area Reductions (IAR), as described in the Stormwater Credits and Adjustment Appeals Manual, a direct reduction in the billable IA may be applied:

(A) Rooftop disconnection,

(B) Pavement disconnection,

(C) Tree canopy coverage,

(D) Green roof, or

(E) Porous pavement.

(ii) For non-Surface Discharges, the customer must demonstrate management of the first inch of stormwater run-off in one of the three following ways:

(A) infiltration,

(B) detention and slow release, and/or

(C) routing through an approved volume-reducing SMP.

(iii) For Surface Discharges, the Customer must demonstrate that a portion or all of the impervious area discharges directly to a surface water body.

(2) GA Credit.

(i) Impervious area only. Impervious area shall receive a GA credit based on the criteria defined in Section 4.5(c)(1)(ii) and (iii) herein.

(ii) Open Space area only. Open Space area is non-impervious area and is calculated as GA minus IA. The Customer must demonstrate a Natural Resource Conservation Service Curve Number (NRCS-CN) below a certain value as described in the Credits and Adjustment Appeals Manual.

(3) National Pollutant Discharge Elimination System (NPDES) Credit. The Customer must demonstrate the property is subject to and in compliance with a NPDES Permit for industrial stormwater discharge activities.

(d) Credit Maximum.

(1) IA Credit Maximum. IA Credit maximums shall apply as follows:

(i) All Non-residential and Condominium properties are eligible for a maximum of 80% IA Credit for the IA Managed.

(ii) A Non-residential or Condominium property with Surface Discharge is eligible for a maximum of 90% IA credit for the IA Managed.

(2) GA Credit Maximum. GA Credit maximums shall apply as follows:

(i) All Non-residential and Condominium properties are eligible for a maximum of 80% GA Credit.

(ii) A Non-residential or Condominium property with Surface Discharge is eligible for a maximum of 90% GA credit.

(3) NPDES Credit Maximum. Eligible properties shall receive a maximum of 7% NPDES credit as described in the Credit and Adjustment Appeals Manual.

(e) Application of Credits

The application of the three classes of credits in calculating a property's monthly SWMS charge shall be described in the Credits and Adjustment Appeals Manual.

(f) Administration of Credits.

(1) A Customer shall apply for credits using application forms and submitting the required documentation as defined in the Credits and Adjustment Appeals Manual.

(2) Any engineering or other costs incurred in completing the application shall be borne by the Customer.

(3) Credits shall be effective upon receipt of a complete application.

(4) All credits shall expire four (4) years from the effective date of the credit. A Customer may renew credits by submitting a renewal application, documentation required by the Department as defined in the Credits and Adjustment Appeals Manual, and paying a renewal fee of one hundred dollars ($100).

(g) Termination of Credits.

(1) The Department may review any approved credit at any time to verify its continued applicability. Customers may from time to time be asked to submit documentation and/or grant access to the Property receiving the credit. Failure to comply with such requests may result in the termination of the credit(s).

(2) The Customer's failure to meet credit requirements or comply with inspection and reporting obligations, in accordance with Section 4.5(a)(3), shall result in a suspension or revocation of all affected credits pursuant to the procedures issued by the Department.

(h) The Department may, at its sole discretion, issue stormwater credits to individual parcels where stormwater management is being implemented on a shared, collective basis by an organization representing different parcel owners within a defined geographic area.

5.0 BILLING FOR WATER, SEWER AND STORMWATER SERVICE

5.1 Billing.

(a) Estimated Usage and Billing. When an accurate meter reading cannot be obtained at the time of a scheduled meter reading or when necessary for administrative purposes, the quantity of water used may be estimated for billing purposes. Estimated usage will be based upon actual meter readings from prior cycles or by such other fair and reasonable methods as shall be approved by the Water Commissioner. Where the water usage is estimated because of inability to read the meter, any necessary corrections shall be made at the time of the next actual meter reading, or when appropriate.

(b) Charges to be Combined. At the discretion of the Water Commissioner, each bill may combine in one amount the service charge and any quantity charges for water, sewer and stormwater, if applicable.

(c) Bills Due and Payable. All bills are due and payable when rendered.

(d) Penalties for Late Payments.

(1) If current water, sewer, and stormwater bills are not paid within thirty (30) days from the date indicated on the bill, a penalty of five percent (5%) shall be imposed.

(2) An additional penalty of one half of one percent (0.5%) shall be imposed and added to water, sewer, and stormwater bills, and their penalties, on the due date of the bill of each succeeding cycle, except that a period of thirty (30) days shall elapse before the first additional penalty is imposed.

(3) If any water, sewer, and stormwater bill remains unpaid for two cycles after the bill has been rendered, the Revenue Department shall serve a notice of termination upon the delinquent Property Owner and, if the charge, with penalties thereon, is not paid within ten (10) days after such service of notice, the Department, in its discretion, may suspend water service to the Property until the charge with penalties is paid. Penalties for late payment are set by ordinance, not by regulation, and any amendments to the current ordinance shall apply as provided therein.

(e) Balance Due. Each bill shall include any balances due for bills issued from October 1, 2000, including penalties.

(f) Changes in Meter Size. When a change in meter size is made, the charge for the new meter size shall become effective on the date of such change.

(g) Unmetered Customers.

(1) Unmetered Customers shall be billed the same charges established for metered Customers. The water and sewer service charges will be determined by the size of the meter which would be installed for an equivalent service at a similar property. The SWMS charges will be determined based on Section 4.0. The Revenue Department shall estimate the quantity of water used and bill accordingly using the applicable water and sewer quantity charges.

(2) Where unmetered wastewater is discharged to the sewer system without adequate sewer metering, the Department reserves the right to bill the amount of flow based upon its engineering judgment of a reasonable estimate of unmetered usage.

(h) Unoccupied Property.

The billing of unoccupied Properties for water and sewer shall be discontinued only on issuance of a Discontinuance of Water permit. Nothing in this Section shall relieve a Property Owner of his responsibility for maintaining a service line unless a Discontinuance of Water permit has been secured. Under no circumstances will the stormwater service charge be terminated.

(i) Extraordinary Uses or Appliances.

In the event that extraordinary or peculiar uses or appliances, in the opinion of the Water Commissioner, warrant a special charge not provided herein, such charges shall be as fixed by the Water Commissioner in writing.

5.2 Special Customers.

The water, sewer and stormwater management service charges established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq. shall be applied to all general Customers, except the following groups of special Customers:

(a) GROUP I

(1) Public and private schools which provide instruction up to or below the twelfth grade but not beyond that grade, and excluding service to any separate or adjoining facilities or structures not used exclusively for educational or instructional purposes.

(2) Institutions of "purely public charity", as defined by Pennsylvania law, except universities and colleges and excluding service to any separate or adjoining facilities or structures not used exclusively for the principal purpose of the charity.

(3) Places used for actual religious worship.

(b) GROUP II

(1) Residences of eligible senior citizens provided that the senior citizen shall:

(i) Make application for such reduction to the Revenue Department within the first billing period for which reduction is sought; and

(ii) Submit satisfactory proof that the applicant is 65 years of age or older and that he or she makes payment directly to the City for water, sewer, and stormwater service to his or her residence which is located in the City of Philadelphia; and

(iii) Submit satisfactory proof to the Revenue Department that the applicant does not exceed the household income limitation of $32,300 per year established by the Department. The above income limitation shall apply to those applying for this discount subsequent to June 30, 1982.

(iv) Effective with each subsequent change in the water/sewer/stormwater charges, the Department shall adjust the Senior Citizen Income Limitation using the latest Consumer Price Index data available, as defined in the Philadelphia Code at Section 19-1901.

(c) GROUP III

(1) Universities and colleges, excluding service to any separate or adjoining facilities or structures not used exclusively for educational or instructional purposes.

(d) GROUP IV

(1) Public housing properties of the Philadelphia Housing Authority.

(e) GROUP V

(1) Group V Customers are Customers enrolled in the Income-Based Water Revenue Assistance Program (IWRAP) described in Section 19-1605 of the Philadelphia Code after the Water Revenue Bureau begins to issue IWRAP bills. Monthly bills for a Customer enrolled in IWRAP will be determined based on the Customer's family size and household income and will be charged in lieu of the service, usage and stormwater charges established in Sections 2.0 et seq., 3.0 et seq. and 4.0 et seq. for general Customers. Group V Customers will pay a percentage of his/her household income depending on where that Customer falls within the Federal Poverty Guidelines (FPL), subject to a minimum bill amount of $12 per month.

(2) For determining the amount of service, usage and stormwater charges on monthly bills, Group V Customers will be defined according to three income tiers as follows:

(i) Group V-A. Group V Customers whose gross household income has been verified as being from 0% of FPL and up to and including 50% of FPL

(ii) Group V-B. Group V Customers whose gross household income has been verified as being greater than 50% of FPL and up to and including 100% of FPL.

(iii) Group V-C. Group V Customers whose gross household income has been verified as being greater than 100% of FPL and up to and including 150% of FPL.

(f) GROUP VI

(1) Customers with parcels eligible for a discount from the stormwater management service charge as a qualified Community Garden pursuant to Section 19-1603 of the Philadelphia Code and regulations promulgated by the Water Department under that Section.

(g) GROUP VII

(1) All unoccupied properties of the Philadelphia Land Bank.

(h) Charges for Special Customers

(1) As of September 1, 2019, the charges to Groups I, II, and III of special Customers listed above shall be seventy-five percent (75%) of the charges as established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq., including both the water and sewer service and quantity charges, and the SWMS charges. The charges to Group IV Customers shall be ninety-five percent (95%) of the charges as established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq., including both the water and sewer service and quantity charges, and the SWMS charges.

(2) Group V Customers enrolled in IWRAP after the Water Revenue Bureau begins to issue IWRAP bills will be responsible for paying the following charges for service, usage and stormwater charges, or $12 per month, whichever is greater:

(i) Group V-A: 2.0% of household income.

(ii) Group V-B: 2.5% of household income.

(iii) Group V-C: 3% of household income.

(3) Group VI: Effective with bills issued on or after January 1, 2017, Group VI special Customers will receive a 100% discount on the stormwater management service charges for parcels classified by the Department as Community Gardens upon approval of an application for a discount consistent with Section 19-1603 of the Philadelphia Code and regulations promulgated by the Department under that Section.

(4) Group VII: Effective with bills issued on or after September 1, 2018, Group VII special Customers are fully exempt from all water, sewer and stormwater management rates and charges.

(i) All of these special Customers shall meter all water connections and they shall be subject to all provisions herein not inconsistent with Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq.

(j) All special Customers are subject at any time to review as to their special charges by the Department or the Water Revenue Bureau and may be required to furnish adequate evidence supporting the continuance of such charges to the Department or the Water Revenue Bureau upon written notice to do so. Failure to furnish such evidence shall be sufficient ground for denial or termination of such special charges.

(k) Special charges may be granted subject to the Department's review and approval of the size of the meter installed.

(l) When the special use for which the special charge is granted ceases, the special charge ceases and the charges for general Customers shall apply thereafter.

(m) When any vacant or unoccupied premises are acquired by the City, charges for water and sewer, including charges relating to storm water management and disposal, shall terminate on the date that such premises are acquired.

(n) When any property is acquired or held by the Philadelphia Housing Development Corporation or acquired or held by the City or the Redevelopment Authority pursuant to Section 16-500 of the Philadelphia Code, charges for water and sewer, including charges relating to storm water management and disposal, shall be abated.

5.3 Eligibility for Charity Rates and Charges.

(a) Organizations seeking the Charity Rates and Charges must submit an application to the Department. Applicants must use forms provided by the Department, and submitted applications must be completed to the satisfaction of the Department.

(b) Applications must be made in the name of the organization seeking the Charity Rates and Charges. All accounts for which an organization is requesting the Charity Rates and Charges must be in the identical name as that on the application.

(c) Any account for a Property for which the Charity Rates and Charges are sought must be current and remain in good standing with no service violations to maintain eligibility for any discounts issued herein. Any breach of this condition shall result in the loss of eligibility for the discount.

(d) To be eligible for water and sewer Charity Rates and Charges, the Property must not have any outstanding Department or Plumbing Code violations; the Property must have an operating water meter that is in compliance with current Department specifications, and the property must have a current water meter reading. If the property is receiving stormwater service only, the above provision regarding metering shall not apply. To be

eligible for SWMS Charity Rates and Charges, the Property must not have any outstanding Department violations. Applicant must be either an owner of the Property or a Tenant of the property for which the SWMS charge is assessed.

(e) Charity Rates and Charges shall be charged to the eligible organization from the application date of an approved application. No retroactive reductions from the General Customer rates and charges will be permitted.

5.4 Account Review.

The Department, from time to time, may review the status of organizations receiving Charity Rates and Charges.
During this review, eligible organizations may be required to submit new applications.

5.5 Suspension of Charity Rates and Charges (Groups I and III)

(a) Organizations that have been approved for Charity Rates and Charges must make timely payments on accounts in order to remain eligible for these discounted rates and charges.

(b) An organization that fails to make on-time payments for two (2) consecutive billing cycles shall be suspended from the Charity Rates and Charges, and shall be required to pay the same rate(s) as the General Customer rates and charges for all services. The suspension period shall remain in effect for a minimum of one (1) year.

(c) Reinstatement of the Charity Rates and Charges will not occur until a full year of on-time payments has been made. Suspended organizations must then submit an application as described in Section 5.3. Charity Rates and Charges will not be retroactive for the period of suspension.

(d) Customers shall be informed by first class mail of the suspension of the Charity Rates and Charges.

5.6 Hearing.

Organizations that have been denied eligibility or have been suspended from the Charity Rates and Charges may request an informal hearing.

5.7 No Waiver.

Nothing herein shall limit the Department on its own findings or at the request of another City agency from suspending Charity Rates and Charges from organizations which have violated City law or regulations and thereby under such City law or regulations have forfeited such privileges as the Charity Rates and Charges.

6.0 MISCELLANEOUS WATER CHARGES

Charges for miscellaneous water services supplied by the City of Philadelphia shall become effective September 1, 2019 as follows:

6.1 Meter Test Charges.

(a) A Customer may apply to the Department for a test of the accuracy of the registration of a water meter (Meter Test). At the Customer's request, the Department shall notify the Customer of the time and place of the test so that the Customer may be present.

(b) In testing, meters may be removed from the line and replaced by a tested meter. If removed, the meter shall be tested at the Department's Meter Shop. Meters may also be tested and recalibrated in place without removal and replacement.

(c) All meters shall be removed, replaced, tested or calibrated during the Department's regular business hours (9:00 a.m. to 4:45 p.m.).

(d) A Customer may request a Meter Test to be performed outside the regular business hours of the Department under the following conditions:

(1) the Department has staff available and agrees to a time outside the regular business hours of the Department; and,

(2) the Customer agrees to pay the overtime and added expenses, whether the meter passes or fails the test.

(e) If the register on the meter is found upon testing to be registering within two percent (2%) of the actual volume of water passing through the meter, or registering in favor of the Customer, the Customer will be assessed a Meter Test Charge as follows:

Meter Size	Charge
5/8"	$210
1", 1-1/2", 2"	$280
3", 4", 6", 8", 10", 12"	$660
Field Tests, 3" and above	$660

(plus any charges and/or expenses incurred for work performed outside the regular hours of business, if requested by the Customer).

(f) If the meter is found upon testing to be registering in excess of 102% of the actual volume of water passing through the meter, the Customer shall not be assessed a Meter Test charge as provided for in subsection (e); and, WRB shall review the billing history of

the tested meter for a period not to exceed three years on the basis of the corrected registration and revise it as necessary.

(g) The Department will, at the request of a Customer, test his or her meter at no charge once every twenty years. Additional tests are subject to the charges listed in Section 6.1(e).

6.2 Charges for Furnishing and Installation of Water Meters.

The charges for furnishing and installing water meters are as follows.

(a) For work which involves the furnishing and setting of a water meter and meter interface unit (MIU), the following charges are hereby established:

Meter Size	Charge
5/8”	$250
¾ RFSS	430
1”	425
1” RFSS	520
11/2”	805
1 1/2” RFSS	750
2”	905
2” RFSS	965
3” Compound	2,380
3” Turbine	1,495
3” Fire Series	3,380
4” Compound	2,795
4” Turbine	2,535
4” Fire Series	3,670
4” Fire Assembly	6,025
6” Compound	4,825
6” Turbine	4,075
6” Fire Series	5,320
6” Fire Assembly	7,925
8” Turbine	5,455
8” Fire Series	6,090
8” Fire Assembly	11,145
10” Turbine	7,795
10” Fire Series	8,525
10” Fire Assembly	15,310
12” Turbine	7,910
12” Fire Series	8,715
12” Fire Assembly	16,180

(b) For work which involves only the furnishing and setting of an MIU, the following charges are hereby established:

Meter Size	Charge
5/8"	$ 105
¾" RFSS	105
1"	185
1 " RFSS	185
1 1/2"	185
1 ½" RFSS	185
2"	185
2" RFSS	185
3" Compound	525
3" Turbine	525
4" Compound	525
4" Turbine	525
6" Compound	525
6" Turbine	525
8"	525
10"	525

(c) If extraordinary work is required in connection with the installation of a water meter or the replacement of a damaged meter, additional charges shall be computed using actual salaries and materials expended, plus applicable overhead costs.

(d) The Property Owner shall be responsible for safeguarding the meter and seals and shall pay for necessary repairs and replacements due to his/her failure to provide adequate protection to the meter and seals from theft, vandalism, freezing, tampering or other damage. The Property Owner shall also be responsible for the repair and maintenance of the plumbing accessory to the meter, such as inoperable valves, weakened service pipes and fittings, etc. and shall provide and pay for such plumbing, repair and maintenance as City metering needs may require.

6.3 Tampering of Meter.

(a) In the event that an investigation indicates that tampering of a meter has occurred, the following charges to the Customer shall be assessed:

Meter Size	Charge
5/8"or 3/4"	$ 120
1", 1½", 2"	210
3" and larger	580

6.4 Shut-Off and Restoration of Water Service.

(a) If the Department is required to visit a Property to shut off service for non-payment; and, payment is tendered at the time of the shut-off, a charge of one hundred dollars ($100) will be assessed.

(b) A one hundred and five dollar ($105) charge will be assessed if shut-off of the water service is required as a result of non-compliance with a Notice of Defect and/or metering non-compliance.

(c) After termination of water service for non-payment or violation of service requirements, restoration of water service will not be made until the following charges have been paid in full or payment arrangements satisfactory to the Revenue Department have been made.

(1) Where the only work required is operating the service valve:

(i) service lines 2" and smaller.....$60

(ii) service lines larger than 2"…….....…...$200

(2) Where the curb stop is obstructed, the access box missing or otherwise requires excavation $590

(3) Where the curb stop is inoperable and a new curb stop must be installed...$885

(4) Where the curb stop is obstructed, the access box missing, or otherwise requires excavation, and replacement of footway paving is required.....$820

(5) Where the curb stop is inoperable and a new curb box must be installed and replacement of footway paving is required.....$865

(6) Where excavation and shut-off of the ferrule at the water main is required $1,985

(d) If the Department is required to remove concrete footway paving in order to perform the shut-off and/or restoration, the footway will be replaced by the Department and the preceding charges applied unless proof has been provided to the Department that some other qualified person will replace the paving.

6.5 Pumping of Properties.

The following charges shall apply for the pumping of water from properties when the condition requiring such service is not caused by the Department.

(a) Occupied Properties

(1) Pumping of water from occupied Properties may be done at the Property Owner's request and expense.

(2) Pumping of other Properties due to the failure of a Property Owner's piping may be performed by the Department and be charged to the Property Owner of the Property at which the failure occurred.

(3) Charges for pumping shall be calculated at actual salaries and materials expended, plus applicable overhead costs.

(b) Unoccupied Properties

The Department may, at its sole and exclusive discretion, pump water from unoccupied properties if it is determined that a serious condition exists. The charges for pumping shall be as specified in Section 6.5(a).

6.6 Charges for Water Main Shutdown.

(a) The Department of Licenses and Inspections shall issue permits for the temporary shutdown of a water main to allow a registered plumber to make immediate repairs to a broken water service and to avoid the necessity of opening the street.

(b) Permits shall be issued after:

(1) Certification by the Department that the shutdown will not seriously inconvenience other Customers; and

(2) The applicant has paid a two hundred and ten dollar ($210) service charge.

(c) In an emergency or when responsibility for a leak is in doubt, the Department may make the shutdown before the permit is obtained. If the Department determines that the leak was not the Department's responsibility, the owner shall obtain a permit and pay the above stated service charge and any other costs incurred by the Department in conducting the emergency shut down.

6.7 Water Connection Charges.

(a) Permits. Permits for connections to the City's water supply system shall be issued by the Water Permit section of the Department of Licenses and Inspections.

(b) Ferrule Connections.

(1) Connections between 3/4 inch and two inches (2") in diameter shall be made by a ferrule installed by the Department. The owner, at his own expense, shall excavate for the connection, install all piping and appurtenances after the ferrule and fill the

excavation. The owner thereafter shall be responsible for maintaining this piping and appurtenance.

(2) The charges for such ferrule connections shall be as follows, with the exception stated in Section 6.7(b)(3), shall be as follows:

Size	Charge
¾"	$240
1"	270
1½"	365
2"	430

(3) The charges for such ferrule connections, when the work performed at the Customer's request is not during the Department's regular business hours (9:00 a.m. to 4:45 p.m.), shall be as follows:

Size	Charge
¾"	$250
1"	280
1½"	375
2"	440

(c) Valve Connections. Connections three inches (3") and larger shall be made by a valve installed by the Department. This valve installation shall include, but shall not necessarily be limited to, the connection to the main, the valve, valve box, necessary piping after the valve from the main in the street to one foot inside the curb, backfill and repaving. The Department shall thereafter be responsible for maintaining this valve and piping, unless the associated meter has been reduced at the Property Owner's request to a two inch (2") or smaller meter, in which case the Property Owner shall be responsible for valve and piping maintenance.

(1) The charges for valve connections shall, with the exceptions stated in Section 6.7(c)(2), shall be as follows:

Size	Charge
3" & 4"	$ 15,705
6" & 8"	15,945
10" & 12"	18,605

(2) The charge for such valve connections, when the work is performed at the Customer's request is during other than normal work hours or the work is performed in an area designated by the Streets Department as a special work zone, shall be as follows:

Size	Charge
3" & 4"	$ 16,450
6" & 8"	16,690
10" & 12"	19,440

(d) Attachment to a Transmission Main

(1) There shall be no connection to a transmission main without Department approval. Such approval shall be requested by application forms and procedures issued by the Department.

(2) Where a connection is made to a water main larger than 12 inches in diameter, with the exceptions stated in Sections 6.7(d)(3)&(4), the charges will be a follows:

SLEEVE	3" & 4"
MAIN	
16"	$ 23,475
20"	24,860
24"	26,475
30"	36,845
36"	42,010

SLEEVE	6" & 8"
MAIN	
16"	$23,595
20"	24,630
24"	26,475
30"	37,450
36"	43,830

SLEEVE	10" & 12"
MAIN	
16"	$22,445
20"	23,295
24"	24,485
30"	38,805
36"	47,450

(3) The charges for such connections, when the work performed at the Customer's request is not during the Department's regular business hours (9:00 a.m. to 4:45 p.m.), or the work performed is in an area designated by the Streets Department as a special work zone, shall be as follows:

SLEEVE	3" & 4"
MAIN	
16"	$24,410
20"	25,790
24"	27,405
30"	37,775
36"	42,940
SLEEVE	6" & 8"
MAIN	
16"	$24,525
20"	25,560
24"	27,405
30"	38,380
36"	44,760
SLEEVE	10" & 12"
MAIN	
16"	$23,375
20"	24,225
24"	25,415
30"	39,735
36"	48,380

(4) Where a connection is made to a water main 48" or larger in diameter, the charge will be that for a connection to a 36" main, stated above in Sections 6.7(d)(2) or (3), plus an additional charge representing the difference between the current cost of a 36" sleeve and the cost of the larger sleeve. The additional charge shall be paid before any permit can be issued as prescribed below in Section 6.11.

(e) Should police assistance for traffic control be required for a ferrule or valve connection, the Customer shall pay the required fee to the Police Department.

6.8 Discontinuance of Water.

Except as otherwise provided, no Customer shall be relieved of the obligation to pay water and sewer charges unless a permit for the discontinuance of water and sewer has been obtained from the Department of Licenses and Inspections pursuant to the provisions of Philadelphia Code section 19-1601. When a permit is granted to discontinue water and sewer service, charges shall terminate on the date of removal of the meter by the Department. The charge for a permit for discontinuance of water is one hundred dollars ($100), regardless of service size. A validly issued permit to discontinue water and sewer does not terminate the obligation to pay for stormwater management services.

6.9 Hydrant Permits.

(a) A permit shall be obtained from the Water Permit section of the Department of Licenses and Inspections before a hydrant can be used. The permit shall contain the terms and conditions that are required of the Customer in order for the Customer to use the hydrant.

(b) The costs for obtaining a permit shall be as follows.

(1) One Week Permit for use of standard pressure hydrant……..…$ 525

(2) Six Month Permit for use of standard pressure hydrant…..…$ 3,370

6.10 Flow Tests.

When a Customer requests the Department to conduct a flow test on a fire hydrant to determine the volume and residual pressure available on a domestic or fire connection, or at a specific location, the charge shall be six hundred and ninety dollars ($690) for each flow test.

6.11 Water Service Line Investigations and/or Inspections

When a Customer or a duly authorized representative of a Customer requests the Department to conduct an investigation to locate and/or to inspect the water service line at a specific location, the charge shall be ninety dollars ($90) for each investigation or inspection. The charge shall be assessed regardless of the result of the investigation or inspection.

6.12 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued.

7.0 MISCELLANEOUS SEWER CHARGES

Charges for miscellaneous sewer services supplied by the City of Philadelphia shall be effective September 1, 2019, as follows.

7.1 Sewer Charges for Groundwater.

(a) Sewer charges for groundwater discharged to the City's sewer system shall be as follows:

(1) Effective September 1, 2019 and thereafter, the rate shall be $13.86 per 1,000 cubic feet.

(b) To determine the quantity of such discharged groundwater, the Customer shall install a meter or measuring device satisfactory to the Department. If, in the opinion of the Department, it is not feasible to install a meter or measuring device, the Department may designate some other method of measuring or estimating the quantity of discharged groundwater.

7.2 Charges for Wastewater Service.

(a) The charge for sanitary type wastewater delivered to any of the City's Water Pollution Control Plants shall be as follows.

(1) Effective September 1, 2019 and thereafter, the rate shall be $56.96 per 1,000 gallons.

(b) Where accurate quantities of wastewater delivered cannot be determined, such quantities shall be estimated for billing purposes by such fair and reasonable methods as shall be approved by the Water Commissioner.

(c) The locations, times, delivery procedures and exact nature of the pollution characteristics of the delivered wastewater shall be determined by the Department.

(d) From time to time, Customers shall be required to file with the Department a questionnaire establishing or revising information on the quantity and quality of wastewater delivered and other pertinent data deemed necessary by the Department. Failure to furnish such information shall be sufficient grounds for denial or termination of delivery privileges.

(e) Measurements, tests and analyses of the characteristics of delivered wastewater shall be determined in accordance with the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published jointly by the American Public Health Association, the American Water Works Association (AWWA) and the Water Environment Federation (WEF).

(f) If any bill for the above services shall remain unpaid for more than sixty (60) days from date rendered, the Department may refuse acceptance of additional wastewater until all unpaid balances, with late charges, are paid in full.

7.3 Wastewater Discharge Permit.

All Industrial Users contributing wastewater to the City's sewer system must obtain a permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

7.4 Groundwater Discharge Permit.

All Industrial Users contributing groundwater to the City's sewer system must obtain a permit from the Department pursuant to the Wastewater Control Regulations contained in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

7.5 Manhole Pump-out Permit

(a) Any non-domestic User discharging wastewater from underground structures to the City's sewer system must obtain a manhole pump-out permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

(b) In the event a User requests discharge locations in the City's separate sewer areas under this permit, the City may assess additional fees for any work associated with the review of this request and the identification of the discharge locations.

7.6 Trucked or Hauled Wastewater Permit

Any person trucking or hauling wastewater to the POTW must first obtain a septage discharge permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit shall be one thousand nine hundred and sixty dollars ($1,960).

7.7 PHOTOGRAPHIC & VIDEO INSPECTION

When a Customer or a duly authorized representative of a Customer requests the Department to conduct a photographic or video inspection of a private sewer line at a specific location, the charge shall be two hundred and seventy five dollars ($275) for each photographic or video inspection. The charge shall be assessed regardless of the result of the photographic or video inspection.

7.8 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued.

8.0 MISCELLANEOUS STORMWATER MANAGEMENT CHARGES

8.1 Stormwater Plan Review Fees.

All Development plans submitted to the Department under Chapter 6 of the Department's regulations for stormwater management approvals shall be subject to a plan review fee.

(a) Fees.

(1) A fee of one thousand one hundred and sixty dollars ($1,160) shall be due prior to issuance of Conceptual Stormwater Management Plan approval.

(2) A fee of two hundred and eighty five dollars ($285) shall be due upon submission of a post construction stormwater management plan, including a technical site plan, for review. An additional fee of one hundred and fifty dollars ($150) per hour of review time shall be due prior to issuance of PCSMP approval.

(i) Review time shall be based on the City's tabulation of actual hours expended by Department employees or consultants reviewing the plans associated with a particular development or redevelopment project for compliance with Chapter 6 of the Department's regulations.

(b) Refund of fees. The Department shall refund any fees specified above if a plan submittal is not approved or denied within 21 days for conceptual site plans and within 45 days for technical site plans.

8.2 Stormwater Management Fee in Lieu.

Where a Property Owner can demonstrate that it is not feasible to meet the requirements of the Department's regulations by managing stormwater on a proposed Development Site ("Development Site"), the Developer may request that it pay a fee in lieu of on-site stormwater management. This fee in lieu option shall be subject to the following requirements.

(a) The Property Owner must submit a document to the Department, prepared and signed, stamped and sealed by a Pennsylvania Certified Professional Engineer conclusively demonstrating the infeasibility of all SMPs set forth in the Manual to meet the requirements of the stormwater management regulation on the Development Site. Infeasibility may not be created by subdividing the Development Site, redrawing lot lines within the Development Site or by placing so large a number of homes or structures on the

Development Site that sufficient on site stormwater management cannot be achieved. The Department shall review the document alleging infeasibility by considering the entire Development Site.

(b) Nothing herein shall require the Department to grant a Developer its request for a fee in lieu of onsite stormwater management. The Department, however, may grant the request for a fee in lieu under the following conditions:

(1) The Developer has conclusively demonstrated the infeasibility of onsite stormwater management; and

(2) The Department has determined that off-site stormwater management, pursuant to Section 600.3(d) of its regulations, is also infeasible; and

(3) The Department, in its sole discretion, has determined that granting the fee in lieu will not adversely affect flooding, stream protection, neighboring properties or be inconsistent with its requirements under its stormwater program, combined sewer overflow program, National Pollutant Discharge Elimination System permits, or any other federal or state law.

(c) The fee in lieu shall be calculated as follows:

(1) For an exemption to only the Water Quality Requirement of Chapter 6 of the Department's regulations the fee shall be fifteen dollars ($15.00) per square foot based on the total square footage of Earth Disturbance.

9.0 FIRE SERVICE CONNECTIONS

Fire service connection charges shall consist of a monthly service charge and a quantity charge and shall be effective September 1, 2019, as follows.

9.1 Charges.

(a) Monthly Service Charges.

(1) The monthly service charges for the furnishing of water for the purpose of fire protection effective September 1, 2019 and thereafter, shall be as follows:

Connection Size	Service Charge
Up through 4-inch	$ 27.63
6-inch	50.74
8-inch	75.77
10-inch	111.74

12-inch 172.64

(b) The City may permit fire service connections to its water system outside the City of Philadelphia only in properties contiguous to the City where in the opinion of the Water Commissioner water service for fire protection may be furnished without interference with water service to properties within the City.

(c) Pipe connections to the Philadelphia water system, meters and other service requirements shall be in accordance with the standard fire service requirements of the Department.

(d) Quantity Charges.

(1) In addition to the service charge, the quantity charge portion of each bill is determined by applying the quantity charge rate shown below to all water use. In addition, the quantity charge will also include a TAP Rate Rider Surcharge, as set forth in Section 10.

Effective October 1, 2020 and thereafter, the quantity charge shall be as follows:

1 Mcf = 1,000 cubic feet = 7,480 gallons

Monthly Water Usage	**Base Charge Per Mcf**	**TAP-R Per Mcf**	**Total Charge Per Mcf**
First 2 Mcf (0 to 2 Mcf)	**$44.80**	**$0.57**	**$45.37**
Next 98 Mcf (2.1 to 100 Mcf)	**38.56**	**0.57**	**39.13**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**29.88**	**0.57**	**30.45**
Over 2,000 Mcf	**29.06**	**0.57**	**29.63**

(e) The provisions in this Section apply to all fire service connections.

9.2 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued**.**

10.0 PROVISIONS FOR RECOVERY OF THE TIERED ASSISTANCE PROGRAM (TAP) COSTS

The lost revenue related to TAP (the "TAP Costs") will be recovered via a separate TAP Rate Rider Surcharge Rate (TAP-R), which would be added to the water, fire service and sewer quantity charge rate schedules. This TAP-R shall be increased or decreased for the next rate period to reflect changes in TAP costs, and will be calculated and reconciled on an annual basis in the manner set forth below.

10.1 Computation of the TAP-R

(a) The TAP-R Equation

The TAP-R shall be computed to the nearest one-hundredth of a dollar per MCF ($0.01/MCF) in accordance with the formula set forth below:

$$TAP\text{-}R = \frac{(C) - (E+I)}{S}$$

The TAP-R so computed, shall be applied as an adder to the water, fire service connection and sewer quantity charge base rate schedules set forth for water in Section 2.1 (c); sewer in Section 3.3 (b); and fire service in Section 9.1 (d), of these regulations. As a result, the TAP-R shall consist of two sub-components:

(1) A "Water TAP-R" added to the water and fire service quantity "base rate" ($/MCF); and

(2) A "Sewer TAP-R" added to the sewer quantity "base rate" ($/MCF).

During the rate periods that TAP-R is effective, to recover the TAP Costs through Water TAP-R and the Sewer TAP-R respectively, the total TAP Costs determined for a given rate period will be apportioned between water and wastewater utilities based on the proportion of water and wastewater net revenue requirement respectively to total net revenue requirement. The percent allocation of TAP Costs between water and wastewater utilities will be as follows:

(i) Water TAP Cost Allocation: 41%

(ii) Sewer TAP Cost Allocation: 59%

(b) Definitions

In computing the TAP-R pursuant to the formula above, the following definitions shall apply:

(1) **TAP-R** - TAP Rate Rider Surcharge Rate ($/MCF).

(2) **C** – Cost in dollars of the estimated TAP Billing Loss for the projected period.

(3) **E** - The net over or under collection of the TAP-R surcharge amount for the Most Recent Period. The net over or under collection will be calculated by comparing the actual TAP Revenue Loss (resulting from discounts provided to TAP Customers) with the actual TAP-R surcharge amounts billed to Non-TAP Customers. Both the TAP Revenue Loss and the TAP-R billings, that are determined for the rate periods, will be adjusted for collections by applying the Department's system-wide collection factor of 96.54%.

(4) **I** - Interest on any over or under recovery of the TAP-R for the most recent period. Interest will be computed on annual basis. The interest rate will be based upon the yield to maturity of a particular date of United States Treasury securities with a constant maturity for a 1-year Treasury as complied and published in the Federal Reserve Statistical Release H.15 (519) for the United States Treasury[1], as it exists each year as of the first day of the month, preceding the month of the annual reconciliation submission to the Rate Board.

(5) **S** - Projected sales in MCF for Non-TAP customers.

(6) **Most Recent Period** – The Current Fiscal Year and/or the period for which TAP-R reconciliation is performed.

(7) **Next Rate Period** – The fiscal year and/or the period that immediately follows the Most Recent Period, and in which the TAP-R is effective.

10.2 Filing with the Philadelphia Water, Sewer and Storm Water Rate Board

(a) Annual Reconciliation

The Water Department shall initiate the annual TAP Rate Rider Reconciliation by filing a TAP-R reconciliation request statement ("Statement") with the Philadelphia Water, Sewer and Storm Water Rate Board (the "Rate Board"). The Statement filed by the Water Department shall be a matter of public record. The reconciliation submission will be contemporaneously served upon participants in the Water Department's most recently concluded General Rate Increase Proceeding (as defined in the Rate Board's Regulations) and publicly advertised pursuant to such standards as shall be adopted and/or promulgated

[1] Currently available at https://www.federalreserve.gov/releases/h15/.

by the Rate Board. The Water Department shall file the annual Statement with the Rate Board at least 60 days prior to the effective date of the new surcharge rate, or at such other time as the Rate Board may prescribe, and in accordance with any procedures and standards for the contents of such reconciliation submissions established by the Rate Board.

10.3 TAP-R Surcharge Rates

(a) Water TAP-R

The Water TAP-R portion of each water bill is determined by applying the Water TAP-R surcharge rate shown below to all water use.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective October 1, 2020 and thereafter, the Water TAP-R surcharge shall be $0.57 per Mcf as determined by the annual reconciliation filing.

(b) Sewer TAP-R

The Sewer TAP-R portion of each sewer bill is determined by applying the Sewer TAP-R surcharge rate shown below to all water use.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective October 1, 2020 and thereafter, the Sewer TAP-R surcharge shall be $0.78 per Mcf as determined by the annual reconciliation filing.

Effective: ~~September~~ October 1, ~~2019~~2020

PHILADELPHIA WATER DEPARTMENT

RATES AND CHARGES
Effective: ~~September~~ October 1, ~~2019~~2020.

1.0 DEFINITIONS.

(a) Condominium Properties: Real estate, portions of which are designated for separate ownership and the remainder of which is designated for common ownership by the owners of those portions.

(b) Customer: An owner, Tenant or occupant who by operation of law or agreement is responsible for payment of the charges for water/sewer/stormwater service at a Residential, Non-residential or Condominium Property.

(c) Department: The Philadelphia Water Department is the operating department of the City of Philadelphia with the duties, powers and obligations set forth in the Home Rule Charter and the Philadelphia Code.

(d) Home Rule Charter: The Philadelphia Home Rule Charter, as codified in Pennsylvania First Class City Home Rule Act, April 21, 1949 P.L. 665, 351 Pa. Code §1-100 et seq.

(e) Mcf: Thousand cubic feet. The quantity charges in Sections 2, 3, 9 and 10 are expressed in Mcf.

1 Mcf = 1,000 cubic feet = 7,480 gallons

(f) Municipal Stormwater System: City owned and maintained real property, infrastructure or natural feature used and/or constructed for purposes of transporting, conveying, retaining, detaining, or discharging stormwater runoff.

(g) Non-residential Property: Real estate which cannot be classified as either Residential or Condominium. Real estate used exclusively as a cemetery shall not be considered Non-residential property.

(h) Philadelphia Code: The body of laws and regulations enacted by the Philadelphia City Council.

(i) Philadelphia Department of Records: An operating department of the City of Philadelphia with the duties, powers and obligations set forth in the Home Rule Charter and the Philadelphia Code.

(j) Property: Any parcel of real estate identified in the records of the Philadelphia Department of Records.

(k) Property Owner: The owner of the particular parcel of real estate identified in the records of the Philadelphia Department of Records, or the grantee in a land transfer of record.

(l) Residential Property: Real estate used exclusively for residential purposes with at least one and no more than four Dwelling Units and which cannot be classified as Condominium Property. Property adjacent to Residential Property owned and utilized exclusively by the Residential Property owner for residential uses. Upon proof submitted to the Department, said properties shall be deemed by the Department to form one Residential parcel comprised of the Property and the Residential Property.

(m) Stormwater Management Practice (SMP): Any man-made structure that is designed and constructed to detain, infiltrate, or otherwise control stormwater runoff quality, rate, or quantity.

(n) Surface Discharge: The discharge of stormwater runoff from a property to an adjacent surface water body, without the use of City infrastructure.

(o) Undeveloped Property: Property classified by the Board of Revision of Taxes as SB, SC, SI, SR, or SS; Undeveloped refers to the status of the property as having no structures and is not related to whether the property has ever been developed.

(p) Water Commissioner: The Water Commissioner of the City of Philadelphia who performs the duties and obligations as set forth in the Philadelphia Home Rule Charter and the Philadelphia Code.

1.1 Conformity with Existing Law.

Nothing contained herein shall be deemed to overrule or annul any existing provisions of the Home Rule Charter or the Philadelphia Code.

1.2 Severability.

If any provision, paragraph, word or sections herein is invalidated by any court of competent jurisdiction, the remaining provisions, paragraphs, words and sections shall not be affected and shall continue in full force and effect.

2.0 WATER CHARGES

Charges for water service supplied by the City of Philadelphia shall be effective on September 1, 2019, as follows:

2.1 General Customers.

Charges for the supplying of water shall be determined and billed as follows:

(a) Charges and billing in general.

(1) Water charges shall consist of a service charge and quantity charge.

(2) A service charge shall be billed monthly.

(3) As set forth in Section 2.1(b), the type and size of the meter shall determine the service charge.

(4) In addition, there shall be a quantity charge as provided herein for water used in a monthly billing cycle, either as metered or as estimated.

(5) Quantity charges shall be billed for monthly cycles as provided herein. The cycle shall be the period between the dates of scheduled metered readings, actual or estimated.

(b) Monthly service charges.

(1) Effective September 1, 2019 and thereafter, the monthly service charge for the various types and sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$5.21
3/4	Z	5.55
1	Q	6.70
1 -1/2	P	8.88
2	X	12.32
3	O	19.44
4	W	35.39
6	N	66.29
8	V	100.66
10	E	147.50
12	T	239.52

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	8.51
1	Q	9.66
1 -1/2	P	11.84
2	X	15.28

(c) Quantity charges

In addition to the service charge, the quantity charge portion of each bill is determined by applying the quantity charge set forth below to all water use. In addition, the quantity charge will also include a Tiered Assistance Program (TAP) Rate Rider Surcharge, as set forth in Section 10.

(1) Effective ~~September~~ October 1, ~~2019~~ 2020 and thereafter, the quantity charge portion of each bill shall be as follows:

1 Mcf = 1,000 cubic feet = 7,480 gallons.

Monthly Water Usage	Base Charge Per Mcf	TAP-R Per Mcf	Total Charge Per Mcf
First 2 Mcf (0 to 2 Mcf)	**$44.80**	**$0.~~71~~57**	**$45.~~51~~37**
Next 98 Mcf (2.1 to 100 Mcf)	**38.56**	**0.~~71~~57**	**39.~~27~~13**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**29.88**	**0.~~71~~57**	**30.~~59~~45**
Over 2,000 Mcf	**29.06**	**0.~~71~~57**	**29.~~77~~63**

(d) Temporary Transitional Provisions: Some special customers whose charges are now based on meter size may find that they are in fact 'over-metered' - their metered service is too large for their actual requirements and results in excessive bills. They may apply for a downward revision in the size of their meters. After the approval of the Department, the revision of plumbing arrangements and the installation of smaller meter, the lower charge by meter size shall apply.

3.0 SEWER CHARGES

Charges for sewer service supplied by the City of Philadelphia shall be effective on September 1, 2019, as follows:

3.1 General Customers.

(a) All customers discharging wastewater into the City's wastewater system shall pay sewer charges as set forth in Section 3.3. In addition to the charges set forth in Section 3.3, all customers discharging wastewater whose pollutant content is greater than the pollutant content of Normal Wastewater, as defined below in Section 3.1(b), shall pay an additional surcharge as set forth in Section 3.4.

(b) Normal Wastewater subject to the regular sewer charges set forth in Section 3.3 is that wastewater which contains 250 milligrams per liter or less of five day biochemical oxygen demand (BOD_5) and 350 milligrams or less per liter or less of suspended solids (SS).

(c) Wastewater subject to the surcharge set forth in Section 3.4 is that wastewater which contains either more than 250 milligrams per liter of BOD_5 or more than 350 milligrams per liter of SS, or both.

3.2 Charges.

(a) Sewer charges shall consist of a service charge and a quantity charge.

(b) A service charge shall be billed monthly.

(c) As set forth in Section 3.3(a), the size of the meter shall determine the service charge.

(d) In addition, as set forth in Section 3.3(b), there shall be a quantity charge for sewer service in a monthly billing cycle, either as metered or as estimated.

(e) Quantity charges shall be billed for monthly cycles as provided herein. The cycle shall be between the dates of scheduled metered readings, actual or estimated. Quantity charges imposed shall be based on the water usage of the Property served.

3.3 Regular Sewer Charges.

(a) Monthly service charges shall be determined and billed as follows:

(1) Effective September 1, 2019 and thereafter, the monthly service charge for the various sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$7.01
3/4	Z	8.93
1	Q	13.07
1 -1/2	P	22.97
2	X	35.42
3	O	63.82
4	W	108.49
6	N	213.81
8	V	338.27
10	E	488.25
12	T	887.22

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	7.01
1	Q	7.01
1 -1/2	P	7.01
2	X	7.01

(b) Quantity charge

In addition to the service charge, the quantity charge portion of each sewer bill is determined by applying the quantity charge rate shown below to all water use. In addition, the quantity charge will also include a TAP Rate Rider Surcharge, as set forth in Section 10.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective ~~September~~ October 1, ~~2019~~ 2020 and thereafter, the quantity charge shall be:

Base Charge Per Mcf	**TAP-R Per Mcf**	**Total Charge Per Mcf**
$31.25	**$~~1.16~~0.78**	**$32.~~41~~03**

3.4 Surcharge.

(a) Effective September 1, 2019 and thereafter, the surcharge for wastewater by definition in excess of Normal Wastewater shall be fixed at thirty nine and seven tenths cents ($0.397) per pound of pollutants received into the wastewater system in excess of 250 milligrams per liter of BOD_5 and thirty eight and eight tenths cents ($0.388) per pound of pollutants received into the wastewater system in excess of 350 milligrams per liter of SS.

(b) The BOD_5 and SS of wastewater shall be determined from samples taken on the Customer's Property at any period or time and of such duration and in such manner as the Department may prescribe or at any place mutually agreed upon between the Customer and the Department. With prior written approval of the Department, the results of routine sampling and analyses by the Customer may be used in determining the amount of the surcharge.

(c) If, in the Department's judgment, sampling of wastewater is neither feasible nor practical, the Department, for billing purposes, may base BOD_5 and SS of the wastewater on sampling results for similar discharge and/or values obtained from technical literature.

(d) Customers discharging wastewater subject to the surcharge shall, as prescribed by the Department:

(1) Install and maintain such facilities for sampling and measuring the wastewater discharged from their properties; and

(2) Maintain such records and information deemed necessary for the determination of the surcharge.

(e) Customers, as required from time to time, shall file with the Department responses to a questionnaire establishing or revising pertinent information on the quantity of flow and the quality of wastewater and other data deemed necessary for the determination of the surcharge.

(f) Measurements, tests and analyses of the characteristics of wastewater subject to surcharge shall be determined in accordance with the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published jointly by the American Public Health Association, the American Water Works Association (AWWA) and the Water Environment Federation (WEF).

(g) The surcharge shall be applied to the total wastewater discharged less any portion excluded by the Department.

3.5 Sewer Credits.

Pursuant to Section 13-201(4) of the Philadelphia Code, the method of crediting water users' sewer bills for City water used but not discharged into the wastewater disposal system shall be as follows.

(a) Eligibility. Where commercial and industrial facilities that use City water do not discharge all of such water into the wastewater system, the quantity of such water may be excluded in determining the proper sewer charge, provided that:

(1) at least 5% of water used, or

(2) 225,000 cubic feet per year, whichever is less, is not discharged into the wastewater system.

(b) Determination of the Amount of Exclusion. To determine the amount of such exclusion the Customer shall install a meter or measuring device satisfactory to the Department provided that, if in the opinion of the Department, it is not feasible to install a meter or measuring device, some other satisfactory method of measuring ("credit factor") may be designated by the Department on application of the Customer.

(c) Fee for Application. When the Customer applies to the Department for a determination on the quantity of water to be excluded by some method other than

metering of the sewer, or re-applies for a revised method measuring a larger quantity of water to be excluded, there shall be charge of two hundred and ninety five dollars ($295) for the review of such application.

(d) Effective Date of Credits and Approved Credit Factors. Credits on a water user's sewer bills for quantities of water used but not discharged into the wastewater disposal system shall be effective from the submission date of an approved application. In order to be reviewed for approval, applications shall be complete, submitted on forms provided by the Department and shall be accompanied by a check payable to the City of Philadelphia in the amount required in Section 3.5(c). No credits shall be made retroactively.

(e) Review of Approved Credit Factors. The Department reserves the right to review approved credit factors. Customers may, from time to time, be required to submit current water use and sewer discharge information. Customers may also be required to submit new applications for the credit factor. Failure to comply with the Department's requests for information or new applications may result in termination of the Customer's credit factor.

(f) Failure to Inform the Department of Increased Sewer Use. Customers with credit factors who fail to inform the Department of increased discharges to the wastewater system shall be subject to the imposition of the full charges for sewer use based on total water usage from the most recent application date, with applicable interest. In addition, the Department may impose a fine of two hundred and seventy five dollars ($275) for each billing period from the application date.

4.0 STORMWATER MANAGEMENT SERVICE CHARGES

Charges for Stormwater Management Services (SWMS) supplied by the City of Philadelphia shall be effective September 1, 2019 as follows:

4.1 Charges.

All properties within the City shall be billed a SWMS charge.

4.2 Residential Properties.

All Residential Properties shall be charged a monthly SWMS charge and a monthly Billing and Collection charge as follows:

(a) Effective September 1, 2019 and thereafter all Residential Properties shall be charged the rates listed below:

SWMS	Billing & Collection
$14.03	$1.77

(b) Residential Properties which do not have sewer service and which also have previously been charged only for water service shall be charged the rates shown above at 4.2 (a).

4.3 Non-Residential Properties.

All Non-Residential Properties shall be charged a monthly SWMS charge and a monthly Billing and Collection charge as follows:

(a) Non-residential Properties shall be charged based on the Gross Area (GA) of the Property and the Impervious Area (IA) of the Property.

(1) GA includes all of the Property area within the legally described boundaries except streets, medians, and sidewalks in the public right-of-way and railroad tracks and station platforms in the railroad right-of-way.

(2) IA includes surfaces which are compacted or covered with material that restricts infiltration of water, including semi-pervious surfaces such as compacted clay, most conventionally hard-scaped surfaces such as streets, driveways, roofs, sidewalks, parking lots, attached and detached structures, and other similar surfaces.

(i) For Non-residential Properties with less than 5,000 square feet GA, the IA shall be estimated as a percentage of GA.

(A) For Undeveloped Property as defined in Section 1.0, the IA shall be 25% of the GA.

(B) For other Properties, the IA shall be 85% of the GA.

(3) In determining the GA Factor and IA Factor of a Property for the SWMS charge, the Department shall use increments of 500 square feet rounding up to the next highest increment.

(4) Calculating the Monthly SWMS charge. The monthly SWMS charge for each Non-residential Property is calculated by:

(i) dividing the GA in square feet by 500 and rounding up to the next whole unit to determine the GA Factor, then multiplying the GA Factor by the GA Rate to determine the GA charge;

(ii) dividing the IA in square feet by 500 and rounding up to the next whole unit to determine the IA Factor, then multiplying the IA Factor by the IA Rate to determine the IA charge;

(iii) the addition of the GA charge and the IA Charge equal*s* the SWMS charge; and

(iv) the addition of the SWMS charge and the Billing and Collection charge together equals the total monthly stormwater charge.

(5) Rates for GA, IA and Billing and Collection.

(i) Effective September 1, 2019 and thereafter, the Rates shall be as follows:

GA ($/500 s.f.)	IA ($/500 s.f.)	Billing & Collection
0.717	5.410	$2.30

(6) Minimum Monthly Charges. Non-residential Properties shall be subject to a minimum monthly charge. If the monthly charge calculated in Section 4.3(a)(4) is less than the monthly charges listed below then the monthly charges below shall be billed to the Property.

SWMS	Billing & Collection
$14.03	$2.30

(7) Adjustment Appeal Procedure.

(i) Customers may appeal the GA and/or IA calculations, property classification, or charge distribution of their property.

(ii) Adjustments shall be made using forms and procedures as defined by the Credits and Adjustment Appeals Manual and sent to:

Philadelphia Water Department
SWMS Charge Appeals
1101 Market Street
4th Floor
Philadelphia, PA 19107-2994

(iii) Adjustments to the GA and/or IA determination are separate and distinct from the billing review procedures established by Section 19-1702 of the Philadelphia Code.

(iv) The grounds supporting the adjustment shall be stated in writing, and include any exhibits, such as photographs, drawings or maps, site plans, and affidavits that support the claim. In addition, a land survey prepared by a registered surveyor shall be attached showing all Dwelling Units, total property area, type of surface material and impervious area, as appropriate, and any other information requested in writing by the Department. The Department may waive the submission of a land survey, if the Department determines that the survey is not necessary to make a determination on the appeal.

(v) The Customer filing the appeal is solely responsible to demonstrate, by clear and convincing evidence, that the GA and/or IA square footage information used by the Department, from which the adjustment appeal is being taken, is erroneous.

(vi) The filing of a notice of an adjustment appeal shall not stay the imposition, calculation or duty to pay the SWMS charge.

(vii) If the adjustment appeal results in a revised GA and/or IA calculation, correction of property classification, correction of parcel identification, or revisions to the default charge allocation, then the adjusted SWMS Charge will be effective from the date of receipt of the Adjustment Appeals Application.

(8) Multiple Accounts Serving One Property. Where there are multiple water accounts on a single Property, the entire SWMS charge of that Property shall be divided equally among the accounts. Each account shall also be billed a Billing and Collection charge. Property Owners shall have the opportunity to request an alternative allocation of the SWMS Charge.

4.4 Condominium Properties.

(a) Condominium Properties shall be charged SWMS and Billing and Collection charges on the same terms as Non-residential Properties under Section 4.3, but shall be billed as follows:

(1) Condominium Properties with a single water meter account shall be billed such that the entire SWMS charge of the condominium complex property plus a Billing and Collection Charge are billed to that single account.

(2) Condominium Properties with individual water meter accounts for each unit shall be billed such that the entire SWMS charge of the condominium complex property shall be divided and billed equally to each individual account. In addition, each account shall be billed a Billing and Collection Charge.

(3) Condominium Properties with more than one water meter, but without individual water meters for each unit, shall be billed such that the entire SWMS charge of the condominium complex property shall be divided equally among the accounts. Each

account shall also be billed a Billing and Collection Charge. The Condominium Owner's Association shall have the opportunity to request an alternative allocation of the SWMS charge.

4.5 SWMS Credits

(a) Eligibility.

(1) Accounts on Non-residential and Condominium properties must be current to be eligible for credits.

(2) The Customer shall make the Property available for inspection by the Department and provide all necessary documentation for purposes of verifying the appropriateness of a SWMS credit(s).

(3) The Customer shall fulfill credit requirements, as described in Section 4.5(c) below, in accordance with the maintenance guidelines as prescribed by the Department, including any and all inspection and reporting obligations.

(b) Classes of Credits. There are three classes of credits: IA Credit, GA Credit, and NPDES Credit. The IA Credit provide*s* a reduction to the IA Charge; the GA Credit provides a reduction to GA Charge; and the NPDES Credit provides reduction to the total SWMS Charge. A Property may be approved for credits from each of the three classes; however*,* if the resulting SWMS Charge after the application of any credits is less than the Non-residential minimum monthly charge, then the minimum monthly charge will apply.

(c) Credit Requirements.

(1) IA Credit. IA Credit is available for the portion of IA on a property where stormwater runoff is managed (IA Managed). IA Managed is achieved as follows:

(i) For areas of the property that meet the requirements of the following Impervious Area Reductions (IAR), as described in the Stormwater Credits and Adjustment Appeals Manual, a direct reduction in the billable IA may be applied:

(A) Rooftop disconnection,

(B) Pavement disconnection,

(C) Tree canopy coverage,

(D) Green roof, or

(E) Porous pavement.

(ii) For non-Surface Discharges, the customer must demonstrate management of the first inch of stormwater run-off in one of the three following ways:

(A) infiltration,

(B) detention and slow release, and/or

(C) routing through an approved volume-reducing SMP.

(iii) For Surface Discharges, the Customer must demonstrate that a portion or all of the impervious area discharges directly to a surface water body.

(2) GA Credit.

(i) Impervious area only. Impervious area shall receive a GA credit based on the criteria defined in Section 4.5(c)(1)(ii) and (iii) herein.

(ii) Open Space area only. Open Space area is non-impervious area and is calculated as GA minus IA. The Customer must demonstrate a Natural Resource Conservation Service Curve Number (NRCS-CN) below a certain value as described in the Credits and Adjustment Appeals Manual.

(3) National Pollutant Discharge Elimination System (NPDES) Credit. The Customer must demonstrate the property is subject to and in compliance with a NPDES Permit for industrial stormwater discharge activities.

(d) Credit Maximum.

(1) IA Credit Maximum. IA Credit maximums shall apply as follows:

(i) All Non-residential and Condominium properties are eligible for a maximum of 80% IA Credit for the IA Managed.

(ii) A Non-residential or Condominium property with Surface Discharge is eligible for a maximum of 90% IA credit for the IA Managed.

(2) GA Credit Maximum. GA Credit maximums shall apply as follows:

(i) All Non-residential and Condominium properties are eligible for a maximum of 80% GA Credit.

(ii) A Non-residential or Condominium property with Surface Discharge is eligible for a maximum of 90% GA credit.

(3) NPDES Credit Maximum. Eligible properties shall receive a maximum of 7% NPDES credit as described in the Credit and Adjustment Appeals Manual.

(e) Application of Credits

The application of the three classes of credits in calculating a property's monthly SWMS charge shall be described in the Credits and Adjustment Appeals Manual.

(f) Administration of Credits.

(1) A Customer shall apply for credits using application forms and submitting the required documentation as defined in the Credits and Adjustment Appeals Manual.

(2) Any engineering or other costs incurred in completing the application shall be borne by the Customer.

(3) Credits shall be effective upon receipt of a complete application.

(4) All credits shall expire four (4) years from the effective date of the credit. A Customer may renew credits by submitting a renewal application, documentation required by the Department as defined in the Credits and Adjustment Appeals Manual, and paying a renewal fee of one hundred dollars ($100).

(g) Termination of Credits.

(1) The Department may review any approved credit at any time to verify its continued applicability. Customers may from time to time be asked to submit documentation and/or grant access to the Property receiving the credit. Failure to comply with such requests may result in the termination of the credit(s).

(2) The Customer's failure to meet credit requirements or comply with inspection and reporting obligations, in accordance with Section 4.5(a)(3), shall result in a suspension or revocation of all affected credits pursuant to the procedures issued by the Department.

(h) The Department may, at its sole discretion, issue stormwater credits to individual parcels where stormwater management is being implemented on a shared, collective basis by an organization representing different parcel owners within a defined geographic area.

5.0 BILLING FOR WATER, SEWER AND STORMWATER SERVICE

5.1 Billing.

(a) Estimated Usage and Billing. When an accurate meter reading cannot be obtained at the time of a scheduled meter reading or when necessary for administrative purposes, the quantity of water used may be estimated for billing purposes. Estimated usage will be based upon actual meter readings from prior cycles or by such other fair and reasonable methods as shall be approved by the Water Commissioner. Where the water usage is estimated because of inability to read the meter, any necessary corrections shall be made at the time of the next actual meter reading, or when appropriate.

(b) Charges to be Combined. At the discretion of the Water Commissioner, each bill may combine in one amount the service charge and any quantity charges for water, sewer and stormwater, if applicable.

(c) Bills Due and Payable. All bills are due and payable when rendered.

(d) Penalties for Late Payments.

(1) If current water, sewer, and stormwater bills are not paid within thirty (30) days from the date indicated on the bill, a penalty of five percent (5%) shall be imposed.

(2) An additional penalty of one half of one percent (0.5%) shall be imposed and added to water, sewer, and stormwater bills, and their penalties, on the due date of the bill of each succeeding cycle, except that a period of thirty (30) days shall elapse before the first additional penalty is imposed.

(3) If any water, sewer, and stormwater bill remains unpaid for two cycles after the bill has been rendered, the Revenue Department shall serve a notice of termination upon the delinquent Property Owner and, if the charge, with penalties thereon, is not paid within ten (10) days after such service of notice, the Department, in its discretion, may suspend water service to the Property until the charge with penalties is paid. Penalties for late payment are set by ordinance, not by regulation, and any amendments to the current ordinance shall apply as provided therein.

(e) Balance Due. Each bill shall include any balances due for bills issued from October 1, 2000, including penalties.

(f) Changes in Meter Size. When a change in meter size is made, the charge for the new meter size shall become effective on the date of such change.

(g) Unmetered Customers.

(1) Unmetered Customers shall be billed the same charges established for metered Customers. The water and sewer service charges will be determined by the size of the meter which would be installed for an equivalent service at a similar property. The SWMS charges will be determined based on Section 4.0. The Revenue Department shall estimate the quantity of water used and bill accordingly using the applicable water and sewer quantity charges.

(2) Where unmetered wastewater is discharged to the sewer system without adequate sewer metering, the Department reserves the right to bill the amount of flow based upon its engineering judgment of a reasonable estimate of unmetered usage.

(h) Unoccupied Property.

The billing of unoccupied Properties for water and sewer shall be discontinued only on issuance of a Discontinuance of Water permit. Nothing in this Section shall relieve a Property Owner of his responsibility for maintaining a service line unless a Discontinuance of Water permit has been secured. Under no circumstances will the stormwater service charge be terminated.

(i) Extraordinary Uses or Appliances.

In the event that extraordinary or peculiar uses or appliances, in the opinion of the Water Commissioner, warrant a special charge not provided herein, such charges shall be as fixed by the Water Commissioner in writing.

5.2 Special Customers.

The water, sewer and stormwater management service charges established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq. shall be applied to all general Customers, except the following groups of special Customers:

(a) GROUP I

(1) Public and private schools which provide instruction up to or below the twelfth grade but not beyond that grade, and excluding service to any separate or adjoining facilities or structures not used exclusively for educational or instructional purposes.

(2) Institutions of "purely public charity", as defined by Pennsylvania law, except universities and colleges and excluding service to any separate or adjoining facilities or structures not used exclusively for the principal purpose of the charity.

(3) Places used for actual religious worship.

(b) GROUP II

(1) Residences of eligible senior citizens provided that the senior citizen shall:

(i) Make application for such reduction to the Revenue Department within the first billing period for which reduction is sought; and

(ii) Submit satisfactory proof that the applicant is 65 years of age or older and that he or she makes payment directly to the City for water, sewer, and stormwater service to his or her residence which is located in the City of Philadelphia; and

(iii) Submit satisfactory proof to the Revenue Department that the applicant does not exceed the household income limitation of $32,300 per year established by the Department. The above income limitation shall apply to those applying for this discount subsequent to June 30, 1982.

(iv) Effective with each subsequent change in the water/sewer/stormwater charges, the Department shall adjust the Senior Citizen Income Limitation using the latest Consumer Price Index data available, as defined in the Philadelphia Code at Section 19-1901.

(c) GROUP III

(1) Universities and colleges, excluding service to any separate or adjoining facilities or structures not used exclusively for educational or instructional purposes.

(d) GROUP IV

(1) Public housing properties of the Philadelphia Housing Authority.

(e) GROUP V

(1) Group V Customers are Customers enrolled in the Income-Based Water Revenue Assistance Program (IWRAP) described in Section 19-1605 of the Philadelphia Code after the Water Revenue Bureau begins to issue IWRAP bills. Monthly bills for a Customer enrolled in IWRAP will be determined based on the Customer's family size and household income and will be charged in lieu of the service, usage and stormwater charges established in Sections 2.0 et seq., 3.0 et seq. and 4.0 et seq. for general Customers. Group V Customers will pay a percentage of his/her household income depending on where that Customer falls within the Federal Poverty Guidelines (FPL), subject to a minimum bill amount of $12 per month.

(2) For determining the amount of service, usage and stormwater charges on monthly bills, Group V Customers will be defined according to three income tiers as follows:

(i) Group V-A. Group V Customers whose gross household income has been verified as being from 0% of FPL and up to and including 50% of FPL

(ii) Group V-B. Group V Customers whose gross household income has been verified as being greater than 50% of FPL and up to and including 100% of FPL.

(iii) Group V-C. Group V Customers whose gross household income has been verified as being greater than 100% of FPL and up to and including 150% of FPL.

(f) GROUP VI

(1) Customers with parcels eligible for a discount from the stormwater management service charge as a qualified Community Garden pursuant to Section 19-1603 of the Philadelphia Code and regulations promulgated by the Water Department under that Section.

(g) GROUP VII

(1) All unoccupied properties of the Philadelphia Land Bank.

(h) Charges for Special Customers

(1) As of September 1, 2019, the charges to Groups I, II, and III of special Customers listed above shall be seventy-five percent (75%) of the charges as established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq., including both the water and sewer service and quantity charges, and the SWMS charges. The charges to Group IV Customers shall be ninety-five percent (95%) of the charges as established in Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq., including both the water and sewer service and quantity charges, and the SWMS charges.

(2) Group V Customers enrolled in IWRAP after the Water Revenue Bureau begins to issue IWRAP bills will be responsible for paying the following charges for service, usage and stormwater charges, or $12 per month, whichever is greater:

(i) Group V-A: 2.0% of household income.

(ii) Group V-B: 2.5% of household income.

(iii) Group V-C: 3% of household income.

(3) Group VI: Effective with bills issued on or after January 1, 2017, Group VI special Customers will receive a 100% discount on the stormwater management service charges for parcels classified by the Department as Community Gardens upon approval of an application for a discount consistent with Section 19-1603 of the Philadelphia Code and regulations promulgated by the Department under that Section.

(4) Group VII: Effective with bills issued on or after September 1, 2018, Group VII special Customers are fully exempt from all water, sewer and stormwater management rates and charges.

(i) All of these special Customers shall meter all water connections and they shall be subject to all provisions herein not inconsistent with Sections 2.0 et seq., 3.0 et seq., and 4.0 et seq.

(j) All special Customers are subject at any time to review as to their special charges by the Department or the Water Revenue Bureau and may be required to furnish adequate evidence supporting the continuance of such charges to the Department or the Water Revenue Bureau upon written notice to do so. Failure to furnish such evidence shall be sufficient ground for denial or termination of such special charges.

(k) Special charges may be granted subject to the Department's review and approval of the size of the meter installed.

(l) When the special use for which the special charge is granted ceases, the special charge ceases and the charges for general Customers shall apply thereafter.

(m) When any vacant or unoccupied premises are acquired by the City, charges for water and sewer, including charges relating to storm water management and disposal, shall terminate on the date that such premises are acquired.

(n) When any property is acquired or held by the Philadelphia Housing Development Corporation or acquired or held by the City or the Redevelopment Authority pursuant to Section 16-500 of the Philadelphia Code, charges for water and sewer, including charges relating to storm water management and disposal, shall be abated.

5.3 Eligibility for Charity Rates and Charges.

(a) Organizations seeking the Charity Rates and Charges must submit an application to the Department. Applicants must use forms provided by the Department, and submitted applications must be completed to the satisfaction of the Department.

(b) Applications must be made in the name of the organization seeking the Charity Rates and Charges. All accounts for which an organization is requesting the Charity Rates and Charges must be in the identical name as that on the application.

(c) Any account for a Property for which the Charity Rates and Charges are sought must be current and remain in good standing with no service violations to maintain eligibility for any discounts issued herein. Any breach of this condition shall result in the loss of eligibility for the discount.

(d) To be eligible for water and sewer Charity Rates and Charges, the Property must not have any outstanding Department or Plumbing Code violations; the Property must have an operating water meter that is in compliance with current Department specifications, and the property must have a current water meter reading. If the property is receiving stormwater service only, the above provision regarding metering shall not apply. To be

eligible for SWMS Charity Rates and Charges, the Property must not have any outstanding Department violations. Applicant must be either an owner of the Property or a Tenant of the property for which the SWMS charge is assessed.

(e) Charity Rates and Charges shall be charged to the eligible organization from the application date of an approved application. No retroactive reductions from the General Customer rates and charges will be permitted.

5.4 Account Review.

The Department, from time to time, may review the status of organizations receiving Charity Rates and Charges.
During this review, eligible organizations may be required to submit new applications.

5.5 Suspension of Charity Rates and Charges (Groups I and III)

(a) Organizations that have been approved for Charity Rates and Charges must make timely payments on accounts in order to remain eligible for these discounted rates and charges.

(b) An organization that fails to make on-time payments for two (2) consecutive billing cycles shall be suspended from the Charity Rates and Charges, and shall be required to pay the same rate(s) as the General Customer rates and charges for all services. The suspension period shall remain in effect for a minimum of one (1) year.

(c) Reinstatement of the Charity Rates and Charges will not occur until a full year of on-time payments has been made. Suspended organizations must then submit an application as described in Section 5.3. Charity Rates and Charges will not be retroactive for the period of suspension.

(d) Customers shall be informed by first class mail of the suspension of the Charity Rates and Charges.

5.6 Hearing.

Organizations that have been denied eligibility or have been suspended from the Charity Rates and Charges may request an informal hearing.

5.7 No Waiver.

Nothing herein shall limit the Department on its own findings or at the request of another City agency from suspending Charity Rates and Charges from organizations which have violated City law or regulations and thereby under such City law or regulations have forfeited such privileges as the Charity Rates and Charges.

6.0 MISCELLANEOUS WATER CHARGES

Charges for miscellaneous water services supplied by the City of Philadelphia shall become effective September 1, 2019 as follows:

6.1 Meter Test Charges.

(a) A Customer may apply to the Department for a test of the accuracy of the registration of a water meter (Meter Test). At the Customer's request, the Department shall notify the Customer of the time and place of the test so that the Customer may be present.

(b) In testing, meters may be removed from the line and replaced by a tested meter. If removed, the meter shall be tested at the Department's Meter Shop. Meters may also be tested and recalibrated in place without removal and replacement.

(c) All meters shall be removed, replaced, tested or calibrated during the Department's regular business hours (9:00 a.m. to 4:45 p.m.).

(d) A Customer may request a Meter Test to be performed outside the regular business hours of the Department under the following conditions:

(1) the Department has staff available and agrees to a time outside the regular business hours of the Department; and,

(2) the Customer agrees to pay the overtime and added expenses, whether the meter passes or fails the test.

(e) If the register on the meter is found upon testing to be registering within two percent (2%) of the actual volume of water passing through the meter, or registering in favor of the Customer, the Customer will be assessed a Meter Test Charge as follows:

Meter Size	Charge
5/8"	$210
1", 1-1/2", 2"	$280
3", 4", 6", 8", 10", 12"	$660
Field Tests, 3" and above	$660

(plus any charges and/or expenses incurred for work performed outside the regular hours of business, if requested by the Customer).

(f) If the meter is found upon testing to be registering in excess of 102% of the actual volume of water passing through the meter, the Customer shall not be assessed a Meter Test charge as provided for in subsection (e); and, WRB shall review the billing history of

the tested meter for a period not to exceed three years on the basis of the corrected registration and revise it as necessary.

(g) The Department will, at the request of a Customer, test his or her meter at no charge once every twenty years. Additional tests are subject to the charges listed in Section 6.1(e).

6.2 Charges for Furnishing and Installation of Water Meters.

The charges for furnishing and installing water meters are as follows.

(a) For work which involves the furnishing and setting of a water meter and meter interface unit (MIU), the following charges are hereby established:

Meter Size	Charge
5/8”	$250
¾ RFSS	430
1”	425
1” RFSS	520
11/2”	805
1 1/2” RFSS	750
2”	905
2” RFSS	965
3” Compound	2,380
3” Turbine	1,495
3” Fire Series	3,380
4” Compound	2,795
4” Turbine	2,535
4” Fire Series	3,670
4” Fire Assembly	6,025
6” Compound	4,825
6” Turbine	4,075
6” Fire Series	5,320
6” Fire Assembly	7,925
8” Turbine	5,455
8” Fire Series	6,090
8” Fire Assembly	11,145
10” Turbine	7,795
10” Fire Series	8,525
10” Fire Assembly	15,310
12” Turbine	7,910
12” Fire Series	8,715
12” Fire Assembly	16,180

(b) For work which involves only the furnishing and setting of an MIU, the following charges are hereby established:

Meter Size	Charge
5/8"	$ 105
¾" RFSS	105
1"	185
1 " RFSS	185
1 1/2"	185
1 ½" RFSS	185
2"	185
2" RFSS	185
3" Compound	525
3" Turbine	525
4" Compound	525
4" Turbine	525
6" Compound	525
6" Turbine	525
8"	525
10"	525

(c) If extraordinary work is required in connection with the installation of a water meter or the replacement of a damaged meter, additional charges shall be computed using actual salaries and materials expended, plus applicable overhead costs.

(d) The Property Owner shall be responsible for safeguarding the meter and seals and shall pay for necessary repairs and replacements due to his/her failure to provide adequate protection to the meter and seals from theft, vandalism, freezing, tampering or other damage. The Property Owner shall also be responsible for the repair and maintenance of the plumbing accessory to the meter, such as inoperable valves, weakened service pipes and fittings, etc. and shall provide and pay for such plumbing, repair and maintenance as City metering needs may require.

6.3 Tampering of Meter.

(a) In the event that an investigation indicates that tampering of a meter has occurred, the following charges to the Customer shall be assessed:

Meter Size	Charge
5/8"or 3/4"	$ 120
1", 1½", 2"	210
3" and larger	580

6.4 Shut-Off and Restoration of Water Service.

(a) If the Department is required to visit a Property to shut off service for non-payment; and, payment is tendered at the time of the shut-off, a charge of one hundred dollars ($100) will be assessed.

(b) A one hundred and five dollar ($105) charge will be assessed if shut-off of the water service is required as a result of non-compliance with a Notice of Defect and/or metering non-compliance.

(c) After termination of water service for non-payment or violation of service requirements, restoration of water service will not be made until the following charges have been paid in full or payment arrangements satisfactory to the Revenue Department have been made.

(1) Where the only work required is operating the service valve:

(i) service lines 2" and smaller.....$60

(ii) service lines larger than 2"…….....…...$200

(2) Where the curb stop is obstructed, the access box missing or otherwise requires excavation $590

(3) Where the curb stop is inoperable and a new curb stop must be installed...$885

(4) Where the curb stop is obstructed, the access box missing, or otherwise requires excavation, and replacement of footway paving is required.....$820

(5) Where the curb stop is inoperable and a new curb box must be installed and replacement of footway paving is required.....$865

(6) Where excavation and shut-off of the ferrule at the water main is required $1,985

(d) If the Department is required to remove concrete footway paving in order to perform the shut-off and/or restoration, the footway will be replaced by the Department and the preceding charges applied unless proof has been provided to the Department that some other qualified person will replace the paving.

6.5 Pumping of Properties.

The following charges shall apply for the pumping of water from properties when the condition requiring such service is not caused by the Department.

(a) Occupied Properties

(1) Pumping of water from occupied Properties may be done at the Property Owner's request and expense.

(2) Pumping of other Properties due to the failure of a Property Owner's piping may be performed by the Department and be charged to the Property Owner of the Property at which the failure occurred.

(3) Charges for pumping shall be calculated at actual salaries and materials expended, plus applicable overhead costs.

(b) Unoccupied Properties

The Department may, at its sole and exclusive discretion, pump water from unoccupied properties if it is determined that a serious condition exists. The charges for pumping shall be as specified in Section 6.5(a).

6.6 Charges for Water Main Shutdown.

(a) The Department of Licenses and Inspections shall issue permits for the temporary shutdown of a water main to allow a registered plumber to make immediate repairs to a broken water service and to avoid the necessity of opening the street.

(b) Permits shall be issued after:

(1) Certification by the Department that the shutdown will not seriously inconvenience other Customers; and

(2) The applicant has paid a two hundred and ten dollar ($210) service charge.

(c) In an emergency or when responsibility for a leak is in doubt, the Department may make the shutdown before the permit is obtained. If the Department determines that the leak was not the Department's responsibility, the owner shall obtain a permit and pay the above stated service charge and any other costs incurred by the Department in conducting the emergency shut down.

6.7 Water Connection Charges.

(a) Permits. Permits for connections to the City's water supply system shall be issued by the Water Permit section of the Department of Licenses and Inspections.

(b) Ferrule Connections.

(1) Connections between 3/4 inch and two inches (2") in diameter shall be made by a ferrule installed by the Department. The owner, at his own expense, shall excavate for the connection, install all piping and appurtenances after the ferrule and fill the

excavation. The owner thereafter shall be responsible for maintaining this piping and appurtenance.

(2) The charges for such ferrule connections shall be as follows, with the exception stated in Section 6.7(b)(3), shall be as follows:

Size	Charge
¾"	$240
1"	270
1½"	365
2"	430

(3) The charges for such ferrule connections, when the work performed at the Customer's request is not during the Department's regular business hours (9:00 a.m. to 4:45 p.m.), shall be as follows:

Size	Charge
¾"	$250
1"	280
1½"	375
2"	440

(c) Valve Connections. Connections three inches (3") and larger shall be made by a valve installed by the Department. This valve installation shall include, but shall not necessarily be limited to, the connection to the main, the valve, valve box, necessary piping after the valve from the main in the street to one foot inside the curb, backfill and repaving. The Department shall thereafter be responsible for maintaining this valve and piping, unless the associated meter has been reduced at the Property Owner's request to a two inch (2") or smaller meter, in which case the Property Owner shall be responsible for valve and piping maintenance.

(1) The charges for valve connections shall, with the exceptions stated in Section 6.7(c)(2), shall be as follows:

Size	Charge
3" & 4"	$ 15,705
6" & 8"	15,945
10" & 12"	18,605

(2) The charge for such valve connections, when the work is performed at the Customer's request is during other than normal work hours or the work is performed in an area designated by the Streets Department as a special work zone, shall be as follows:

Size	Charge
3" & 4"	$ 16,450
6" & 8"	16,690
10" & 12"	19,440

(d) Attachment to a Transmission Main

(1) There shall be no connection to a transmission main without Department approval. Such approval shall be requested by application forms and procedures issued by the Department.

(2) Where a connection is made to a water main larger than 12 inches in diameter, with the exceptions stated in Sections 6.7(d)(3)&(4), the charges will be a follows:

SLEEVE	3" & 4"
MAIN	
16"	$ 23,475
20"	24,860
24"	26,475
30"	36,845
36"	42,010

SLEEVE	6" & 8"
MAIN	
16"	$23,595
20"	24,630
24"	26,475
30"	37,450
36"	43,830

SLEEVE	10" & 12"
MAIN	
16"	$22,445
20"	23,295
24"	24,485
30"	38,805
36"	47,450

(3) The charges for such connections, when the work performed at the Customer's request is not during the Department's regular business hours (9:00 a.m. to 4:45 p.m.), or the work performed is in an area designated by the Streets Department as a special work zone, shall be as follows:

SLEEVE	3" & 4"
MAIN	
16"	$24,410
20"	25,790
24"	27,405
30"	37,775
36"	42,940
SLEEVE	6" & 8"
MAIN	
16"	$24,525
20"	25,560
24"	27,405
30"	38,380
36"	44,760
SLEEVE	10" & 12"
MAIN	
16"	$23,375
20"	24,225
24"	25,415
30"	39,735
36"	48,380

(4) Where a connection is made to a water main 48" or larger in diameter, the charge will be that for a connection to a 36" main, stated above in Sections 6.7(d)(2) or (3), plus an additional charge representing the difference between the current cost of a 36" sleeve and the cost of the larger sleeve. The additional charge shall be paid before any permit can be issued as prescribed below in Section 6.11.

(e) Should police assistance for traffic control be required for a ferrule or valve connection, the Customer shall pay the required fee to the Police Department.

6.8 Discontinuance of Water.

Except as otherwise provided, no Customer shall be relieved of the obligation to pay water and sewer charges unless a permit for the discontinuance of water and sewer has been obtained from the Department of Licenses and Inspections pursuant to the provisions of Philadelphia Code section 19-1601. When a permit is granted to discontinue water and sewer service, charges shall terminate on the date of removal of the meter by the Department. The charge for a permit for discontinuance of water is one hundred dollars ($100), regardless of service size. A validly issued permit to discontinue water and sewer does not terminate the obligation to pay for stormwater management services.

6.9 Hydrant Permits.

(a) A permit shall be obtained from the Water Permit section of the Department of Licenses and Inspections before a hydrant can be used. The permit shall contain the terms and conditions that are required of the Customer in order for the Customer to use the hydrant.

(b) The costs for obtaining a permit shall be as follows.

(1) One Week Permit for use of standard pressure hydrant……..…$ 525

(2) Six Month Permit for use of standard pressure hydrant…..…$ 3,370

6.10 Flow Tests.

When a Customer requests the Department to conduct a flow test on a fire hydrant to determine the volume and residual pressure available on a domestic or fire connection, or at a specific location, the charge shall be six hundred and ninety dollars ($690) for each flow test.

6.11 Water Service Line Investigations and/or Inspections

When a Customer or a duly authorized representative of a Customer requests the Department to conduct an investigation to locate and/or to inspect the water service line at a specific location, the charge shall be ninety dollars ($90) for each investigation or inspection. The charge shall be assessed regardless of the result of the investigation or inspection.

6.12 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued.

7.0 MISCELLANEOUS SEWER CHARGES

Charges for miscellaneous sewer services supplied by the City of Philadelphia shall be effective September 1, 2019, as follows.

7.1 Sewer Charges for Groundwater.

(a) Sewer charges for groundwater discharged to the City's sewer system shall be as follows:

(1) Effective September 1, 2019 and thereafter, the rate shall be $13.86 per 1,000 cubic feet.

(b) To determine the quantity of such discharged groundwater, the Customer shall install a meter or measuring device satisfactory to the Department. If, in the opinion of the Department, it is not feasible to install a meter or measuring device, the Department may designate some other method of measuring or estimating the quantity of discharged groundwater.

7.2 Charges for Wastewater Service.

(a) The charge for sanitary type wastewater delivered to any of the City's Water Pollution Control Plants shall be as follows.

(1) Effective September 1, 2019 and thereafter, the rate shall be $56.96 per 1,000 gallons.

(b) Where accurate quantities of wastewater delivered cannot be determined, such quantities shall be estimated for billing purposes by such fair and reasonable methods as shall be approved by the Water Commissioner.

(c) The locations, times, delivery procedures and exact nature of the pollution characteristics of the delivered wastewater shall be determined by the Department.

(d) From time to time, Customers shall be required to file with the Department a questionnaire establishing or revising information on the quantity and quality of wastewater delivered and other pertinent data deemed necessary by the Department. Failure to furnish such information shall be sufficient grounds for denial or termination of delivery privileges.

(e) Measurements, tests and analyses of the characteristics of delivered wastewater shall be determined in accordance with the latest edition of *Standard Methods for the Examination of Water and Wastewater*, published jointly by the American Public Health Association, the American Water Works Association (AWWA) and the Water Environment Federation (WEF).

(f) If any bill for the above services shall remain unpaid for more than sixty (60) days from date rendered, the Department may refuse acceptance of additional wastewater until all unpaid balances, with late charges, are paid in full.

7.3 Wastewater Discharge Permit.

All Industrial Users contributing wastewater to the City's sewer system must obtain a permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

7.4 Groundwater Discharge Permit.

All Industrial Users contributing groundwater to the City's sewer system must obtain a permit from the Department pursuant to the Wastewater Control Regulations contained in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

7.5 Manhole Pump-out Permit

(a) Any non-domestic User discharging wastewater from underground structures to the City's sewer system must obtain a manhole pump-out permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit is one thousand nine hundred and sixty dollars ($1,960).

(b) In the event a User requests discharge locations in the City's separate sewer areas under this permit, the City may assess additional fees for any work associated with the review of this request and the identification of the discharge locations.

7.6 Trucked or Hauled Wastewater Permit

Any person trucking or hauling wastewater to the POTW must first obtain a septage discharge permit from the Department pursuant to the Wastewater Control Regulations in Chapter 5 of the Department's regulations. The fee for each new or renewal permit shall be one thousand nine hundred and sixty dollars ($1,960).

7.7 PHOTOGRAPHIC & VIDEO INSPECTION

When a Customer or a duly authorized representative of a Customer requests the Department to conduct a photographic or video inspection of a private sewer line at a specific location, the charge shall be two hundred and seventy five dollars ($275) for each photographic or video inspection. The charge shall be assessed regardless of the result of the photographic or video inspection.

7.8 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued.

8.0 MISCELLANEOUS STORMWATER MANAGEMENT CHARGES

8.1 Stormwater Plan Review Fees.

All Development plans submitted to the Department under Chapter 6 of the Department's regulations for stormwater management approvals shall be subject to a plan review fee.

(a) Fees.

(1) A fee of one thousand one hundred and sixty dollars ($1,160) shall be due prior to issuance of Conceptual Stormwater Management Plan approval.

(2) A fee of two hundred and eighty five dollars ($285) shall be due upon submission of a post construction stormwater management plan, including a technical site plan, for review. An additional fee of one hundred and fifty dollars ($150) per hour of review time shall be due prior to issuance of PCSMP approval.

(i) Review time shall be based on the City's tabulation of actual hours expended by Department employees or consultants reviewing the plans associated with a particular development or redevelopment project for compliance with Chapter 6 of the Department's regulations.

(b) Refund of fees. The Department shall refund any fees specified above if a plan submittal is not approved or denied within 21 days for conceptual site plans and within 45 days for technical site plans.

8.2 Stormwater Management Fee in Lieu.

Where a Property Owner can demonstrate that it is not feasible to meet the requirements of the Department's regulations by managing stormwater on a proposed Development Site ("Development Site"), the Developer may request that it pay a fee in lieu of on-site stormwater management. This fee in lieu option shall be subject to the following requirements.

(a) The Property Owner must submit a document to the Department, prepared and signed, stamped and sealed by a Pennsylvania Certified Professional Engineer conclusively demonstrating the infeasibility of all SMPs set forth in the Manual to meet the requirements of the stormwater management regulation on the Development Site. Infeasibility may not be created by subdividing the Development Site, redrawing lot lines within the Development Site or by placing so large a number of homes or structures on the

Development Site that sufficient on site stormwater management cannot be achieved. The Department shall review the document alleging infeasibility by considering the entire Development Site.

(b) Nothing herein shall require the Department to grant a Developer its request for a fee in lieu of onsite stormwater management. The Department, however, may grant the request for a fee in lieu under the following conditions:

(1) The Developer has conclusively demonstrated the infeasibility of onsite stormwater management; and

(2) The Department has determined that off-site stormwater management, pursuant to Section 600.3(d) of its regulations, is also infeasible; and

(3) The Department, in its sole discretion, has determined that granting the fee in lieu will not adversely affect flooding, stream protection, neighboring properties or be inconsistent with its requirements under its stormwater program, combined sewer overflow program, National Pollutant Discharge Elimination System permits, or any other federal or state law.

(c) The fee in lieu shall be calculated as follows:

(1) For an exemption to only the Water Quality Requirement of Chapter 6 of the Department's regulations the fee shall be fifteen dollars ($15.00) per square foot based on the total square footage of Earth Disturbance.

9.0 FIRE SERVICE CONNECTIONS

Fire service connection charges shall consist of a monthly service charge and a quantity charge and shall be effective September 1, 2019, as follows.

9.1 Charges.

(a) Monthly Service Charges.

(1) The monthly service charges for the furnishing of water for the purpose of fire protection effective September 1, 2019 and thereafter, shall be as follows:

Connection Size	Service Charge
Up through 4-inch	$ 27.63
6-inch	50.74
8-inch	75.77
10-inch	111.74

12-inch	172.64

(b) The City may permit fire service connections to its water system outside the City of Philadelphia only in properties contiguous to the City where in the opinion of the Water Commissioner water service for fire protection may be furnished without interference with water service to properties within the City.

(c) Pipe connections to the Philadelphia water system, meters and other service requirements shall be in accordance with the standard fire service requirements of the Department.

(d) Quantity Charges.

(1) In addition to the service charge, the quantity charge portion of each bill is determined by applying the quantity charge rate shown below to all water use. In addition, the quantity charge will also include a TAP Rate Rider Surcharge, as set forth in Section 10.

Effective ~~September~~ October 1, ~~2019~~ 2020 and thereafter, the quantity charge shall be as follows:

1 Mcf = 1,000 cubic feet = 7,480 gallons

Monthly Water Usage	Base Charge Per Mcf	TAP-R Per Mcf	Total Charge Per Mcf
First 2 Mcf (0 to 2 Mcf)	**$44.80**	**$0.~~71~~57**	**$45.~~51~~37**
Next 98 Mcf (2.1 to 100 Mcf)	**38.56**	**0.~~71~~57**	**39.~~27~~13**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**29.88**	**0.~~71~~57**	**30.~~59~~45**
Over 2,000 Mcf	**29.06**	**0.~~71~~57**	**29.~~77~~63**

(e) The provisions in this Section apply to all fire service connections.

9.2 Payment.

All billings for the above services are due and payable when rendered, unless stated otherwise herein, and are subject to such penalties for late payment as is prescribed by current ordinance or as may be amended. Payments for permits shall be made in full prior to any permit being issued**.**

10.0 PROVISIONS FOR RECOVERY OF THE TIERED ASSISTANCE PROGRAM (TAP) COSTS

The lost revenue related to TAP (the "TAP Costs") will be recovered via a separate TAP Rate Rider Surcharge Rate (TAP-R), which would be added to the water, fire service and sewer quantity charge rate schedules. This TAP-R shall be increased or decreased for the next rate period to reflect changes in TAP costs, and will be calculated and reconciled on an annual basis in the manner set forth below.

10.1 Computation of the TAP-R

(a) The TAP-R Equation

The TAP-R shall be computed to the nearest one-hundredth of a dollar per MCF ($0.01/MCF) in accordance with the formula set forth below:

$$TAP\text{-}R = \frac{(C) - (E+I)}{S}$$

The TAP-R so computed, shall be applied as an adder to the water, fire service connection and sewer quantity charge base rate schedules set forth for water in Section 2.1 (c); sewer in Section 3.3 (b); and fire service in Section 9.1 (d), of these regulations. As a result, the TAP-R shall consist of two sub-components:

(1) A "Water TAP-R" added to the water and fire service quantity "base rate" ($/MCF); and

(2) A "Sewer TAP-R" added to the sewer quantity "base rate" ($/MCF).

During the rate periods that TAP-R is effective, to recover the TAP Costs through Water TAP-R and the Sewer TAP-R respectively, the total TAP Costs determined for a given rate period will be apportioned between water and wastewater utilities based on the proportion of water and wastewater net revenue requirement respectively to total net revenue requirement. The percent allocation of TAP Costs between water and wastewater utilities will be as follows:

(i) Water TAP Cost Allocation: 41%

(ii) Sewer TAP Cost Allocation: 59%

(b) Definitions

In computing the TAP-R pursuant to the formula above, the following definitions shall apply:

(1) **TAP-R** - TAP Rate Rider Surcharge Rate ($/MCF).

(2) **C** – Cost in dollars of the estimated TAP Billing Loss for the projected period.

(3) **E** - The net over or under collection of the TAP-R surcharge amount for the Most Recent Period. The net over or under collection will be calculated by comparing the actual TAP Revenue Loss (resulting from discounts provided to TAP Customers) with the actual TAP-R surcharge amounts billed to Non-TAP Customers. Both the TAP Revenue Loss and the TAP-R billings, that are determined for the rate periods, will be adjusted for collections by applying the Department's system-wide collection factor of 96.54%.

(4) **I** - Interest on any over or under recovery of the TAP-R for the most recent period. Interest will be computed on annual basis. The interest rate will be based upon the yield to maturity of a particular date of United States Treasury securities with a constant maturity for a 1-year Treasury as complied and published in the Federal Reserve Statistical Release H.15 (519) for the United States Treasury[1], as it exists each year as of the first day of the month, preceding the month of the annual reconciliation submission to the Rate Board.

(5) **S** - Projected sales in MCF for Non-TAP customers.

(6) **Most Recent Period** – The Current Fiscal Year and/or the period for which TAP-R reconciliation is performed.

(7) **Next Rate Period** – The fiscal year and/or the period that immediately follows the Most Recent Period, and in which the TAP-R is effective.

10.2 Filing with the Philadelphia Water, Sewer and Storm Water Rate Board

(a) Annual Reconciliation

The Water Department shall initiate the annual TAP Rate Rider Reconciliation by filing a TAP-R reconciliation request statement ("Statement") with the Philadelphia Water, Sewer and Storm Water Rate Board (the "Rate Board"). The Statement filed by the Water Department shall be a matter of public record. The reconciliation submission will be contemporaneously served upon participants in the Water Department's most recently concluded General Rate Increase Proceeding (as defined in the Rate Board's Regulations) and publicly advertised pursuant to such standards as shall be adopted and/or promulgated

[1] Currently available at https://www.federalreserve.gov/releases/h15/.

by the Rate Board. The Water Department shall file the annual Statement with the Rate Board at least 60 days prior to the effective date of the new surcharge rate, or at such other time as the Rate Board may prescribe, and in accordance with any procedures and standards for the contents of such reconciliation submissions established by the Rate Board.

10.3 TAP-R Surcharge Rates

(a) Water TAP-R

The Water TAP-R portion of each water bill is determined by applying the Water TAP-R surcharge rate shown below to all water use.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective ~~September~~ October 1, ~~2019~~ 2020 and thereafter, the Water TAP-R surcharge shall be $~~0.71~~0.57 per Mcf as determined by the annual reconciliation filing.

(b) Sewer TAP-R

The Sewer TAP-R portion of each sewer bill is determined by applying the Sewer TAP-R surcharge rate shown below to all water use.

1 Mcf = 1,000 Cubic Feet = 7,480 gallons

(1) Effective ~~September~~ October 1, ~~2019~~ 2020 and thereafter, the Sewer TAP-R surcharge shall be $~~1.16~~0.78 per Mcf as determined by the annual reconciliation filing.