CITY OF PHILADELPHIA

WATER DEPARTMENT
JEFFERSON CENTER
1101 Market Street
Philadelphia, PA 19107-2994

RANDY E. HAYMAN, Esq.
Water Commissioner

February 23, 2023

James P. Leonard, Esquire
Records Commissioner
City Hall, Room 158
Philadelphia, PA 19102

Re: Formal Notice of Proposed Changes in Rates and Charges; Annual Adjustment of Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R); Final Proposed TAP-R Reconciliation Statement

Dear Commissioner Leonard:

The purpose of this correspondence is to provide formal notice of changes in rates and charges proposed by the Philadelphia Water Department ("Department" or "PWD") 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 Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board"), will take effect on September 1, 2023. 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.l(c)(l)
Total Sewer Quantity Charges	Section 3.3(b)(l)
Total Fire Service Quantity Charges	Section 9.1 (d)(l)
TAP-R Surcharge Rates	Section 10.3

The above referenced filing is transmitted in the enclosed binders, as well as electronically in the enclosed USB flash drive. It is also available on the Rate Board's website, www.phila.gov/water/rateboard. The filing includes the proposed rates and charges, which are subject to review and authorization by the Rate Board.[1] The Rate Board will schedule public hearings on the proposed rates and charges, as required by Section 13-101(3)(f) of the Philadelphia Code ("Code").

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 ("Charter"), Sections 13-101 and 21-1703 of the Code, Sections II.A.2(b) and 11.C.1 of the Rate Board's regulations, and the Rate Board's 2018·Rate Determination. The Department's Final Proposed TAP-R Reconciliation Statement with the

[1] The proposed rates and charges are set forth in PWD Exhibit 1A (Clean) and 1B (Redline) of the TAP-R filing. These proposed rates and charges will be fully vetted as part of the rate process before the Rate Board.

accompanying exhibits is enclosed, along with a memorandum from the Law Department approving these documents as to form.

Please make the aforesaid documentation, together with the Department's proposed changes in rates and charges, available for inspection and arrange for advertising in accordance with Section 8-407 of the Charter and Section 21-1703 of the Code.[2] The text for the public notice to be published in the newspapers is attached. Thank you for your attention to this matter.

Sincerely,

Randy E. Hayman
Water Commissioner

cc: Rate Board
The Public Advocate and all Participants in the 2021-2022 Rate Proceedings (w/ enc.)

[2] See Rate Board Regulation 11.A.2 and 11.C.1.

City of Philadelphia

LAW DEPARTMENT
Water Division
1101 Market Street
5th Floor
Philadelphia, PA 19107
(215) 683-3234
kevin.birriel@phila.gov

M E M O R A N D UM

TO: Randy E. Hayman, Commissioner

FROM: Kevin Birriel, Senior Attorney

DATE: February 23, 2023

RE: Formal Notice of Proposed Changes in Rates and Charges - Annual Adjustment of Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) - Final Proposed TAP-R Reconciliation Statement

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I have reviewed the Formal Notice and the Final Proposed Reconciliation Statement with accompanying exhibits. I find these documents to be legal and in proper form. In accordance with Section 5-801 of the Philadelphia Home Rule Charter, Section 13-101 of the Philadelphia Code and the Regulations of the Philadelphia Water, Sewer and Stormwater Rate Board, you may forward the Formal Notice and the referenced documents to the Department of Records where they will be available for public inspection.

PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

RECORDS DEPARTMENT

NOTICE IS HEREBY GIVEN, in accordance with Section 5-801 of the Philadelphia Home Rule Charter, Section 13-101 of the Philadelphia Code and the Regulations of the Philadelphia Water, Sewer and Storm Water Rate Board (Rate Board), on February 23, 2023, the Philadelphia Water Department filed the Formal Notice of its Tiered Assistance Program Rate Rider Surcharge rates (TAP-R), Final Proposed Reconciliation Statement and proposed annual rate adjustments in water, sewer and fire service rates to become effective September 1, 2023. The Formal Notice can be viewed online at: www.phila.gov/water/rateboard, or may be examined at the Department of Records. Anyone wishing to be a Participant in the TAP-R proceeding should register by March 3, 2023 by sending notice to the Rate Board, c/o Steven Liang, City of Philadelphia Law Dept., 1515 Arch St., 17th Fl., Philadelphia PA 19102 or register via email at WaterRateBoard@phila.gov.

James P. Leonard, Esq.
Records Commissioner

TAP-R Proposed Reconciliation Filing Index - Formal Notice[1]

[1]There have been no substantive changes since the Advance Notice was filed. Only the headers and dates have been changed to indicate the Formal Notice filing.

BLACK & VEATCH
Building a world of difference.

Philadelphia Water Department

PROPOSED RECONCILIATION STATEMENT FORMAL NOTICE

Date: February 22, 2023

To: Philadelphia Water Department

From: Black & Veatch Management Consulting, LLC

Subject: Proposed Reconciliation Statement for the Tiered Assistance Program Rate Rider Surcharge Rates (TAP-R) - Effective September 1, 2023

Introduction

This Proposed Reconciliation Statement for the Tiered Assistance Program (TAP) Rate Rider Surcharge Rates (TAP-R) to become effective as of September 1, 2023, 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 September 1, 2023

The proposed Water TAP-R rate, effective September 1, 2023, is $0.21 per thousand cubic feet (MCF) of water usage. The proposed Sewer TAP-R rate, effective September 1, 2023, is $0.34 per thousand cubic feet (MCF) of sewer billed volume.

Rates and Charges That Will Increase or Decrease

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

Rates/Charges	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. 1B, attached hereto, shows the proposed revisions to PWD's rates and charges, reflecting the calculated TAP-R rates effective September 1, 2023.

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 September 1, 2023 through August 31, 2024 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 September 1, 2023 through August 31, 2024 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, 2022 through August 31, 2023 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:

- Account for the prior E & I Factor adjustments reflected in the FY 2022 Rate Adjustment. This is referred to in the tables as the "Prior E & I Factor Adjustments," which captures the amounts of over/(under) collection and interest acknowledged in the current TAP-R rates.
- Reconcile estimated amounts of Over/Under Collection for the period of January 2022 through August 2022 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 January 2022 through August 2022.

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, 2022 through August 31, 2023 for water and sewer respectively. In addition, the I-Factor is adjusted to reconcile estimated amounts of interest for the period of January 2022 through August 2022 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 January 2022 through August 2022.

Table 5 presents the calculation of the final water and sewer quantity charges, effective September 1, 2023, resulting from the addition of the proposed TAP-R rates to the currently proposed base rates for FY 2024 based on the FY 2024 and FY 2025 Rate Proceeding.

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 2021 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: 40 percent
  - Sewer TAP Cost Allocation: 60 percent
- Collection Factor – Used to adjust TAP Billing Loss and TAP-R billings for the Most Recent Period
  - Collection Factor: 97.32 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 December 1, 2022.
    - Interest Rate: 4.66 percent

Estimation Assumptions for the remainder of the Most Recent Period (December 2022 through August 2023) include:

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

PWD Exhibit No. 1 provides additional details regarding the derivation of the TAP related estimation assumptions.

Projection Assumptions for the Next Rate Period include:

- TAP Participants – An average of approximately 17,289 TAP Participants per month as provided by Raftelis Financial Consultants (refer to Schedule RFC-1).
- TAP Billing Loss – Estimated based upon the projected number of TAP Participants for the Next Rate Period and the average discount of $50.31 per TAP Participant. Total TAP Billing Loss for the Next Rate Period was assumed to be approximately $10.4 million as provided by Raftelis Financial Consultants.

Methodology Used to Complete the TAP-R Reconciliation Calculations

The calculations are based upon the following equation and computation approach as currently 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 monthly number of TAP Participants for the Next Period multiplied by the average discount per TAP Participant as provided by Raftelis Financial Consultants. 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.

The resulting over/under collection is adjusted to account for the prior E & I Factor adjustments reflected in the FY 2022 Rate Adjustment and the difference in the estimated amounts of over/under collection for the period of January 2022 to August 2022 as included in the FY 2022 Rate Adjustment and the updated actuals for the same period.

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 based on the average monthly Non-TAP sales volume for the 12-month period of December 2021 to November 2022.

The detailed methodology used to 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 proposed[1] base and TAP-R rates (*effective September 1, 2023* if approved by the Rate Board) as well as the existing base and TAP-R rates. A typical PWD residential customer has a 5/8-inch meter and uses about 0.45 Mcf (thousand cubic feet), approximately 450 cubic feet, monthly. TAP-R rates would decrease typical residential customer bills by $0.95 or 1.4 percent compared to existing rates. Under the proposed base and TAP-R rates, this customer's monthly bill would increase from $69.31 to $77.47, an increase of $8.16 or about 11.8 percent.

A typical PWD senior citizen discount customer has a 5/8-inch meter and uses about 0.3 Mcf (thousand cubic feet), approximately 300 cubic feet, monthly. TAP-R rates would decrease typical senior residential customer bills by $0.48 or 1.1 percent compared to existing rates. Based on the results presented in Table C-4, under the Department's proposed base and TAP-R rates, this customer's monthly bill would increase from $42.28 to $46.71, an increase of $4.43 or about 10.5 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 the Department's approved base 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. TAP-R rates would decrease typical non-residential customer bills by $1.26 or 1.1 percent compared to existing rates. Under the proposed

[1] The proposed base rates are pending approval from the Rate Board in the FY 2024 and FY 2025 Rate Proceeding.

base and TAP-R rates, this customer's monthly bill would increase from $119.11 to $131.68, an increase of $12.57 or about 10.5 percent.

Table 1 - Calculation of TAP Rider Rates Effective September 01, 2023 (FY 2024)

		TOTAL	Water	Wastewater
		Amount	Amount	Amount
(1)	C = Projected TAP Billing Loss[a]	$ 10,437,706	$ 4,175,082	$ 6,262,624
(2)	E = Experienced & Estimated Net Over/Under Collection [b]	$ 7,239,442	$ 2,899,745	$ 4,339,697
(3)	I = Interest on Experienced & Estimated Net Over/Under Collection [c]	$ 145,931	$ 58,545	$ 87,386
(4)	Net Recoverable Costs[d]: (C) - (E + I)	$ 3,052,332	$ 1,216,793	$ 1,835,540
(5)	S = Projected Non-TAP Sales for Next Rate Period (MCF)[e]		5,755,278	5,441,899
(6)	**TAP-R Surcharge[f]:** (4)/(5)		**$ 0.21 /MCF**	**$ 0.34 /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 4.66% as of December 01, 2022.

[d] Net Recoverable Costs.

[e] Estimated water and sewer sales for Non-TAP Customers for the Next Rate Period based upon the average monthly Non-TAP sales volume for the 12 month period of December 2021 to November 2022. Next Rate Period is assumed to be September 01, 2023 to August 31, 2024.

[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	September 01, 2023 through August 31, 2024		Water	Wastewater
			40%	60%
(1)	Projected TAP Billing Loss[a]	$ 10,437,706	$ 4,175,082	$ 6,262,624

Notes:

[a] Projected TAP Billing Loss based upon Raftelis' TAP Program Projections.

[b] Allocation between Water and Wastewater per proposed PWD Regulations - Rates and Charges Effective September 01, 2023 Section 10.1(a)(i) and Section 10.1(a)(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 $ 1.030 (3) = (2) * $ 1.030/Mcf	Adjusted Actual TAP Discounts (Credits) 97.32% (4) = [(1) - (3)]* 0.9732	Billed Non-TAP Water Sales (Mcf) (5)	TAP-R Billed Non-Tap Water Sales $ 1.030 (6) = (5) * $ 1.030/Mcf	Estimated TAP-R Revenues Experienced 97.32% (7) = (6) * 0.9732	Over/(Under) Collection (8) = (7) - (4)
								Prior E & I Factor Adjustments	**$ (80,140)**
(a)	Sep-22	$ 313,912	11,153	$ 11,487	$ 294,320	587,290	$ 604,909	$ 588,697	$ 294,377
(a)	Oct-22	$ 303,974	10,403	$ 10,715	$ 285,400	490,408	$ 505,120	$ 491,583	$ 206,183
(a)	Nov-22	$ 294,356	10,100	$ 10,402	$ 276,344	451,894	$ 465,450	$ 452,976	$ 176,632
(a)	Dec-22	$ 302,542	11,050	$ 11,381	$ 283,358	479,607	$ 493,995	$ 480,756	$ 197,398
(e)	Jan-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Feb-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Mar-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Apr-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	May-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Jun-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Jul-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
(e)	Aug-23	$ 347,924	12,707	$ 13,089	$ 325,861	479,607	$ 493,995	$ 480,756	$ 154,895
Total		$ 3,998,172	144,364	$ 148,697	$ 3,746,309	5,846,050	$ 6,021,434	$ 5,860,060	$ 2,033,611
								Adjustment for Prior Estimates	$ 866,135 From Table 3-W-A
								Total E-Factor Recovery	**$ 2,899,745** Line 2 in Summary Table

Notes:
(a) - Actuals
(e) - Estimated
(1) - TAP Actual Discounts reflect water's 40.0% 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 PWD Regulations - Rates and Charges Effective September 1, 2022 Section 10.3(a)(1).
(4) & (7) - Adjusted for system-wide collection factor in accordance with PWD Regulations - Rates and Charges Effective September 1, 2022 Section 10.1(b)(3).
(5) - Estimated Non-TAP water sales volumes for December 2022 through August 2023 are based upon average sales for prior 12 month period.
(8) - Over/(Under) Collection is based upon Rates that are inclusive of Prior E-Factor and I-Factor. The presented "Prior E & I Factor Adjustments" includes these amounts from 2022 Annual Rate Adjustment.

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 $ 1.630 (3) = (2) * $ 1.630/Mcf	Adjusted Actual TAP Discounts (Credits) 97.32% (4) = [(1) - (3)]* 0.9732	Billed Non-TAP Sewer Volume (Mcf) (5)	TAP-R Billed Non-Tap Water Sales $ 1.630 (6) = (5) * $ 1.630/Mcf	Estimated TAP-R Revenues Experienced 97.32% (7) = (6) * 0.9732	Over/(Under) Collection (8) = (7) - (4)
								Prior E & I Factor Adjustments	**$ (121,580)**
(a)	Sep-22	$ 470,868	11,152	$ 18,177	$ 440,559	552,367	$ 900,359	$ 876,229	$ 435,670
(a)	Oct-22	$ 455,961	10,403	$ 16,956	$ 427,240	463,873	$ 756,112	$ 735,848	$ 308,608
(a)	Nov-22	$ 441,533	10,098	$ 16,460	$ 413,681	427,595	$ 696,981	$ 678,302	$ 264,621
(a)	Dec-22	$ 453,813	11,050	$ 18,011	$ 424,123	453,492	$ 739,191	$ 719,381	$ 295,258
(e)	Jan-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Feb-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Mar-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Apr-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	May-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Jun-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Jul-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
(e)	Aug-23	$ 521,885	12,707	$ 20,713	$ 487,741	453,492	$ 739,191	$ 719,381	$ 231,640
Total		$ 5,997,259	144,362	$ 235,308	$ 5,607,530	5,525,259	$ 9,006,171	$ 8,764,806	$ 3,035,695
								Adjustment for Prior Estimates	$ 1,304,002 From Table 3-WW-A
								Total E-Factor Recovery	**$ 4,339,697** Line 2 in Summary Table

Notes:
(a) - Actuals
(e) - Estimated
(1) - TAP Actual Discounts reflects water's 60.0% 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, 2022 Section 10.3(b)(1).
(4) & (7) - Adjusted for system-wide collection factor in accordance with PWD Regulations - Rates and Charges Effective September 1, 2022 Section 10.1(b)(3).
(5) - Estimated Non-TAP water sales volumes for December 2022 through August 2023 are based upon average sales for prior 12 month period.
(8) - Over/(Under) Collection is based upon Rates that are inclusive of Prior E-Factor and I-Factor. The presented "Prior E & I Factor Adjustments" includes these amounts from 2022 Annual Rate Adjustment.

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 $ 0.690	Adjusted Actual TAP Discounts (Credits) 97.32%	Billed Non-TAP Water Sales (Mcf)	TAP-R Billed Non-Tap Water Sales	Estimated TAP-R Revenues Experienced 97.32%	Over/(Under) Collection	Over/(Under) Collection	Delta
	(1)	(2)	(3) = (2) * $ 0.690/Mcf	(4) = [(1) - (3)]* 0.9732	(5)	(6) = (5) * $ 0.690/Mcf	(7) = (6) * 0.9732	(8) = (7) - (4)	(9)	(10) = (8) - (9)
Sep-21	$ 334,263	12,761	$ 8,805	$ 316,736	504,318	$ 347,979	$ 338,654	$ 21,917	$ 21,917	$ 0
Oct-21	$ 375,321	13,790	$ 9,515	$ 356,002	515,236	$ 355,513	$ 345,985	$ (10,017)	$ (10,017)	$ 0
Nov-21	$ 334,569	12,289	$ 8,480	$ 317,350	453,477	$ 312,899	$ 304,514	$ (12,836)	$ (12,836)	$ 0
Dec-21	$ 329,707	12,157	$ 8,388	$ 312,707	460,229	$ 317,558	$ 309,048	$ (3,660)	$ (3,660)	$ 0
Jan-22	$ 314,241	11,559	$ 7,976	$ 298,057	480,394	$ 331,472	$ 322,588	$ 24,531	$ (314)	$ 24,845
Feb-22	$ 248,892	9,245	$ 6,379	$ 236,013	418,522	$ 288,780	$ 281,041	$ 45,027	$ (314)	$ 45,342
Mar-22	$ 242,588	9,105	$ 6,283	$ 229,972	464,529	$ 320,525	$ 311,935	$ 81,963	$ (314)	$ 82,277
Apr-22	$ 198,366	7,461	$ 5,148	$ 188,040	458,093	$ 316,084	$ 307,613	$ 119,573	$ (314)	$ 119,887
May-22	$ 184,464	7,016	$ 4,841	$ 174,809	441,556	$ 304,674	$ 296,508	$ 121,700	$ (314)	$ 122,014
Jun-22	$ 192,873	7,263	$ 5,011	$ 182,827	475,378	$ 328,010	$ 319,220	$ 136,392	$ (314)	$ 136,706
Jul-22	$ 218,907	8,162	$ 5,632	$ 207,559	507,361	$ 350,079	$ 340,697	$ 133,138	$ (19,141)	$ 152,279
Aug-22	$ 235,189	8,848	$ 6,105	$ 222,945	519,627	$ 358,543	$ 348,934	$ 125,989	$ (56,795)	$ 182,784
Total	$ 3,209,378	119,655	$ 82,563	$ 3,043,017	5,698,718	$ 3,932,115	$ 3,826,735	$ 783,718	$ (82,416)	$ 866,135

Total	**$ 783,718**	**$ (82,416)**	**$ 866,135**	**Adjustment for Prior Estimates**
				Included in Table 3-W

Notes:
(1) - TAP Actual Discounts reflect water's 40.0% allocated portion of the Total TAP Discount.
(2) - Updated TAP Discounts and billed sales volume to reflect actuals for January 2022 through August 2022 as provided by Raftelis. Refer to Schedule RFC-3.
(3) & (6) - Water TAP-R Rates per PWD Regulations - Rates and Charges Effective September 1, 2021 Section 10.3(a)(1).
(4) & (7) - Adjusted for system-wide collection factor in accordance with PWD Regulations - Rates and Charges Effective September 1, 2021 Section 10.1(b)(3).
(5) - Billed Non-TAP Water Sales, updated to reflect actual billed water sales volumes for January 2022 through August 2022.
(8) - Updated Over/(Under) Collection
(9) - Over/(Under) Collection for September 2021 to August 2022 as calculated during the prior TAP-R Reconciliation Determination.
(10) - Difference between Updated Over/(Under) Collection and Original Estimates.

Philadelphia Water Department
Table 3-WW-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 Sewer Volume TAP Participants (Mcf) $ 1.090	Total TAP-R Billed to TAP Participants	Adjusted Actual TAP Discounts (Credits) 97.32%	Billed Non-TAP Sewer Volume (Mcf)	TAP-R Billed Non-Tap Water Sales $ 1.090	Estimated TAP-R Revenues Experienced 97.32%	Over/(Under) Collection	Over/(Under) Collection	Delta
	(1)	(2)	(3) = (2) * $ 1.090/Mcf	(4) = [(1) - (3)]* 0.9732	(5)	(6) = (5) * $ 1.090/Mcf	(7) = (6) * 0.9732	(8) = (7) - (4)	(9)	(10) = (8) - (9)
Sep-21	$ 501,395	12,758	$ 13,906	$ 474,424	474,201	$ 516,879	$ 503,027	$ 28,603	$ 28,602	$ 0
Oct-21	$ 562,981	13,786	$ 15,027	$ 533,269	484,290	$ 527,876	$ 513,729	$ (19,540)	$ (19,540)	$ 0
Nov-21	$ 501,853	12,286	$ 13,392	$ 475,370	428,074	$ 466,600	$ 454,095	$ (21,275)	$ (21,275)	$ 0
Dec-21	$ 494,560	12,154	$ 13,248	$ 468,413	437,814	$ 477,217	$ 464,428	$ (3,985)	$ (3,985)	$ 0
Jan-22	$ 471,361	11,558	$ 12,598	$ 446,468	455,863	$ 496,891	$ 483,574	$ 37,106	$ (2,629)	$ 39,735
Feb-22	$ 373,337	9,245	$ 10,077	$ 353,525	399,126	$ 435,048	$ 423,389	$ 69,863	$ (2,629)	$ 72,493
Mar-22	$ 363,882	9,104	$ 9,923	$ 344,473	443,444	$ 483,354	$ 470,400	$ 125,927	$ (2,629)	$ 128,556
Apr-22	$ 297,549	7,460	$ 8,131	$ 281,662	434,412	$ 473,510	$ 460,820	$ 179,158	$ (2,629)	$ 181,787
May-22	$ 276,695	7,016	$ 7,647	$ 261,838	419,413	$ 457,160	$ 444,908	$ 183,070	$ (2,629)	$ 185,700
Jun-22	$ 289,310	7,263	$ 7,917	$ 273,852	449,029	$ 489,441	$ 476,324	$ 202,472	$ (2,629)	$ 205,101
Jul-22	$ 328,360	8,162	$ 8,896	$ 310,902	476,873	$ 519,791	$ 505,861	$ 194,959	$ (30,870)	$ 225,828
Aug-22	$ 352,784	8,847	$ 9,643	$ 333,945	482,090	$ 525,478	$ 511,395	$ 177,451	$ (87,350)	$ 264,801
Total	$ 4,814,068	119,638	$ 130,405	$ 4,558,140	5,384,627	$ 5,869,245	$ 5,711,949	$ 1,153,809	$ (150,194)	$ 1,304,002

Total	**$ 1,153,809**	**$ (150,194)**	**$ 1,304,002**	**Adjustment for Prior Estimates**
				Included in Table 3-WW

Notes:
(1) - TAP Actual Discounts reflects sewer's 60.0% allocated portion of the Total TAP Discount.
(2) - Updated TAP Discounts and billed sales volume to reflect actuals for January 2022 through August 2022 as provided by Raftelis. Refer to Schedule RFC-3.
(3) & (6) - Sewer TAP-R Rates per PWD Regulations - Rates and Charges Effective PWD Regulations - Rates and Charges Effective September 1, 2021 Section 10.3(b)(1).
(4) & (7) - Adjusted for system-wide collection factor in accordance with PWD Regulations - Rates and Charges Effective September 1, 2021 Section 10.1(b)(3).
(5) - Updated to reflect actual billed water sales volumes for January 2022 through August 2022.
(8) - Updated Over/(Under) Collection
(9) - Over/(Under) Collection for September 2021 to August 2022 as calculated during the prior TAP-R Reconciliation 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 (3) = (2) * [4.66% / 12]
Sep-22	$ 294,377	$ 294,377	$ 1,143.16
Oct-22	$ 206,183	$ 500,560	$ 1,943.84
Nov-22	$ 176,632	$ 677,193	$ 2,629.76
Dec-22	$ 197,398	$ 874,590	$ 3,396.33
Jan-23	$ 154,895	$ 1,029,485	$ 3,997.83
Feb-23	$ 154,895	$ 1,184,380	$ 4,599.34
Mar-23	$ 154,895	$ 1,339,275	$ 5,200.85
Apr-23	$ 154,895	$ 1,494,170	$ 5,802.36
May-23	$ 154,895	$ 1,649,065	$ 6,403.87
Jun-23	$ 154,895	$ 1,803,960	$ 7,005.38
Jul-23	$ 154,895	$ 1,958,855	$ 7,606.89
Aug-23	$ 154,895	$ 2,113,750	$ 8,208.40
Total			$ 57,938
		Adjustment for Prior Estimates	$ 607
		Total I-Factor Recovery	**$ 58,545** Line 3 in Summary Table

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-W.
(3) Interest 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 December 01, 2022.

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 (3) = (2) * [4.66% / 12]
Sep-22	$ 435,670	$ 435,670	$ 1,691.85
Oct-22	$ 308,608	$ 744,279	$ 2,890.28
Nov-22	$ 264,621	$ 1,008,899	$ 3,917.89
Dec-22	$ 295,258	$ 1,304,157	$ 5,064.48
Jan-23	$ 231,640	$ 1,535,797	$ 5,964.01
Feb-23	$ 231,640	$ 1,767,437	$ 6,863.55
Mar-23	$ 231,640	$ 1,999,076	$ 7,763.08
Apr-23	$ 231,640	$ 2,230,716	$ 8,662.61
May-23	$ 231,640	$ 2,462,356	$ 9,562.15
Jun-23	$ 231,640	$ 2,693,996	$ 10,461.68
Jul-23	$ 231,640	$ 2,925,636	$ 11,361.22
Aug-23	$ 231,640	$ 3,157,275	$ 12,260.75
Total			$ 86,464
		Adjustment for Prior Estimates	$ 923
		Total I-Factor Recovery	**$ 87,386** Line 3 in Summary Table

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-WW.
(3) Interest 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 December 01, 2022.

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) * [0.25% / 12]	Estimated Monthly Interest Owed/ (Interest to be Recouped) Water Portion (4)	Cumulative Over/(Under) Collection Water Portion (5) = (3) - (4)	
Sep-21	$ 21,917	$ 21,917	$ 4.57	$ 4.57	$ 0.00	
Oct-21	$ (10,017)	$ 11,901	$ 2.48	$ 2.48	$ 0.00	
Nov-21	$ (12,836)	$ (935)	$ (0.19)	$ (0.20)	$ 0.00	
Dec-21	$ (3,660)	$ (4,595)	$ (0.96)	$ (0.96)	$ 0.00	
Jan-22	$ 24,531	$ 19,936	$ 4.15	$ (1.02)	$ 5.18	
Feb-22	$ 45,027	$ 64,964	$ 13.53	$ (1.09)	$ 14.62	
Mar-22	$ 81,963	$ 146,926	$ 30.61	$ (1.15)	$ 31.76	
Apr-22	$ 119,573	$ 266,499	$ 55.52	$ (1.22)	$ 56.74	
May-22	$ 121,700	$ 388,199	$ 80.87	$ (1.28)	$ 82.16	
Jun-22	$ 136,392	$ 524,591	$ 109.29	$ (1.35)	$ 110.64	
Jul-22	$ 133,138	$ 657,729	$ 137.03	$ (5.34)	$ 142.36	
Aug-22	$ 125,989	$ 783,718	$ 163.27	$ (17.17)	$ 180.44	
Total			$ 600	$ (7)	$ 607	
		Total	**$ 600**	**$ (7)**	**$ 607**	**Adjustment for Prior Estimates** Included in Table 4-W

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-W-A.
(3) Interest 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 December 01, 2021.
(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) * [0.25% / 12]	Estimated Monthly Interest Owed/ (Interest to be Recouped) Sewer Portion (4)	Delta Prior Period Estimates (5) = (3) - (4)	
Sep-21	$ 28,603	$ 28,603	$ 5.96	$ 5.96	$ 0.00	
Oct-21	$ (19,540)	$ 9,063	$ 1.89	$ 1.89	$ 0.00	
Nov-21	$ (21,275)	$ (12,212)	$ (2.54)	$ (2.54)	$ 0.00	
Dec-21	$ (3,985)	$ (16,198)	$ (3.37)	$ (3.37)	$ 0.00	
Jan-22	$ 37,106	$ 20,908	$ 4.36	$ (3.92)	$ 8.28	
Feb-22	$ 69,863	$ 90,772	$ 18.91	$ (4.47)	$ 23.38	
Mar-22	$ 125,927	$ 216,699	$ 45.15	$ (5.02)	$ 50.16	
Apr-22	$ 179,158	$ 395,857	$ 82.47	$ (5.57)	$ 88.04	
May-22	$ 183,070	$ 578,928	$ 120.61	$ (6.11)	$ 126.72	
Jun-22	$ 202,472	$ 781,400	$ 162.79	$ (6.66)	$ 169.45	
Jul-22	$ 194,959	$ 976,358	$ 203.41	$ (13.09)	$ 216.50	
Aug-22	$ 177,451	$ 1,153,809	$ 240.38	$ (31.29)	$ 271.67	
Total			$ 880	$ (43)	$ 923	
		Total	**$ 880**	**$ (43)**	**$ 923**	**Adjustment for Prior Estimates** Included in Table 4-WW

Notes:
(1) Difference in collection from Total of Column 8 - Table 3-WW-A.
(3) Interest 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 December 01, 2021.
(4) Difference in collection from Total of Column 8 - Table 3-WW (Prior Reconciliation).

Table 5 - Application of TAP Rate Rider Adjustment Effective September 01, 2023

		Base	TAP-R Surcharge	*Total*
	Rates	Proposed	Proposed	Total
	Water Quantity Charges	($/Mcf)	($/Mcf)	($/Mcf)
1	*0 to 2 Mcf*	$ 61.14	$ 0.21	$ 61.35
2	*2.1 to 100 Mcf*	$ 54.93	$ 0.21	$ 55.14
3	*100.1 to 2,000 Mcf*	$ 42.55	$ 0.21	$ 42.76
4	*2,000 + Mcf*	$ 41.40	$ 0.21	$ 41.61
	Sewer Quantity Charges	($/Mcf)	($/Mcf)	($/Mcf)
5	Sewer Volume Rate	$ 39.61	$ 0.34	$ 39.95

Notes:

Proposed Base Rates reflect the quantity charges, per the FY 2024 and FY 2025 Rate Proceeding.

Rates are proposed to be effective on September 01, 2023.

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 RATES

(1)	(2)	(3)	(4)	(5)	(5)	(5)	
		FY 2023	FY 2024		FY 2025		
Meter Size	Monthly Use	Existing Rates	Proposed Rates	% Proposed of Existing	Proposed Rates	% Proposed of FY 2024	
Inches	Mcf	$	$	%	$	%	
5/8	0.00	30.52	31.88	4.5	34.40	7.9	
5/8	0.20	47.76	52.14	9.2	56.42	8.2	
5/8	0.30	56.38	62.28	10.5	67.42	8.3	Typical Senior
5/8	0.40	65.00	72.40	11.4	78.42	8.3	
5/8	0.45	69.31	77.47	11.8	83.92	8.3	Typical Residential
5/8	0.50	73.62	82.54	12.1	89.44	8.4	
5/8	0.60	82.23	92.66	12.7	100.44	8.4	
5/8	0.70	90.85	102.80	13.2	111.44	8.4	
5/8	0.80	99.47	112.92	13.5	122.44	8.4	
5/8	1.70	177.04	204.10	15.3	221.50	8.5	
5/8	2.70	260.45	301.05	15.6	326.87	8.6	
5/8	3.30	309.79	358.10	15.6	388.89	8.6	

Notes:
FY 2023 figures reflect the existing base and current TAP-R rates, of $1.03/Mcf for water and $1.63/Mcf for sewer.
FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of $0.21/Mcf for water and $0.34/Mcf for sewer.
The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding.
The TAP-R Rates are subject to annual reconciliation.

Typical Senior Citizen is presented prior to discount. Eligible Senior Citizen's receive a 25% discount on their total bill. The associated FY 2023, FY 2024, and FY 2025 bills would be $42.28, $46.71, and $50.56, respectively.

Mcf - Thousand cubic feet

TABLE C-5
COMBINED SYSTEM: COMPARISON OF EXAMPLE BILLS FOR NON-RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
				FY 2023	FY 2024		FY 2025		
Meter Size	Monthly Use	Impervious Area	Gross Area	Existing Rates	Proposed Rates	% Proposed of Existing	Proposed Rates	% Proposed of FY 2024	
Inches	Mcf	sf	sf	$	$	%	$	%	
5/8	0.0	1,794	2,110	40.77	42.74	4.8	46.37	8.5	
5/8	0.2	1,794	2,110	58.01	63.00	8.6	68.39	8.6	
5/8	0.3	1,794	2,110	66.63	73.14	9.8	79.39	8.6	
5/8	0.4	1,794	2,110	75.25	83.26	10.6	90.39	8.6	
5/8	0.5	4,000	5,500	110.50	121.56	10.0	132.61	9.1	
5/8	0.6	4,000	5,500	119.11	131.68	10.5	143.61	9.1	Typical Small Business
5/8	0.7	4,000	5,500	127.73	141.82	11.0	154.61	9.0	
5/8	0.8	26,000	38,000	428.57	460.92	7.5	507.97	10.2	
5/8	1.7	26,000	38,000	506.14	552.10	9.1	607.03	9.9	
5/8	2.7	4,000	5,500	297.33	340.07	14.4	370.04	8.8	
5/8	3.3	4,000	5,500	346.67	397.12	14.6	432.06	8.8	
5/8	11.0	7,000	11,000	1,021.27	1,173.15	14.9	1,276.51	8.8	
1	1.7	7,700	7,900	269.90	302.38	12.0	329.98	9.1	
1	5.0	22,500	24,000	726.58	813.02	11.9	889.15	9.4	
1	8.0	7,700	7,900	789.08	903.30	14.5	983.16	8.8	
1	17.0	22,500	24,000	1,713.22	1,954.10	14.1	2,129.47	9.0	
2	7.6	1,063	1,250	704.84	810.46	15.0	879.79	8.6	
2	16.0	22,500	24,000	1,661.16	1,890.54	13.8	2,059.74	8.9	
2	33.0	66,500	80,000	3,629.34	4,110.66	13.3	4,485.67	9.1	
2	100.0	7,700	7,900	8,383.48	9,683.11	15.5	10,525.91	8.7	
4	30.0	7,700	7,900	2,730.78	3,133.96	14.8	3,404.61	8.6	
4	170.0	10,500	12,000	13,565.46	15,615.56	15.1	16,972.96	8.7	
4	330.0	26,000	38,000	25,308.97	29,071.81	14.9	31,605.25	8.7	
4	500.0	140,000	160,000	39,004.58	44,659.46	14.5	48,581.95	8.8	
6	150.0	10,500	12,000	12,269.79	14,113.73	15.0	15,336.96	8.7	
6	500.0	41,750	45,500	37,895.92	43,483.82	14.7	47,272.61	8.7	
6	1,000.0	26,000	38,000	73,748.50	84,639.88	14.8	92,007.15	8.7	
6	1,500.0	140,000	160,000	111,230.51	127,521.83	14.6	138,654.15	8.7	
8	750.0	10,500	12,000	55,688.42	63,917.99	14.8	69,472.87	8.7	
8	1,500.0	66,500	80,000	110,469.34	126,713.47	14.7	137,750.80	8.7	
8	2,000.0	26,000	38,000	145,999.13	167,528.14	14.7	182,107.06	8.7	
8	3,000.0	140,000	160,000	218,581.14	250,615.09	14.7	272,469.06	8.7	
10	600.0	22,500	24,000	45,237.24	51,890.35	14.7	56,396.31	8.7	
10	1,700.0	41,750	45,500	124,772.89	143,133.55	14.7	155,587.84	8.7	
10	3,300.0	26,000	38,000	238,691.47	273,775.61	14.7	297,611.38	8.7	
10	6,000.0	140,000	160,000	432,211.48	495,514.56	14.6	538,712.38	8.7	

(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) The FY 2023 figures reflect the existing base and current TAP-R rates, of $1.03/Mcf for water and $1.63/Mcf for sewer.
(c) FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of $0.21/Mcf for water and $0.34/Mcf for sewer.
(d) The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding.
The TAP-R Rates are subject to annual reconciliation.

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: January 17, 2023

This document summarizes the assumptions used in developing the Tiered Assistance Program (TAP) Rate Rider reconciliation calculations for September 1, 2023 to August 31, 2024 (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, 2022*, 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, 2022 to August 31, 2023.
- 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 September 1, 2023 to August 31, 2024.
- 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, 2022,* were utilized in the TAP-R reconciliation calculations for the Most Recent Period:

- **Water TAP-R:** $1.03 per MCF
- **Sewer TAP-R:** $1.63 per MCF

Codified Factors

The following codified factors, as stated in Section 10 of *PWD Regulations Rates and Charges Effective September 1, 2023,* 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: 40 percent
    - Sewer Tap Cost Allocation: 60 percent
- Collection Factor:
  - TAP Revenue Loss and TAP-R billings for the Most Recent Period adjusted for collections based upon the following:
    - Collection Factor: 97.32 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 December 1, 2022.
    - Interest Rate: 4.66 percent

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

TAP Assumptions

Schedules RFC-1 and 3 detail the actual TAP reporting data and TAP projections.

Most Recent Period

For the Most Recent Period, actual data was available for September 2022 through November 2022 and estimates were developed to cover the months of December 2022 through August 2023. The estimates utilized the following approach:

- TAP Participants – Projected based on November 2022 participation levels of 14,318. Based upon projections provided by Raftelis Financial Consultants (refer to Schedule RFC-1 and 3):
  - December 2022 participation levels are projected to increase by 5%, or 716 participants.
  - January 2023 participation levels are projected to increase by 15%, or 2,255 participants.
  - February 2023 to August 2023 are projected to remain at January 2023 levels.
  - The projected increases are based upon LIWHAP pre-qualification estimates. As of mid-October, about 4,600 accounts NOT participating in TAP had been granted LIHWAP assistance.
- TAP Billing Loss – Estimated based upon the projected number of monthly participants and the average monthly bill discount of $50.31 per TAP participant.
- TAP Billed Volumes – Estimated based upon the projected number of TAP Participants and the average monthly consumption of 735 cubic feet (cf) per TAP Participant.

Note - Estimates for the period of December 2022 through August 2023 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 September 2023 through August 2024.

- TAP Participants – For reconciliation purposes, the average monthly TAP Participants are projected to be approximately 17,289 based upon projections provided by Raftelis Financial Consultants (refer to Schedule RFC-1 and 3).
- TAP Billing Loss – Estimated based upon the projected number of TAP Participants for the Next Rate Period and the average monthly bill discount of $50.31 per TAP Participant based upon projections provided by Raftelis Financial Consultants (refer to Schedule RFC-1 and 3). Total TAP Billing Loss for the Next Rate Period was assumed to be approximately $10.4 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 Schedule RFC-3 for January 2022 through November 2022.

Most Recent Period

For the Most Recent Period, actual data was available for September 2022 through November 2022. For reconciliation purposes, water and sewer billed volumes for December 2022 through August 2023 were estimated based upon the average monthly sales for prior twelve months. Estimated monthly sales for December 2022 through August 2023 are as follows:

- Monthly Billed Water Volume – 4,796,065 hundred cubic feet (ccf)
- Monthly Billed Sewer Volume – 4,534,916 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 December 2022 through August 2023, 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 September 2023 through August 2024.

- Projections for Non-TAP water and sewer sales volume for the Next Rate Period are based upon the actual sales volume for Non-TAP customers from December 2021 to November 2022 (i.e. prior twelve months of actuals) ; and
- Assumes total Non-TAP sales remain at a similar level for the next rate period.

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

APPENDIX A

1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) and downloaded on December 1, 2022

Instruments	2022 Nov 29	2022 Nov 30	2022 Dec 1	2022 Dec 2	2022 Dec 5
Treasury Constant Maturities (yields in percent per annum)					
1-Year	4.78	4.74	**4.66**	4.69	4.77

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: February 22, 2023

This document summarizes the methodology used for the Tiered Assistance Program (TAP) Rate Rider reconciliation calculations for September 1, 2023, to August 31, 2024 (the Next Rate Period), as it relates to the Philadelphia Water Department's (PWD) TAP-R surcharge rates.

Note –Black & Veatch Schedule BV-3 TAP Reconciliation Assumptions dated January 17, 2023 (hereinafter referred to as Schedule BV-3) 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, 2022. As stated in *Section 10 of PWD Rates and Charges Effective September 1, 2022*, 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[1]. 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) for each corresponding rate period. The system-wide collection factor for the FY 2023 rate period (September 1, 2022 to August 2023) identified in the corresponding rate proceeding is 97.32%.
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 corresponding 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, 2022 to August 31, 2023.

[1] The resulting over/under collection is adjusted to account for the prior E & I Factor adjustments reflected in the FY 2022 Rate Determination and the difference in the estimated amounts of over/under collection for the period of January 2022 to August 2022 as included in the FY 2022 Annual Adjustment and the updated actuals for the same period.

- **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 September 1, 2023 to August 31, 2024.
- **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 September 1, 2023 to August 31, 2024, the C-Factor is calculated as follows:

1. The Total Reconcilable TAP costs for the Next Rate Period, as provided by Raftelis Financial Consultants, is estimated by multiplying the monthly Projected Number of TAP Participants (for the Next Rate Period) by the Average Discounts provided per TAP Participant. Refer to Schedule RFC-3 for more details.
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, 2022 to August 31, 2023[2], 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[3], by multiplying the monthly billed volume by the applicable surcharge rate (i.e., water or sewer TAP-R).
3. Determine the Adjusted[4] 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 97.32%.
4. Determine the monthly Non-TAP customers' TAP-R billings by multiplying the monthly sales volumes by the applicable TAP-R rate. For the months of December 2022 and January 2023, sales volumes are

[2] For the Most Recent Period, actual data was available for September 2022 through November 2022 and estimates were developed to cover the months of December 2022 through August 2023. Estimates used for the period of December 2022 through August 2023 will be reconciled with the next TAP-R Reconciliation filing.
[3] 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.
[4] The adjusted Actual TAP Discount takes into account the TAP-R surcharge billed to TAP participants and adjusts for collections.

estimated based upon the average monthly sales for prior 12-month period (December 2021 to November 2022).

5. Determine the estimated amount of TAP-R Revenues from Non-TAP customers by applying the system-wide collection factor of 97.32% to the Non-TAP customers' TAP-R billings determined in Step 4.
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 prior E & I Factor adjustments reflected in the FY 2022 Rate Adjustment and the difference in the estimated amounts of over/under collection for the period of January 2022 through August 2022 as included in the FY 2022 Rate Adjustment 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 2022 TAP-R Reconciliation. These calculations utilize the water and sewer allocation factors (i.e., 40% and 60%) and the system-wide collection factor (i.e., 97.32%) that were adopted and utilized at the time the prior E-Factor TAP-R rates were determined.
    - 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 2022 Rate Adjustment.

For the Most Recent Period of September 1, 2022 to August 31, 2023, 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 4.66%[5] 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 January 2022 through August 2022 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 2022 Rate Adjustment. These calculations utilize the monthly interest rate utilized at the time of the 2022 Annual Rate Adjustment for prior I-Factor determination (i.e. 0.25%).
    - 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.

[5] As stated in *Schedule BV -3,* the 1-year interest rate for constant maturity U.S. Treasury Securities as published in the Federal Reserve Statistical Release H.15 (519) on December 1, 2022.

For the Next Rate Period of September 1, 2023 to August 31, 2024, the S-Factor is determined as follows:

1. Overall Non-TAP Billed Sales Volumes are estimated based upon the actual billed sales volume for Non-TAP customers from December 2021 to November 2022 (i.e. prior twelve months of actuals). The S-Factor is the sum of the projected Non-TAP sales for each month during the Next Rate Period.

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 September 1, 2023 to August 31, 2024, 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.

Black & Veatch Team Resumes

Ann Bui

Senior Managing Director

Ms. Bui serves as a Senior Managing Director with Black & Veatch's Global Advisory business. Besides providing clients with strategic financial management strategies, her responsibilities include driving growth and innovation to utilities in the areas of financial and advisory planning, climate solutions, resiliency and sustainability issues, and asset integrity.

Ann has more than 30 years of experience with clients in North and South America, Europe, and Asia gained through more than 475 engagements, providing financial and business planning services for public and investor-owned utilities of all sizes. Her recent assignments have focused on reducing carbon footprints for energy-intensive activities, water insecurity, addressing affordability and assistance program needs, and developing innovative approaches for structuring alternative delivery projects using private and public financing instruments.

She has prepared financial feasibility reports supporting more than $15 billion of revenue bond sales, $8 billion in state revolving fund loans, and over $1 billion of grant applications.

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 work on due diligence efforts have supported the successful buy-side/sell-side of water and wastewater assets totaling over $10 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, the Idaho Public Utilities Commission, and the Kentucky Public Service Commission. She has served as an expert witness in front of utility rate commissions for such clients as the Philadelphia Water Department and Washington Suburban Sanitary Commission. She has also provided expert witness testimony supporting rate litigation matters for the City of San Diego, CA, Greater Cincinnati Water Works, City of Baton Rouge, LA, City of Atlanta, GA, and the City of Holland, MI.

An active proponent of advancing the water industry, Ms. Bui is a long-standing member of several industry associations. She is a past Chair of the American Water Works Association (AWWA) Finance, Accounting, and Management Controls

EDUCATION

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

MS, Chemical Engineering, University of California Los Angeles, 1989

BS, Chemical Engineering, University of British Columbia, 1986, Canada

YEARS EXPERIENCE

33

PROFESSIONAL REGISTRATION

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

PROFESSIONAL ASSOCIATIONS

AWWA

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

Committee and is involved with AWWA's Rates and Charges Committee, the National Association of Clean Water Agency's Utility Management Committee, and with the Water Environment Federation (WEF).

Ann serves as an author, editor, and peer reviewer for many of the rate-making industry's manuals of practice, including 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 the lead author and editor of AWWA's book ***Financial Management for Water Utilities: Principles of Finance, Accounting and Management Controls.*** Presently, Ann is the Chair for the update to AWWA's M29 – Water Utility Capital Financing.

REPRESENTATIVE EXPERIENCE

Veolia Water (formerly SUEZ Water) | Customer Class Load Studies and Cost of Service Rate Case Filings | 2022 –Present

Project Director. Ms. Bui serves as the Project Director and lead expert witness supporting Black & Veatch's cost of service engagements with Veolia Water (VW). Currently, the team is actively developing the cost-of-service and rate design sections for General Rate Case filings in the states of Idaho, New York, and Delaware. For each filing, a customer class load study is being conducted to support customer class peaking factors. With the New York filing, Black & Veatch is also examining the low-income assistance program that will support the VWNY's low-income rate. Black & Veatch is providing VW with expert witness testimony and post-filing support as well.

City of Los Angeles Bureau of Sanitation, CA | Various Wastewater and Stormwater Rate Services | 2008-2009, 2011-2012, 2015, 2022-Ongoing

Project Director. Black & Veatch has provided financial and rate consulting services to the City of Los Angeles (City) since the 1970s. Ms. Bui has worked with the City of Los Angeles, Bureau of Sanitation (LASAN) in a variety of positions since 2008. Currently, she is the Project Director for Black & Veatch's engagement with LASAN to evaluate rate structure alternatives pertaining to the City's Clean Water Program. This restructuring work involves extensive public outreach and engagement since it has been over a decade since the last cost-of-service study.

Since 2008, Ms. Bui and her team has assisted LASAN with the following services:

- Provided funding strategies to support the City's submittal of three Enhanced Watershed Management Permits (EWMPs). The EWMP outlines a strategy to address watershed activities to comply with MS4 requirements.
- Reviewed stormwater fees and alternative funding sources for the stormwater program. Consideration was given to the need and appropriate basis for stormwater quality-based charges. A financial planning and rate design model was developed for City staff to annually evaluate the financial status of the storm water program. The model is designed to provide future budget estimates, evaluate alternative revenues, revenue requirements, flow of funds analyses, and show the effect of any changes on existing and alternative rate designs.
- Updated LASAN's Sewerage Generation Factors (SGF). The SGF are the basis for sewage facilities charges imposed on new development or renovation of existing facilities. The SGF consist of a volumetric and two strength components. The analysis included research of the existing SGF, a mass balance, field surveys and benchmarking to similar utilities. In addition, we incorporated the effects of water conservation measures enacted by the City of Los Angeles into the analysis.

- Reconciled LASAN's Contract Agency section service charges. LASAN entered into agreement with 29 surrounding agencies to provide wastewater services. The reconciliation required updates of O&M and capital costs, flow and strength characteristics, cost allocations, and facilities charges.

Philadelphia Water Department, PA | Water, Wastewater and Stormwater Cost of Service Studies | 2003 – 2006; 2017-Present

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 PWD. Comprehensive services performed include grant, loans, and revenue bond financing, the first municipal rate rider for the tiered customer assistance program, development of an impervious area-based stormwater fee, revenue audits, and expert witness testimony.

Washington Suburban Sanitary Commission, MD | Comprehensive Water and Wastewater Rate Study | 2016-2022

Project Director. Ms. Bui is the project director responsible for Black & Veatch's engagement with WSSC Water. Since 2016, we have completed numerous assignments with WSSC Water, including conducting a comprehensive water and wastewater rate study, analysis and development of a new overhead cost allocation methodology, creation of miscellaneous fees, and provided litigation support to WSSC on rate-setting matters in front of the Maryland PSC.

Sewerage and Water Board of New Orleans, LA | Operations Reports, Comprehensive Financial Planning & Cost of Service Studies & Customer Assistance Program | 2017-Present

Project Director. Ms. Bui serves as the Project Director for Black & Veatch's ongoing engagement for SWBNO. Our work for SWBNO has been on a continual basis for over 50 years. Services provided include the annual report on operations for water, wastewater, and storm drainage utilities, including evaluation of management, operations, financing and compliance with bond covenants; engineering bond reports; rate studies, and the development of SWBNO's first comprehensive customer assistance program.

Charleston Water Systems, SC | Comprehensive Financial Planning and Cost of Service Studies | 2015-2020; 2022-Present

Project Director. Ms. Bui serves as the Project Director supporting Black & Veatch's comprehensive financial services to the Charleston Water Systems. We have provided revenue bond, rate design and other financial service to the Charleston Water Service for several decades. The comprehensive water and wastewater rate study and rate schedules were last updated in 2021 and are scheduled for a full update in 2023. In addition, contracts with wholesale customers were reviewed and updated. Current work includes asset valuation for specific parts of the water system that are being considered for purchase by an existing customer and the development of leachate surcharges.

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

- Jasper, AL
- Veolia Water, DE
- Florida Governmental Utility Authority, FL
- JEA, FL
- Miami-Dade Water and Sewer Department, FL
- North Miami, FL
- Surfside, FL
- Atlanta, GA
- Cedar Falls, IA
- Bloomington Department of Utilities, IN
- Aurora, IL
- Highland, IL
- Thorn Creek Basin Sanitary District, IL
- El Dorado, KS
- Johnson County Wastewater, KS
- Kansas City Board of Public Utilities, KS
- Leavenworth, KS
- Topeka, KS
- Unified Government of Wyandotte County, KS
- WaterOne, KS
- Louisville Water Company, KY
- Northern Kentucky Water District, KY
- Warren County, KY
- Baton Rouge, LA
- Parish of East Baton Rouge, LA
- Shreveport, LA
- Sewerage and Water Board of New Orleans, LA
- Washington Suburban Sanitary Commission, MD
- Detroit, MI
- Grand Rapids, MI
- Great Lakes Water Authority, MI
- Holland, MI
- Rochester Hills, MI
- Wyoming, MI
- Kansas City, MO
- St Louis Water Division, MO
- High Point, NC
- Raleigh, NC
- Clayton, NC
- Johnston County, NC
- Winston-Salem, NC
- Lincoln, NE
- Norfolk, NE
- New Jersey American Water, NJ
- Suez Water, NY
- Veolia Water, NY
- Columbus, OH
- Dayton, OH
- Greater Cincinnati Water Works, OH
- Mason, OH
- Metropolitan Sewer District of Hamilton County, OH
- Broken Arrow Municipal Authority, OK
- Tulsa, OK
- Tulsa Municipal Utility Authority, OK
- Alleghany County Sanitary Authority, PA
- Philadelphia Water Department, PA
- Philadelphia Gas Works, PA
- Beaufort-Jasper Water and Sewer Authority, SC
- Charleston, SC
- Charleston Water System, SC
- Columbia, SC
- Renewable Water Resources, SC
- Woodruff Roebuck Water District, SC
- Arlington, TX
- Gulf Coast Water Authority, TX
- Hudson Oaks, TX
- Lower Colorado River Authority, TX
- North Texas Municipal Water Authority, TX
- San Antonio Water System, TX
- Taylor, TX
- Norfolk, VA
- Hydro One, Canada
- National Water Commission, Jamaica
- Palmas Del Mar Utilities, PR

Puerto Rico Aqueduct and Sewer Authority, PR

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

- Flagstaff, AZ
- Glendale, AZ
- Phoenix, AZ
- Tucson, AZ
- Scottsdale, AZ
- Antioch, CA
- Atascadero Mutual Water Company, CA
- Banning, CA
- Burbank, CA
- California American Water, CA
- California State University, Channel Islands, CA
- Cambria Community Services District, CA
- Camrosa Water District, CA
- Central Contra Costa Sanitation District, CA
- Chino Hills, CA
- County of San Bernardino, CA
- County of San Diego, CA
- Cucamonga Valley Water District, CA
- Downey, CA
- Dublin San Ramon Service District, CA
- Encinitas Wastewater Authority, CA
- Escondido, CA
- Fountain Valley, CA
- Golden States Water Company, CA
- Goleta Water District, CA
- Helix Water District, CA
- Indio Water Authority, CA
- Santa Monica, CA
- Los Angeles Bureau of Sanitation
- LA DWP, CA
- Leucadia Water District, CA
- Lomita, CA
- Long Beach, CA
- Lynwood, CA
- Manhattan Beach, CA
- Marin Municipal Water District, CA
- Menlo Park, CA
- Metropolitan Water District of Southern California
- Napa, CA
- Newport Beach, CA
- Oakland, CA
- Olivehain Municipal Water District, CA
- Ontario, CA
- Orange, CA
- Oxnard, CA
- Padre Dam Municipal Water District, CA
- Palo Alto, CA
- Patterson, CA
- Pico Rivera, CA
- Ponoma, CA
- Port Hueneme, CA
- Port of San Diego, CA
- Rancho California Water District, CA
- Riverside Public Utilities, CA
- San Clemente, CA
- San Diego, CA
- San Joaquin County, CA
- San Jose, CA
- San Juan Capistrano, CA
- Santa Ana, CA
- Santa Clara, CA
- Santa Ynez River Water Conservation District, CA
- Simi Valley, CA
- Soledad, CA
- Soquel Creek Water District, CA
- South Gate, CA
- Sweetwater Authority, CA
- Western Municipal Water District, CA
- Westminster, CA
- Vallecitos Water District, CA
- Vallejo Flood Control District, CA
- Yuba City, CA
- Cherry Hills Sanitation District, CO
- Parker Water and Sanitation District, CO
- Southeastern Colorado Water Conservancy District, CO
- Waste Management Inc., CO
- Veolia Water, ID
- Las Campanas Water & Sewer Cooperative, NM
- Henderson, NV
- Las Vegas, NV
- Salem, OR
- Tacoma, WA
- Guam Waterworks Authority

PUBLICATIONS & PRESENTATIONS

"The Conundrum of Water Affordability. What's at Stake," Lead story, Water Finance & Management, February 2021.

"Customer-centricity for Utilities" Zyprme Webinar, October 29, 2020.

"Can't Pay; Won't Pay: COVID Implications for Water Utility Funding" Water Online, September 16, 2020

"How Much is it Worth? An Overview of Valuing Water Utilities" Journal AWWA, August 2020.

"Municipal Water and Privatization" Bank of America Merrill Lynch Water Investors Conference, December 2019

"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 - Keynote 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

35

EXPERTISE

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

REPRESENTATIVE 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 2010–2023

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 2023 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 - 2021

Water and Sewer Study Task Lead. Mr. Jagt assisted with the comprehensive study of water and sewer utility rates for FY 2018, FY 2019, FY 2020, and FY 2021. 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.

Harford County; Comprehensive Revenue Analysis and Rate Study; Harford County, Maryland; 2019-2020

Task Leader. Mr. Jagt was a task leader for a water/sewer Operating Fund revenue reconciliation and a comprehensive financial planning study (FY 2021 – FY 2025) for the County. The five-year financial plan involved the projection of revenue and revenue requirements, cash flow analysis, and recommendations on a series of annual revenue adjustments for the Operating Fund. In addition, the study involved a review of the County's system development charge and basic wholesale water municipality rate.

DC Water; Financial Plan Model and Construction Cost Model Development; Washington DC, District of Columbia; 2019-2020

Technical Advisor. Mr. Jagt assisted the development of an Excel-based Water/Sewer Financial Plan model for DC Water's Operations group. The objective of this project is to provide a robust yet user-friendly model that could help the leadership within DC Water Operations assess the financial impact of any potential changes in operating and capital expenditure assumptions and revenue assumptions.

City of Norfolk; Bond Issuance Assistance; Norfolk, Virginia; 1993–2020

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, 2015, and 2018). The studies, excluding the Series 2018 bonds, included a formal review of system facilities for sound operating conditions, current regulatory compliance, sufficient treated and raw water capacity, and adequate staffing. All studies included 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. In addition, Mr. Jagt assisted with Black & Veatch's evaluations of the Norfolk Department of Utilities water refunding bonds (2012, 2015, 2017, and 2020).

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-Authored and Presented technical presentation entitled, "Rate Rider Mechanisms – An Effective and Efficient Cost Recovery Tool for Water and Wastewater Utilities," at the 2021 Utility Management Conference in Atlanta, GA., August 2021.

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 20 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

20

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 EXPERIENCE

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

Project Manager. Mr. Merritt serves as Black & Veatch's Project Manager for the Water Department's Cost of Service Consulting contract. He recently supported the Department in their 2022 Special and Annual TAP Reconciliation Proceedings providing expert witness testimony and helping to address interrogatories. 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's current focus is on the evaluation of potential alternative stormwater rate structures for residential customers. 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 Delray Beach, Florida | Stormwater Rate Study | 2022 - present

Project Manager. Mr. Merritt is managing Black & Veatch's currently ongoing comprehensive Stormwater Utility Rate. The City of Delray Beach has had the same stormwater rate in place since 2006. During this time, overall operating expenses and capital needs have continued to grow. The City's underlying stormwater billing data and the supporting billing system requires a refresh to improve and maintain the validity of the City's cost recovery approach. The City has identified over $380 million in stormwater related capital improvements that are needed over the next 30 years to help combat rising sea levels, reduce flooding, improve water quality and meet regulatory requirements. To support this, the study includes the development of a detailed stormwater financial and rate model, to project O&M expenses and estimate capital financing needs, identify necessary revenue adjustments and evaluate performance against financial metrics over a multi-year horizon. Black & Veatch, with supporting team members, also helped the City to update the impervious surface data in GIS, which serves as the basis for their stormwater fee assessments. As the City's stormwater utility policies have been in place for well over two decades, Black & Veatch also lead the City through a detailed policy review to evaluate alternative rate structures, update their credit and appeals programs, and refine their enabling stormwater utility ordinance. Study recommendations were provided to staff in late 2022, with discussion with City leadership as well as public outreach engagement anticipated in early 2023.

City of Hoboken, New Jersey | Stormwater Utility Feasibility Study | 2022- Present

Project Manager. Mr. Merritt serves as Black & Veatch's Project Manager for a Stormwater Utility Feasibility Study for the City of Hoboken, 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. Work also includes impervious area development, customer classification, rate structure development, policy development including credits. Work is currently ongoing with recommendations anticipated to be provided to City leadership in late-2022 along with anticipated planned public outreach and education efforts.

Metropolitan Sewer District of Greater Cincinnati (MSD) | Wet Weather Impervious Surface Charge Feasibility Study | 2021

Project Support. Mr. Merritt provided project support in a study to evaluate the feasibility of implementing a new wet weather fee by bifurcating costs currently recovered by the Metropolitan Sewer District under its sewer rates. Mr. Merritt aided in the rate structure development and the evaluation of available data sources (including impervious area and property assessment data), to help identify potential rate structure options and associated policies.

City of Newark, New Jersey | Stormwater and Sewer Rate Study | 2020-2021

Project Support. Mr. Merritt served as project manager to City of Newark, New Jersey's Department of Water and Sewer Utilities' Stormwater and Sewer Rate Study. The primary objective of the study was to evaluate the impact of the implementation of a stormwater fee on Newark's sewer rates and to evaluate customer bill impacts ahead of further consideration by City leadership. City staff and administration were presented with the results of both analysis in 2021.

City of Myrtle Beach, South Carolina | Stormwater Management Fee and Level of Service Analysis Rate Study | 2020-2021

Project Manager. Mr. Merritt served as Black & Veatch's project manager, as a subconsultant to W.K. Dickson, working with the City of Myrtle Beach to complete a comprehensive review of their stormwater rates. Work included the creation of stormwater financial and rate model, projecting detailed revenue requirements, modeling the impact of the level of service alternatives, developing capital financing mix, identifying the City's fiscal position and required financial metrics. Anticipated system-wide revenue increases were developed along with the associated rate schedules to support the increase in the City's stormwater operational and capital program needs to address growth, climate change and water quality issues. City leadership approved the request revenue adjustment in the Spring of 2021.

New Jersey Future, Trenton, NJ | On-call Stormwater Utility Expert Support Services | 2019-2020

Project Manager. Mr. Merritt worked with NJ Future to develop the New Jersey Stormwater Utility Resource Center, providing technical input and guidance, narrative development as well as content review. He assisted in on-call service support, providing assistance and feedback to NJ Future staff on stormwater utility related policy matters. Mr. Merritt, along with other Black & Veatch staff, conducted stormwater utility training sessions for NJ Future staff, municipal staff and advocacy organizations.

Hannibal Board of Public Works | Stormwater Utility Feasibility Study; Hannibal, MO | 2017-2019

Project Support. Assisted in the evaluation of impervious area data. Drafted policy regarding stormwater roles and responsibilities for the City, BPW and private property owners.

Unified Government of Wyandotte County and Kansas City, Kansas| Stormwater Feasibility Study | 2017-Present

Project Support. Assisted 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). 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.

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 worked 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 its initial implementation in the late 1990s and had recently obtained updated impervious area data (i.e. planimetric data). Mr. Merritt worked with the City to assess the 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. In addition, alternative rate structures were developed to help improve the public understanding and improve the overall equity of the stormwater rate structure. The City adopted a tiered residential rate structure and updated the baseline billing unit from an equivalent residential unit (ERU) basis to a unit area basis, using 500 square feet of impervious area as the base billing unit.

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 were 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 Utilities

- Co-presented, "Stormwater Utility Reboot: The Need to Maintain Equity in Stormwater Cost Recovery," StormCon, September 2022.
- "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

Presentations – Affordability

- Co-Authored "Rate Rider Mechanisms – An Effective and Efficient Cost Recovery Tool for Water and Wastewater Utilities," 2021 Utility Management Conference in Atlanta, GA., August 2021.
- Philadelphia Water's Tiered Assistance Program (TAP) Cost Recovery & Financial Safeguards, AWWA/WEF Affordability Symposium, August 2018

Publications

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

RAFTELIS

MEMO

To: Lawrence Yangalay – Philadelphia Water Department
From: Jon Davis, Henrietta Locklear, Jennifer Tavantzis – Raftelis Financial Consultants
Date: January 10, 2023
Re: Digest to accompany reports and projections to support 2023 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 Philadelphia Water Department (PWD) for the rate year beginning in September 2023. Raftelis delivered the final reports and projections on December 26, 2022 in a single workbook with multiple worksheets, one for each report and others for calculations and explanatory information. These are included below as Schedule RFC-1.

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* (January 2022 to August 2022)
- *Most Recent Period* (September 2022 to November 2022)

Projections

Raftelis projected TAP participants, TAP discounts, TAP water consumption and TAP sewer consumption for the *Most Recent Period* months December 2022 to August 2023 and the *Next Rate Period* months September 2023 to August 2024. Projections were based on a 5% monthly participation increase over the November 2022 participant baseline in December 2022 – consistent with recent months – followed by a 15% monthly increase in January 2023, which assumes successful completion of the "prequalification" effort to enroll LIHWAP recipients in TAP. Participation is then modeled to be steady state through August 2023. Projections over the *Next Rate Period* also remained flat.

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 November 30, 2022.

Reconciled Period – The period of January 2022 through August 2022 that was projected for the prior TAP Reconcilable Rate Rider (TAP-R) calculation.

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 2022 to August 2023 and within the Most Recent Period, September 2022 to November 2022 numbers are actuals, while December 2022 to August 2023 are projections. September 2022 to November 2022 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 September 2023 to August 2024 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.

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 convert to 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 convert to cubic feet.

Results

Results from the analysis are summarized in the table below.

	Average Monthly Number of TAP Participants	Total Number of TAP Participants*	Total TAP Discount
Reconciled Period (January 2022 to August 2022)	**11,917**	**95,336**	**$4,588,797**
Most Recent Period - Actual (September 2022 to November 2022)	13,734	41,202	$2,280,605
Most Recent Period - Projected (December 2022 to August 2023)	17,038	153,346	$7,714,826
Most Recent Period - Entire (September 2022 to August 2023)	**16,212**	**194,548**	**$9,995,431**
Next Rate Period (September 2023 to August 2024)	**17,289**	**207,468**	**$10,437,706**

*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

PROJECT DIRECTOR
Executive Vice President

PROFILE

Jon joined Raftelis in 2000 and currently serves the firm as an Executive Vice President. Jon 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. Jon 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 (WEFTEC) and the WEFTEC Planning Committee. Jon has presented at many industry conferences, 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,* and led the 2018 update of WEF's *Manual of Practice No. 27, Financing and Charges for Wastewater Systems*. Prior to joining Raftelis, Jon worked in water resource recovery facility management and capital projects engineering.

KEY PROJECT EXPERIENCE

Philadelphia Water Department (PA)

Jon 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, Jon served as project manager for a management audit of customer service functions for PWD and the Water Revenue Bureau (WRB).

Specialties

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

Professional History

- Raftelis: 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 & Mathematics - Wake Forest University (1990)

Certifications

- Series 50 Municipal Advisor Representative

Professional Memberships

- AWWA: Virginia Section; Chesapeake Section; Pennsylvania Section; North Carolina Section
- WEF: Utility Management Committee; Finance & Administration Subcommittee (Past Chair); Utility Management Conference Planning Committee (Past Chair); Technical Practices Committee (Vice Chair)

DC Water (DC)
Jon 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)
Jon 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)
Jon 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. Jon is responsible for project administrative functions such as invoicing and sub-consultant coordination over the term of the engagement.

Washington Suburban Sanitary Commission (MD)
Jon 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 10 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 Jon, 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)
Jon 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)
Jon 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, Jon 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)
Jon currently serves as project director for our engagement with the Richmond Department Public Utilities (DPU). Raftelis is developing a financial planning model that incorporates all utility systems: water, wastewater, natural gas, street lighting and stormwater. DPU will use the model to set rates in addition to determining financial condition.

City of Virginia Beach Department of Public Utilities (VA)
Jon 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)
Jon 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)
Jon 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.

ADDITIONAL 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, and 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, and billing and collections costs analysis and allocation study
- Columbus Water Works (GA) - Cost-of-service rate study, financial planning, and procurement feasibility
- City of Corona (CA) - Wastewater rate study
- DC Water (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 and water and wastewater rate study
- Gwinnett County (GA) - Development/impact fee study for water and wastewater
- City and County of Honolulu Department of Environmental Services (HI) - wastewater rate structure study
- Town of Marana (AZ) - Water financial planning/rate study
- Philadelphia Water Department (PA) - Wholesale rate arbitration and customer service strategic review
- City of Phoenix (AZ) - Environmental fee study and 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 and 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
- Washington Suburban Sanitary Commission (MD) – Financial services and development/impact fee study
- York County (SC) - Countywide study for Evaluation of Water and sewer alternatives

PRESENTATIONS

- "Fixing Affordability Challenges Requires a Full Toolbox," Utility Management Conference, 2019
- "A New Water Rate Structure – Prioritizing Infrastructure and Affordability," Utility Infrastructure Conference, 2018
- "Philadelphia Water's Tiered Assistance Program," Transformative Issues Symposium, 2018
- "A New Affordability Program for Philadelphia Water," ACE, 2016
- "A New Rate Structure to Address the New Normal in Washington, DC," Utility Management Conference, 2016

Henrietta Locklear MPA

PROJECT MANAGER
Vice President & Director of Stormwater Management Consulting

PROFILE

Henrietta has 17 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. Henrietta 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. Henrietta 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 20 stormwater utility fee implementation projects. She was a member of the working group that developed the certification test for American Public Works Association's (APWA) 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, Henrietta 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." Henrietta 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 National Pollutant Discharge Elimination System (NPDES) compliance efforts to brownfields, on-site wastewater, and hazard mitigation programs. She convened Raftelis' Affordability Community of Practice, a group of firm professionals focusing on thought leadership in the affordability arena. She is a Municipal Advisor Representative, having passed the Series 50 exam.

RELEVANT PROJECT EXPERIENCE

Metropolitan St. Louis Sewer District (MO)

Raftelis serves as Metropolitan St. Louis Sewer District (MSD) financial and rate consultant under a multi-year engagement. Henrietta assisted MSD with the development of its stormwater rate proposal for MSD's 2018 rate case, including the development of the proposed credits and incentives program.

City of Raleigh Public Utilities Department (NC)

In March 2012, the City of Raleigh (City) contracted Raftelis to conduct a comprehensive organizational analysis and development study for the

Specialties

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

Professional History

- Raftelis: Vice President (2019-present) and Director of Stormwater Management Consulting (2021-present); Senior Manager (2015-2018); Manager (2013-2014); Senior Consultant (2011-2012)
- AMEC Morrisville, NC: Team Leader/Project manager (2009-2011)
- AMEC Raleigh, NC: Supervisor/Project manager (2008-2009); project manager (2006-2008)
- AMEC Nashville, TN: Public Affairs Coordinator (2004-2006)
- Wake County Government: Planning Technician (2003-2004); Intern (2003)
- School of Government, 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

Certifications

- Series 50 Municipal Advisor Representative

Professional Memberships

- WEF

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. Henrietta 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 the past, Henrietta served as project manager for on-call stormwater services contract. In this position, she served as lead for tasks including a benchmarking study of the City's program.

Philadelphia Water Department (PA)

Henrietta manages several efforts for Raftelis' engagements with Philadelphia Water Department (City). 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. Henrietta has led the development of the City's affordability program, the Tiered Assistance Program, which launched July 1, 2017.

City of Baltimore (MD)

Henrietta served as project lead for a complex and fast-paced project to implement a stormwater fee for the Bureau of Water and Wastewater with the City of Baltimore (City). She was the architect of the project approach covering all aspects of required elements for implementation and ensured the delivery of multiple key elements. One element was the credits program and Henrietta assisted staff with the credit program development including an innovative participation-based credit for residential customers. The City sent its first stormwater bills in October of 2013 and Henrietta has continued to assist the City with customer service, billing system and policy topics to the present.

City of Calgary (Canada)

In 2016, Henrietta led a broad-based survey associated with the City of Calgary's (City) recent analysis of a potential stormwater rate structure change. Raftelis was engaged as a sub-contractor for the City's recent utility rate study and rate structure analysis. The peer survey and industry summary covered a range of practices around stormwater fees including rate bases, credits and incentives, implementation of green infrastructure programs, data sources, and billing methods. The report was used to inform the development of a plan for rate structure change in the City's next five-year planning cycle. Henrietta presented results to the steering committee. In 2020, Raftelis was re-engaged to further the City's analysis and planning for a rate structure change. The study involves the analysis of incremental changes to the rate structure and development of a detailed implementation plan for carrying out those steps in the next business cycle.

Granville-Person Cooperative Stormwater Services (NC)

Henrietta 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, Henrietta served as the Stormwater Utility Services Manager for the group of jurisdictions to assist with coordination and regulatory compliance. Her duties included assisting the local governments with compliance for the Falls Watershed nutrient management strategy rules. She has served as the

manager from 2013 to 2016. She now manages the staff that serve in that role and provides senior oversight of the project.

City of Boulder (CO)
Henrietta was the lead for a stormwater rate structure analysis for the City of Boulder (City) as part of a comprehensive water, wastewater and stormwater rate assessment and to develop rate alternatives for each utility. The study included a detailed review of policies and practices incorporated in separate utility rate models maintained and updated by the City for validation and/or modification as well as a comprehensive review of improvements to the utility rate structures. The City's stormwater collection and drainage systems are faced with equitably recovering increased operating and capital requirements associated with increasing storm drainage service levels following the flooding experienced by the City in the fall of 2013. Alternatives included impervious area only and impervious area and gross area structure and the implementation of a credits program to incentivize green infrastructure practices. The team assessed how well City goals and customer concerns were addressed by the alternatives through detailed customer bill impact analysis. Throughout the project Raftelis has worked extensively with City staff to review and refine study findings and recommendations. With City staff, Henrietta presented interim study recommendations to the standing Water Resource Advisory Board (WRAB) to provide direction regarding policies, practices and adjustments to the utility rate structure for review and approval by City Council.

City of San Jose (CA)
Henrietta served as project manager for a fast-paced project to assess the City of San Jose's (City) stormwater program funding needs, funding gap, and potential funding sources. The City is under a consent decree with the San Francisco Baykeeper, which in part, requires the City to identify and secure funding sources for capital improvements required under the agreement. Henrietta has over seen the data collection, financial plan development and funding gap determination as well as opinion research to determine citizens' knowledge and understanding of the stormwater system and needs and willingness to pay for service. The engagement is ongoing.

Adams County (CO)
Henrietta managed an engagement with Adams County (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, Henrietta visited sites around the utility service area that were representative of existing stormwater management or special drainage conditions. Henrietta's 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. Henrietta 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, Henrietta estimated the potential revenue impact of implementing the recommended credit program.

Pinellas County (FL)
Henrietta 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, Henrietta 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. Henrietta 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.

County of San Diego (CA)

Henrietta served as project manager for a study of the County of San Diego's (County) 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 of Sacramento (City) to develop rate structure alternatives for the City's water, wastewater, and stormwater drainage rate structures. Henrietta 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 Henrietta contributed to presentations to stakeholders and staff throughout the project on the storm drainage fee alternatives. Henrietta led a follow-up project to update the rate structure alternatives and rates in 2019, based on a new capital plan and refined billing data.

City of Richmond (VA)

Since 2007, Raftelis has been engaged by the City of Richmond (City) Department of Public Utilities (DPU) as its financial and rate consultant. Henrietta 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, Henrietta developed additional, more palatable alternatives for the City's consideration. The analysis involved a detailed impacts analysis for customers. Henrietta assisted with presentations to staff on the alternatives, the selected alternative and the potential rates for the current stormwater financial plan. Henrietta lead 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. Implementation of assessment results included assisting DPU with the development of its water loss program.

City of Charlotte (NC)

Raftelis' most recent engagement, with the City of Charlotte (City), has been to assess the City's program including comparing the program with those of other utilities nationwide. Henrietta 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.

Northeast Ohio Regional Sewer District (OH)

Henrietta 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. Henrietta 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, Henrietta 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.

Henrietta has served as assistant project manager for the billing implementation phase of the project. In this capacity, she has led policy review and development and prepared and reviewed deliverables.

City of Dallas (TX)

Henrietta served 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)

Henrietta 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, Henrietta 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)
Henrietta 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)
Henrietta 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)
Henrietta served 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 supported improvements in the connectivity between the third-party billing vendor and the stormwater utility and among the departments serving stormwater customers.

In addition, Henrietta 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 Stormwater 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)
Henrietta served as project key lead for a study assessing potential changes to Philadelphia Water Department's (PWD) 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. Henrietta led the national credits study and coordinated the stakeholder process, including policy development and assessment. Henrietta also oversaw data analysis inputs into the stakeholder process.

Town of Butner (NC)
Henrietta 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. Henrietta 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, Henrietta 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)
Henrietta co-authored Notices of Intent (NOI) 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 (ETSU). To complete the NOIs, Henrietta 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. Henrietta 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, Henrietta 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 of Wilmington's conservative cash management principals and with existing revenue bond covenants. Henrietta drafted the cost-of-service report and rate study report.

Lexington-Fayette Urban County Government (KY)
Henrietta 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)
Henrietta 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)
Henrietta 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)
Henrietta 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, Henrietta 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 Wake County Department of Environmental Services 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 Of Jacksonville (City) departments, Henrietta 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)
Henrietta 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. Henrietta managed the project, wrote the qualitative and quantitative analyses, and presented to the Board of SEMSWA.

Georgetown County (SC)
Henrietta 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 of Carteville's stormwater utility, Henrietta 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. Henrietta coordinated timely delivery of materials and meeting follow-up tasks.

City of Bettendorf (IA)
Henrietta 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)
Henrietta has led several analyses for Metro, including billing data analyses related to a sewer rate structure change and, most recently, stormwater rate structure alternatives analysis in 2020.

From 2004 to 2006, Henrietta worked with Metro extensively, including managing the development of the City's stormwater management manual included drafting manual revision language and BMP designs and communicating with client and stakeholders on responses to revisions. Train staff and assist Metro Water Services of Nashville and Davidson County 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, Henrietta revised the stormwater management manual based on stakeholder and staff process.

Knox County (TN)
Henrietta assisted with Stormwater Ordinance and Manual Revisions for Knox 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)
Henrietta 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 Wake County (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. Henrietta 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, Henrietta designed brochure templates to be distributed by the County to residents using on-site wastewater systems.

In addition, Henrietta 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.

Henrietta 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 Henrietta facilitated a stakeholder group that recommended an expanded on-site wastewater system management program.

Texas Army National Guard, Various Sites in Texas
Henrietta 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)
Henrietta provided public education assistance to the City of Concord in the implementation of its Brownfields Assessment Grant.

City of New Bern (NC)
Henrietta led a public education and outreach track for the City of New Bern (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)
Henrietta facilitated the outreach project strategy stakeholder group and developed documentation in support of the City of St. Augustine's (City) CRS program. Through the project, the City obtained an upgrade in its CRS

classification from an 8 to a 7. Henrietta also assists on additional CRS credit activities such as the development of outreach materials.

State of North Carolina, Raleigh (NC)
Henrietta 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, Henrietta 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 (AL)
Henrietta developed content for user-guided multimedia training CD and web application. Topics included general information on flooding and floodplains, as well as the National Flood Insuranc Program, 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. Henrietta coordinated creative development of curriculum themes and design.

OTHER RELEVANT EXPERIENCE

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

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

PUBLICATIONS

- "Trackin' Mud: Keeping an Eye on the Construction General Permit," Current Issues in Stormwater Regulation. Lorman Educational Services, 2011
- "Washington State Decision Makes LID Mandatory," Stormwater Magazine, 2009, http://www.stormh2o.com/july-august-2009/washington-state-decision.aspx
- "Mind the Gap: The National Water Infrastructure Gap and the Local Stormwater Manager," Stormwater Magazine, 2007
- "National Policy, Local Innovation: Clean Water State Revolving Funds at 20 Years," Stormwater Magazine, 2007
- "Preparing for Everyday Threats: A New Landscape in Stormwater Infrastructure Security," Stormwater Magazine, 2007
- "What's all the fuss? News and Views on EPA's Proposed Water Transfer Rule," Stormwater Magazine, 2007
- "Successful Implementation of Riparian Buffer Programs," Stormwater Magazine, 2006
- "Municipal Stormwater System Maintenance: An Assessment of Current Practices and Methodology for Upgrading Programs," Stormwater Magazine, 2005

PRESENTATIONS

- "Facilitating and Tracking Chesapeake Bay Compliance through Stormwater Fee Credits - Baltimore's Innovative Program," WEF Technical Exhibition and Conference (WEFTEC), 2015
- "Saving Money Together: A multi-jurisdictional Environmental Compliance Approach in North Carolina," Utility Management Conference, 2014
- "Stormwater Billing: Getting the Best of Both Worlds," Stormwater Congress, WEFTEC, 2013
- "Satisficing LID: Local Government Ordinances that Incorporate LID," Annual Conference of the Southeastern Stormwater Association, 2011
- "Mobile Scanning to Collect First Floor Elevations for Assessing Coastal Risk," The North American Surface Water Quality Conference and Exposition, 2011
- "Mobile Scanning to Collect First Floor Elevations for Integrated Hazard Risk Management Projects," AMEC Technical Summit, 2010
- "Satisficing LID: Real Life Experiences with Local Government Ordinances that Incorporate Low Impact Development," The North American Surface Water Quality Conference and Exposition, 2010
- "Managing Septic Systems to Meet NPDES and Infrastructure Sustainability Goals," North Carolina American Public Works Association Annual Conference and Equipment Show, 2010
- "NPDES and Performance Measurement," The North American Surface Water Quality Conference and Exposition, 2009
- "Wasting Water by Law," WaterEC, the International Water Efficiency Conference, 2009
- "Major Trends in Stormwater Utility Fee Credit Programs," The North American Surface Water Quality Conference and Exposition, 2007
- "Infiltration BMPs: Policies and Design Standards That Permit Detention Volume Reductions," The North American Surface Water Quality Conference and Exposition, 2006
- "Municipal Stormwater System Maintenance: An Assessment of Current Practices and Methodology for Upgrading Programs," The North American Surface Water Quality Conference and Exposition, 2005
- "How Public is Too Public? Property Tax Records Availability on North Carolina Government Websites," Digital Government Innovation Bulletin, No. 2004/02, Institute of Government, 2004
- "How Public is Too Public? Property Tax Records Availability on North Carolina Government Websites," Southeastern Conference on Public Administration, 2004

Jennifer Tavantzis

CO-PROJECT MANAGER
Senior Manager

PROFILE

Jennifer 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 ten 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. Jennifer 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. Jennifer 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. Jennifer was also a contributing editor of the WEF's *Manual of Practice No. 27: Financing and Charges for Wastewater Systems*.

Specialties

- Stormwater finance & utility development
- Management policy & practice
- Utility rate studies
- Stakeholder engagement
- Organizational assessments

Professional History

- Raftelis: Senior Manager (2022-present); Manager (2018-2021); Senior Consultant (2016-2017); Consultant (2013-2016); Associate Consultant (2012-2013)
- Colorado Department of Public Health & Environment (2011-2012)

Education

- Master of Environmental Management - Duke University (2011)
- Bachelor of Arts in Environmental Studies & Urban Planning - University of Richmond (2009)

Certifications

- Series 50 Municipal Advisor Representative

RELEVANT PROJECT EXPERIENCE

City of Philadelphia (PA)

The City of Philadelphia (City) 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. Jennifer 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. She continues to oversee annual production of critical financial reporting out of the City's water billing system, which supports financial planning efforts.

Based on an intimate knowledge of the City's utility billing system and related practices and policies, Raftelis was further engaged in 2016 to develop and implement a cutting-edge affordability program consistent with direction from a recent rate case and a recently passed legislation out of City Council. Jennifer was involved in the Tiered Assistance Program (or TAP) from the outset, playing a significant role in development of program requirements and facilitation of policy and process design. She trained customer service staff on the new program, including program features, but also new software, processes, and procedures put in place to support it. Early on, Jennifer oversaw much of the reporting developed to track key program metrics and drive program administration, and she continues to manage program reporting, well into the sixth year of the program being live. Jennifer has recently led

efforts to document program challenges and successes at the five-year mark, which included extensive benchmarking of peer or geographically relevant assistance programs and recommendations to be leveraged in strategic planning efforts that are anticipated in the near future.

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. Jennifer conducted reviews of existing policy and processes, as well as review and revision of the City's geographic data relevant to stormwater management. Jennifer continues to serve as a trusted advisor to the City's stormwater utility administrators. In addition to work related to the stormwater utility, Jennifer worked extensively with the Bureau as it converted to a new billing system, focusing on testing bill print and accounting components of the new software in addition to the interfaces with the City's main financial system.

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. Jennifer developed policy documentation for the utility's data management, customer service, credit program, inspection and maintenance program, and billing. In addition, Jennifer assisted with GIS data analysis, billing database development, and project management. Jennifer continued to provide post go-live support for many years.

Upper Falls Watershed Multi-Jurisdictional Stormwater Utility (NC)
Five jurisdictions in the Falls Lake Watershed of Central North Carolina (County) 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. Jennifer was involved in many aspects of complex policy development around rate structure, organizational structure, customer outreach, and other issues, and currently serves and the Stormwater Utility Services Manager to the five jurisdictions.

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. Jennifer 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.

Beaufort County (SC)

Beaufort County (County) 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. Jennifer assisted the County with development and submittal of its MS4 permit Notice of Intent. After assisting with program planning and cost development for each of the five jurisdictions, Jennifer 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. The County and all underlying jurisdictions have since adopted the underlying rate structure. Jennifer continues to support one underlying jurisdiction, the Town of Bluffton, with annual updates to the financial model and rate recommendations.

City of Dallas (TX)

The City of Dallas (City) 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. Jennifer oversaw billing data development, led the policy revision efforts, and assisted with City outreach related to an updated approach to stormwater billing. Jennifer also assisted with the documentation of staff needs and resource gaps to facilitate updating the City's internal systems and processes.

City of Jackson (MS)

During a transition from an outdated utility billing system to a more modern billing application, the City of Jackson (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. Jennifer 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. Jennifer 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 (Borough) 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. Jennifer served as project manager during this successful effort. Jennifer 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. Jennifer 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. After a great deal of outreach led by Raftelis, the Borough implemented the new utility fee in 2019.

Lower Paxton Township (PA)
Raftelis was engaged by Lower Paxton Township (Township) to evaluate the feasibility of establishing a stormwater fee as the funding mechanism for the Township's growing stormwater program. Jennifer 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. Jennifer 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 Jennifer 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. After a great deal of outreach led by Raftelis, the Township implemented the new utility fee in 2019.

Arlington County (VA)
Raftelis has long served as Arlington County's water and sewer utility rate advisor. In 2019, the County also asked Raftelis to evaluate the feasibility of funding their stormwater program through a user fee (more closely aligned with properties' impacts on the drainage system and program) instead of the exiting tax rate. Jennifer played an integral role in the analysis, presentation of results to staff and leadership, and development of rate structure and rate recommendations. Key to this analysis was detailed consideration of the impacts owners and tenants of different styles of residential properties throughout the County. At present, the County implementing the fee. Jennifer is overseeing aspects of the project, including data maintenance software development, financial modeling, and process development.

ADDITIONAL PROJECT EXPERIENCE

- Adams County (CO) – Stormwater fee credit program review
- Arlington County (VA) – Stormwater utility feasibility study
- City of Baltimore (MD) - Stormwater utility implementation
- Beaufort County (SC) - Multi-jurisdictional stormwater rate structure analysis and rate study
- City of Burlington (NC) - Stormwater utility rate structure update
- Boulder County (CO) – Stormwater utility feasibility study
- Borough of Carlisle (PA) – Stormwater utility feasibility study and implementation
- City of Concord (NH) – Stormwater utility feasibility study
- City of Creedmoor (NC) – MS4 permit compliance support
- 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 and sewer rate study; water supply enhancement economic feasibility assessment; stormwater replacement fund policy analysis
- Durham County (NC) – Stormwater utility feasibility study and implementation
- DC Water (DC) – Customer assistance analysis
- City of Fayetteville (NC) – Stormwater program evaluation; stormwater ordinance and administrative manual update
- Town of Greeley (CO) – Stormwater billing data and data maintenance process audit
- Town of Holly Springs (NC) – Stormwater utility stormwater rate structure analysis and rate study
- City of Jackson (MS) - Water utility billing data review and process assessment
- Town of Kernersville (NC) - Stormwater program strategic planning
- City of Lakewood (OH) – Impervious area charge implementation
- Town of Lexington (MA) – Stormwater utility feasibility study and implementation
- Town of Longmeadow (MA) – Stormwater utility feasibility study and implementation

- Lower Paxton Township (PA) - Stormwater utility feasibility study and implementation
- City of Marathon (FL) – Stormwater utility rate structure update
- Modesto Irrigation District (CA) - Drainage maintenance cost allocation study
- Town of Mooresville (NC) - Stormwater utility feasibility study and implementation
- Town of Mount Pleasant (SC) - Cost-of-service study
- City of Newport News (VA) - Water utility rate study and affordability analysis
- Town of North East (MD) – Stormwater utility implementation
- Northeast Ohio Regional Sewer District - Stormwater utility development and implementation
- City of Philadelphia (PA) - Water department management assessment; customer assistance program implementation
- Pittsburgh Water and Sewer Authority (PA) – Stormwater utility implementation
- City of Raleigh Public Utilities Department (NC) - Stormwater utility organizational assessment & benchmarking study
- City of Raleigh (NC) – Stormwater utility financial planning
- Village of Rantoul (IL) – Stormwater billing software development
- City of Richmond (VA) - Rate study impact analysis
- City of Sacramento (CA) – Stormwater rate structure review and rate study
- San Diego County (CA) – Stormwater funding analysis
- City of San Jose (CA) – Stormwater funding 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
- Town of Westford (MA) – Stormwater utility feasibility study and implementation

2023 TAP Reconcilable Rider Reports and Projection Model

For: Philadelphia Water Department

By: 

2023 TAP Reconcilable Rider Reports and Projection Model: Table of Contents

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_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

Assumption		Scenario
TAP Subscription Projection	Increasing	due to prequalification efforts and recertification change
Monthly Cost per TAP Participant*	$50.31	and projected to be flat over time
Monthly Consumption per TAP Participant*	735	CF and projected to be flat over time

**Per Participant Data (based on Reconciled Period and Most Recent Period - Actual Data)*

			Average Monthly Number of TAP Participants	Total Number of TAP Participants	Total TAP Discount	Total TAP Water Consumption (CCF)	Total TAP Sewer Consumption (CCF)
Reconciled Period - Actual	January 2022	to August 2022	**11,917**	**95,336**	**$ 4,588,797**	**686,587**	**686,525**
Most Recent Period - Actual	September 2022	to November 2022	13,734	41,202	$ 2,280,605	316,553	316,524
Most Recent Period - Projected	December 2022	to August 2023	17,038	153,346	$ 7,714,826	1,127,091	1,127,091
Most Recent Period - Entire	**September 2022**	**to August 2023**	**16,212**	**194,548**	**$ 9,995,431**	**1,443,644**	**1,443,615**
Next Rate Period	**September 2023**	**to August 2024**	**17,289**	**207,468**	**$ 10,437,706**	**1,524,888**	**1,524,888**

	Reconciled Period					
Data Type	Actual	Actual	Actual	Actual	Actual	Actual
Projected Increase in Participants						
Participants	**Jan 2022**	**Feb 2022**	**Mar 2022**	**Apr 2022**	**May 2022**	**Jun 2022**
Total Participants	15,187	13,294	12,813	10,920	10,111	10,044
Discount	**Jan 2022**	**Feb 2022**	**Mar 2022**	**Apr 2022**	**May 2022**	**Jun 2022**
Total Discounts	$ 785,601.93	$ 622,228.82	$ 606,470.19	$ 495,915.08	$ 461,158.95	$ 482,182.82
Water Consumption	**Jan 2022**	**Feb 2022**	**Mar 2022**	**Apr 2022**	**May 2022**	**Jun 2022**
Total TAP Water Consumption (CCF)	115,589	92,454	91,051	74,605	70,157	72,630
Sewer Consumption	**Jan 2022**	**Feb 2022**	**Mar 2022**	**Apr 2022**	**May 2022**	**Jun 2022**
Total TAP Sewer Consumption (CCF)	115,578	92,445	91,038	74,596	70,157	72,629

			Most Recent Period			
Data Type	Actual	Actual	Actual	Actual	Actual	Projected
Projected Increase in Participants						5.00%
Participants	**Jul 2022**	**Aug 2022**	**Sep 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**
Total Participants	10,919	12,048	13,123	13,761	14,318	15,034
Discount	**Jul 2022**	**Aug 2022**	**Sep 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**
Total Discounts	$ 547,266.26	$ 587,972.77	$ 784,780.64	$ 759,935.25	$ 735,888.81	$ 756,355.51
Water Consumption	**Jul 2022**	**Aug 2022**	**Sep 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**
Total TAP Water Consumption (CCF)	81,622	88,479	111,525	104,033	100,995	110,499
Sewer Consumption	**Jul 2022**	**Aug 2022**	**Sep 2022**	**Oct 2022**	**Nov 2022**	**Dec 2022**
Total TAP Sewer Consumption (CCF)	81,615	88,467	111,515	104,026	100,983	110,499

Data Type	Projected	Projected	Projected	Projected	Projected	Projected	Projected
Projected Increase in Participants	15.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Participants	**Jan 2023**	**Feb 2023**	**Mar 2023**	**Apr 2023**	**May 2023**	**Jun 2023**	**Jul 2023**
Total Participants	17,289	17,289	17,289	17,289	17,289	17,289	17,289
Discount	**Jan 2023**	**Feb 2023**	**Mar 2023**	**Apr 2023**	**May 2023**	**Jun 2023**	**Jul 2023**
Total Discounts	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84
Water Consumption	**Jan 2023**	**Feb 2023**	**Mar 2023**	**Apr 2023**	**May 2023**	**Jun 2023**	**Jul 2023**
Total TAP Water Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074	127,074
Sewer Consumption	**Jan 2023**	**Feb 2023**	**Mar 2023**	**Apr 2023**	**May 2023**	**Jun 2023**	**Jul 2023**
Total TAP Sewer Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074	127,074

		Next Rate Period					
Data Type	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%
Participants	**Aug 2023**	**Sep 2023**	**Oct 2023**	**Nov 2023**	**Dec 2023**	**Jan 2024**	**Feb 2024**
Total Participants	17,289	17,289	17,289	17,289	17,289	17,289	17,289
Discount	**Aug 2023**	**Sep 2023**	**Oct 2023**	**Nov 2023**	**Dec 2023**	**Jan 2024**	**Feb 2024**
Total Discounts	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84
Water Consumption	**Aug 2023**	**Sep 2023**	**Oct 2023**	**Nov 2023**	**Dec 2023**	**Jan 2024**	**Feb 2024**
Total TAP Water Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074	127,074
Sewer Consumption	**Aug 2023**	**Sep 2023**	**Oct 2023**	**Nov 2023**	**Dec 2023**	**Jan 2024**	**Feb 2024**
Total TAP Sewer Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074	127,074

Data Type	Projected	Projected	Projected	Projected	Projected	Projected
Projected Increase in Participants	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Participants	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**
Total Participants	17,289	17,289	17,289	17,289	17,289	17,289
Discount	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**
Total Discounts	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84	$ 869,808.84
Water Consumption	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**
Total TAP Water Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074
Sewer Consumption	**Mar 2024**	**Apr 2024**	**May 2024**	**Jun 2024**	**Jul 2024**	**Aug 2024**
Total TAP Sewer Consumption (CCF)	127,074	127,074	127,074	127,074	127,074	127,074

Data in DR_1, DR_2, DR_3A Participants, and DR_4 are from reports run on a static copy of basis2 as of 11/30/22

Data aquired for months January 2020 through November 2022

DR-1: Water Billed Volume						
		2022	2022	2022	2022	2022
		1	2	3	4	5
Customer Group	Discount Group	January 2022 Water Billed Volume (CCF)	February 2022 Water Billed Volume (CCF)	March 2022 Water Billed Volume (CCF)	April 2022 Water Billed Volume (CCF)	May 2022 Water Billed Volume (CCF)
TAP	All Groups	115,589	92,454	91,051	74,605	70,157
Non-TAP	Senior Discount	79,554	72,469	82,665	82,194	78,946
Non-TAP	PHA Discount	138,850	124,003	125,728	136,537	118,682
Non-TAP	Non-PHA Discount (Other discount)	186,777	144,463	199,943	175,953	218,814
Non-TAP	No Additional Discount	4,398,754	3,844,281	4,236,949	4,186,241	3,999,119
PWD (not subject to reconciliation)	PWD	281,654	223,212	235,250	225,731	235,470

Water Billed Volume Subtotals, by Customer Group						
Customer Group		January 2022 Water Billed Volume (CCF)	February 2022 Water Billed Volume (CCF)	March 2022 Water Billed Volume (CCF)	April 2022 Water Billed Volume (CCF)	May 2022 Water Billed Volume (CCF)
TAP		115,589	92,454	91,051	74,605	70,157
Non-TAP		4,803,935	4,185,216	4,645,285	4,580,925	4,415,561
PWD (not subject to reconciliation)		281,654	223,212	235,250	225,731	235,470

DR-1: Water Billed Volume						
		2022	2022	2022	2022	2022
		6	7	8	9	10
Customer Group	Discount Group	June 2022 Water Billed Volume (CCF)	July 2022 Water Billed Volume (CCF)	August 2022 Water Billed Volume (CCF)	September 2022 Water Billed Volume (CCF)	October 2022 Water Billed Volume (CCF)
TAP	All Groups	72,630	81,622	88,479	111,525	104,033
Non-TAP	Senior Discount	83,508	85,787	79,715	88,538	76,017
Non-TAP	PHA Discount	131,452	139,576	135,221	306,137	148,512
Non-TAP	Non-PHA Discount (Other discount)	197,037	208,026	235,611	288,304	203,778
Non-TAP	No Additional Discount	4,341,778	4,640,217	4,745,722	5,189,920	4,475,773
PWD (not subject to reconciliation)	PWD	221,362	231,988	238,407	299,410	295,833

Water Billed Volume Subtotals, by Customer Group						
Customer Group		June 2022 Water Billed Volume (CCF)	July 2022 Water Billed Volume (CCF)	August 2022 Water Billed Volume (CCF)	September 2022 Water Billed Volume (CCF)	October 2022 Water Billed Volume (CCF)
TAP		72,630	81,622	88,479	111,525	104,033
Non-TAP		4,753,775	5,073,606	5,196,269	5,872,899	4,904,080
PWD (not subject to reconciliation)		221,362	231,988	238,407	299,410	295,833

DR-1: Water Billed Volume		
		2022
		11
Customer Group	Discount Group	November 2022 Water Billed Volume (CCF)
TAP	All Groups	100,995
Non-TAP	Senior Discount	75,059
Non-TAP	PHA Discount	124,884
Non-TAP	Non-PHA Discount (Other discount)	192,780
Non-TAP	No Additional Discount	4,126,213
PWD (not subject to reconciliation)	PWD	237,840

Water Billed Volume Subtotals, by Customer Group	
Customer Group	November 2022 Water Billed Volume (CCF)
TAP	100,995
Non-TAP	4,518,936
PWD (not subject to reconciliation)	237,840

DR-2: Sewer Billed Volume						
		2022	2022	2022	2022	2022
		1	2	3	4	5
Customer Group	Discount Group	January 2022 Sewer Billed Volume (CCF)	February 2022 Sewer Billed Volume (CCF)	March 2022 Sewer Billed Volume (CCF)	April 2022 Sewer Billed Volume (CCF)	May 2022 Sewer Billed Volume (CCF)
TAP	All Groups	115,578	92,445	91,038	74,596	70,157
Non-TAP	Senior Discount	79,472	72,383	82,573	82,098	78,856
Non-TAP	PHA Discount	138,850	124,003	125,728	136,537	118,681
Non-TAP	Non-PHA Discount (Other discount)	185,516	143,601	198,474	174,593	217,022
Non-TAP	No Additional Discount	4,154,796	3,651,277	4,027,667	3,950,896	3,779,569
PWD (not subject to reconciliation)	PWD	281,654	223,212	235,250	225,731	235,470

Sewer Billed Volume Subtotals, by Customer Group						
Customer Group		January 2022 Sewer Billed Volume (CCF)	February 2022 Sewer Billed Volume (CCF)	March 2022 Sewer Billed Volume (CCF)	April 2022 Sewer Billed Volume (CCF)	May 2022 Sewer Billed Volume (CCF)
TAP		115,578	92,445	91,038	74,596	70,157
Non-TAP		4,558,634	3,991,264	4,434,442	4,344,124	4,194,128
PWD (not subject to reconciliation)		281,654	223,212	235,250	225,731	235,470

DR-2: Sewer Billed Volume						
		2022	2022	2022	2022	2022
		6	7	8	9	10
Customer Group	Discount Group	June 2022 Sewer Billed Volume (CCF)	July 2022 Sewer Billed Volume (CCF)	August 2022 Sewer Billed Volume (CCF)	September 2022 Sewer Billed Volume (CCF)	October 2022 Sewer Billed Volume (CCF)
TAP	All Groups	72,629	81,615	88,467	111,515	104,026
Non-TAP	Senior Discount	83,401	85,687	79,623	88,451	75,923
Non-TAP	PHA Discount	131,404	139,472	135,162	306,075	148,436
Non-TAP	Non-PHA Discount (Other discount)	194,956	205,632	232,804	285,719	202,229
Non-TAP	No Additional Discount	4,080,524	4,337,935	4,373,307	4,843,428	4,212,138
PWD (not subject to reconciliation)	PWD	221,362	231,988	238,407	299,410	295,833

Sewer Billed Volume Subtotals, by Customer Group						
Customer Group		June 2022 Sewer Billed Volume (CCF)	July 2022 Sewer Billed Volume (CCF)	August 2022 Sewer Billed Volume (CCF)	September 2022 Sewer Billed Volume (CCF)	October 2022 Sewer Billed Volume (CCF)
TAP		72,629	81,615	88,467	111,515	104,026
Non-TAP		4,490,285	4,768,726	4,820,896	5,523,673	4,638,726
PWD (not subject to reconciliation)		221,362	231,988	238,407	299,410	295,833

DR-2: Sewer Billed Volume		2022
		11
Customer Group	Discount Group	November 2022 Sewer Billed Volume (CCF)
TAP	All Groups	100,983
Non-TAP	Senior Discount	74,966
Non-TAP	PHA Discount	124,852
Non-TAP	Non-PHA Discount (Other discount)	191,100
Non-TAP	No Additional Discount	3,885,036
PWD (not subject to reconciliation)	PWD	237,840

Sewer Billed Volume Subtotals, by Customer Group	
Customer Group	November 2022 Sewer Billed Volume (CCF)
TAP	100,983
Non-TAP	4,275,954
PWD (not subject to reconciliation)	237,840

2023 TAP Reconcilable Rider Reports and Projection Model: DR_3A Participants
January 2022 - November 2022

DR-3A: TAP Participants									
	2022	2022	2022	2022	2022	2022	2022	2022	2022
	1	2	3	4	5	6	7	8	9
Customer Type	January 2022 Participants	February 2022 Participants	March 2022 Participants	April 2022 Participants	May 2022 Participants	June 2022 Participants	July 2022 Participants	August 2022 Participants	September 2022 Participants
Senior Discount	4,490	4,019	3,998	3,573	3,294	3,301	3,520	3,785	4,020
PHA	-	-	-	-	-	-	-	-	-
Non-PHA	-	-	-	-	-	-	-	-	-
No Discount	10,697	9,275	8,815	7,347	6,817	6,743	7,399	8,263	9,103
All	15,187	13,294	12,813	10,920	10,111	10,044	10,919	12,048	13,123

2023 TAP Reconcilable Rider Reports and Projection Model: DR_3A Participants
January 2022 - November 2022

DR-3A: TAP Participants	2022	2022
	10	11
Customer Type	October 2022 Participants	November 2022 Participants
Senior Discount	4,176	4,315
PHA	-	-
Non-PHA	-	-
No Discount	9,585	10,003
All	13,761	14,318

DR-4: TAP Discount								
	2022	2022	2022	2022	2022	2022	2022	2022
	1	2	3	4	5	6	7	8
Customer Type	January 2022 Discount	February 2022 Discount	March 2022 Discount	April 2022 Discount	May 2022 Discount	June 2022 Discount	July 2022 Discount	August 2022 Discount
Senior Discount	$ 143,926.74	$ 130,461.76	$ 131,712.24	$ 98,682.41	$ 103,766.79	$ 103,009.97	$ 102,632.67	$ 112,755.07
PHA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-PHA	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
No Discount	$ 641,675.19	$ 491,767.06	$ 474,757.95	$ 397,232.67	$ 357,392.16	$ 379,172.85	$ 444,633.59	$ 475,217.70
All	$ 785,601.93	$ 622,228.82	$ 606,470.19	$ 495,915.08	$ 461,158.95	$ 482,182.82	$ 547,266.26	$ 587,972.77

2023 TAP Reconcilable Rider Reports and Projection Model: DR_4
January 2022 - November 2022

DR-4: TAP Discount			
	2022	2022	2022
	9	10	11
Customer Type	September 2022 Discount	October 2022 Discount	November 2022 Discount
Senior Discount	$ 142,584.29	$ 143,410.57	$ 136,444.68
PHA	$ -	$ -	$ -
Non-PHA	$ -	$ -	$ -
No Discount	$ 642,196.35	$ 616,524.68	$ 599,444.13
All	$ 784,780.64	$ 759,935.25	$ 735,888.81

Effective: September 1, 2023

PHILADELPHIA WATER DEPARTMENT

RATES AND CHARGES
Effective: September 1, 2023.

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. Real estate is not a condominium unless the undivided interests in the common elements are vested in the unit owners.

(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) Dwelling Unit: A single unit within a building providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

(e) 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.

(f) 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

(g) 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.

(h) 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.

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

(j) 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.

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

(l) 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.

(m) 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.

(n) 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.

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

(p) 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.

(q) 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.

(r) Utility Plan: A plan that shows water, sewer, and/or stormwater connections and sizes, utility locations, and impacts to rights-of-way, the approval of which is required under the Administrative Code Section A-305.2.1.6.

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, 2023, 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, 2023 and thereafter, the monthly service charge for the various types and sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$5.30
3/4	Z	5.81
1	Q	7.27
1 -1/2	P	10.28
2	X	14.65
3	O	23.99
4	W	42.84
6	N	81.39
8	V	125.10
10	E	182.51
12	T	306.82

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	9.47
1	Q	10.93
1 -1/2	P	13.94
2	X	18.31

(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 1, 2023 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)	**$61.14**	**$0.21**	**$61.35**
Next 98 Mcf (2.1 to 100 Mcf)	**54.93**	**0.21**	**55.14**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**42.55**	**0.21**	**42.76**
Over 2,000 Mcf	**41.40**	**0.21**	**41.61**

Note: Actual TAP-R rates are subject to Annual Reconciliation and the determination of the Rate Board.

(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, 2023, 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, 2023 and thereafter, the monthly service charge for the various sizes of meters shall be as follows:

Size	Code	Charge

5/8	R	$7.54
3/4	Z	9.62
1	Q	14.10
1 -1/2	P	24.80
2	X	38.25
3	O	68.97
4	W	117.21
6	N	231.03
8	V	365.58
10	E	527.64
12	T	959.14

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	7.54
1	Q	7.54
1 -1/2	P	7.54
2	X	7.54

(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 1, 2023 and thereafter, the quantity charge shall be:

Base Charge Per Mcf	**TAP-R Per Mcf**	**Total Charge Per Mcf**
$39.61	**$0.34**	**$39.95**

3.4 Surcharge.

(a) Effective September 1, 2023 and thereafter, the surcharge for wastewater by definition in excess of Normal Wastewater shall be fixed at forty-four and three tenths cents ($0.443) per pound of pollutants received into the wastewater system in excess of 250 milligrams

per liter of BOD_5 and forty-five and two tenths cents ($0.452) 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 13-101(6) 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 eight hundred and twenty dollars ($820) 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 three hundred and eighty-five dollars ($385) 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, 2023 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, 2023 and thereafter all Residential Properties shall be charged the rates listed below:

SWMS	Billing & Collection
$17.09	$1.95

(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.

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, 2023 and thereafter, the Rates shall be as follows:

GA ($/500 s.f.)	IA ($/500 s.f.)	Billing & Collection
0.799	5.842	$2.53

(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
$17.09	$2.53

(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; except that the Department may authorize WRB to credit accounts for adjustments to the GA and/or IA calculation for a period not to exceed three years prior to receipt of the Adjustment Appeals Application if the Customer filing the appeal demonstrates, by clear and convincing evidence, that it was eligible for and qualified to receive the adjustment during the three year period prior to the receipt of the Adjustment Appeals Application was incorrect.

(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, or

(C) Tree canopy coverage.

(ii) For Properties with PWD-approved Stormwater Management Practices constructed per Chapter 6 of the Department's regulations, the customer must demonstrate compliance with the regulations, including management of the first 1.5 inches of runoff and any and all required reporting, inspection and maintenance activities, except as otherwise provided in 4.5(c)(1)(iv).

(iii) For properties with PWD-approved Stormwater Management Practices, including those constructed with Department stormwater grant funds, the customer must demonstrate management of the first 1.5" of runoff and SMP compliance per the approved record drawing and any and all reporting, inspection and maintenance activities, except as otherwise provided in 4.5(c)(1)(iv).

(iv) The Department may approve a Property for IA credit for Non-Surface Water Discharges under the credit requirements in effect before September 1, 2021, if the Department receives a credit application for that Property on or before September 1, 2021. Such Properties property receiving credit under the credit requirements in effect before September 1, 2021 may continue to receive the credit under those requirements until the credit expires. Upon expiration of the credit, the current or future Property Owners of such Properties may renew the credit under the credit requirements in effect before September 1, 2021 by submitting a renewal application(s) in accordance with Subsection 4.5(f)(4) unless and until this section is modified.[1]

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

[1] Prior to September 1, 2021, Customers of Properties with non-Surface Discharges were required to demonstrate management of the first inch of stormwater runoff in one of the three following ways: (1) infiltration, (2) detention and slow release, and/or (3) routing through an approved volume -reducing SMP.

(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), (iii), (iv) and (v) 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 two hundred and eighty dollars ($280).

(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 $38,800 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 general rate 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, 2021, 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 Chapters 16-400 or 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 or violations of the requirements of § 17-107(12) ("Recipients of Financial Assistance") applicable to properties that benefit from financial assistance in connection with the receipt of charity rates and charges 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, 2023 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”	$130
1”, 1-1/2”, 2”	$180
3”, 4”, 6”, 8”, 10”, 12”	$390
Field Tests, 3” and above	$390

(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”	$225
¾ RFSS	415
1”	375
1” RFSS	470
11/2”	835
1 1/2” RFSS	785
2”	1,010
2” RFSS	1,020
3” Compound	3,320
3” Turbine	1,825
3” Fire Series	3,645
4” Compound	3,900
4” Turbine	2,635
4” Fire Series	4,505
4” Fire Assembly	6,085
6” Compound	6,445
6” Turbine	4,955
6” Fire Series	5,965
6” Fire Assembly	8,690
8” Turbine	5,885
8” Fire Series	7,550
8” Fire Assembly	12,285
10” Turbine	8,540
10” Fire Series	9,300
10” Fire Assembly	17,745
12” Turbine	9,045
12” Fire Series	10,455
12” Fire Assembly	18,905

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

Meter Size	Charge
5/8”	$ 75
¾” RFSS	75
1”	120
1 ” RFSS	120
1 1/2”	120
1 ½” RFSS	120
2”	120
2” RFSS	120
3” Compound	310
3” Turbine	310
4” Compound	310
4” Turbine	310

6” Compound	310
6” Turbine	310
8”	310
10”	310

(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”	$ 80
1”, 1½”, 2”	130
3” and larger	340

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 seventy-five dollars ($75) will be assessed, with the exception stated in Section 6.4(e).

(b) A seventy-five dollar ($75) 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.....$75

with the exception stated in Section 6.4(e)

(ii) service lines larger than 2”…….....…...$355

(2) Where the curb stop is obstructed, the access box missing or otherwise requires excavation $700

(3) Where the curb stop is inoperable and a new curb stop must be installed...$730

(4) Where the curb stop is obstructed, the access box missing, or otherwise requires excavation, and replacement of footway paving is required.....$710

(5) Where the curb stop is inoperable and a new curb box must be installed and replacement of footway paving is required.....$740

(6) Where excavation and shut-off of the ferrule at the water main is required $1,450

(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.

(e) A charge of $12 will be assessed if a Customer is enrolled in IWRAP and the Department is required to visit the Property to:

(1) shut off service for non-payment; and, payment is tendered at the time of the shut-off; or

(2) restore water service after termination of water service for non-payment or violation of service requirements.

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 three hundred and fifteen dollar ($315) 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, with the exception stated in Section 6.7(b)(3), shall be as follows:

Size	Charge
¾”	$185
1”	210
1½”	250
2”	320

(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”	$210
1”	235
1½”	275
2”	340

(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”	$ 12,725
6” & 8”	13,590
10” & 12”	16,230

(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”	$ 14,720
6” & 8”	15,580
10” & 12”	18,225

(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”	$ 20,690
20”	22,845
24”	25,145
30”	37,330
36”	44,250

SLEEVE	6” & 8”
MAIN	
16”	$20,905
20”	22,560
24”	25,145
30”	39,320
36”	48,835

SLEEVE	10” & 12”
MAIN	
16”	$20,980
20”	22,920
24”	25,145
30”	39,955
36”	51,545

(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"	$23,185
20"	25,335
24"	27,635
30"	39,820
36"	46,740
SLEEVE	6" & 8"
MAIN	
16"	$23,400
20"	25,050
24"	27,635
30"	41,810
36"	51,325
SLEEVE	10" & 12"
MAIN	
16"	$23,470
20"	25,410
24"	27,635
30"	42,445
36"	54,035

(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……$ 1,205

(2) Six Month Permit for use of standard pressure hydrant…..…$ 6,295

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 five hundred and seventy dollars ($570) 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 one hundred and thirty dollars ($130) 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, 2023, 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, 2023 and thereafter, the rate shall be $13.87 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, 2023 and thereafter, the rate shall be $64.94 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 two thousand seven hundred and forty-five dollars ($2,745).

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 two thousand seven hundred and forty-five dollars ($2,745).

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 two thousand eight hundred and sixty-five dollars ($2,865).

(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 five hundred and sixty dollars ($1,560).

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 PLAN REVIEW AND INSPECTION CHARGES

8.1 Stormwater Plan Review and Inspection 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 four hundred and ninety dollars ($1,490) shall be due upon submission of the Conceptual Stormwater Management Plan for review.

(2) A fee of one hundred and seventy dollars ($170) per hour of review time shall be due prior to issuance of the Post-Construction Stormwater Management Plan 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 project for compliance with Chapter 6 of the Department's regulations.

(3) A fee of three hundred and seventy-five dollars ($375) for the final inspection of a development project to confirm compliance with Chapter 6 of the Department's regulations shall be due prior to issuance of the Post-Construction Stormwater Management Plan approval.

(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.

The fee in lieu shall be calculated as follows:

(a) For an exemption to only the Water Quality Requirement of Chapter 6 of the Department's regulations the fee in lieu shall be thirty-six dollars ($36.00) per square foot based on the total Directly Connected Impervious Area within the limit of Earth Disturbance.

8.3 Utility Plan Review Fees.

All Utility Plans submitted to the Department to receive building permit approval in accordance with Administrative Code Section A-305.2.1.6 shall be subject to a plan review fee.

(a) A fee of three hundred and ten dollars ($310) shall be due upon submission of the Utility Plan for review.

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, 2023, 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, 2023 and thereafter, shall be as follows:

Connection Size	Service Charge
Up through 4-inch	$ 29.04
6-inch	53.81
8-inch	80.97
10-inch	119.07
12-inch	188.23

(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 1, 2023 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)	**$61.14**	**$0.21**	**$61.35**
Next 98 Mcf (2.1 to 100 Mcf)	**54.93**	**0.21**	**55.14**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**42.55**	**0.21**	**42.76**
Over 2,000 Mcf	**41.40**	**0.21**	**41.61**

Note: Actual TAP-R rates are subject to Annual Reconciliation and the determination of the Rate Board.

(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:

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

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 Rates and Charges. 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: 42%

(ii) Sewer TAP Cost Allocation: 58%

(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 96.99%.

(4) **I** - Interest on any over or under recovery of the TAP-R for the Most Recent Period. Interest will be computed on a monthly basis using a simple annual interest rate. 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

The Water Department shall initiate the annual TAP Rate Rider Reconciliation by filing an advance notice with the Philadelphia Water, Sewer and Storm Water Rate Board (the "Rate Board") and City Council in accordance with the procedures and standards established by the Rate Board through its regulations.

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 1, 2023 and thereafter, the Water TAP-R surcharge shall be $0.21 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 1, 2023 and thereafter, the Sewer TAP-R surcharge shall be $0.34 per Mcf as determined by the annual reconciliation filing.

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

Effective: September 1, 2022~~2~~3

PHILADELPHIA WATER DEPARTMENT

RATES AND CHARGES
Effective: September 1, 2022~~2~~3.

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. Real estate is not a condominium unless the undivided interests in the common elements are vested in the unit owners.

(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) Dwelling Unit: A single unit within a building providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation.

(e) 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.

(f) 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

(g) 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.

(h) 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.

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

(j) 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.

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

(l) 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.

(m) 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.

(n) 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.

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

(p) 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.

(q) 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.

(r) Utility Plan: ~~In accordance with the City of Philadelphia Administrative Code Section A-305.2.1.6, the Department's~~PWD approval is required to confirm water and sewer availability before a building permit may be issued. Applicants seeking PWD approval for water and sewer availability or who are seeking connection to the Department's water main and/or public sewer must submit a Utility Plan to the PW~~Department in accordance with the Department~~PWD regulations and requirements A plan that shows water, sewer, and/or stormwater connections and sizes, utility locations, and impacts to rights-of-way, the approval of which is required under the Administrative Code Section A-305.2.1.6. ~~drafted in accordance with Department requirements.~~

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, 202~~2~~3, 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, 202~~2~~3 and thereafter, the monthly service charge for the various types and sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$~~4.97~~5.30
3/4	Z	~~5.37~~5.81

1	Q	~~6.57~~7.27
1 -1/2	P	~~8.96~~10.28
2	X	~~12.59~~14.65
3	O	~~20.20~~23.99
4	W	~~36.454~~2.84
6	N	~~68.708~~1.39
8	V	~~104.91~~125.10
10	E	~~153.42~~182.51
12	T	~~253.19~~306.82

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	~~7.22~~9.47
1	Q	~~8.42~~10.93
1 -1/2	P	~~10.81~~13.94
2	X	~~14.44~~18.31

(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 1, 202~~2~~3 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)	$~~48.96~~61.14	$~~1.03~~0.21	$~~49.99~~61.35
Next 98 Mcf (2.1 to 100 Mcf)	~~44.99~~54.93	~~1.03~~0.21	~~46.02~~55.14
Next 1,900 Mcf (100.1 to 2,000 Mcf)	~~34.85~~42.55	~~1.03~~0.21	~~35.88~~42.76
Over 2,000 Mcf	~~33.91~~41.40	~~1.03~~0.21	~~34.94~~41.61

Note: Actual TAP-R rates are subject to Annual Reconciliation and the determination of the Rate Board.

(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, 202~~2~~3, 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, 2022~~2~~3 and thereafter, the monthly service charge for the various sizes of meters shall be as follows:

Size	Code	Charge
5/8	R	$~~7.50~~7.54
3/4	Z	~~9.57~~9.62
1	Q	~~14.05~~14.10
1 -1/2	P	~~24.75~~24.80
2	X	~~38.19~~38.25
3	O	~~68.87~~68.97
4	W	~~117.03~~117.21
6	N	~~230.71~~231.03
8	V	~~365.13~~365.58

10	E	~~526.96~~527.64
12	T	~~958.27~~959.14

Residential Fire Sprinkler System Meters

Size	Code	Charge
3/4	Z	~~7.50~~7.54
1	Q	~~7.50~~7.54
1 -1/2	P	~~7.50~~7.54
2	X	~~7.50~~7.54

(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 1, 202~~2~~3 and thereafter, the quantity charge shall be:

Base Charge Per Mcf	**TAP-R Per Mcf**	**Total Charge Per Mcf**
$~~34.57~~39.61	**$~~1.63~~0.34**	**$~~36.20~~39.95**

3.4 Surcharge.

(a) Effective September 1, 202~~2~~3 and thereafter, the surcharge for wastewater by definition in excess of Normal Wastewater shall be fixed at ~~thirty-nine and one~~ forty-four and three tenths cents ($0.~~391~~443) per pound of pollutants received into the wastewater system in excess of 250 milligrams per liter of BOD_5 and forty-five and ~~six~~two tenths cents ($0.~~406~~452) 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 13-101(6) 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 ~~five hundred and eighty-five~~ eight hundred and twenty dollars ($~~585~~820) 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~~ three hundred and eighty-five dollars ($~~275~~385) 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, 202~~2~~3 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, 2022~~2~~3 and thereafter all Residential Properties shall be charged the rates listed below:

SWMS	Billing & Collection
$~~16.17~~17.09	$~~1.88~~1.95

(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.

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, 202~~2~~3 and thereafter, the Rates shall be as follows:

GA ($/500 s.f.)	IA ($/500 s.f.)	Billing & Collection
0.~~778~~799	~~5.492~~5.842	$~~2.44~~2.53

(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
$~~16.17~~17.09	$~~2.44~~2.53

(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; except that the Department may authorize WRB to credit accounts for adjustments to the GA and/or IA calculation for a period not to exceed three years prior to receipt of the Adjustment Appeals Application if the Customer filing the appeal demonstrates, by clear and convincing evidence, that it was eligible for and qualified to receive the adjustment during the three year period prior to the receipt of the Adjustment Appeals Application was incorrect.

(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, or

(C) Tree canopy coverage.

(ii) For Properties with PWD-approved Stormwater Management Practices constructed per Chapter 6 of the Department's regulations, the customer must demonstrate compliance with the regulations, including management of the first 1.5 inches of runoff and any and all required reporting, inspection and maintenance activities, except as otherwise provided in 4.5(c)(1)(iv).

(iii) For properties with PWD-approved Stormwater Management Practices, including those constructed with Department stormwater grant funds, the customer must demonstrate management of the first 1.5" of runoff and SMP compliance per the approved record drawing and any and all reporting, inspection and maintenance activities, except as otherwise provided in 4.5(c)(1)(iv).

(iv) The Department may approve a Property for IA credit for Non-Surface Water Discharges under the credit requirements in effect before September 1, 2021, if the Department receives a credit application for that Property on or before September 1, 2021. Such Properties property receiving credit under the credit requirements in effect before September 1, 2021 may continue to receive the credit under those requirements until the credit expires. Upon expiration of the credit, the current or future Property Owners of such Properties may renew the credit under the credit requirements in effect before September 1, 2021 by submitting a renewal application(s) in accordance with Subsection 4.5(f)(4) unless and until this section is modified.[1]

(v) 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), (iii), (iv) and (v) herein.

[1] Prior to September 1, 2021, Customers of Properties with non-Surface Discharges were required to demonstrate management of the first inch of stormwater runoff in one of the three following ways: (1) infiltration, (2) detention and slow release, and/or (3) routing through an approved volume -reducing SMP.

(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 two hundred and eighty dollars ($~~200~~280).

(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 $~~33,300~~38,800 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 general rate 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, 2021, 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 Chapters 16-400 or 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 or violations of the requirements of § 17-107(12) ("Recipients of Financial Assistance") applicable to properties that benefit from financial assistance in connection with the receipt of charity rates and charges 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, 2022~~2~~3 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~~130
1", 1-1/2", 2"	$~~280~~180
3", 4", 6", 8", 10", 12"	$~~640~~390
Field Tests, 3" and above	$~~640~~390

(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"	$~~255~~225
¾ RFSS	~~435~~415
1"	~~430~~375
1" RFSS	~~520~~470
11/2"	~~805~~835
1 1/2" RFSS	~~750~~785
2"	~~905~~1,010

2” RFSS	~~970~~1,020
3” Compound	~~2,370~~3,320
3” Turbine	~~1,485~~1,825
3” Fire Series	~~3,370~~3,645
4” Compound	~~2,785~~3,900
4” Turbine	~~2,525~~2,635
4” Fire Series	~~3,660~~4,505
4” Fire Assembly	~~6,015~~6,085
6” Compound	~~4,815~~6,445
6” Turbine	~~4,065~~4,955
6” Fire Series	~~5,310~~5,965
6” Fire Assembly	~~7,915~~8,690
8” Turbine	~~5,445~~5,885
8” Fire Series	~~6,080~~7,550
8” Fire Assembly	~~11,135~~12,285
10” Turbine	~~7,785~~8,540
10” Fire Series	~~8,515~~9,300
10” Fire Assembly	~~15,300~~17,745
12” Turbine	~~7,900~~9,045
12” Fire Series	~~8,705~~10,455
12” Fire Assembly	~~16,170~~18,905

(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~~75
¾” RFSS	~~105~~75
1”	~~190~~120
1 ” RFSS	~~190~~120
1 1/2”	~~190~~120
1 ½” RFSS	~~190~~120
2”	~~190~~120
2” RFSS	~~190~~120
3” Compound	~~515~~310
3” Turbine	~~515~~310
4” Compound	~~515~~310
4” Turbine	~~515~~310
6” Compound	~~515~~310
6” Turbine	~~515~~310
8”	~~515~~310
10”	~~515~~310

(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~~80
1", 1½", 2"	~~210~~130
3" and larger	~~570~~340

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 and five~~seventy-five ~~-~~dollars ($~~105~~75) will be assessed, with the exception stated in Section 6.4(e).

(b) A ~~one hundred and five~~ seventy-five dollar ($~~105~~75) 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.....$~~105~~75
with the exception stated in Section 6.4(e)

(ii) service lines larger than 2"…….....…..$~~395~~355

(2) Where the curb stop is obstructed, the access box missing or otherwise requires excavation .....$~~905~~700

(3) Where the curb stop is inoperable and a new curb stop must be installed .....$~~950~~730

(4) Where the curb stop is obstructed, the access box missing, or otherwise requires excavation, and replacement of footway paving is required.....$~~905~~710

(5) Where the curb stop is inoperable and a new curb box must be installed and replacement of footway paving is required.....$~~950~~740

(6) Where excavation and shut-off of the ferrule at the water main is required .....$~~2,165~~1,450

(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.

(e) A charge of $12 will be assessed if a Customer is enrolled in IWRAP and the Department is required to visit the Property to:

(1) shut off service for non-payment; and, payment is tendered at the time of the shut-off; or

(2) restore water service after termination of water service for non-payment or violation of service requirements.

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 twenty-five~~ three hundred and fifteen dollar ($~~225~~315) 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, with the exception stated in Section 6.7(b)(3), shall be as follows:

Size	Charge
¾”	$~~235~~185
1”	~~255~~210
1½”	~~285~~250
2”	~~340~~320

(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”	$~~255~~210
1”	~~275~~235
1½”	~~310~~275
2”	~~360~~340

(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”	$ ~~15,670~~12,725
6” & 8”	~~16,010~~13,590
10” & 12”	~~18,970~~16,230

(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”	$ ~~17,380~~14,720
6” & 8”	~~17,720~~15,580
10” & 12”	~~20,895~~18,225

(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"	$ ~~23,965~~20,690
20"	~~25,465~~22,845
24"	~~27,065~~25,145
30"	~~36,740~~37,330
36"	~~41,905~~44,250

SLEEVE	6" & 8"
MAIN	
16"	$~~24,165~~20,905
20"	~~25,365~~22,560
24"	~~27,065~~25,145
30"	~~38,225~~39,320
36"	~~45,325~~48,835

SLEEVE	10" & 12"
MAIN	
16"	$~~24,165~~20,980
20"	~~25,665~~22,920
24"	~~27,165~~25,145
30"	~~38,700~~39,955
36"	~~47,345~~51,545

(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”	$~~26,100~~23,185
20”	~~27,600~~25,335
24”	~~29,200~~27,635
30”	~~38,880~~39,820
36”	~~44,040~~46,740

SLEEVE 6” & 8”

MAIN

16”	$~~26,300~~23,400
20”	~~27,500~~25,050
24”	~~29,200~~27,635
30”	~~40,360~~41,810
36”	~~47,460~~51,325

SLEEVE 10” & 12”

MAIN

16”	$~~26,300~~23,470
20”	~~27,800~~25,410
24”	~~29,300~~27,635
30”	~~40,835~~42,445
36”	~~49,480~~54,035

(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……..…$ ~~860~~1,205

(2) Six Month Permit for use of standard pressure hydrant…..…$ ~~4,495~~6,295

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 ~~nine hundred and thirty~~ five hundred and seventy dollars ($~~930~~570) 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~~ one hundred and thirty dollars ($~~90~~130) 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, 202~~2~~3, 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, 2022~~3~~ and thereafter, the rate shall be $~~12.58~~13.87 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, 2022~~3~~ and thereafter, the rate shall be $~~57.82~~64.94 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~~ two thousand seven hundred and forty-five dollars ($~~1,960~~2,745).

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~~ two thousand seven hundred and forty-five dollars ($~~1,960~~2,745).

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 ~~three thousand eight hundred and forty-five~~ two thousand eight hundred and sixty-five dollars ($~~3,845~~2,865).

(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 ~~two thousand three hundred and fifty-five~~ one thousand five hundred and sixty dollars ($~~2,355~~1,560).

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 AND~~ PLAN REVIEW AND INSPECTION CHARGES

8.1 Stormwater Plan Review and Inspection 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 ~~Stormwater Plan Submission~~ fee of ~~one thousand one hundred and fifteen~~one thousand four hundred and ninety ~~-~~dollars ($~~1,115~~1,490) shall be due ~~prior to issuance~~ upon submission of the Conceptual Stormwater Management Plan ~~approval~~for review.

(2) ~~A fee of sixty-five dollars ($65) shall be due upon submission of a post construction stormwater management plan, including a technical site plan, for review. A~~n ~~additional~~ fee of one hundred and ~~twenty~~ seventy dollars ($~~120~~170) per hour of review time shall be due prior to issuance of the Post-~~-~~Construction Stormwater Management Plan 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.

~~(ii)~~

~~(3)~~

(3) ~~A~~n ~~additional~~ fee of three hundred and seventy-five~~twenty~~ dollars ($32~~0~~75) for the final inspection of a ~~particular~~ development project to confirm~~for~~ compliance with Chapter 6 of the Department's regulations shall be due prior to issuance of the Post-Construction Stormwater Management Plan approval.

(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.

The fee in lieu shall be calculated as follows:

(a~~1~~) For an exemption to only the Water Quality Requirement of Chapter 6 of the Department's regulations the fee in lieu shall be thirty-~~one~~six dollars ($~~31.00~~36.00) per

square foot based on the total Directly Connected Impervious Area within the limit of Earth Disturbance.

8.3 Utility Plan Review Fees.

All Utility Plans submitted to the Department to receive building permit approval in accordance with Administraetive Code Section A-305.2.1.6 ~~for approval~~ shall be subject to a plan review fee.

(a) A fee of three hundred and ten dollars ($310) shall be due upon submission of the Utility Plan for review.

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, 202~~2~~3, 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, 202~~2~~3 and thereafter, shall be as follows:

Connection Size	Service Charge
Up through 4-inch	$ ~~22.90~~29.04
6-inch	~~41.63~~53.81
8-inch	~~61.58~~80.97
10-inch	~~91.13~~119.07
12-inch	~~136.73~~188.23

(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 1, 202~~2~~3 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)	**$~~48.96~~61.14**	**$~~1.03~~0.21**	**$~~49.99~~61.35**
Next 98 Mcf (2.1 to 100 Mcf)	**~~44.99~~54.93**	**~~1.03~~0.21**	**~~46.02~~55.14**
Next 1,900 Mcf (100.1 to 2,000 Mcf)	**~~34.85~~42.55**	**~~1.03~~0.21**	**~~35.88~~42.76**
Over 2,000 Mcf	**~~33.91~~41.40**	**~~1.03~~0.21**	**~~34.94~~41.61**

Note: Actual TAP-R rates are subject to Annual Reconciliation and the determination of the Rate Board.

(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:

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

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 Rates and Charges. 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: ~~40%~~42%

(ii) Sewer TAP Cost Allocation: ~~60%~~58%

(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 ~~97.32~~96.99%.

(4) **I** - Interest on any over or under recovery of the TAP-R for the Most Recent Period. Interest will be computed on a monthly basis using a simple annual interest rate. 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

The Water Department shall initiate the annual TAP Rate Rider Reconciliation by filing an advance notice with the Philadelphia Water, Sewer and Storm Water Rate Board (the "Rate Board") and City Council in accordance with the procedures and standards established by the Rate Board through its regulations.

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 1, 202~~2~~3 and thereafter, the Water TAP-R surcharge shall be $~~1.03~~0.21 per Mcf as determined by the annual reconciliation filing.

(b) Sewer TAP-R

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

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 1, 202~~2~~3 and thereafter, the Sewer TAP-R surcharge shall be $~~1.63~~0.34 per Mcf as determined by the annual reconciliation filing.