

PHILADELPHIA WATER DEPARTMENT  
STATEMENT NO. 7B

BEFORE THE  
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

In the Matter of the Philadelphia Water Department's Proposed Change in Water, Wastewater and Stormwater Rates and Related Charges	Fiscal Years 2021 – 2022 Rates and Charges to Become Effective September 1, 2020 and September 1, 2021
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**Direct Testimony**

**of**

**Black & Veatch Management Consulting, LLC**

**on behalf of**

**The Philadelphia Water Department**

Dated: February 2020

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1                                   **I.       INTRODUCTION AND QUALIFICATIONS**

2  
3 **Q1.   PLEASE STATE YOUR NAMES AND BUSINESS AFFILIATION.**

4 A1.   Our names are Ann Bui, David Jagt and Brian Merritt. We are employed by the firm of  
5       Black & Veatch Management Consulting, LLC (Black & Veatch), 11041 Lamar Avenue,  
6       Overland Park, Kansas. Our collective testimony is presented on behalf of the City of  
7       Philadelphia (City) Water Department (Water Department or PWD) in this proceeding.

8  
9 **Q2.   HAVE YOU PRESENTED ANOTHER STATEMENT IN THIS PROCEEDING**  
10 **WHICH INCLUDED A DESCRIPTION OF YOUR EDUCATIONAL**  
11 **BACKGROUND AND PROFESSIONAL EXPERIENCE?**

12 A2.   Yes, we have also presented direct testimony in PWD Statement No. 7A. As part of that  
13       testimony, we provided a description of our respective educational backgrounds and  
14       professional experience, which are incorporated herein by reference.

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16                                   **II.     PURPOSE OF TESTIMONY**

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18 **Q3.   WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

19 A3.   This testimony provides a description of the proposed updates to the Water Department's  
20       Tiered Assistance Program Rate Rider (TAP Rate Rider)<sup>1</sup>. Our testimony includes an  
21       overview of the proposed updates, revised definitions, updated factors, and calculation  
22       methodology, as well as the proposed incorporation of additional components to the TAP

23  
24 \_\_\_\_\_  
25 <sup>1</sup> The Tiered Assistance Program ("TAP") was established in 2017 to assist low-income households at or below  
150% of the federal poverty level and those experiencing special hardship. As discussed below, the TAP Rate  
Rider provides a mechanism to (i) timely reconcile actual TAP costs with estimated TAP-R revenues and (ii)  
update projected TAP costs for the next rate period.

1 Rate Rider. All capitalized terms that are not otherwise defined in this testimony are  
2 defined in the Water Department's Regulations and Rates and Charges.

3  
4 **Q4. WHEN WOULD THE PROPOSED CHANGES AND UPDATES TO THE TAP**  
5 **RATE RIDER GO INTO EFFECT?**

6 A4. The proposed policy changes discussed below are proposed to be incorporated into the  
7 Water Department's Rates and Charges beginning on September 1, 2020, with the  
8 proposed implementation of the fiscal year (FY) 2021 rates and charges. However, the  
9 specific updates to the TAP Rate Rider, as identified in Sections III – VIII of this testimony,  
10 are proposed to be implemented when the FY 2021 TAP Rate Rider Surcharge Rates (TAP-  
11 R) are reconciled.

12  
13 **Q5. PLEASE SUMMARIZE THE PURPOSE OF THE TAP RATE RIDER.**

14 A5. The TAP Rate Rider, as defined in Section 10.0 of the Water Department's Rates and  
15 Charges, provides for the separate recovery of lost revenue related to TAP (TAP Costs)  
16 through TAP-R surcharge rates, which are added to the water, fire service and sewer  
17 quantity charge rate schedules.

18  
19 **Q6. PLEASE BRIEFLY DESCRIBE THE TAP RATE RIDER.**

20 A6. The TAP Rate Rider provides a mechanism by which the Water Department with the  
21 approval of the Philadelphia Water, Sewer and Storm Water Rate Board (the  
22 Rate Board) can reconcile, in a timely fashion, actual TAP costs with estimated TAP-R  
23 revenues as well as update projected TAP costs for the Next Rate Period. The TAP Rate  
24 Rider provides a process to align the timing of the revenue and cost reconciliation more  
25 closely with cost incurrence.

**III. PROPOSED TAP-R UPDATES**

**Q7. PLEASE IDENTIFY THE PROPOSED UPDATES TO THE TAP RATE RIDER.**

A7. The proposed updates include the following:

- Updated allocation of TAP costs between the water and wastewater utilities;
- Updated system-wide collection factor utilized in determining the net amount of under/over recovery of TAP-R revenues;
- Revised calculation methodology for determining interest;
- Incorporation of Arrearage Forgiveness (AF) into the TAP Rate Rider Equation; and
- Aligning the TAP-R annual reconciliation procedures with the updated Rate Board regulations (effective February 25, 2019).

**Q8. BASED UPON THE IDENTIFIED UPDATES, PLEASE DEFINE THE CHANGES TO THE TAP RATE RIDER EQUATION.**

A8. The TAP-R Equation, as stated in Section 10.1 (a) of the Water Department's existing Rates and Charges, is currently defined as follows:

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

Where,

- **TAP-R** is the TAP Rate Rider Surcharge Rate expressed in dollars per thousand cubic feet (\$/MCF);
- **C** (or C-Factor) is the cost in dollars of the estimated TAP Billing Loss for the projected period (i.e., the Next Rate Period);
- **E** (or E-Factor) is the net over or under-collection of the TAP-R surcharge amount for the Most Recent Period (i.e., the current period for which the TAP-R reconciliation is performed).

- 1 • **I** (or I-Factor) is the interest on any over or under-recovery of the TAP-R for the Most  
2 Recent Period; and
- 3 • **S** (or S Factor) is the projected sales in thousands of cubic feet (MCF) for Non-TAP  
4 customers for the projected period.

5  
6 The proposed revisions would:

- 7 (1) Update the allocation of TAP Costs between the water and wastewater utilities as  
8 defined in Section 10.1(a)(2)(i) and (ii), respectively, to reflect the current allocation  
9 of net revenue requirements as identified in the current Cost of Service (COS) Study  
10 (See Schedule BV-5);
- 11 (2) Update the system-wide collection factor, as referenced in the definition of the E-Factor  
12 in Section 10.1(b)(3), to reflect the system-wide collection factor based upon the  
13 current COS Study (See PWD Statement No. 7A: Direct Testimony of Black &  
14 Veatch);
- 15 (3) Revise the definition of the I-Factor in Section 10.1(b)(4) to reflect the calculation  
16 methodology utilized in the 2019 TAP Rider Rate Determination dated June 28, 2019,  
17 (2019 Rate Determination); and
- 18 (4) Add an Arrearage Forgiveness Factor (AF-Factor) to recover the cost of providing  
19 arrearage forgiveness for qualifying TAP customers. The Arrearage Forgiveness  
20 Program for TAP Customers is described in PWD Statement No. 5: Direct Testimony  
21 of Michelle L. Bethel-Miller and RaVonne A. Muhammad; its alignment with the TAP  
22 Rate Rider is discussed further herein.

1 With the addition of the AF-Factor, the updated TAP-R formula is proposed as follows:

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

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5 **IV. UPDATED ALLOCATION OF TAP COSTS**

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7 **Q9. WHAT IS THE UPDATED ALLOCATION OF TAP COSTS BETWEEN THE**  
8 **WATER AND WASTEWATER UTILITIES BASED UPON THE LATEST COST**  
9 **OF SERVICE STUDY?**

10 A9. Based upon the Rate Determination in the last general rate proceeding, dated July 12, 2018  
11 (2018 Rate Determination), the Total TAP Costs to be recovered via the Water TAP-R and  
12 Sewer TAP-R surcharge rates, were allocated between the water and wastewater utilities  
13 based on the proportion of the water and wastewater retail net revenue requirements to the  
14 total retail net revenue requirement. This allocation, as defined in Section 10.1(a)(2)(i) and  
15 (ii) of the Water Department's Rates and Charges, is currently:

- 16 (i) Water TAP Cost Allocation: 41%; and  
17 (ii) Sewer TAP Cost Allocation: 59%.

18  
19 Based upon the COS Study developed for this proceeding, the above allocation would be  
20 revised to reflect the current apportionment of retail net revenue requirements between the  
21 water and wastewater utilities as follows:

- 22 (i) Water TAP Cost Allocation: 40%; and  
23 (ii) Sewer TAP Cost Allocation: 60%.

24 Additional information regarding the retail net revenue requirements is presented in  
25 Schedule BV-5.

**V. UPDATED COLLECTION FACTOR**

**Q10. WHAT IS THE UPDATED SYSTEM-WIDE COLLECTION FACTOR, UTILIZED IN CALCULATING THE NET OVER OR UNDER COLLECTION OF THE TAP-R SURCHARGE (OR E-FACTOR) BASED UPON THE CURRENT COST OF SERVICE STUDY?**

A10. Based upon the 2018 Rate Determination, the system-wide collection factor is used to adjust both the TAP Revenue Loss and the TAP-R billings (for the Most Recent Period) in calculating the net amount of over or under-collection of the TAP-R surcharge (or E-Factor). The system-wide collection factor for non-stormwater only customers, identified in the 2018 Rate Determination, was 96.54% and is included in the definition of the E-Factor as stated in Section 10.1(b)(3) of Water Department’s Rates and Charges. Per the current COS Study, the updated system-wide collection factor for non-stormwater only customers is 97.32%. This collection factor is based upon historical collection data (FY 2012 through FY 2019). PWD Statement No. 6 – Direct Testimony of Raftelis provides additional details regarding the derivation of the system-wide collection factor. Note – the non-stormwater only collection factor is utilized in establishing water and sewer charges because the TAP-R surcharges are included in the overall water and sewer quantity charges.

**Q11. WHY IS A LOW-INCOME COLLECTION FACTOR NOT UTILIZED IN THE PROPOSED TAP RATE RIDER UPDATES?**

A11. The Water Department is not proposing to incorporate the Low-Income Collection Factor into the TAP Rate Rider, as by virtue of being enrolled in the TAP, these low-income customers are no longer responsible for their full “Non-TAP” bills. Rather Non-TAP



1 Customers bear the costs of TAP, and the system-wide collection factor currently utilized  
2 in the calculation methodology provides a better estimate of anticipated receipts. Adjusting  
3 the actual TAP Costs and the estimated TAP Billings for the Most Recent Period by the  
4 system-wide collection factor remains an appropriate approach for reconciling TAP-R  
5 revenues.

6  
7 An alternative approach of applying a Low-Income Collection Factor to the discounts  
8 provided to TAP customers, would deny PWD the opportunity to recover the full cost of  
9 providing water, sewer, and stormwater services to TAP customers.

10  
11 **VI. UPDATED INTEREST RATE**

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13 **Q12. PLEASE DESCRIBE THE UPDATES TO THE INTEREST COMPONENT**  
14 **(I-FACTOR).**

15 A12. Section 10.1 (b)(4) of the Water Department's Rates and Charges states that interest on any  
16 over or under-recovery of the TAP-R will be calculated on an annual basis. As reflected in  
17 the 2019 Rate Determination (TAP-R Reconciliation Proceeding) and as agreed upon by  
18 the Water Department and the Public Advocate, the interest component (or I-Factor) was  
19 calculated on a monthly basis in determining the FY 2019 TAP-R surcharge rates. The  
20 Water Department proposes to update the I-Factor definition to codify this previously  
21 agreed upon change in the calculation methodology.

**VII. ARREARAGE FORGIVENESS FACTOR**

**Q13. PLEASE DESCRIBE THE PROPOSED ARREARAGE FORGIVENESS COMPONENT (AF-FACTOR).**

A13. The proposed AF-Factor is intended to allow the Water Department the ability to recover a portion of the costs (in dollars) of providing arrearage forgiveness to eligible TAP Customers.

**Q14. HOW DOES THE AF-FACTOR ALIGN WITH THE WATER DEPARTMENT'S PROPOSED ARREARAGE FORGIVENESS PROGRAM FOR TAP CUSTOMERS?**

A14. Based upon proposed updates to the Water Department's regulations, the arrearage forgiveness program would provide eligible TAP Customers, who have made 24 payments, with forgiveness of all arrears accumulated by the Customer prior to entering the program (i.e., Pre-Program TAP Arrears). For customers unable to maintain enrollment due to a change in household income, a portion of Pre-Program TAP Arrears may be forgiven based upon the number of completed payments made during the customer's enrollment period. For qualified TAP Customers, all pre-program arrears are frozen at the time of enrollment. Once enrolled in TAP, the Water Department no longer pursues collection of the customer's existing (or pre-program) arrears.

**Q15. HOW WILL THE ARREARAGE FORGIVENESS FACTOR BE CALCULATED?**

A15. At the time of the annual TAP-R reconciliation, AF will be determined based upon the actual amount of arrears forgiven in accordance with revisions to Section 206.7 of the

1 Water Department's regulations<sup>2</sup>. The total amount of arrearage forgiveness included in  
2 determining the TAP-R surcharge rates will be adjusted by applying a proposed TAP Lost  
3 Revenue Adjustment Factor of 10%.

4  
5 The TAP Lost Revenue Adjustment Factor is intended to represent the percentage of pre-  
6 program arrears that a TAP Customer would have likely paid, had the Customer not been  
7 enrolled in the program, had their arrears not been frozen and had the Water Department  
8 continued to attempt to collect on those arrears.

9  
10 The Water Department does not propose to project arrearage forgiveness for the Next Rate  
11 Period nor estimate arrearage forgiveness for the remainder of the current rate period. The  
12 Water Department proposes to include only the actual amount of arrears forgiven in the  
13 calculation of TAP-R surcharge rates.

14  
15 Recovery of arrearage forgiveness will be tracked on an annual basis, and any amount of  
16 over or under-recovery will be included in the subsequent annual reconciliation filing to  
17 the Rate Board. Further, the AF-Factor would not be subject to interest earnings.

18  
19 The amount of forgiven arrears proposed to be recovered by including AF in the  
20 development of the TAP-R surcharge rates is determined by multiplying the TAP Lost  
21 Revenue Adjustment Factor by the actual arrears forgiven during the Most Recent Period.  
22 The resulting dollar amount is the amount of arrearage forgiveness (i.e., the AF-Factor)  
23 included in the TAP-R surcharge rates. Stated as a calculation:

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<sup>2</sup> Refer to Section 206.7(c) and (d).

1                     $AF (\$) = TAP \text{ Lost Revenue Adjustment Factor } (\%) \times \text{Actual Arrears Forgiven } (\$)$

2  
3 **Q16. HOW WAS THE TAP LOST REVENUE ADJUSTMENT FACTOR DEVELOPED?**

4 A16. The development of the TAP Lost Revenue Adjustment Factor is detailed in Schedule BV-  
5 S1. As a first step, Black & Veatch utilized Low-Income and System-Wide Collection  
6 reports as provided by Raftelis to develop a “Balance Factor.” The Low-Income and  
7 System-Wide Collection reports are provided in PWD Statement No. 6 – Direct Testimony  
8 of Raftelis, Schedule RFC-5.

9  
10 Whereas the collection factor represents the pattern of anticipated receipts compared to the  
11 initial billings, the “Balance Factor” represents the total estimated amount of receipts  
12 anticipated from outstanding billings as expressed on a percentage basis. The Balance  
13 Factor relies on the same data set as the collection factors but compares total cumulative  
14 payments received following the collection period to the remaining balance from that same  
15 period. In other words, the Balance Factor represents the amount of receipts that can be  
16 anticipated on outstanding billings (on a percentage basis), depending on the age of those  
17 billings. In turn, the Balance Factor can be applied to aging arrears to estimate the  
18 anticipated revenue from each respective tranche (i.e., time period).

19  
20 As described in Schedule BV-S1, Black & Veatch developed Balance Factors based upon  
21 billings and payments from the following customer billing groups:

- 22            1. Verified Low-Income Customers. This group includes TAP Customer and Senior  
23            Citizen billings.
- 24            2. Estimated Low-income Customers. This group includes TAP Customer, Senior  
25            Citizen, and TAP Customer Outside of TAP Enrollment billings.

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3. TAP Customer Billings Outside of TAP Enrollment. This group includes customers that have participated in TAP. The billings and payments represented by this group are not TAP bills or related payments but rather bills and related payments for these customers while not enrolled in TAP (i.e. outside of TAP enrollment).
4. Overall Customers. This group includes total customer billings based upon FY 2019 collection analysis reports.

Applying the Balance Factor to the Pre-Program TAP Arrears provides an estimate of Forgone Collections. The Forgone Collections represent the revenues the Water Department could have otherwise expected to collect had the TAP Customers’ arrears not been frozen and had the collections continued to be pursued.

To develop a single “TAP Lost Revenue Adjustment Factor,” the total amount of Estimated Forgone Collections by customer billing group was compared to the total Pre-Program TAP Arrears yielding the following lost revenue adjustment factors:

	<u>Estimated TAP</u>
<u>Customer Billing Group</u>	<u>Lost Revenue Adjustment Factor</u>
Verified Low Income	12%
Estimated Low Income	11%
TAP Customers Outside of Enrollment	10%
All Billings Payment Pattern	31%

As noted above, a “TAP Lost Revenue Adjustment Factor” of 10% is proposed in this proceeding. This factor represents the payment pattern of TAP Customers prior to their enrollment in TAP and reflects how their outstanding bills would have been paid over time.

1 It should be noted that the proposed “TAP Lost Revenue Adjustment Factor” is based upon  
2 actual Water Department customer data and does not rely on information from other  
3 utilities or industries.<sup>3</sup>  
4

5 **Q17. WHEN WOULD THE AF-FACTOR BE INCLUDED IN THE CALCULATION OF**  
6 **TAP-R SURCHARGE RATES?**

7 A17. The Department proposes to update the TAP Rate Rider Equation and reflect those changes  
8 in the Proposed Rates and Charges effective September 1, 2020. Since the proposed  
9 Arrearage Forgiveness Program will commence at that time, the AF-Factor would initially  
10 be set at zero until the proposed FY 2022 TAP-R surcharge rates are filed with the Rate  
11 Board.  
12

13 **VIII. ANNUAL RECONCILIATION PROCEDURES**  
14

15 **Q18. WHAT CHANGES ARE PROPOSED TO THE ANNUAL RECONCILIATION**  
16 **PROCEDURES?**

17 A18. Section II.C of the updated Rate Board regulations, which became effective February 25,  
18 2019, includes TAP-R Reconciliation Procedures. The proposed changes to Section 10.2  
19 on PWD’s Rates and Charges, would revise the language of this section to reference  
20 reconciliation procedures as outlined under Section II.C of the Rate Board regulations,  
21 which outline the process by which TAP-R surcharge rates are reconciled. The purpose of  
22  
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24 <sup>3</sup> Use of a lost revenue adjustment factor avoids applying Balance Factors to the aging arrears of an individual TAP  
25 Customer to determine the amount of arrearage forgiveness to be included in the AF-Factor and ultimately in  
calculating the TAP-R surcharge rates. Moreover, this approach provides a simple factor that can be applied  
regardless of the age of the arrears.

1 this change is to avoid any conflicts<sup>4</sup> with the Rate Board's adopted reconciliation  
2 procedures.

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4 **Q19. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

5 A19. Yes, it does.  
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23 <sup>4</sup> Section 10.2 of Rates and Charges currently states that PWD shall initiate the annual TAP reconciliation process  
24 by filing a TAP-R reconciliation statement with the Rate Board at least 60 days before the effective date of the new  
25 surcharge rate, while the Rate Board's regulations state that PWD shall initiate the annual TAP reconciliation  
process by filing an Advance Notice with a preliminary proposed TAP-R reconciliation statement at least 90 days  
prior to the proposed effective date of the new rates. The proposed change would help to eliminate these potential  
conflicts.

**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
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Charges**

**Fiscal Years 2021-2022**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-S1**

**Dated: February 11, 2020**





## **TAP LOST REVENUE ADJUSTMENT FACTOR DEVELOPMENT SCHEDULE BV-S1**

The Philadelphia Water Department (PWD or the Water Department) and Revenue Department recently filed with the Department of Records updates to their regulations related to earned forgiveness under the Income-Based Water Rate Tiered Assistance Program, more commonly referred to as TAP. With these updates, TAP Customers that maintain enrollment and make 24 complete payments may have all their arrears incurred before enrollment in TAP (Pre-Program Arrears) forgiven<sup>1</sup>. Black & Veatch Management Consulting, LLC (Black & Veatch), has prepared this paper to summarize the development of the proposed TAP Lost Revenue Adjustment Factor used in the calculation of arrearage forgiveness costs included in the Tiered Assistance Program (TAP) Rate Rider surcharge rates.

### **INTRODUCTION**

Under the current regulations, when customers enroll in TAP, their outstanding arrears before program enrollment are essentially “frozen” or “roped off.” These pre-program arrears are no longer subject to penalties, and the Water Department no longer attempts to collect any payment on these amounts. Based upon reports developed by Raftelis, as of the end of the fiscal year (FY) 2019, the Water Department has an estimated \$41.8 million of Pre-Program Arrears associated with TAP customers (referred to herein as Pre-Program TAP Arrears). This amount excludes penalties associated with unpaid charges and arrears incurred by TAP customers after enrollment in the program.

As part of the FY 2021 – FY 2022 rate filing, the Water Department is proposing to incorporate an Arrearage Forgiveness (AF) Factor into the calculation of the TAP Rate Rider (TAP-R) surcharge rates. The AF Factor reflects the arrearage amount that the Water Department may have otherwise expected to collect had the customer:

- 1) not enrolled in TAP,
- 2) not had their pre-program arrears frozen, and
- 3) had the Water Department continued with collection efforts.

The Water Department acknowledges that:

- 1) The “Collection Factors” utilized to establish rates and charges already includes some level of arrears which will not be collected; and
- 2) The Water Department would not collect the full amount of pre-program arrears if it continued to seek payment on these amounts.

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<sup>1</sup> See Philadelphia Water Department *Regulations Chapter 2 Section 206.7*. In addition, customers who are unable to maintain enrollment due to a change in household income, may have a portion of their Pre-Program Arrears forgiven, pro-rated for number of complete payments made during their enrollment.

This paper discusses how current “collection factors” reflect existing arrears and the development of the “TAP Lost Revenue Adjustment Factor” used in the calculation of the proposed AF Factor (in context of the TAP-R surcharge rates).

## Definitions

- **Arrearage Forgiveness (AF)**. For this paper, arrearage forgiveness refers to Pre-Program Arrears associated with TAP Customers.
- **Balance Factor**. The percentage of the remaining billing balance (i.e., arrears), from a given Collection Period, the Water Department anticipates receiving.
- **Billing Year**. The Fiscal Year in which the Water Revenue Bureau (WRB) issues a customer bill.
- **Collection Factor**. Factors used in projecting revenue receipts from customer billings. The Collection Factor is Intended to reflect historical customer payment patterns and anticipated revenues from a given fiscal year’s billings for water, sewer, and stormwater services.
- **Collection Period**. The period, expressed in months in this analysis, in which revenues from billings are received.
- **Tiered Assistance Program (TAP)**. The Water Department’s tiered income assistance program.
- **TAP Lost Revenue Adjustment Factor**. The adjustment factor applied to the actual forgiven arrears to determine the amount of arrears to be recovered via the TAP-R surcharge rates and included in annual reconciliation calculations.
- **TAP-R**. The TAP Rate Rider Surcharge Rate included with the water and sewer quantity charges. The TAP-R currently recovers the cost of providing discounts to TAP customers from Non-TAP customers.

## COLLECTION FACTORS

The City’s financial statements comply with Generally Accepted Accounting Principles (GAAP), and as such, the Water Department writes off any arrears over 365 days on its financial statements. However, under the Water Department’s Restated General Water and Wastewater Revenue Bond Ordinance of 1989 and the amendments and supplements to it (General Bond Ordinance), rates and charges are set on a cash basis and reflect anticipated receipts of revenues. The Water Department does not budget for bad debt expenses; so, for rate-making purposes, “collection factors,” which reflect customer payment patterns in relation to billings, are used in the development of rates and charges. The Collection Factor represents receipts as a percentage of billings received over multiple years and does not use just a single billing year’s receipts as the basis for calculation. During the rate proceeding for FY 2019 – FY 2020, Black & Veatch developed rates utilizing collection factors based on billings and receipts reporting from FY 2012 to FY 2016. For the current proceeding, Black & Veatch used data reflecting billings and receipts from FY 2012 to FY 2019.

The current collection factor reports generated by Raftelis include billings associated with the current Pre-Program TAP Arrears. Per updated TAP policies, the Water Department is no longer pursuing collections on these outstanding bills (i.e., these arrears are “frozen” or “roped-off”). Therefore, it is reasonable to assume that the Water Department will not collect on any of these outstanding amounts. Moreover, it is also

reasonable to assume that the Water Department will not recognize any further revenues from TAP customers to satisfy these outstanding arrears. Consequently, the new TAP policies will likely result in slightly lower overall collection factors estimated for future years.

To develop an approach for recovering arrearage forgiveness via the TAP-R surcharge rates, Black & Veatch evaluated how much of the roughly \$41.8 million in outstanding Pre-Program TAP Arrears would the Water Department have collected, had it not suspended collections efforts.

## BALANCE FACTORS

Whereas the collection factor represents the pattern of anticipated receipts compared to the initial billings, a separate related factor is necessary to estimate anticipated payments on arrears. For presentation purposes, we shall refer to this as the “Balance Factor.” The Balance Factor represents the total estimated amount of receipts anticipated from outstanding billings (on a percentage basis). It is based upon the same data set as the collection factors but compares the total cumulative payments received following the collection period to the remaining balance for that same period. This factor can be applied to aging arrears to estimate the anticipated revenue from each respective tranche (or aging period).

Given that the Pre-Program Arrears for TAP enrolled customers are now effectively “frozen,” applying a Balance Factor provides an estimate of what the Water Department could have otherwise reasonably expected to collect. In aggregate, a comparison of the anticipated collected arrears to the total outstanding arrears provides the basis for establishing an overall Arrearage Forgiveness Factor.

Using the low-income and system-wide collections reports developed by Raftelis, Black & Veatch developed “Balance Factors” based upon billings and payments from the following customer billing groups:

1. Verified Low-Income Customers - Includes TAP Customer and Senior Citizen billings.
2. Estimated Low-income Customers - Includes TAP Customer, Senior Citizen, and TAP Customer Outside of TAP Enrollment billings.
3. TAP Customer Billings Outside of TAP Enrollment - Includes customers that have been participated in TAP. The billings and payments represented by this group are not TAP bills or payments but rather bills and payments for these customers while not enrolled in TAP (i.e. outside of TAP enrollment).
4. Overall Customers - Total customer billings based upon FY 2019 collection analysis reports.

Figure 1 presents a graphical representation of the derivation of the “Balance Factor,” utilizing the “Verified Low-Income Customers.” The derivation for the remaining groups follows the same logic. Table 1 summarizes the derivation of the Balance Factors. As summarized in Table 2, applying the Balance Factor to the aging arrears provides an estimate of the revenues that the Water Department would have otherwise received (had the arrears not be frozen and collections no longer pursued) - the “Estimated Forgone Collections.”

Estimated Forgone Collections were developed by customer billing groups, by applying their respective Balance Factors to the total Pre-Program TAP Arrears.

Based upon the above analysis, depending on the selected payment pattern, the Water Department could anticipate having collected between \$4.2 million to \$12.9 million of the Pre-Program TAP Arrears. This estimated range reflects the amount that could potentially be collected from Non-TAP customers via the TAP-R surcharges to account for revenues the Water Department will forgo with the adoption of the updated arrearage forgiveness policy for TAP customers.

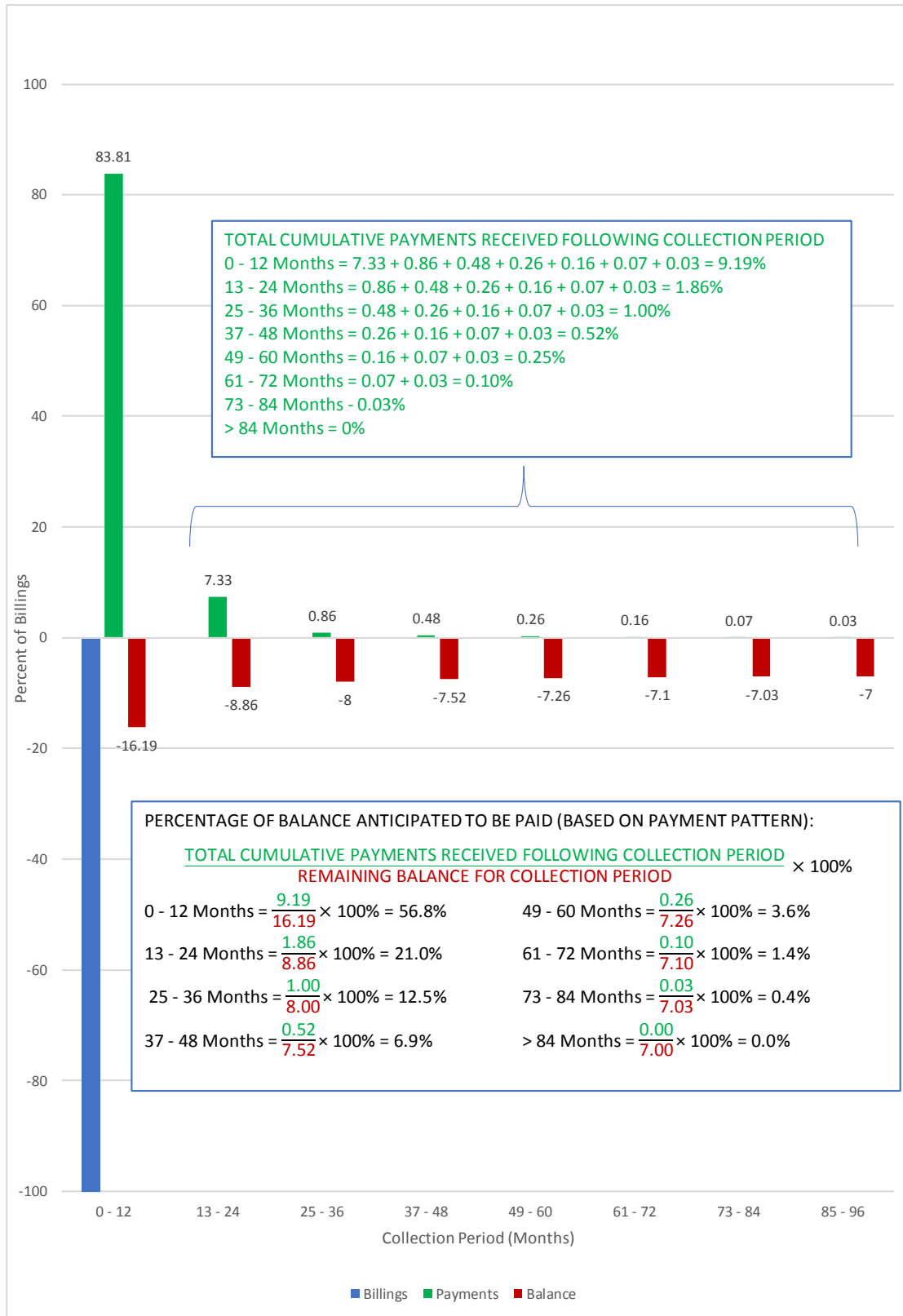


Figure 1 Billing Payments and Balance – Verified Low-Income Customers

Table 1 Derivation and Comparison of Balance Factor by Customer Group

Description	Collection Period (Months)							
	0 - 12	13 - 24	25 - 36	37 - 48	49 - 60	61 - 72	73 - 84	> 84
<b>Verified Low Income</b>								
Payments (Collections) <sup>1</sup>	83.81	7.33	0.86	0.48	0.26	0.16	0.07	0.03
Remaining Balance <sup>1</sup>	16.19	8.86	8.00	7.52	7.26	7.10	7.03	7.00
Total Payments After Collection Period <sup>1</sup>	9.19	1.86	1.00	0.52	0.26	0.10	0.03	-
Balance Factor <sup>2</sup>	56.8	21.0	12.5	6.9	3.6	1.4	0.4	-
<b>Estimated Low Income</b>								
Payments (Collections) <sup>1</sup>	62.62	9.31	2.64	1.64	0.99	0.53	0.23	0.07
Remaining Balance <sup>1</sup>	37.38	28.07	25.43	23.79	22.80	22.27	22.04	21.97
Total Payments After Collection Period <sup>1</sup>	15.41	6.10	3.46	1.82	0.83	0.30	0.07	-
Balance Factor <sup>2</sup>	41.2	21.7	13.6	7.6	3.6	1.4	0.3	-
<b>TAP Customers Outside of TAP Enrollment</b>								
Payments (Collections) <sup>1</sup>	37.63	11.15	4.32	2.73	1.67	0.89	0.38	0.11
Remaining Balance <sup>1</sup>	62.37	51.22	46.90	44.17	42.50	41.61	41.23	41.12
Total Payments After Collection Period <sup>1</sup>	21.25	10.10	5.78	3.05	1.38	0.49	0.11	-
Balance Factor <sup>2</sup>	34.07	19.72	12.32	6.91	3.25	1.18	0.27	-
<b>All Billings (Based on FY 2019 Collections Analysis)</b>								
Payments (Collections) <sup>1</sup>	85.99	8.72	1.01	0.61	0.42	0.3	0.21	0.15
Remaining Balance <sup>1</sup>	14.01	5.29	4.28	3.67	3.25	2.95	2.74	2.59
Total Payments After Collection Period <sup>1</sup>	11.42	2.70	1.69	1.08	0.66	0.36	0.15	-
Balance Factor <sup>2</sup>	81.5	51.0	39.5	29.4	20.3	12.2	5.5	-

Notes:

1. Expressed as a percentage of initial billings.
2. Expressed as a percentage of the remaining balance.
  - Payments (Collections) – represents the percentage of payments received based upon the initial billings.
  - Remaining Balance – represents the remaining balance outstanding based upon the initial billings; this is also a surrogate for arrears.
  - Total Payments After the Collection Period – represents the total cumulative payments anticipated to be collected after the current collection period expressed as a percentage of initial billings.
  - Balance Factor – Percentage of remaining balance anticipated to be paid.

Table 2 Estimated Foregone Collections by Customer Group

Description	Collection Period (Months)								Total
	0 - 12	13 – 24	25 – 36	37 – 48	49 – 60	61– 72	73 – 84	> 84	
<b>Pre-Program TAP Arrears<sup>1</sup></b>									
Arrears (\$1,000)	3,226	8,468	7,493	5,408	4,231	3,137	2,338	7,490	41,790
<b>Verified Low-Income Payment Pattern</b>									
Balance Factor	56.8%	21.0%	12.5%	6.9%	3.6%	1.4%	0.4%	-	
Estimated Forgone Collections (\$1,000)	1,832	1,778	937	373	152	44	9	-	5,126
<b>Estimated Low-Income Payment Pattern</b>									
Balance Factor	41.2%	21.7%	13.6%	7.6%	3.6%	1.4%	0.3%	-	
Estimated Forgone Collections (\$1,000)	1,329	1,837	1,019	411	152	44	7	-	4,800
<b>TAP Customers Outside of TAP Enrollment Payment Pattern</b>									
Balance Factor	34.1%	19.7%	12.3%	6.9%	3.2%	1.2%	0.3%	-	
Estimated Forgone Collections (\$1,000)	1,100	1,668	922	373	135	38	7	-	4,243
<b>All Billings Payment Pattern (Based on FY 2019 Collections Analysis)</b>									
Balance Factor	81.5%	51.0%	39.5%	29.4%	20.3%	12.2%	5.5%	-	
Estimated Forgone Collections (\$1,000)	2,629	4,318	2,960	1,590	859	383	129	-	12,868

Note:

1 – Designated as “TAPHELD” in the Raftelis TAP Aging Arrears report dated 12/05/2019. Figures reflect the FY 2019 end of year data set.



## TAP LOST REVENUE ADJUSTMENT FACTOR

As presented in Table 2, Black & Veatch developed an estimate of forgone collections by applying the Balance Factor to the aging arrears. While this provides an estimate of the total amount of forgone revenue that the Water Department could anticipate as a result of the adopted arrearage forgiveness policy, TAP customers generally must maintain enrollment and make 24 complete payments to have their pre-program arrears forgiven. Therefore, Black & Veatch has developed a “TAP Lost Revenue Adjustment Factor,” which can be applied to actual forgiven arrears to derive the amount to be recovered from Non-TAP customers via the TAP-R surcharges.

To develop a single “TAP Lost Revenue Adjustment Factor,” Black & Veatch compared the total “Estimated Forgone Collections” to the total Pre-Program TAP Arrears, as shown in Table 3. The derived percentage provides a sense of how much of the arrears the Water Department could reasonably anticipate collecting and provides the basis for the “TAP Lost Revenue Adjustment Factor.” The factor is weighted based upon the age of the arrears included in the most recent TAP Aging Arrears report.

Table 3 TAP Lost Revenue Adjustment Factor

Description		Totals (\$1,000)	TAP Lost Revenue Adjustment Factor (%)
Pre-Program TAP Arrears <sup>1</sup>		41,790	
<b>Estimated Forgone Collections</b>			
Payment Pattern	Verified Low Income	5,126	12%
	Estimated Low Income	4,800	11%
	TAP Customers Outside of Enrollment	4,243	10%
	All Billings Payment Pattern	12,868	31%

Note:

1 – Designated as “TAPHELD” in the Raftelis TAP Aging Arrears report dated 12/05/2019. Figures reflect the FY 2019 end of year data set.

Using the TAP Lost Revenue Adjustment Factor approach would avoid having to apply “Balance Factors” to the specific arrears of an individual TAP customer to determine an amount to be recovered via the TAP-R. Further, it provides a single factor that can be applied to the forgiven arrears, irrespective of their age, and expressed as a simple percentage within the TAP Rate Rider.

### Customer Billing Group Payment Patterns

In reviewing the various customer billing groups included in the Low-Income Collection Factor Report provided by Raftelis, Senior Citizens have a significantly different payment pattern in comparison to TAP customers. We anticipate TAP customers to have a different payment pattern once enrolled in the program. Theoretically, they should show improved payments associated with a more “affordable bill,” however, there is not enough data to draw any conclusions at this time. The payment pattern for TAP customers before enrollment provides a sense of how the current TAP customer group paid before entering the

program; these statistics are likely more representative of how customers would have paid outstanding bills over-time. We note that the behavior of this group, as indicated by the data, may be influenced by the following:

- Pending TAP enrollment and the anticipated reduction in the customer’s bill;
- Awareness that the Water Department would no longer pursue collections on arrears once the customer had enrolled; and
- The Water Department’s initial focus on enrolling customers most likely to benefit from the program and the resulting make-up of the TAP customer group – which may skew payment patterns and total arrears.

### Proposed TAP Lost Revenue Adjustment Factor

Based upon the above, Black & Veatch is proposing to use the TAP Customers Outside of Enrollment Payment Pattern as the basis for the “TAP Lost Revenue Adjustment Factor.” Further, as identified in Table 3, we are proposing to apply a “TAP Lost Revenue Adjustment Factor” of 10-percent (as associated with TAP Customer Outside of Enrollment) to the amount of actual arrears forgiven to determine the amount of arrear forgiveness to be recovered via the TAP-R surcharge rates. Stated as a calculation:

$$AF (\$) = TAP \text{ Lost Revenue Adjustment Factor } (\%) \times Actual \text{ Arrears Forgiven } (\$)$$

Or

$$AF (\$) = 10 \% \times Actual \text{ Arrears Forgiven } (\$)$$

### Impact on TAP-R Surcharges

- The AF-Factor would be based upon the actual amount of arrears forgiven at the time of the annual TAP-R reconciliation filing.
- The AF Factor excludes projections of arrearage forgiveness for the remainder of the current period and the next rate period.
- The AF-Factor would be subject to the same allocation of TAP Costs as defined in Section 10.1(a)(2)(i) and (ii) of the PWD Rates and Charges, to determine the amounts recovered via the TAP-R water and sewer surcharges respectively.
- Reconciliation of the portion of the TAP-R rates associated with the AF-Factor would not be subject to interest earnings, as the AF-Factor is based only on the amount of actual forgiveness and does not include a projection.
- The forgiveness of pre-program arrears for TAP customers will not go into effect until September 1, 2020; therefore, the earliest the AF-Factor could be incorporated into the TAP-R reconciliation would coincide with the filing of the FY 2022 TAP-R rates.

### SUMMARY

- Currently there are \$41.8 million in estimated total Pre-Program TAP Arrears as of the end of FY 2019.
- The “Balance Factor” provides a basis for assessing the level revenues that the Water Department could anticipate from arrears based upon their age.

- The “Balance Factor” can be applied to aging arrears to develop “Estimated Forgone Collections.”
  - Based upon payment patterns, the Water Department could anticipate having collected anywhere from \$4.2 million to \$12.9 million of the Pre-Program TAP Arrears.
- Comparing the total “Estimated Forgone Collections” to the total Pre-Program TAP Arrears provides a sense of how much of the arrears anticipated to be received, expressed as a percentage.
  - This ratio provides a basis for establishing a “TAP Lost Revenue Adjustment Factor,” which can be applied to forgiven arrears irrespective of age.
- The “TAP Lost Revenue Adjustment Factor” is proposed to be included in the TAP-R formula as a simple percentage.
  - The factor will be applied to the actual pre-program arrears forgiven for TAP customers who meet the requirements of the arrearage forgiveness policy.
  - A simple “TAP Lost Revenue Adjustment Factor” of 10 percent is recommended.