

PHILADELPHIA WATER DEPARTMENT  
REBUTTAL STATEMENT NO. 2

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 2022 - 2023
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**Rebuttal Testimony**

of

**Black & Veatch Management Consulting, LLC**

on behalf of

**The Philadelphia Water Department**

Topics Addressed:

Cost of Service

Capacity Factors

Stormwater Residential Rate Design

Recovery of SMIP/GARP Costs

Dated: April 7, 2021

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**I. INTRODUCTION AND PURPOSE OF TESTIMONY**

**Q1. PLEASE STATE YOUR NAMES AND POSITIONS.**

A1. Our names are Ann Bui, Dave Jagt, and Brian Merritt. We are employed by the firm of Black & Veatch Management Consulting LLC (Black & Veatch), 11041 Lamar Avenue, Overland Park, Kansas. We are providing testimony on behalf of the City of Philadelphia (the City) Water Department (“Department” or “PWD”) in this proceeding as a panel.

**Q2. HAS ANYONE ON THIS PANEL PREVIOUSLY SUBMITTED TESTIMONY IN THIS PROCEEDING?**

A2. Yes. Black & Veatch provided testimony in PWD Statements No. 7A and 7B.

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

A3. In this rebuttal, we provide our response to some of the concerns and criticisms that Mr. Jerome D. Mierzwa has expressed in his direct testimony (PA Statement 2) on behalf of the Public Advocate.

We specifically address the following areas of Mr. Mierzwa’s testimony:

- Cost of Service
- Capacity Factors
- Stormwater Residential Rate Design
- Recovery of SMIP/GARP Costs



1 **Q6. DO YOU AGREE WITH MR. MIERZWA’S CONTENTION THAT PWD’S CCOS**  
2 **STUDY DOES NOT REFLECT THE APPROPRIATE CUSTOMER CLASS**  
3 **SPECIFIC EXTRA CAPACITY FACTORS?**

4 A6. No, we do not agree. Mr. Mierzwa’s contention is based on a misapplication of the  
5 American Water Works Association’s (“AWWA”) methodology. That is, he fails to  
6 recognize that there are variations between the customer class specific extra capacity  
7 factors reflected in the PWD CCOS Study and those derived from example (generic)  
8 calculations in the AWWA Manual M-1, Principles of Water Rates, Fees and Charges,  
9 Appendix A (“AWWA Manual” or “Manual”). These generic calculations do not capture  
10 the unique circumstances of the PWD system.

11  
12 One telling example of PWD’s unique circumstances is the fact that it does not experience  
13 seasonal peaking to the extent of other utility systems because its urban customer base does  
14 not have summer usage peaks tied to irrigation usage. Since the system has a lower  
15 maximum day peaking factor, it experiences more diversity in hourly usage adjustments  
16 compared to the examples provided in the AWWA Manual.

17  
18 It should also be noted that the AWWA Manual provides the following cautionary guidance  
19 as to the use of information in Appendix A, “Care must be taken to recognize the usage  
20 characteristics of each utility’s customers; the assumptions in this appendix are for  
21 illustrative purposes only.” Mr. Mierzwa ignores this guidance in applying generic  
22 calculations from the Manual in making his recommendations regarding customer class  
23 extra capacity factors.

24  
25 The table below (i) provides key calculation components associated with Mr. Mierzwa’s

1 recommendation to revise the PWD CCOS Study and (ii) illustrates several ways that Mr.  
2 Mierzwa’s recommendations depart from the AWWA methodology. We believe that the  
3 inconsistencies shown in the table suggest that his analysis is methodologically flawed.

<u>Calculation Component</u>	<u>AWWA - Methodology</u>	<u>Schedule JDM-1</u>
Customer Class Maximum Monthly Demand	Maximum monthly demand during the year of system historical peak day demand.	Average monthly demand based on FY 2019 to FY 2020 average.
Maximum Day Factor	Maximum Day to Maximum Month.	Average Day in Maximum Month to Annual Average Day.
Weekly Usage and Hourly Usage Adjustments	Care must be taken to recognize the unique usage characteristics of each utility’s customers; assumptions in Appendix A are for illustrative purposes only.	Utilized illustrative examples presented in AWWA Manual (Appendix A) to develop customer specific extra capacity factors.

15 Given the above, Black & Veatch does not believe that the PWD CCOS Study should be  
16 revised to reflect customer class specific extra capacity factors, as recommended by Mr.  
17 Mierzwa in Schedule JDM-1. Simply put, the Advocate’s recommendation to modify  
18 customer class specific extra capacity factors is the result of a methodologically flawed  
19 analysis and is unfounded — it should be rejected.

21 **Q7. DO YOU AGREE WITH MR. MIERZWA’S RECOMMENDATION TO MODIFY**  
22 **FIRE PROTECTION SERVICE EXTRA CAPACITY FACTORS?**

23 A7. No, we do not agree. The fire protection service extra capacity factors reflected in the  
24 CCOS Study are consistent with previous cost of service studies and adopted rates. In  
25

1 addition, the above extra capacity factors are reasonable relative to the Duration of  
2 Required Fire Flow as presented in Table 15.2.6 of the National Fire Protection Association  
3 (NFPA) Fire Protection Handbook, 20th Edition, 2008. No modification is needed here, as  
4 the basis for determining fire protection extra capacity factors is methodologically sound.  
5

6 **Q8. DO YOU AGREE THAT THE CCOS STUDY SHOULD BE ADJUSTED TO**  
7 **REFLECT WATER USED TO PROVIDE PUBLIC FIRE PROTECTION**  
8 **SERVICE? PLEASE EXPLAIN.**

9 A8. No, we do not agree. The current estimate of the Total Test Year Water Use for Public and  
10 Private Fire Protection reflects the correct units of service and is consistent with the  
11 methodology presented in the AWWA Manual of Water Supply Practices – M1, Seventh  
12 Edition, Principles of Water Rates, Fees, and Charges. The following references to the  
13 AWWA’s M1 Manual support the methodology used in the PWD CCOS Study:  
14

15 *Page 75 – “Fire protection service has characteristics that are markedly different*  
16 *from other types of water service. The service provided is principally of a standby*  
17 *nature - that is, readiness to deliver relatively large quantities of water for short*  
18 *periods of time at any of a large number of points in the water distribution system.”*

19  
20 *Page 76 – “The total annual volume of water used for fire service is usually*  
21 *negligible, at least in relation to that of other classes; however, peak requirements*  
22 *for fire service can be quite significant. The Insurance Services Office (ISO)*  
23 *periodically defines desired rates of flow for fire service, which is a good source of*  
24 *maximum-capacity requirements for fire service. These data must be applied*  
25 *judiciously to achieve practical cost allocations.”*

1  
2 This methodological approach is further evident on Page 77 of the M1 Manual as shown  
3 in Table III.2-1 “Units of service – Base-extra capacity method (test year).” Here the Units  
4 of Service for Fire Protection presented in Line 5 do not include units of service for the  
5 Base Units of Service (Annual Use or Average Rate); Only “Maximum-Day Units” and  
6 “Maximum-Hour Units” are presented for Fire Protection.

7  
8 Please note that consistent with AWWA methodology, the Total Test Year Water Use units  
9 presented in Table W-11 of Exhibit BV-E1 reflect the estimated billed volume for the  
10 metered Private Fire accounts in recognition of the volume charge revenue received from  
11 these accounts. Increasing the Total Test Year Water Use units to reflect an estimate of  
12 unmetered annual water use for fire protection (basically, standby service) would be  
13 inconsistent with the methodology reflected in AWWA’s M1 Manual. It bears emphasis  
14 that Mr. Mierzwa suggested no cost of service basis why we should depart from this  
15 established methodology. We believe that Mr. Mierzwa’s recommendation, in this context,  
16 is mistaken and that his recommendation should be rejected.

17  
18 **Q9. DO YOU AGREE WITH MR. MIERZWA’S STATEMENT THAT PWD’S CCOS**  
19 **STUDY SHOULD NOT BE RELIED UPON TO DETERMINE THE**  
20 **DISTRIBUTION OF THE REVENUE INCREASES AWARDED IN THIS**  
21 **PROCEEDING?**

22 A9. No, we do not agree. As stated in the response to the questions above, we believe that the  
23 PWD CCOS Study uses appropriate system extra capacity factors consistent with historical  
24 experience and reasonable estimates of the customer class extra capacity factors. As such,  
25



1 the CCOS Study results provide a reasonable basis to determine the distribution of the  
2 proposed revenue increases in this rate proceeding.

3  
4 **Q10. PLEASE SUMMARIZE WHY MR. MIERZWA’S VARIOUS PROPOSED**  
5 **MODIFICATIONS TO THE PWD CCOS SHOULD BE REJECTED BY THE**  
6 **RATE BOARD?**

7 A10. Mr. Mierzwa’s various proposed modifications to the PWD CCOS study are based on his  
8 revisions to customer class peaking factors and fire protection demands. As discussed in  
9 the responses to the previous questions, the basis for these requested revisions are  
10 inconsistent with recognized industry approaches described in AWWA’s M1 Manual and  
11 do not consider the Department’s specific customer base characteristics. For these reasons,  
12 we request that the Board reject the various modifications recommended by Mr. Mierzwa.

13  
14 B. Wastewater CCOS

15 **Q11. DOES MR. MIERZWA PROPOSE ANY CHANGES TO THE WASTEWATER**  
16 **CCOS?**

17 A11. No. PA Statement 2 at 4.

18  
19 C. Stormwater CCOS

20 **Q12. WHAT CONCERNS DO YOU HAVE ABOUT MR. MIERZWA’S PROPOSAL**  
21 **REGARDING THE RECOVERY OF SMIP/GARP CREDITS?**

22 A12. As stated in PWD Statement No. 7A - Direct Testimony of Black & Veatch, no changes  
23 are proposed in the approach to the allocation of stormwater costs nor the stormwater rate  
24 structure design. Please also note that the stormwater cost allocation/rate design approach,  
25 utilized in the rate filing, is consistent with that approved in prior rate determinations and

1 associated Cost of Service studies. In this context, Mr. Mierzwa advances  
2 recommendations to modify existing stormwater rates to provide “a more equitable sharing  
3 of the costs associated with the PWD’s SMIP/GARP program.” PA Statement 2 at 24.  
4

5 Mr. Mierzwa’s recommendation, while well meaning, will produce unintended results.  
6 That is, by establishing stormwater rates based upon the average of rates developed with  
7 and without credits, as he suggests, the resulting rates will not recover the stormwater cost  
8 of service. This is because non-residential customer bills are calculated based upon their  
9 billing units after accounting for credits (i.e., reducing their billable impervious area [IA]  
10 and gross area [GA] square footage). A revenue shortfall is the obvious result, if his  
11 recommendation is adopted. This is a fundamental problem with his analysis.  
12

13 Mr. Mierzwa’s proposal, as described in his testimony, is also not limited to credits  
14 resulting from Stormwater Management Incentive Program (“SMIP”)/Greened Acre  
15 Retrofit Program Grants (“GARP”) projects. The billing determinants presented under  
16 Item (2) Rate Design (No GA/IA Credits) in Schedule JDM-2 are based upon the initial  
17 stormwater billing units prior to accounting for discounts, appeals and credits from all  
18 sources.<sup>1</sup>  
19

20 The table below provides a summary of IA Credits based upon the projected FY 2022  
21 credits. Comparing the credits shown in Rows 1-3, it is readily apparent that SMIP/GARP  
22 grants do not currently account for the majority of IA credits. Rather, IA credits attributable  
23 to SMIP/GARP represent less than 20% of all credits to be awarded.  
24

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25 <sup>1</sup> Refer to PWD Statement 7A, Schedule BV-6, WP-1, Stormwater Units of Services for a more detailed  
explanation of credit sources as well as discussion of appeals and discounts.

	<b>IA Credits (sf)</b>	<b>Percent of Total</b>
Impervious Area Reduction (IAR) Practices	6,785,533	5.86%
GA/IA Management Practices	87,551,053	75.60%
SMIP/GARP	21,471,296	18.54%
Total	115,807,882	100%

Therefore, in addition to the revenue shortfall alluded to above — if the underlying intent of Mr. Mierzwa’s recommendation is to shift the impacts of stormwater credits resulting only from SMIP/GARP grants to Non-Residential Stormwater Customers — including all credits, discounts and appeals impacts in the analysis would over-correct for these impacts.

In addition, Mr. Mierzwa’s recommendation runs counter to prior rate determinations and current policy that costs related to SMIP/GARP grants are borne by all wastewater customers as they enable the Department to make strides toward compliance with the Long Term Control Plan (LTCP) Consent Order Agreement (COA). Similarly, based upon the original program premise, credits are recovered from all customers, as the entire system benefits from private stormwater management efforts (that meet stormwater management program criteria).

Taken together, we welcome the discussion raised by Mr. Mierzwa in his testimony but we believe that any change to stormwater cost recovery merits a more comprehensive discussion with a broader set of stakeholders. We recommend that any proposed changes

1 be explored together with other changes to the Department's overall rate structure.<sup>2</sup>

2  
3  
4 **Q13. PLEASE RESPOND TO MR. MIERZWA'S RECOMMENDATION THAT THE**  
5 **DEPARTMENT SHOULD EVALUATE SEPARATE STORMWATER CHARGES**  
6 **FOR ROW HOMES AND PRESENT ITS FINDINGS IN ITS NEXT RATE**  
7 **PROCEEDING.**

8 A13. While we do not agree with isolating row homes as a separate subcategory with the  
9 residential stormwater class, we do agree that the Department's stormwater rate structure  
10 should be evaluated periodically.

11  
12 Alternative residential rate structures (such as tiered residential rates) were examined prior  
13 to the initial implementation of the Stormwater Fee in 2008 and then again during the 2011  
14 Customer Advisory Committee Process. That said, the Department is willing to evaluate  
15 this area again. Further, we recommend that the design and recovery of costs related to the  
16 stormwater credits and incentives programs, as discussed in the prior question, be explored  
17 as well.

18  
19 The Department is willing to present their findings during or prior to the next rate  
20 proceeding; however, based upon the timing of previous rate proceedings, we cannot  
21 guarantee that rate structure and credit program adjustments would be developed to the

22  
23 <sup>2</sup> As detailed in the Alternative Rate Structure Analysis, PWD began to explore changes to the stormwater  
24 credits and incentives program, along with other rate structure changes following the 2018 Rate Proceeding. As  
25 noted in the report, further analysis and stakeholder input is needed. As there was not sufficient time to develop  
more concrete proposals to present before the Rate Board, none were proposed, as noted earlier. Refer to the  
Department's Alternative Rate Structure Analysis Report as prepared by Black & Veatch Management Consulting,  
LLC. Available at: <https://www.phila.gov/media/20191122181318/ARSG-Summary-Report-Final-2019.11.05.pdf>

1 extent that revisions could be proposed to the Rate Board as part of the next rate filing. In  
2 addition to external stakeholders, the stormwater rate structure and credit programs involve  
3 multiple Divisions across the Department, as well as the Water Revenue Bureau. Various  
4 policies, programs and business processes (including billing and compliance tracking  
5 systems) may be impacted. Customer outreach would also need to be performed. Further,  
6 the time and costs required to enact such changes should also be considered, so that any  
7 changes approved by the Rate Board, can be implemented in a timely fashion.  
8

9 **III. CONCLUSION**

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11 **Q14. DOES THIS COMPLETE YOUR REBUTTAL TESTIMONY?**

12 A14. Yes.  
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