

PUBLIC ADVOCATE 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,)	FISCAL YEARS 2024-2025
WASTEWATER AND STORMWATER)	
RATES AND RELATED CHANGES)	

DIRECT TESTIMONY

OF

JEROME D. MIERZWA

ON BEHALF OF THE PUBLIC ADVOCATE

April 12, 2023

EXETER

ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

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Direct Testimony of Jerome D. Mierzwa

I. INTRODUCTION

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- Q. WOULD YOU PLEASE STATE YOUR NAME AND BUSINESS ADDRESS?
- A. My name is Jerome D. Mierzwa. I am a principal and President of Exeter Associates, Inc. (“Exeter”). My business address is 10480 Little Patuxent Parkway, Suite 300, Columbia, Maryland 21044. Exeter specializes in providing public utility-related consulting services.
- Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.
- A. I graduated from Canisius College in Buffalo, New York, in 1981 with a Bachelor of Science Degree in Marketing. In 1985, I received a Master’s Degree in Business Administration with a concentration in finance, also from Canisius College. In July 1986, I joined National Fuel Gas Distribution Corporation (“NFG Distribution”) as a Management Trainee in the Research and Statistical Services Department (“RSS”). I was promoted to Supervisor RSS in January 1987. While employed with NFG Distribution, I conducted various financial and statistical analyses related to the Company’s market research activity and state regulatory affairs. In April 1987, as part

1 of a corporate reorganization, I was transferred to National Fuel Gas Supply
2 Corporation's ("NFG Supply") rate department where my responsibilities included
3 utility cost of service and rate design analysis, expense and revenue requirement
4 forecasting and activities related to federal regulation. I was also responsible for
5 preparing NFG Supply's Federal Energy Regulatory Commission ("FERC") Purchase
6 Gas Adjustment ("PGA") filings and developing interstate pipeline and spot market
7 supply gas price projections. These forecasts were utilized for internal planning
8 purposes as well as in NFG Distribution's annual state purchased gas cost regulatory
9 proceedings.

10 In April 1990, I accepted a position as a Utility Analyst with Exeter. In
11 December 1992, I was promoted to Senior Regulatory Analyst. Effective April 1, 1996,
12 I became a principal of Exeter. Since joining Exeter, my assignments have included
13 water, wastewater, and natural gas utility class cost of service and rate design analysis,
14 evaluating the gas purchasing practices and policies of natural gas utilities, sales and
15 rate forecasting, performance-based incentive regulation, revenue requirement
16 analysis, the unbundling of utility services, and the evaluation of customer choice
17 natural gas transportation programs.

18 Q. HAVE YOU PREVIOUSLY TESTIFIED IN REGULATORY
19 PROCEEDINGS ON UTILITY RATES?

20 A. Yes. I have provided testimony on more than 400 occasions in proceedings before the
21 FERC, utility regulatory commissions in Arkansas, Connecticut, Delaware, Georgia,
22 Illinois, Indiana, Louisiana, Maine, Massachusetts, Montana, Nevada, New Hampshire,
23 New Jersey, Ohio, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, and
24 Virginia, as well as before the Philadelphia Water, Sewer and Storm Water Rate Board
25 ("Board").

1 Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

2 A. Exeter was retained by Community Legal Services serving as the Public Advocate to
3 assist it in the evaluation of the general rate proceeding commenced by the Philadelphia
4 Water Department (“PWD”). In this testimony, I present my findings and
5 recommendations on behalf of the Public Advocate regarding the class cost of service
6 (“CCOS”) studies and rate design recommendations presented by PWD for water,
7 wastewater, and stormwater service. My colleague, Mr. Lafayette K. Morgan, Jr.,
8 presents the Public Advocate’s findings regarding the overall revenue increase, if any,
9 to which PWD is entitled for its water, wastewater, and stormwater operations for its
10 Rate Period (Fiscal Years (“FYs”) 2024 through 2025).

11 Q. HAVE YOU PREVIOUSLY PRESENTED TESTIMONY IN PWD
12 PROCEEDINGS?

13 A. Yes. I previously submitted testimony on behalf of the Public Advocate in the 2008
14 proceeding in which PWD’s rates for FYs 2009-2012 were established, the 2016
15 proceeding in which PWD’s rates for FYs 2017-2018 were established, the 2018
16 proceeding in which PWD’s rates for FYs 2019-2021 were established, and the 2021
17 proceeding in which PWD’s rates for FYs 2022-2023 were established.

18 Q. PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS
19 CONCERNING PWD’S CCOS STUDIES AND RATE DESIGN
20 PROPOSALS IN THIS PROCEEDING.

21 A. My findings and recommendations concerning PWD’s CCOS studies and rate design
22 proposals in this proceeding are as follows:

- 23 • While the PWD’s water CCOS study is generally reasonable, the customer
24 class maximum day and maximum hour extra capacity factors reflected in that
25 study should be revised to reflect recent actual experience. In addition, base
26 (average day) volumes should be included in the allocation of costs to Public
27 and Private Fire Protection service. In my testimony, I present a revised water

1 CCOS reflecting these changes to PWD’s CCOS study. This revised CCOS
2 study should be utilized to establish water rates in this proceeding, and in my
3 testimony, I present a proposed distribution of the revenue increase authorized
4 by the Board in this proceeding consistent with my revised water CCOS
5 study.

6 • The PWD’s wastewater CCOS study appears reasonable. I am proposing no
7 changes to this CCOS study. If an increase in wastewater rates is authorized
8 by the Board in this proceeding which is less than the PWD’s requested
9 increase, I recommend the rates initially proposed by PWD be proportionately
10 scaled back to achieve the revenue increase authorized in this proceeding.

11 • While PWD’s stormwater CCOS study and analysis is generally reasonable, I
12 recommend that the stormwater rates adopted in this proceeding be designed
13 so that all customers share in the Stormwater Management Incentive Program
14 (“SMIP”) and Greened Acre Retrofit Program Grants (“GARP”) (collectively
15 “SMIP/GARP Program”) billing credits which are currently assigned only to
16 those customers that participate in the SMIP/GARP Program. I also
17 recommend that PWD modify its current Residential stormwater rate design to
18 provide for charges based on building type when the necessary upgrades to its
19 billing system, which are currently on-going, are completed. If an increase in
20 stormwater rates is authorized by the Board which is less than the PWD’s
21 requested increase, I recommend that the rates I have initially proposed be
22 proportionally scaled back to achieve the increase authorized in this
23 proceeding. Finally, I recommend that PWD evaluate whether a rate discount
24 should be provided to Residential customers that agree to have PWD install a
25 rain barrel on their property.

26 Q. HAVE YOU PREPARED SCHEDULES TO ACCOMPANY YOUR
27 TESTIMONY?

28 A. Yes. I have prepared Schedules JDM-1 and JDM-2 which are attached to my testimony.

29 Q. HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

30 A. Following this introductory section, my testimony is divided into two additional
31 sections. The first section addresses PWD’s water CCOS study and rate design
32 proposals. In the final section, I address PWD’s wastewater and stormwater CCOS
33 studies and rate design proposals.

1 **II. WATER CLASS COST OF SERVICE STUDY AND RATE DESIGN**

2 Q. WHAT IS THE OBJECTIVE OF A CLASS COST OF SERVICE STUDY?

3 A. A CCOS study is conducted to assist a utility or commission in determining the level
4 of costs properly recoverable from each of the various classes to which the utility
5 provides service. Allocation of recoverable costs to each class of service is generally
6 based on cost causation principles.

7 Q. WHAT ARE THE PRIMARY CCOS STUDY METHODOLOGIES
8 UTILIZED FOR WATER UTILITIES?

9 A. The two most commonly used and widely recognized methods of allocating costs
10 to customer classes for water utilities are the base-extra capacity method and the
11 commodity-demand method. Both of these methods are set forth in the American Water
12 Works Association's ("AWWA") *Principles of Water Rates, Fees and Charges*,
13 *Manual of Water Supply Practices* ("AWWA M1 Manual").

14 Q. PLEASE SUMMARIZE EACH OF THESE METHODS.

15 A. Under the base-extra capacity method, investment and costs are generally first assigned
16 to utility functional cost centers which include: source of supply, pumping, storage,
17 treatment, distribution, customer, and general administration. These functional costs
18 are then allocated into four primary cost categories: base or average capacity, extra
19 capacity, customer, and direct fire protection. Customer costs are commonly further
20 divided between meter- and service-related, and account- or bill-related costs. Extra
21 capacity costs may also be divided between maximum day and maximum hour costs.
22 Once investment and costs are classified to these primary cost categories, they are then
23 allocated to customer classes. Base costs are allocated according to average water use,
24 and extra capacity costs are allocated on the basis of the excess of peak demands over
25 average demands. Meter- and service-related customer costs are allocated on the basis

1 of relative meter and service investment or a proxy thereof. Account-related customer
2 costs are allocated in proportion to the number of customers or the number of bills. The
3 water CCOS presented by the PWD in this proceeding utilizes the base-extra capacity
4 methodology.

5 The commodity-demand method follows the same general procedures.
6 However, usage-related costs are classified as commodity and demand-related rather
7 than as base and extra capacity related. Commodity-related costs are allocated to
8 customer classes on the basis of total water use (which is equivalent to average
9 demand), and demand-related costs are allocated on the basis of each class'
10 contribution to peak demand rather than on the basis of class demands in excess
11 of average use.

12 Q. PLEASE DESCRIBE IN GREATER DETAIL THE FOUR PRIMARY
13 COST CATEGORIES AND HOW THEY ARE ALLOCATED TO THE
14 VARIOUS CUSTOMER CLASSES UNDER THE BASE-EXTRA
15 CAPACITY METHOD.

16 A. **Base Costs** are costs that tend to vary with the quantity of water used, plus costs
17 associated with supplying, treating, pumping and distributing water to customers under
18 average load conditions. Base costs were generally allocated to customer classes on the
19 basis of average daily usage in PWD's CCOS study.

20 **Extra capacity Costs** are costs associated with meeting usage requirements in
21 excess of average day usage. This includes operating and capital costs for additional
22 plant and system capacity beyond that required for average day usage. Extra capacity
23 costs in PWD's CCOS study have been subdivided into costs necessary to meet
24 maximum day extra demand and maximum hour extra demand. These extra capacity

1 costs were allocated to customer classes on the basis of each class' maximum day and
2 maximum hour usage in excess of average day and average hour usage, respectively.

3 **Customer Costs** are costs associated with serving customers regardless of their
4 usage or demand characteristics. Customer costs include the operating costs related to
5 meters and services, meter reading costs, and billing and collecting costs. Customer
6 costs were allocated on the basis of the capital cost of meters and services and the
7 number of customer bills.

8 **Fire Protection Costs** are costs associated with providing the facilities
9 necessary to meet the potential peak demand of fire protection service. In PWD's study,
10 fire protection costs have been subdivided into the costs associated with meeting Public
11 Fire Protection and Private Fire Protection demands. The extra capacity costs assigned
12 to fire protection were allocated to Public and Private Fire Protection on the basis of
13 the total relative demands of hydrants and fire service lines.

14 Q. PLEASE IDENTIFY THE CUSTOMER CLASSES PWD HAS INCLUDED
15 IN ITS WATER CCOS STUDY.

16 A. PWD has separately identified the cost of serving twelve (12) retail customer classes:
17 Residential, Senior Citizens, Commercial, Industrial, Public Utilities, Public Housing
18 Authority, Charities & Schools, Hospitals & Universities, Hand Billed, Scheduled (Flat
19 Rate), Public Fire Protection, and Private Fire Protection. Collectively, I subsequently
20 refer to PWD's non-fire protection service retail customer classes as its general retail
21 customer class. The cost of serving PWD's wholesale customer, Aqua Pennsylvania,
22 has also been separately identified.

23 Q. PLEASE DESCRIBE IN GREATER DETAIL PWD'S ASSIGNMENT OF
24 SYSTEM-WIDE INVESTMENT AND COSTS TO UTILITY

1 FUNCTIONAL COST CENTERS AND THE ALLOCATION OF THESE
2 COSTS TO COST CATEGORIES.

3 A. As shown in Schedule BV-2, Tables 4-5 through 4-7 of PWD's water CCOS study,
4 plant investment costs, depreciation expense, and operations and maintenance
5 ("O&M") expenses have been assigned to four functional cost centers:

- 6 • Raw Water Supply and Pumping;
- 7 • Purification and Treatment;
- 8 • Transmission and Distribution; and
- 9 • Administrative and General.

10 The costs assigned to these functional cost centers have subsequently been allocated to
11 the following cost categories:

- 12 • Base capacity;
- 13 • Maximum day extra capacity;
- 14 • Maximum hour extra capacity;
- 15 • Customer;
- 16 • Direct fire protection; and
- 17 • Direct wholesale.

18 Customer costs, such as meters and services, and direct fire protection costs,
19 such as hydrants, are directly assigned to their respective cost category. Remaining
20 costs are allocated to the base, maximum day, and maximum hour cost categories based
21 on the degree to which they are associated with meeting those service requirements.
22 Cost that meet base (average day) service requirements are allocated 100 percent to
23 base category. Costs that meet maximum day service requirements are allocated
24 between the base (72 percent) and the maximum day (28 percent) cost categories. Costs
25 that meet maximum hour service requirements are allocated to the base (47 percent),
26 maximum day (14 percent), and maximum hour (37 percent) cost categories.

1 Q. PLEASE ELABORATE ON HOW THE MAXIMUM DAY AND HOUR
2 PERCENTAGES FOR THE SYSTEM-WIDE ALLOCATION OF COSTS
3 WERE DETERMINED.

4 A. For FYs 2015 through 2021, PWD determined the ratio of the maximum day of water
5 usage to average day water usage. The highest maximum day to average day water
6 usage ratio experienced during this period was 1.39, which occurred in FY 2018. Based
7 on this ratio, PWD allocated 72 percent of maximum day costs to the base category
8 (1.00/1.39) and 28 percent to the maximum hour category (0.39/1.39).

9 With respect to the maximum hour service cost percentages, for FYs 2015
10 through 2021, PWD determined the ratio of the maximum hour of water usage to
11 average hour water usage for each fiscal year. The highest maximum hour to average
12 hour water usage ratio experienced during this period was 2.09, which occurred in FY
13 2016. Based on this ratio, PWD allocated 48 percent of maximum hour costs to the
14 base category (1.00/2.09). The remaining 52 percent of maximum hour costs were
15 allocated to the maximum day and maximum hour cost categories based on the relative
16 contribution of maximum day and maximum hour demands to total extra capacity
17 demands of 1.09 (2.09 – 1.00).

18 Q. PLEASE DESCRIBE THE ALLOCATION OF SYSTEM-WIDE
19 MAXIMUM DAY AND MAXIMUM HOUR EXTRA CAPACITY COSTS
20 TO CUSTOMER CLASS UNDER THE BASE EXTRA CAPACITY
21 METHOD AS SET FORTH IN THE AWWA M1 MANUAL.

22 A. Under the base-extra capacity method, system-wide maximum day and maximum hour
23 extra capacity costs are allocated to customer class based on the excess of each class'
24 non-coincident maximum day and maximum hour demands over average day and
25 maximum day demands, respectively. As an example, as shown on Schedule BV-2,

1 Table 4-4, the average day water usage of Residential customers was determined to be
2 8,450 Mcf, and the maximum day usage of Residential customers was determined to
3 be 200 percent of average day usage, or 16,900 Mcf. Thus, the maximum day extra
4 capacity usage of Residential customers is 8,450 Mcf (16,900 Mcf maximum day usage
5 less 8,450 Mcf average day usage). Maximum day extra capacity costs are allocated to
6 the Residential class based on the Residential class' proportionate share of total system
7 maximum day extra capacity usage.

8 With respect to the allocation of maximum hour extra capacity costs, as also
9 shown on Schedule BV-2, Table 4-4, PWD determined that the maximum hour usage
10 (on a 24-hour basis) of the Residential class is 360 percent of average day usage, or
11 30,420 Mcf. Thus, the maximum hour extra capacity usage of Residential customers is
12 13,520 Mcf above maximum day usage (30,420 Mcf maximum hour usage less 16,900
13 Mcf maximum day usage). Maximum hour extra capacity costs are allocated to the
14 Residential class based on the Residential class' proportionate share of total system
15 maximum hour extra capacity usage.

16 Q. THE BASE-EXTRA CAPACITY METHOD UTILIZES NON-
17 COINCIDENT PEAK DEMANDS TO ALLOCATE EXTRA CAPACITY
18 COSTS TO THE VARIOUS CUSTOMER CLASS. IS THIS SIMPLY THE
19 DEMANDS OF EACH CUSTOMER CLASSIFICATION AT THE TIME
20 OF SYSTEM PEAK DAY AND PEAK HOUR DEMANDS?

21 A. No. Non-coincident peak demands represent the maximum demands of the individual
22 customer classifications regardless of when those demands occur. Thus, the sum of
23 each customer class' non-coincident demands will exceed the system coincident peak
24 demand. The ratio obtained by dividing non-coincident demands by coincident
25 demands is referred to as the system diversity ratio in the AWWA M1 Manual.

1 Q. WHY ARE NON-COINCIDENT DEMANDS UTILIZED UNDER THE
2 BASE-EXTRA CAPACITY METHOD?

3 A. The basis for using non-coincident maximum day and maximum hour demands is set
4 forth in the AWWA M1 Manual:

5
6 It is important that the reader understand the rationale
7 of using the non-coincident demands in distributing
8 the functionally allocated costs to each class. The
9 rationale for supporting the use of non-coincident
10 peaking factors is that the benefits of diversity in
11 customer class consumption patterns should accrue
12 to all classes in proportion to their use of the system,
13 and not be allocated primarily to a particular class
14 that happens to peak at a time different from other
15 users of the system. The concept is illustrated
16 through the following example: Assume that a utility
17 was going to build a *separate system* (source of
18 supply, treatment, pumping, transmission and
19 distribution, etc.) for *each of the customer classes*
20 served by the utility. These separate water systems
21 would need to be sized to meet the base, maximum-
22 day extra capacity, and maximum-hour extra
23 capacity demands related to each class. The sum of
24 those systems would compose the overall water
25 system, and the costs associated with each of the
26 individual systems would be allocable to each class
27 (based on their respective non-coincidental demands
28 that were the basis for sizing the individual
29 components of the system).

30 Assume that a concept is developed that efficiencies,
31 economies of scale, and reduction in the overall size
32 of the “system” could be achieved if the system is an
33 integrated, diversified system. With this concept in
34 mind, recognizing the diversities of demands of the
35 various classes and using the coincidental demands
36 of all classes to size the plant, a smaller system could
37 be built. Total fixed capital costs and most operation
38 and maintenance expenses, except perhaps for power
39 and chemical costs, would be reduced in sizing the
40 overall system facilities on the basis of the
41 coincidental demands of all the classes of customers.

1 The question at hand is, considering that there is a
2 smaller, more efficient, and less costly system, how
3 should the cost savings of that system be allocated
4 among the individual customer classes? One
5 appropriate manner to allocate these costs, and have
6 each customer class share equitably in the overall
7 cost savings, is to allocate the total new, smaller
8 system costs on the basis of the non-coincidental
9 demands of each customer class. In this manner, all
10 classes share proportionately in the economies of
11 scale and cost savings of this smaller, integrated, and
12 diverse system.

13 [AWWA M1 Manual, Appendix A, pages 374 - 375, 7th
14 Edition (2017).]

15 Q. HOW DID THE COMPANY DEVELOP THE MAXIMUM DAY AND
16 MAXIMUM HOUR EXTRA CAPACITY FACTORS FOR THE VARIOUS
17 GENERAL RETAIL CUSTOMER CLASS REFLECTED IN ITS WATER
18 CCOS STUDY?

19 A. When asked to explain in detail how the maximum day and maximum hour extra
20 capacity factors for each customer class were determined in PA-IV-11, PWD
21 responded that the extra capacity factors from previous PWD CCOS studies were used,
22 and that PWD “continued to use the results of the capacity factor analysis performed
23 for the prior rate proceeding.” The PWD further indicated that:

24 The prior capacity factor analysis was completed
25 according to the methodology outlined in Appendix
26 A of AWWA Manual M-1: Principles of Water
27 Rates, Fees, and Charges. Accordingly, at the time of
28 the analysis, Black & Veatch used the monthly
29 customer billing data, and system historical peak
30 demands, and weekly and hourly usage adjustments
31 to derive an estimate of capacity factors for each
32 customer type.

33 The extra capacity factors reflected in PWD’s water CCOS study have been used by
34 PWD in its CCOS studies since PWD’s 2016 rate proceeding. The data supporting the

1 extra capacity factors reflected in PWD's current CCOS study date back to FY 2012
2 (response to PA-X-2).

3 Q. WHAT IS YOUR GENERAL ASSESSMENT OF THE WATER CCOS
4 STUDY SPONSORED BY PWD?

5 A. I generally agree with PWD's use of the base-extra capacity methodology. However, I
6 believe that adjustments to the maximum day and maximum hour extra capacity factors
7 relied upon by PWD to allocate costs to the various general retail customer
8 classifications are appropriate. With respect to fire protection service, PWD assigned
9 no average day usage volumes which serve as the basis to allocate base functional costs
10 to Public or Private or Fire Protection service. I believe that Public and Private Fire
11 Protection service should be allocated base functional costs.

12 Q. WHAT IS YOUR CONCERN WITH THE EXTRA CAPACITY FACTORS
13 UTILIZED IN PWD'S WATER CCOS STUDY TO ALLOCATE COSTS
14 TO THE VARIOUS GENERAL RETAIL CUSTOMER CLASSES?

15 A. The extra capacity factors reflected in its CCOS Study are based on data which dates
16 back to FY 2012 at least 2017. The extra capacity factors utilized in PWD's CCOS
17 Study in this proceeding should be updated to reflect more recent customer usage
18 characteristics.

19 Q. WHAT DO YOU RECOMMEND WITH RESPECT TO THE GENERAL
20 RETAIL CUSTOMER CLASS EXTRA CAPACITY FACTORS THAT
21 SHOULD BE USED IN PWD'S WATER CCOS STUDY?

22 A. Ideally, the most reliable and accurate approach to determining extra capacity factors
23 would be to conduct a formal study that samples the actual daily and hourly demands
24 of the various general retail customer classes. However, such studies are generally
25 expensive and time consuming. PWD has not conducted a formal study of actual

1 customer class demands. In lieu of such a study, and as previously indicated, Appendix
2 A of the AWWA M1 Manual (“AWWA Method”) presents an alternative approach to
3 developing extra capacity factors. PWD claims to have used the AWWA Method to
4 develop extra capacity factors. However, the extra capacity factors reflected in PWD’s
5 CCOS study are outdated and inconsistent with those resulting from application of the
6 AWWA Method utilizing more recent usage data.

7 Q. HAVE YOU INDEPENDENTLY DEVELOPED GENERAL RETAIL
8 CUSTOMER CLASS EXTRA CAPACITY FACTORS BASED ON THE
9 PROCEDURES DESCRIBED UNDER THE AWWA METHOD?

10 A. Yes. I have developed extra capacity factors for each general retail customer class
11 included in PWD’s CCOS study using the procedures described under the AWWA
12 Method. This analysis is presented on Schedule JDM-1. Under the AWWA Method,
13 the year with the highest ratio of system maximum day demand to system average day
14 demand over a representative number of years should be utilized for extra capacity
15 factors.¹ As previously indicated the year with the highest ratio was FY 2018. However,
16 in the response to PA-IV-II, PWD indicated that its review of FY 2018 billing data by
17 customer class revealed that the maximum month for some customer classes was
18 impacted by a change in the number of bills issued during the monthly billing period,
19 which resulted in overstating the maximum month to average day ratio of the
20 corresponding customer class. Therefore, PWD felt it would not be appropriate to use
21 FY 2018 data to perform an analysis of extra capacity factors using the AWWA
22 method. Therefore, I utilized customer billing records from FY 2019 (July 2018 – June
23 2019) to develop the retail customer class extra capacity factors presented on Schedule
24 JDM-1. FY 2019 represented the year with the second highest ratio of system

¹ AWWA M1 Manual, 7th Edition, page 373.

1 maximum day demand to system average demand since FY 2018 for which data is
2 available.

3 Q. WHAT DO THE RESULTS OF YOUR ANALYSIS OF GENERAL
4 RETAIL EXTRA CAPACITY FACTORS INDICATE?

5 A. There were varying degrees of differences between the customer class specific
6 maximum day and maximum hour extra capacity factors reflected in PWD's CCOS
7 study from those indicated by my analysis. Those differences are identified in Schedule
8 JDM-1, and generally indicate that the extra capacity factors utilized in PWD's CCOS
9 Study are too low.

10 Q. YOU PREVIOUSLY INDICATED THAT PUBLIC AND PRIVATE FIRE
11 PROTECTION SERVICE SHOULD BE ALLOCATED BASE
12 FUNCTIONAL COSTS. WHAT IS THE BASIS FOR YOUR
13 RECOMMENDATION?

14 A. As previously explained, under the base-extra capacity method, base costs are costs
15 that tend to vary with the quantity of water used, plus the costs associated with
16 supplying, treating, pumping, and distributing water to customers under average load
17 conditions. As indicated in Schedule BV-2, Table 4-4 of PWD's water CCOS study,
18 the actual annual use of water to provide Public and Private Fire Protection is identified
19 as 0 gallons. This is unreasonable. PWD's water CCOS study should be adjusted to
20 reflect the water used to provide Public and Private Fire Protection service. Based on
21 the response to PA-IV-14, the annual water usage associated with Public Fire
22 Protection service is estimated to be 55,000,000 gallons, or 7,400 Mcf. Based on the
23 response to PA-IV-15, the annual water usage to provide Private Fire Protection service
24 has averaged 6,600 Mcf during the period FY 2020 – FY 2022.

1 Q. HAVE YOU REVISED PWD’S CCOS STUDY TO REFLECT YOUR
2 UPDATED EXTRA CAPACITY FACTORS FOR THE GENERAL RETAIL
3 CUSTOMER CLASSES, AND THE AVERAGE WATER USAGE
4 ASSOCIATED WITH THE PROVISION OF PUBLIC AND PRIVATE
5 FIRE PROTECTION SERVICE?

6 A. Yes. Table 1 presents a comparison of the indicated cost of service for each customer
7 class for FY 2024 under the CCOS study initially filed by PWD and the CCOS study
8 revised to reflect my recommendations concerning general retail extra capacity factors
9 and an allocation of base costs to fire protection service. Also identified in Table 1 are
10 revenues under existing rates.

Table 1.
Comparison of Class Cost of Service Study Results and Revenues Under Existing Rates

	<u>FY 2024</u>		Revenues at Existing Rates (3)	Indicated Public Advocate Increase (4) = (2)-(3)	Percent (5)
	<u>Class Cost of Service Study</u> PWD Filed ^[1] (1)	Revised ^[1] (2)			
General Service					
Senior Citizens	\$6,060,000	\$5,802,000	\$5,151,885	\$650,115	12.6%
Residential	201,748,000	190,340,000	169,900,488	20,439,512	12.0%
Commercial	82,055,000	87,690,000	71,663,828	16,026,172	22.4%
Industrial	2,783,000	3,862,000	2,708,368	1,153,632	42.6%
Public Utilities	499,000	654,000	489,405	164,595	33.6%
Subtotal:	\$293,145,000	\$288,348,000	\$249,913,974	\$38,434,026	15.4%
Other Services					
Housing Authority	\$8,004,000	\$9,016,000	\$6,554,466	\$2,461,534	37.6%
Charities & Schools	4,813,000	5,176,000	4,297,017	878,983	20.5%
Hospitals & University	1,861,000	2,186,000	1,628,549	557,451	34.2%
Hand Billed	25,810,000	29,442,000	18,894,388	10,547,612	55.8%
Scheduled (Flat Rate)	3,000	3,000	3,379	(379)	-11.2%
Subtotal:	\$40,491,000	\$45,823,000	\$31,377,800	\$14,445,200	46.0%
Private Fire Protection	\$6,078,000	\$6,072,000	\$4,358,150	\$1,713,850	39.3%
Public Fire Protection	7,742,000	7,385,000	7,114,000	271,000	3.8%
Subtotal:	\$13,820,000	\$13,457,000	\$11,472,150	\$1,984,850	17.3%
Wholesale	\$4,600,000	\$4,429,000	\$3,329,398	\$1,099,602	33.0%
Total:	\$352,056,000	\$352,057,000	\$296,093,321	\$55,963,679	18.9%

^[1]Adjusted cost of service reflecting the recovery of discounts.

1 Q. DID YOU PROPOSE SIMILAR MODIFICATIONS TO PWD'S CCOS
2 STUDY IN THE 2021 PROCEEDING IN WHICH PWD'S RATES FOR
3 FYS 2022-2023 WERE ESTABLISHED?

4 A. Yes. In the 2021 proceeding, I proposed modifying the customer class maximum day
5 and maximum hour extra capacity factor in PWD's CCOS study to reflect recent actual
6 experience. I also proposed including base (average day) volumes in the allocation of
7 costs to Public Fire Protection service. I did not propose including base volumes in the

1 allocation of costs to provide Private Fire Protection service because PWD's CCOS
2 study in the 2021 proceeding included base volumes in the allocation of costs to Private
3 Fire Protection service.

4 Q. WHAT WAS PWD'S RESPONSE TO YOUR PROPOSAL TO MODIFY
5 THE EXTRA CAPACITY FACTORS UTILIZED IN THE CCOS STUDY
6 PRESENTED IN THE 2021 PROCEEDING?

7 A. In rebuttal testimony, PWD claimed that the method presented in the AWWA M1
8 Manual was a generic method which failed to recognize the unique usage
9 characteristics of the customers served by PWD. For example, PWD claimed that it
10 does not experience seasonal peaking to the extent of other water utility systems
11 because its urban customer base does not have summer usage peaks tied to irrigation
12 usage. Because of this, PWD contended that since its system has a lower maximum day
13 peaking factor, it experiences more diversity in hourly usage adjustments compared to
14 the examples in the AWWA M1 Manual.

15 Q. WHAT IS YOUR RESPONSE TO PWD'S CLAIM THAT UTILIZING THE
16 AWWA METHOD TO DETERMINE EXTRA CAPACITY FACTORS
17 FAILS TO REFLECT THE UNIQUE USAGE CHARACTERISTICS OF
18 THE CUSTOMERS SERVED BY PWD?

19 A. First, as previously indicated in this testimony, in response to PA-IV-11, PWD
20 indicated that it previously used the method outlined in the AWWA M1 Manual to
21 determine the extra capacity factors for the various customer classes included in its
22 water CCOS study. Under the AWWA method presented in the M1 Manual, utility
23 specific data is generally to be used to develop extra capacity factors, and I have used
24 PWD specific data to determine my proposed extra capacity factors. Therefore, the

1 unique usage characteristic of PWD's customers are reflected in my proposed extra
2 capacity factors.

3 In addition, I do not disagree with PWD's claim that the irrigation requirements
4 of its customer base may be lower than that of a typical water utility for which the
5 AWWA Method is designed to determine extra capacity factors. Of the various
6 customer classes served by PWD, I believe that the demands of the Residential class
7 would be most affected by the lower irrigation requirements. As shown on Schedule
8 JDM-1, the maximum day and maximum hour factors I have calculated for the
9 Residential class do not vary materially from the maximum day and maximum hour
10 factors utilized by PWD in its CCOS study.

11 Q. HOW DID PWD PROPOSE TO DISTRIBUTE THE PROPOSED
12 INCREASE IT IS REQUESTING FOR FY 2024 IN THIS PROCEEDING
13 TO THE VARIOUS CUSTOMER CLASSES?

14 A. PWD claims that it is proposing rates that generally recover the indicated cost of service
15 from each customer class. The indicated FY 2024 cost of service for each customer
16 class and the percentage increase in existing rates necessary to increase rates to the
17 indicated cost of service in PWD's CCOS study for each customer class is presented in
18 Exhibit BV-2, Table 4-12. However, PWD has not provided a comparison of revenues
19 at proposed rates and the indicated cost of service for each class. Without such a
20 comparison, the reasonableness of PWD's proposal rates cannot be evaluated. The
21 Board should require PWD to provide such a comparison in this and future
22 proceedings.

23 Q. WHAT ARE SOME OF THE PRINCIPLES OF A SOUND REVENUE
24 ALLOCATION?

25 A. A sound revenue allocation should:

- 1 • Utilize class cost of service study results as a guide;
- 2 • Provide stability and predictability of the rates themselves, with a minimum of
- 3 unexpected changes seriously adverse to ratepayers or the utility (gradualism);
- 4 • Yield the total revenue requirement;
- 5 • Provide for simplicity, certainty, convenience of payment, understandability,
- 6 public acceptability and feasibility of application; and
- 7 • Reflect fairness in the apportionment of the total cost of service among the
- 8 various customer classes.²

9 Q. WHAT IS YOUR PROPOSAL WITH RESPECT TO THE DISTRIBUTION
10 OF THE REVENUE INCREASE AWARDED FOR FY 2024 IN THIS
11 PROCEEDING?

12 A. I generally agree with PWD that it is reasonable to set rates based on the indicated cost
13 of providing service. However, PWD's CCOS study does not reflect the appropriate
14 extra capacity factors for the general retail classes, and a reasonable allocation of base
15 costs to Public and Private Fire Protection service. Therefore, PWD's CCOS study
16 should not be relied upon to determine the distribution of the revenue increase approved
17 in this proceeding. The revised CCOS which I sponsor provides a reasonable basis to
18 determine the distribution of the revenue increase, if any, awarded in this proceeding.
19 With several exceptions that I subsequently describe, I propose that the rates for each
20 customer class be set to recover the cost of service as indicated by my proposed CCOS
21 study.

22 In this proceeding, PWD is proposing a system average increase in rates for
23 water service of 18.9%. As previously indicated, one of the principles of a sound rate
24 design is gradualism. While there is no hard and fast rule to applying the concept of
25 gradualism, an increase of 1.5 to 2.0 times the system average increase would generally

² *Principles of Public Utility Rates*, Second Edition, James C. Bonbright, Albert L. Danielsen, David R. Kamerschen; Public Utility Reports, Inc., 1988, pages 383-384.

1 be considered consistent with the principle of gradualism. Increasing the current rates
2 of the Industrial, Hand Billed, and Private Fire Protection classes to the indicated cost
3 of service would result in rate increases which are more than two times the system
4 average increase requested by PWD. Therefore, I am proposing increases for each of
5 these classes equal to two times the system average increase. For the Public Housing
6 Authority class, I am proposing an increase in rates equal to the system average
7 increase. This is consistent with the increase proposed by PWD. Increasing Public Fire
8 Protection rates to the indicated cost of service would result in an increase of 3.5%
9 which is significantly less than the system average increase of 18.9%. To assist in
10 providing for gradualism in the rate increase for the Industrial, Hand Billed, and Private
11 Fire Protection customer classes, I am proposing an increase for Public Fire Protection
12 which is 50% of the system average increase. Finally, I am proposing an increase for
13 the Residential class which recovers the indicated cost of service, plus the difference
14 between PWD's total cost of service and the revenues to be recovered from the other
15 customer classes.

16 If the Board determines that PWD should be authorized to recover revenues in
17 an amount less than requested by PWD in FY 2024, I recommend that the increase I
18 have reflected for each customer class be scaled back proportionately to reflect the
19 revenues authorized by the Board. A summary of my revenue distribution based on the
20 increase requested by the PWD is presented in Table 2. I recommend that to the extent
21 possible, under PWD's current water rate structure which provides for the same
22 declining block volumetric rates for each general retail customer class, FY 2024 rates
23 be established that provide for the proposed revenues identified in Table 3. If PWD is
24 awarded an increase for FY 2025, I recommend that rates be established for FY 2025
25 to provide for an equal overall system average percentage increase for each class.

**Table 2
Comparison of Present and Public Advocate Proposed Rates-FY 2024**

	Present Rates (1)	Proposed Rates (2)	Increase (3) = (2)-(1)	Percent (4)
General Service				
Senior Citizens	\$5,151,885	\$5,802,000	\$650,115	12.6%
Residential	169,900,488	194,761,532	24,861,044	14.6%
Commercial	71,663,828	87,690,000	16,026,172	22.4%
Industrial	2,708,368	3,732,168	1,023,800	37.8%
Public Utilities	489,405	654,000	164,595	33.6%
Subtotal:	\$249,913,974	\$292,639,700	\$42,725,726	15.4%
Other Services				
Housing Authority	\$6,554,466	\$7,793,305	\$1,238,839	18.9%
Charities & Schools	4,297,017	5,176,000	878,983	20.5%
Hospitals & University	1,628,549	2,186,000	557,451	34.2%
Hand Billed	18,894,388	26,036,728	7,142,339	37.8%
Scheduled (Flat Rate)	3,379	4,379	1,000	7.2%
Subtotal:	\$31,377,800	\$41,196,412	\$9,818,613	31.3%
Private Fire Protection	\$4,358,150	\$6,005,591	\$1,647,441	37.8%
Public Fire Protection	\$7,114,000	\$7,786,298	\$672,298	9.5%
Subtotal:	\$11,472,150	\$13,791,888	\$2,319,738	17.3%
Wholesale	\$3,329,398	\$4,429,000	\$1,099,602	33.0%
Total:	\$296,093,321	\$352,057,000	\$55,963,679	18.9%

- 1 Q. ARE YOU RECOMMENDING ANY RATE OR CLASS REVENUE
2 ADJUSTMENTS IF PWD A RATE INCREASE IS NOT APPROVED FOR
3 PWD IN THIS PROCEEDING?
- 4 A. Yes. I recommend that the rates of each customer class be adjusted to reflect the
5 results of my revised cost of service study as reflected in Table 3. The cost of service
6 at present rates reflected in Table 3 was determined by proportionately scaling back
7 the results of my revised cost of service study to reflect revenues at present rates.

Table 3
Comparison of Present and Public Advocate Proposed Rates
With No Awarded Increase-FY 2024

	Present Rates (1)	Cost of Service Present Rates (2)	Increase (3) = (2)-(1)	Percent (4)
General Service				
Senior Citizens	\$5,151,885	\$4,879,703	(272,182)	-5.3%
Residential	169,900,488	160,083,176	(9,817,311)	-5.8%
Commercial	71,663,828	73,750,624	2,086,795	2.9%
Industrial	2,708,368	3,248,089	539,721	19.9%
Public Utilities	489,405	550,039	60,634	12.4%
Subtotal:	\$249,913,974	\$242,511,630	(7,402,343)	-3.0%
Other Services				
Housing Authority	\$6,554,466	\$7,582,799	\$1,028,333	15.7%
Charities & Schools	4,297,017	4,353,213	56,196	1.3%
Hospitals & University	1,628,549	1,838,509	209,960	12.9%
Hand Billed	18,894,388	24,761,841	5,867,453	31.1%
Scheduled (Flat Rate)	3,379	2,523	(856)	-25.3%
Subtotal:	\$31,377,800	\$38,538,885	\$7,161,086	22.8%
Private Fire Protection	\$4,358,150	\$5,106,783	\$748,633	17.2%
Public Fire Protection	\$7,114,000	\$6,211,066	(902,934)	-12.7%
Subtotal:	\$11,472,150	\$11,317,849	(\$154,301)	-1.3%
Wholesale	\$3,329,398	\$3,724,957	\$395,559	11.9%
Total:	\$296,093,321	\$296,093,321	(\$0)	0.0%

1 **III. WASTEWATER & STORMWATER COST OF SERVICE AND RATE DESIGN**

2 Q. PLEASE SUMMARIZE THE WASTEWATER CCOS STUDY FILED BY
3 PWD IN THIS PROCEEDING.

4 A. Much like for water service, PWD has prepared a class cost of service study for
5 wastewater service using projected FY 2024 costs as the starting point. In its study,
6 PWD determines the average unit cost of providing each of the functional components
7 of service. These functions include: annual volumes; capacity costs separated into those

1 related to collection system demands, pumping demands, and treatment demands;
2 suspended solids and BOD loadings; and customer costs separated into meter related
3 and bill related. Next, costs are distributed to customer classes in proportion to each
4 class' ratio of its units of service by function to the sum of the units of service by
5 function for all customer classes. Initially, costs are apportioned between PWD's 11
6 wholesale contract customers and its retail customers. The costs allocated to retail
7 customers are then apportioned between sanitary sewer service and stormwater service
8 as discussed in more detail subsequently. Finally, rates are designed to recover the
9 allocated costs.

10 Q. PLEASE SUMMARIZE THE RATE DESIGN FOR SANITARY SEWER
11 SERVICE.

12 A. PWD's proposed sanitary sewer rate design consists of a series of flat monthly charges
13 that increase as a function of meter size, and a uniform, non-varying quantity charge
14 based on water usage. Surcharges apply for high strength wastewater that requires
15 additional treatment costs to be incurred. The proposed rates for wastewater service
16 reflect the CCOS study results after accounting for the fact that senior citizens, charities
17 and schools receive a 25 percent discount, the Philadelphia Housing Authority receives
18 a 5 percent discount and TAP participants receive income-based bills.

19 Q. YOU NOTED EARLIER THAT RETAIL COSTS ARE APPORTIONED
20 BETWEEN SANITARY WASTEWATER SERVICE AND STORMWATER
21 SERVICE. PLEASE EXPLAIN.

22 A. Because the wastewater system is comprised of both combined and separate sanitary
23 and storm sewers, wastewater system costs are separated between sanitary sewer and
24 stormwater costs based on the volumes, demands, loadings and revenues associated

1 with each type of service. This is done to allow stormwater costs to be recovered
2 separately from sanitary sewer service costs using parcel-based charges.

3 Q. HAS THE PWD PROPOSED ANY SIGNIFICANT CHANGES AS TO
4 HOW COSTS ARE APPORTIONED BETWEEN SANITARY
5 WASTEWATER SERVICE AND STORMWATER SERVICE IN THIS
6 PROCEEDING?

7 A. No.

8 Q. DO YOU HAVE ANY CONCERNS WITH THE PWD'S WASTEWATER
9 CCOS STUDY APPORTIONMENT OF COSTS BETWEEN SANITARY
10 WASTEWATER SERVICE AND STORMWATER SERVICE, OR PWD'S
11 PROPOSED RATE DESIGN FOR SERVICE?

12 A. No I do not. PWD's wastewater CCOS study and the apportionment of costs between
13 wastewater service and stormwater service and the proposed wastewater rate design
14 appears reasonable.

15 Q. PLEASE EXPLAIN HOW STORMWATER COSTS ARE RECOVERED
16 FROM THE VARIOUS GENERAL RETAIL CUSTOMER CLASSES.

17 A. In this proceeding, PWD is proposing to retain its parcel-based stormwater rate design
18 methodology under which stormwater costs other than billing and collection costs are
19 allocated and recovered based on a combination of gross and impervious area ("GA"
20 and "IA"). More specifically, 80 percent of total stormwater-related costs (excluding
21 customer billing and collection costs) is assigned to IA and 20 percent is assigned to
22 GA. These assigned costs are then allocated to Residential and non-Residential
23 customers based on the GA and IA of each class, with the GA and IA of non-Residential
24 customers adjusted to reflect certain credits. Under this approach, the actual GA and
25 IA rates designed by PWD are the same for Residential and non-Residential customers.

1 The amounts allocated to Residential customers are recovered through a uniform
2 monthly charge that is the same for each Residential customer. Billing and collection
3 costs are collected through a uniform charge per Residential account.

4 The GA and IA costs allocated to non-Residential customers are recovered
5 through monthly GA and IA charges that are individually calculated for each parcel
6 based on the applicable (non-Residential) GA and IA rates and the parcel's specific GA
7 and IA square footage billing determinants. Non-Residential customers are also
8 assessed a monthly billing and collection charge.

9 Q. ARE YOU PROPOSING ANY CHANGES TO PWD'S STORMWATER
10 COST ANALYSIS OR THE RATES PURPOSED BY THE PWD, IF AN
11 INCREASE IS AUTHORIZED BY THE BOARD?

12 A. I am proposing to modify PWD's proposed stormwater rates in this proceeding to
13 provide for a more equitable sharing of the costs associated with the PWD's
14 SMIP/GARP Program. I also recommend that PWD modify its current Residential
15 stormwater rate design to provide for charges based on building type when the
16 necessary upgrades to its billing system are completed. Finally, I recommend that PWD
17 evaluate whether a rate discount should be provided to Residential customers that agree
18 to have PWD install a rain barrel on their property.

19 Q. WHAT IS THE SMIP/GARP PROGRAM?

20 A. The SMIP/GARP Program offers grant funding to non-Residential customers for the
21 design and construction of projects to reduce stormwater runoff on a property. Grant
22 funding is not determined based on the ability of a customer to afford the project, but
23 is based on whether the project provides a system-wide stormwater reduction benefit.
24 The PWD determines which projects are eligible for grants. Once a project is
25 completed, the customer is eligible to receive GA and IA billing determinant credits

1 (reductions) which reduce their stormwater charges. SMIP/GARP Program costs for
2 FY 2024 which primarily reflects the costs of the grants provided, are estimated to be
3 \$20 million. Approximately 60 percent of SMIP/GARP Program costs are recovered
4 from stormwater customers and the remaining 40 percent is recovered from wastewater
5 customers.

6 Q. WHAT IS YOUR CONCERN WITH PWD'S CURRENT COST
7 RECOVERY APPROACH FOR SMIP/GARP PROGRAM COSTS FROM
8 STORMWATER CUSTOMERS?

9 A. Under the current approach, all stormwater customers are responsible for funding
10 SMIP/GARP Program costs. However, only customers that actually participate in the
11 SMIP/GARP Program receive the financial benefits of the program (i.e., reduced
12 stormwater charges). Although Residential customers are responsible for a substantial
13 share of SMIP/GARP Program costs, Residential customers are not eligible to
14 participate in the SMIP/GARP Program. Since all customers are responsible for
15 funding the SMIP/GARP Program, all customers should share in the financial benefits.

16 Q. WHAT DO YOU RECOMMEND?

17 A. PWD's current and proposed GA and IA rates are based on GA and IA square footage
18 determinants fully adjusted for all GA and IA credits. To provide for a more equitable
19 sharing of the financial benefits of the SMIP/GARP Program, I recommend that the
20 GA and IA rates established in this proceeding be based on an average of the rates
21 developed based on the current rate design and the rates which would result if no GA
22 and IA credits were reflected in the design of rates. GA and IA rates reflecting my
23 recommendation based on the PWD's claimed cost of stormwater service are developed
24 on Schedule JDM-2. The Public Advocate is willing to consider other alternative

1 stormwater service rate designs which would provide for a more equitable sharing of
2 the financial benefits of the SMIP/GARP Program.

3 Q. PLEASE EXPLAIN YOUR RECOMMENDATION CONCERNING THE
4 DESIGN OF PWD'S RESIDENTIAL STORMWATER CHARGES.

5 A. All Residential customers are currently assessed the same charge for stormwater
6 service based on the average GA and IA of all Residential parcels. In its 2021 rate
7 proceeding, PWD proposed a Residential GA charge based on 2,110 sf. and the IA
8 charge based on 1,200 sf. In my testimony in the 2021 rate proceeding, I noted that
9 almost 60 percent of Philadelphians live in rowhomes, 70 percent of all housing units
10 in Philadelphia are rowhomes,³ and that many rowhomes have lots with a width of 14-
11 15 feet.⁴ My review of existing rowhomes listed for sale indicated a typical parcel size
12 of 0.02 acres, or 871 sf. (acre = 43,560 sf. x 0.02). The parcel size of a rowhouse would
13 correspond to the GA of that parcel. The 871 sf. was significantly less than the average
14 of 2,110 sf. PWD proposed to utilize to develop the GA component of the Residential
15 stormwater charge. It was also less than the 1,200 sf. PWD was proposing to utilize to
16 develop the IA component of the Residential stormwater charge. Based on these
17 findings, it appeared that the stormwater charges for rowhomes may be significantly
18 overstated. Therefore, in the 2021 proceeding, I recommended that the PWD evaluate
19 adopting a separate stormwater charge for rowhomes and present its findings in its next
20 rate proceeding.

21 In the 2021 proceeding, PWD agreed to develop a proposal to evaluate tiered
22 Residential stormwater rate structures to reflect the range of Residential property sizes.

23 In several presentations made in the fall of 2022, PWD presented the option of

³ <https://www.phillymag.com/property/201509/21/this-chart-proves-philadelphia-is-the-king-of-the-king-of-the-rowhome/>.

⁴ <https://brotherlyloveproperties.com/new-construction-homes-philadelphia/>.

1 establishing stormwater rates based on Residential building type. The Residential
2 building types included in PWD's presentation were Apartments, Row Houses,
3 Singles, and Twins. Establishing Residential stormwater rates based on building type
4 reasonably addresses the concerns I expressed in the 2021 proceeding, and would
5 provide for Residential stormwater rates that are more consistent with the cost of
6 providing stormwater service. I recommend that PWD modify its current Residential
7 stormwater rate design to provide for charges based on building type. To implement
8 this rate design modification, based on the response to PA-IV-27, it is my
9 understanding that upgrades to PWD's current billing software would be required. Also
10 based on the response to PA-IV-27, it is my understanding that updates to PWD's
11 current billing software are presently on-going. Therefore, I recommend that PWD
12 pursue this rate design change after the necessary upgrades to its billing system are
13 completed. It may be necessary to phase in this recommendation over a number of years
14 to provide for gradualism and avoid rate shock.

15 Q. PLEASE EXPLAIN YOUR RECOMMENDATION THAT PWD
16 EVALUATE WHETHER A RATE DISCOUNT SHOULD BE PROVIDED
17 TO RESIDENTIAL CUSTOMERS THAT AGREE TO HAVE PWD
18 INSTALL A RAIN BARREL ON THEIR PROPERTY.

19 A. To reduce stormwater flows during precipitation events and reduce sewer overflows
20 during these events, PWD currently offers to install rain barrels on Residential
21 properties at no cost to the property owner. Today, rain barrels have only been installed
22 on less than 1% of Residential properties. I recommend that PWD evaluate whether
23 also providing a rate discount to Residential customers that install rain barrels would
24 be a cost-effective means to reduce stormwater overflows. As one example, the Town

1 of Ferguson, Pennsylvania, currently provides customers that install a rain barrel a 20%
2 rate discount.

3 Q. DOES THIS COMPLETE YOUR TESTIMONY?

4 A. Yes. It does.

BEFORE THE
PHILADELPHIA WATER COMMISSIONER

IN THE MATTER OF THE)
PHILADELPHIA WATER DEPARTMENT'S)
PROPOSED CHANGE IN WATER,) FISCAL YEARS 2024-2025
WASTEWATER AND STORMWATER)
RATES AND RELATED CHANGES)

SCHEDULES ACCOMPANYING THE
DIRECT TESTIMONY

OF

JEROME D. MIERZWA

ON BEHALF OF THE PUBLIC ADVOCATE

April 12, 2023

EXETER

ASSOCIATES, INC.

10480 Little Patuxent Parkway, Suite 300
Columbia, Maryland 21044

PHILADELPHIA WATER DEPARTMENT
Calculation of Extra Capacity Demand Factors

Customer Class	Ave Day in Max Month/ Annual Ave Day Ratio (a)	System Max Day/Max Month Ave Day Ratio	Weekly Usage Adjustment	MAXIMUM DAY FACTOR			
				Calculated (4)=(1x2x3)	PWD (5)	Change (6)=(5-4)	Use (7)
General Service-Residential	1.09	1.40	1.35	205	200	(5)	205
General Service-Commercial	1.21	1.40	1.17	199	180	(19)	200
General Service-Industrial	2.00	1.40	1.17	328	160	(168)	330
General Service-Public Utilities P.H.A	1.41	1.40	1.26	249	160	(89)	250
Charity and Schools	1.34	1.40	1.35	253	190	(63)	255
Senior Citizens Discount	1.26	1.40	1.17	207	180	(27)	205
Hand Bill	1.10	1.40	1.35	208	200	(8)	210
Hospital/University	1.21	1.40	1.35	229	180	(49)	230
	1.32	1.40	1.17	216	180	(36)	215

Customer Class	Ave Day in Max Month/ Annual Ave Day Ratio (a)	Maximum Day Factor	Max Hour/ Max Day Ratio	MAXIMUM HOUR FACTOR			
				Calculated (4)=(1x2x3)	PWD (5)	Change (6)=(5-4)	Use (7)
General Service-Residential	1.09	2.05	1.66	340	360	20	340
General Service-Commercial	1.21	2.00	1.66	332	265	(67)	330
General Service-Industrial	2.00	3.30	1.33	439	200	(239)	440
General Service-Public Utilities P.H.A	1.41	2.50	1.66	415	200	(215)	415
Charity and Schools	1.34	2.55	1.66	423	313	(110)	425
Senior Citizens Discount	1.26	2.05	1.66	340	270	(70)	340
Hand Bill	1.10	2.10	1.66	349	360	11	350
Hospital/University	1.21	2.30	1.66	382	270	(112)	380
	1.32	2.15	1.66	357	233	(124)	355

Note: (a) Reflects FY 2019 Usage

PHILADELPHIA WATER DEPARTMENT
Design of Stormwater Charges
(\$000)

(1) CURRENT RATE DESIGN (SMP/GARP Credits)

Non-Billing/Collection Cost of Service			\$189,835
	<u>GA</u>	<u>IA</u>	
	20%	80%	
GA/IA Allocation	\$37,967	\$151,868	
Billing Determinants (500 Sf)	4,283,974	2,342,647	
Proposed Monthly Rates	\$ 0.739	\$ 5.402	

(2) RATE DESIGN (No SMP/GARP Credits)

Non-Billing/Collection Cost of Service			\$189,835
	<u>GA</u>	<u>IA</u>	
	20%	80%	
GA/IA Allocation	\$37,967	\$151,868	
Billing Determinants (500 Sf)	4,283,974	2,415,380	
Proposed Monthly Rates	\$ 0.739	\$ 5.240	

(3) AVERAGE OF RATE DESIGN 1 AND 2

Non-Billing/Collection Cost of Service			\$189,835
	<u>GA</u>	<u>IA</u>	
	20%	80%	
GA/IA Allocation	\$37,967	\$151,868	
Billing Determinants (500 Sf)	4,283,974	2,379,014	
Proposed Monthly Rates	\$ 0.739	\$ 5.320	